

Enacting Ecological Sustainability in the MNC: A Test of an Adapted Value-Belief-Norm Framework

Lynne Andersson
Sridevi Shivarajan
Gary Blau

ABSTRACT. Undoubtedly, multinational corporations must play a significant role in the advancement of global ecological ethics. Our research offers a glimpse into the process of how goals of ecological sustainability in one multinational corporation can trickle down through the organization via the sustainability support behaviors of supervisors. We asked the question “How do supervisors in a multinational corporation internalize their corporation’s commitment to ecological sustainability and, in turn, behave in ways that convey this commitment to their subordinates?” In response, we created a theoretical framework for supervisor sustainability support behavior based on Stern et al., *Human Ecology Review* 6(2), 81–97 (1999) value-belief-norm (VBN) theory. We then tested our framework by performing a survey-based field study

of supervisors in a multinational pharmaceutical company that has publicly professed a goal of ecological sustainability.

KEY WORDS: ecological ethics, multinational corporation, sustainability, supervisory support, value-belief-norm theory

Multinational corporations (MNCs) are the drivers of economic expansion, the nodal points in the network of movement of capital, and simultaneously the primary societal institution implicated in global environmental degradation (Korten, 2001). By virtue of their power and effect on the planet, some scholars argue, multinational corporations must play a significant role in the advancement of global ecological ethics (Garcia-Johnson, 2000; Hart, 1997; Poff, 1994; Shrivastava, 1995).

In recognition of this grave responsibility, certain multinational corporations have embraced the goal of achieving *ecological sustainability*, and some have gone as far as enacting policies and implementing practices within their organization intended to help achieve that societal goal (Garcia-Johnson, 2000; Hart, 1997). Multinational corporations seeking ecological sustainability have placed environmental preservation goals high on their list of business goals, and accordingly have altered their products or services, embraced cleaner technologies, incorporated environmental indicators into measures of performance, and nurtured ecological relationships with interconnected organizations and institutions (Starik and Rands, 1995; Winn, 1995). At its core, the ethical ideal of corporate ecological sustainability represents *the pursuit of a total product or service “life cycle” (extraction, production, distribution, use, disposal/*

Lynne Andersson earned her Ph.D. from the University of North Carolina and is currently an Assistant Professor in Temple University’s Fox School of Business & Management. She has published research on topics related to individual environmental activism in the workplace, employee incivility and cynicism toward business. She carries these interests into her courses in “Business, Society, & Ethics,” “Law & Ethics in Business,” and “Organizations & Management”.

Sridevi Shivarajan is a doctoral candidate in Temple University’s Fox School of Business & Management. Her research is focused on micro- and macro-level environmental behavior in organizations, including the application of social network theory to examine corporate sustainability initiatives.

Gary Blau earned his Ph.D. from the University of Cincinnati. He is currently the Department Chair of the Human Resource Management Department in Temple University’s Fox School of Business & Management. His research interests focus on further understanding employee perceptions (e.g., job insecurity), attitudes (e.g., occupational commitment) and behaviors (e.g., cyberloafing).

recycling) that conserves matter and energy to the maximum degree possible (Henn and Fava, 1994; Starik and Rands, 1995).

In the least, MNCs are publicly professing their espoused commitment to ecological sustainability. Since 1998, there have been significant increases in sustainability reporting among the world's 250 largest MNCs (Kolk, 2003), and particularly among MNCs in industrial sectors with a substantial direct environmental impact (Kolk et al., 2001). Nonetheless, an analysis of the environmental reports of 40 of the world's largest MNCs revealed that companies vary widely – and generally fall short – in their sustainability reporting, particularly when compared with the sustainability reporting guidelines set out by the Global Reporting Initiative 2000 and ISO 14031 (Morhardt et al., 2002). Underlying much of these variations and shortcomings in sustainability reporting are the difficulties in attaining sustainability posed by the inconsistencies in national policy, cultural custom, and management practice that uniquely plague MNCs, as giant entities with operations spread around the globe.

Thus, the challenges of achieving sustainability in an MNC are particularly acute and, surprisingly, underresearched (Garcia-Johnson, 2000). Without gaining the commitment of 1000s of employees spread over numerous geographic locations, a multinational corporation espousing ecological sustainability cannot expect to begin to achieve its professed goal (Ruud, 2002). The advancement of such sustainability within an MNC requires a multitude of enacted relationships at every level and location (Ruud, 2002; Starik and Rands, 1995). Somehow, the message and implications of sustainability heralded from the top need to reach every employee.

Supervisors, as middle- and low-level managers, provide the critical link between employees and top management in an MNC. Supervisors who are in day-to-day contact with employees have direct influence on their work-related attitudes and behaviors (Ramus and Steger, 2000). If top management espouses values of sustainability, it is imperative that supervisors internalize these values and behave in ways that encourage sustainability behaviors among their employees.

Our research offers a glimpse into the process of how goals of ecological sustainability in one MNC can trickle down through the organization via the

sustainability support behaviors of supervisors. We asked the question “How do supervisors in an MNC internalize their corporation’s commitment to ecological sustainability and, in turn, behave in ways that convey this commitment to their subordinates?” To help answer this question, we created a theoretical framework for supervisor sustainability support behavior based on Stern et al. (1999) value-belief-norm (VBN) theory. We then tested our framework by performing a survey-based field study of supervisors in a multinational pharmaceutical company that has publicly professed a goal of ecological sustainability synonymous with the ideal expressed above. In the following section we introduce our theoretical framework and hypotheses.

A VBN framework for sustainability behavior in an MNC

A body of scholarship is amassing that seeks to understand and explain why individuals engage in proenvironmental behaviors (e.g., Dunlap et al., 2000; Inglehart, 1995; Stern et al., 1999). Whereas some of these scholars argue that proenvironmental behaviors stem from deep-rooted dispositions or cultural biases (e.g., Dake, 1992; Douglas and Wildavsky, 1982), others explain proenvironmentalism as an ethical response indicative of a spiritual worldview (e.g., Kempton et al., 1995), a New Ecological Paradigm (e.g., Dunlap et al., 2000), post-materialist (Inglehart, 1995) or altruistic (e.g., Stern et al., 1995) values, or the activation of personal moral norms (e.g., Widegren, 1998). Recently, certain scholars have begun to link some of these theories, thereby providing more complete accounts of how individuals come to act on environmental issues (e.g., Stern, 2000; Stern et al., 1999).

In the most comprehensive and empirically proven theory to date, Stern and his colleagues (2000, 1999, 1995) link value theory, norm activation theory, and the New Environmental Paradigm perspective through a causal chain of variables leading to proenvironmental behavior. Their VBN theory asserts that the basis for personal environmental behavior lies in a conjunction of values, beliefs, and personal norms that impel individuals to act in ways that support the environmental movement. The chain they propose flows from relatively stable, central elements of

personality and belief structure to more focused beliefs about human–environment relations (NEP), their consequences, and the individual’s responsibility for taking corrective action. Each variable in the chain directly affects the next, and may also directly affect variables farther down the chain. In an empirical test, the VBN chain of variables was shown to be a strong predictor of three different types of nonactivist pro-environmental behavior, namely environmental citizenship, private–sphere behavior, and policy support (Stern et al., 1999).

To our knowledge, VBN theory has not been employed to examine proenvironmental behaviors within business organizations. The determinants of proenvironmental behaviors within business organizations are different than those in the political or household realm (Stern, 2000). The behaviors of individuals within a business organization are influenced not only by personal values, beliefs, and norms, but also by contextual factors such as the values of the organization and the individual’s resulting beliefs about, and norms for acting within, the organization (Ajzen, 1991; Andersson and Bateman, 2000; Stern, 2000). Therefore, to gain an understanding of how supervisors in an MNC internalize their corporation’s commitment to ecological sustainability and behaviorally convey this commitment to their subordinates, we need to consider the sustainability values imparted by the organization and how those values translate into supervisor beliefs about top management and norms for commitment to the organization. Our framework, adapted from Stern and colleagues’ (1999) VBN theory, is shown in Figure 1.

We propose that supervisor behavior that conveys support for corporate sustainability stem from supervisors’ (1) *perceived corporate values*, as represented by perceptions of the organization’s commitment to sustainability; (2) *personal beliefs*, as represented by support for the New Ecological Paradigm; (3) *beliefs about the organization*, as represented by trust in top management; (4) *norms for behavior within the corporation*, as represented by affective commitment to the organization. Like the authors of the VBN model, we expect that each variable in the chain directly affects the next, and that each may also affect variables farther down the chain. Descriptions of each of the variables and accompanying hypotheses are offered below.

Perceived corporate values

Corporate values have a strong influence on individual behavior in organizations, particularly on middle managers/supervisors whose role requires them to disseminate these values to employees throughout the organization (Turnbull, 2001). When clearly stated and acted upon, the values of top management can provide an integrative mechanism linking individualized and seemingly disparate units together to achieve a common purpose (Hambrick and Mason, 1984). Ecologically sustainable organizations promote values of environmental protection and sustainable organizational performance using a variety of methods, including written communications, environmental-improvement activities, and educational activities, all of which illustrate a strong commitment to ecological sustainability (Starik and Rands, 1995).

Findings from a number of studies in the field of organizations and the natural environment suggest that corporate values indicating commitment to ecological sustainability are an important factor in employee enactment of environmental behaviors. Cordano and Frieze (2000), for example, found that environmental managers’ pollution control behaviors were positively related to their perceived support for these behaviors from the organization. The findings of Sharma (2000), too, stressed the importance of corporate values of commitment to the environment in managers’ adoption of proactive environmental strategies. Moreover, Andersson and Bateman (2000) found that environmental championing episodes by middle- and lower-managers were more successful when top management espoused strong pro-environmental values, rewarded environmental performance, and was supportive of sustainability-oriented innovation.

The findings of Ramus and Steger (2000), in particular, suggest the importance of corporate values indicating sustainability commitment on employee behaviors. The results of their examination of the relationships of environmental policy and supervisory support behaviors to employee environmental initiatives in leading-edge European companies indicated clearly that employees respond positively with creative environmental ideas if they perceive a strong organizational commitment to the natural environment.

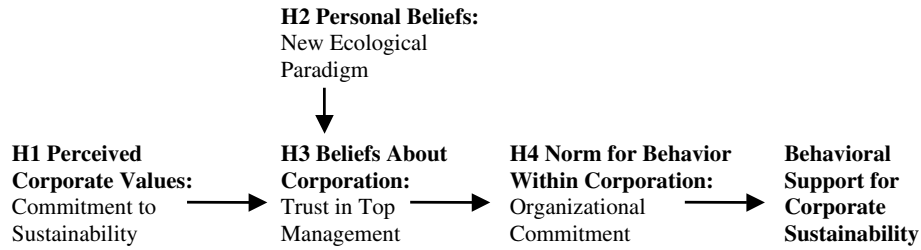


Figure 1. An adapted value-belief-norm framework for supervisor support for corporate sustainability.

Given these compelling findings, we predict that supervisors' understanding of their corporation's commitment to ecological sustainability will affect the way they enact environmentally-supportive behaviors to the employees they supervise:

H1: Perceived corporate commitment to ecological sustainability will be positively related to supervisor sustainability support behavior.

Personal environmental beliefs

The diverse area of research into individual environmental concern has demonstrated that people who are concerned about the future of the planet are more likely to engage in proenvironmental behaviors (e.g., Dunlap et al., 2000). Broad-based personal beliefs about the natural environment, as measured by the New Ecological Paradigm scale, have been shown to correlate with and predict a variety of different proenvironmental behaviors and intentions (e.g., Cordano et al., 2004, 2003; Dunlap et al., 2000; Stern et al., 1999, 1995). Personal environmental beliefs have been associated with individual environmental activism, support for environmental public policy, household waste disposal, green consumerism, and influencing of the environmental actions of organizations to which they belong (Stern, 2000).

These findings suggest that the personal environmental beliefs of supervisors will have a bearing on their environmental work behaviors such that:

H2: Personal environmental beliefs will be positively related to supervisor sustainability support behavior.

Beliefs about the corporation

Employee beliefs about the corporation and its management are important determinants of how employees behave within the corporation (Bandura, 1986). In particular, the employee belief that top management are trustworthy and have the best interest of the corporation in mind has been linked to employee performance-related behaviors (e.g., Brockner and Siegel, 1997; Davis et al., 2000).

As Cook and Wall (1980, p. 39) state, "trust between individuals and groups within organizations is a highly important ingredient in the long-term stability of the organization and the well-being of its members." In a study of the restaurant industry, Davis and colleagues (2000) discovered that employee trust in management was significantly related to increased sales and profits as well as reduced employee turnover. Moreover, Brockner and Siegel (1997) found that when employees hold trust in organizational authorities they are more likely to behaviorally support the authorities and the institutions they represent (Brockner and Siegel, 1997). Robinson (1996) found that trust plays a central role in the development, maintenance, and outcomes of the psychological contracts that exist between employees and employers. When employee trust in top management is high, employees perceive fewer violations of the psychological contract and perform more in-role and extra-role behaviors. Thus, we posit that:

H3: Trust in top management will be positively related to supervisor sustainability support behavior.

Norms For behavior within the corporation

Norms are feelings of personal obligation that are linked to one's self-expectations (Schwartz, 1977). For employees working within an organization, norms are best captured by the concept of organizational commitment, which represents an employee's sense of obligation to take positive actions on behalf of the organization (Allen and Meyer, 1990).

Allen and Meyer have extensively researched two types of organizational commitment, namely *affective* commitment and *continuance* commitment (e.g., Allen and Meyer, 1990). Affective commitment emphasizes an individual's emotional attachment toward, as well as identification and involvement with, an organization. Continuance commitment involves the tendency of an individual to engage in consistent lines of activity because of the perceived costs of doing otherwise (Allen and Meyer, 1990). Of the two types of organizational commitment, employee affective commitment has been repeatedly shown to result in superior employee performance (Ricketta, 2002).

For example, in a meta-analysis to determine the correlation between organizational commitment and employee job performance measures, Ricketta (2002) found that affective organizational commitment was significantly correlated to several different types of job performance, including in-role and extra-role employee behaviors. Similarly, employee affective commitment was found to be positively related to altruistic behaviors in a multinational corporation (Shore and Wayne, 1993). Therefore, we predict:

H4: Affective organizational commitment will be positively related to supervisor sustainability support behavior.

To summarize, we offer a framework, adapted from Stern and colleagues' (1999) VBN theory, to explain supervisor sustainability support behavior within an MNC. Although we do not formally hypothesize all of the relationships among the variables, we expect that each variable in the chain directly affects the next, and that each may also affect variables farther down the chain. Our research methodology is described in the following section.

Method*Sample and data collection*

Our research site was a multinational pharmaceutical company headquartered in the U.K., with former headquarters and significant operations in the U.S., as well as operations in India and 37 other countries. The corporation has a publicly stated emphasis on ecological sustainability, as illustrated in the following quote taken from their 2002 Annual Report: "Environmental sustainability is the basis of our environmental programmes. After addressing the potential for adverse impacts from our wastes, our approach to achieving sustainability is to focus on improving the efficiency of our manufacturing processes to minimise the materials used and waste generated, and then to optimise the use of renewable raw materials." Moreover, the corporation has put forth policies and implemented practices that qualify it as "level 3 to level 4" out of 5 levels in its progress toward achieving environmentally sustainable production, and is thus one of the most "environmentally sustainable" of the multinational pharmaceutical companies (Veleva et al., 2003).

Through the second author's contacts with two high-level human resource executives of the MNC residing in India and the U.S., we were able to obtain permission to administer an anonymous survey to the supervisors reporting to each executive. Our first stage of data collection, performed in June–July 2002, involved mailing a survey to all of the supervisors reporting to the Indian executive. Of the 155 surveys sent out, 114 were returned, for a response rate of 76%. Our second stage of data collection, performed in January–March 2003, involved having the U.S. manager encourage the supervisors reporting to him to complete the survey online, using a web-based format. Of the 38 supervisors encouraged to participate, 33 completed the survey, for a response rate of 87%. Such high response rates were possible because of the personal interest taken in this study by the executives, who believed that the findings of this research would be highly useful to their organization.

Thus, our final sample consisted of 147 supervisors from within the MNC, with 114 residing in Indian subsidiaries and 33 located in headquarters

offices in the U.S. and U.K. All were of the rank of manager or higher, had at least three or four employees reporting to them, and had decision-making power. They were drawn from all functional areas of the organization, including human resources, manufacturing, sales, and accounting. Their average age was between 30 and 40 years, and their average tenure with the corporation between 5 and 10 years.

This sample, although one of convenience, was well suited to our research question, as it allowed us to examine the values, beliefs, and norms of supervisors in various functional areas and geographic locales within the controlled environment of a single MNC. Ideally, for purposes of generalizability, it would have been helpful to include supervisors from an MNC without sustainability goals or with less of an emphasis on sustainability, but time and expense limitations were prohibitive.

Measures

Sustainability support behavior. Supervisor behaviors toward their employees indicating support for sustainability were measured using an adapted version of a scale developed by Ramus and Steger (2000). Supervisors were asked to indicate their agreement (1, strongly disagree, to 5, strongly agree) with 30 items ($\alpha = 0.88$) representing six different types of sustainability support behavior, namely support for environmental innovation, environmental competence building, environmental communication, environmental information dissemination, environmental rewards/recognition, and environmental management goals/responsibilities. Sample items include "I refuse to commit resources and employee time for training and education in environmental issues" (environmental competence building) and "I listen openly and attentively to employee suggestions for environmental improvements and often adopt their suggestions" (environmental communication). Twelve of the items were reverse-scored, with higher scores indicating stronger sustainability support behavior.

Corporate commitment to sustainability. Supervisors' perceptions of the corporation's commitment to sustainability were assessed using two different

measures. First, supervisors were asked to assess top management commitment to sustainability using the same adapted Ramus and Steger (2000) scale described above. Supervisors were asked to indicate their agreement (1, strongly disagree, to 5, strongly agree) with 30 items ($\alpha = 0.93$), this time representing their perception of top management's commitment to sustainability. Sample items include "Top management usually objects to new ideas and changes concerning environmental issues" (environmental innovation) and "Top management uses the company award system to recognize employee achievements concerning environmental issues" (environmental rewards/recognition). Twelve of the items were reverse-scored, with higher scores indicating stronger perceived corporate commitment to sustainability.

In addition, we asked supervisors to assess the importance of sustainability as a business goal, a measure of commitment to sustainability used by Rojsek (2001). Supervisors were asked to assess the importance (1, unimportant, to 5, very important) of eleven key business goals, including "long-term profits," "high quality of products," "good relationship with customers and distributors," and "protection of the natural environment". We did not use this measure in the analyses, only to provide an additional validation of our other corporate commitment to sustainability measure. Indeed, the correlation between supervisors' scores on the "protection of the natural environment" item and their scores on the corporate commitment to sustainability measure was 0.88.

Personal environmental beliefs. Supervisors' personal environmental beliefs were measured using the five items ($\alpha = 0.71$) from the New Ecological Paradigm scale (Dunlap et al., 1992) used by Stern and colleagues (1999). Examples include "The so-called 'ecological crisis' facing humankind has been greatly exaggerated" and "Humans are severely abusing the environment." Two of the items were reverse-scored, with higher scores indicating stronger environmental beliefs.

Trust in top management. Trust in top management was measured using a scale developed by Cook and Wall (1980). Supervisors were asked to indicate their agreement (1, strongly disagree, to 5,

strongly agree) with six items ($\alpha = 0.73$), including “Our top management can be trusted to make sensible decisions for the future of the organization” and “Top management would be quite prepared to gain advantage by deceiving its employees.” Two of the items were reverse-scored, with higher scores indicating stronger trust in top management.

Affective organizational commitment. The affective organizational commitment of supervisors was measured using a scale developed by Mowday et al. (1979). Supervisors were asked to indicate their agreement (1, strongly disagree, to 5, strongly agree) with 15 items ($\alpha = 0.84$), including “This organization really inspires the very best in me in the way of job performance” and “I could just as well be working for a different organization as long as the type of work was similar.” Six of the items were reverse-scored, with higher scores indicating stronger affective organizational commitment.

Controls. Measures of age, gender, level of education, functional area of the organization, and tenure with the organization were included, as suggested by other studies of VBN theory (e.g., Stern et al., 1995) and individual environmental behavior within corporations (e.g., Andersson and Bateman, 2000).

Social desirability. Because of the potentially sensitive nature of our self-report questions, we included a 10-item ($\alpha = 0.68$) version of the Crowne and Marlowe (1964) scale. Items include “I never hesitate to go out of my way to help someone in trouble” and “I am always courteous, even to people who are disagreeable”.

Results

Before testing the hypothesized relationships among our study variables, we computed means, standard deviations, bivariate correlations, and coefficient alphas (shown in Table I). Scale reliabilities all exceeded 0.70, and bivariate correlations were all within the acceptable range (Tabachnick and Fidell, 1989).

To assess our adapted VBN framework and hypotheses, we specified and refined a series of regression models. First, we regressed sustainability support behavior against the complete set of antecedents in our framework (corporate commitment to sustainability, personal environmental beliefs, trust in top management, affective organizational commitment, control variables). As none of the control variables were significant in preliminary analyses, we excluded them from subsequent analyses. Then, we regressed each variable in our proposed chain against the variables hypothesized to be antecedent to it, resulting in two more regression models. The results are presented in Table II.

The regression treating supervisor sustainability support behavior as the dependent variable was the model with which our hypotheses were tested. Consistent with Hypothesis 1, perceived corporate commitment to sustainability was positively related to supervisor sustainability support behaviors. However, contrary to Hypotheses 2–4, personal environmental beliefs, trust in top management, and affective organizational commitment were not significantly related to supervisor sustainability support behaviors. Thus, only the first variable in our postulated causal chain was found to be a significant predictor of supervisor sustainability support behavior.

The regression treating affective organizational commitment as a dependent variable showed mixed

TABLE I
Descriptive statistics and correlations^a

Variable	Mean	S.D.	1	2	3	4	5
1. Sustainability support behavior	3.88	0.34	(0.88)				
2. Corp. commit. to sustainability	4.21	0.56	0.39**	(0.93)			
3. Trust in top management	3.83	0.64	0.13	0.33**	(0.73)		
4. Personal environmental beliefs	3.98	0.42	0.15	0.12	0.19*	(0.71)	
5. Affective org. commitment	4.22	0.51	0.22*	0.41**	0.36**	0.10	(0.84)

^aCoefficient alphas are reported in parentheses on the diagonals; $n = 147$.

* $p < 0.05$; ** $p < 0.01$.

results, as well. Although perceived corporate commitment to sustainability and trust in top management were significantly related to affective organizational commitment, personal environmental beliefs were not.

Finally, in the regression model employing trust in top management as a dependent variable, perceived corporate commitment to sustainability was significantly related to trust, but personal environmental beliefs were not.

In sum, the results of the regression analyses show mixed support for our adapted VBN framework. Only perceived corporate commitment to sustainability was significantly related to each of the variables that followed in the causal chain. Although our study methodology does not allow us to make claims about causality, our results do offer some suggestions about the causal ordering, or lack thereof, of the variables in our model. Below, we discuss the implications of our results.

Discussion

When supervisors perceive that their company is committed to environmental sustainability, they are more likely to respond with proenvironmental behaviors that are, in turn, directed toward the employees they supervise. Apparently, the supervisors in this MNC are attuned to the values of ecological sustainability promoted by top management, and they enact these values in their everyday interactions with subordinates. These findings affirm those of other scholars (Andersson and Bateman, 2000;

Cordano and Frieze, 2000; Ramus and Steger, 2000; Starik and Rands, 1995) who have documented the positive effects that can accrue from an atmosphere of corporate environmental commitment.

Of surprise to us, perceived corporate commitment to sustainability was the only one of the variables from our adapted VBN framework to predict supervisor sustainability support behavior. We expected that supervisors' personal environmentalism, their trust in top management, and their affective commitment would also predict their sustainability support behaviors, but they did not. It is possible that, in an organization with weak sustainability values and/or no publicly stated emphasis on ecological sustainability, personal and corporate beliefs and norms may have a greater impact on employee sustainability behaviors; indeed, it would be interesting to survey supervisors in one of the multinational pharmaceutical companies depicted as "level 1" or "level 2" by Veleva and colleagues (2003) in terms of progress toward achieving environmental sustainability. But the power of visible corporate commitment to sustainability within an MNC, it appears, cannot be overemphasized.

Nonetheless, our results attest not only to the strong influence of corporate values on individual behavior (Hambrick and Mason, 1984; Turnbull, 2001), but also to the likelihood that the determinants of proenvironmental behavior within organizations are different than the determinants of other types of proenvironmental behavior (Stern, 2000). Stern and colleagues' (2000, 1999, 1995) have employed VBN theory to examine environmental consumer, policy support, citizenship, and

TABLE II
Unstandardized regression coefficients for models using variables from adapted VBN theory

Independent variable	Sustainability support behavior	Affective organizational commitment	Trust in top management
Affective org. commitment	0.05 (0.08)	–	–
Trust in top management	–0.05 (0.06)	0.29** (0.06)	–
Personal environmental beliefs	0.05 (0.04)	0.04 (0.05)	–0.06 (0.07)
Corp. commit. to sustainability	0.31** (0.07)	0.35** (0.07)	0.62** (0.09)
Intercept	3.20* (0.33)	1.50** (0.25)	1.62** (0.39)
R-square	0.17	0.45	0.29
N	123	127	132

Note: standard errors in parentheses.

* $p < 0.05$; ** $p < 0.01$.

demonstration behaviors, but not to examine individual environmental behaviors within organizations, business or otherwise. While VBN theory provides the best theoretical account of proenvironmental behaviors performed by individuals acting independently, it may need to undergo a more radical revision if it is to be used to explain the proenvironmental behaviors of individuals acting under corporate influence. With salary and lifestyle on the line, employees of corporations may toss their personal values, beliefs, and norms aside at the revolving office door (Jackall, 1988).

Interestingly, supervisors' perceived corporate commitment to sustainability affected not only their sustainability support behaviors, but also their trust in top management and affective commitment to the organization. Very little research, if any, has examined the effects of corporate environmental values and policies on non-environmental employee beliefs and norms, although the effects seem plausible. Employee trust in management is shaped by witnessing managerial actions that demonstrate values of consistency, benevolence, integrity, sharing, and concern (Davis et al., 2000; Whitener et al., 1998). In large organizations such as MNCs, in which employee contact with top management is very limited, organizational processes communicate top management's values and intent (McCauley and Kuhnert, 1992). It follows, then, that employee trust in top management can develop from witnessed corporate policies and practices demonstrating ethics and social values (Harden Fritz et al., 1999), such as an espoused and acted-upon commitment to ecological sustainability.

Perceived commitment to sustainability may affect supervisor affective commitment in a similar manner. Barnett and Schubert (2002) found that an ethical climate in an organization results in a covenantal relationship being formed between employer and employees, and suggest that this could relate to increased affective commitment among employees. Such affective commitment could also stem from employee perceptions of positive social goals (Turban and Greening, 1997) such as corporate commitment to environmental sustainability.

Several study limitations must be mentioned. First, the use of self-report data created the potential for common method variance and social desirability problems. It would have strengthened our study if,

for example, we had been able to cross-validate supervisors' report of their environmental support behaviors with those reported by their subordinates. Fortunately, our results show that social desirability had a very limited impact on the self-reporting of supervisors.

The use of a sample from a single organization could also be a limitation. Although we set out to examine how supervisors within *one* multinational corporation were affected by their corporation's professed commitment to environmental sustainability, we could also have compared supervisors in other multinational corporations professing differing degrees of sustainability commitment. This would have increased the generalizability of our findings.

Ultimately, we could have collected longitudinal data, which would have enabled us to test for causality and mediation. Moreover, we could have included more variables to fully test VBN theory in an organizational context. Future research should broaden our adapted VBN framework to include other types and measures of personal and corporate values, beliefs, and norms that might predict pro-environmental behavior within business organizations.

Despite these limitations, we believe that our study contributes significantly to theory and practice. Multinational corporations have thousands of employees spread over numerous geographic locations. As our findings indicate, supervisors provide the critical link in forwarding the message of environmental sustainability from top management to lower-level employees within an MNC. When values of ecological sustainability are strongly espoused by top management, supervisors translate these values into actions supportive of sustainability at the operational levels of the organization. These findings add to the growing body of research that attempts to explain the micro-level processes that help organizations to achieve ecological change (e.g., Andersson and Bateman, 2000; Cordano and Frieze, 2000; Starik and Rands, 1995).

Given our findings, it is imperative that top management in an MNC 'practice what they preach' regarding their commitment to ecological sustainability. Training supervisors in environmental awareness and sensitivity (Cordano et al., 2003) and rewarding supervisors for environmental achievements (Ramus and Steger, 2000) are two of

the many ways that top management can get this accomplished; both are emblematic of the consistency in policy and practice that speak volumes about corporate values. Above all, supervisors at globally dispersed locations must 'buy in' to corporate ecological commitment.

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Fox School of Business and Management,
Temple University,
Philadelphia, PA 19122,
U.S.A.

E-mail: landerss@temple.edu
E-mail: sri@temple.edu
E-mail: gblau@temple.edu