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Linking environmental management practices and organizational citizenship behaviour for the environment: a social exchange perspective

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This paper reports a field study on the relationship between environmental management practices and organizational citizenship behaviour for the environment via exchange process (i.e. perceived superior support, perceived organizational support and employee commitment). Results from a survey conducted with 407 employees from several organizations suggest that employee is more likely to make extra environmental efforts if he/she perceives that the organization supports his/her supervisor by granting him/her the decision-making latitude and necessary resources to engage in pro-environmental behaviour.

Keywords: employee commitment; environmental management; green behaviours; perceived support; pro-environmental behaviour; workplace

Introduction

In business organizations, environmental commitment is generally associated with a range of more or less formal environmental management practices (EMPs), such as the development of an environmental policy, the definition of environmental objectives, the adoption of a management system (e.g. ISO 14001) and the publication of reports on sustainable development (Christmann 2000; Bansal and Bogner 2002; Ramus and Montiel 2005; Darnall and Edwards 2006; Boiral 2011). EMPs are generally considered to be essential and can significantly improve the environmental and economic performance of organizations (Christmann 2000; Corbett and Cutler 2000; Perez, Amichai-Hamburger and Shterental 2009; Boiral 2011). However, EMPs may not be sufficient to deal with the complexity of environmental issues, since their effectiveness largely depends on informal voluntary initiatives that are difficult to control (Ramus and Killmer 2007; Boiral 2009; Daily, Bishop and Govindarajulu 2009). Environmental actions in organizations are often based on individual discretionary initiatives taken independently of formal management systems. Initiatives in this area include suggestions for improving eco-efficiency, paper recycling, water and electricity savings and carpooling. In addition, the success of environmental programmes and activities presupposes the support and voluntary engagement of employees. Voluntary support can take a variety of forms, including participation in recycling programmes, involvement in environment committees and employee contribution to pollution prevention measures (Hanna, Newman and Johnson 2000; Jiang and Bansal 2003; Boiral 2007; Perez et al. 2009). Finally, the complex interdisciplinary nature of environmental issues generally not only requires team work,
collaboration and mutual support, which depend on EMPs, but also involves collaboration between different services to resolve environmental problems and incentives to adopt more pro-environmental behaviours (among other things) (Boiral 2009; Daily et al. 2009).

As suggested by a number of authors (Boiral 2009; Daily et al. 2009), voluntary initiatives in this area can be viewed as a form of organizational citizenship behaviour (OCB) applied to environmental issues (OCBE). OCB is generally defined as ‘individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organization’ (Organ, Podsakoff and MacKenzie 2006, p. 3). OCBEs can therefore be defined as individual discretionary behaviours that supplement formal EMPs and contribute to the efficiency of environmental measures. The inclusion of EMPs and OCBEs in the analysis of environmental commitment provides a more global view of environmental actions by taking into account both formal and informal dimensions.

The purpose of this study is to analyse the relationships between EMPs and OCBEs with a view to improving our understanding of the factors that promote voluntary environmental initiatives among employees. The more specific objective is to examine how EMPs can influence OCBEs on the basis of the conceptual framework of social exchange theory (SET). Cropanzano and Mitchell (2005) argued that SET provides strong theoretical and empirical arguments for examining various types of behaviour in the workplace, including job performance, desire to quit and absenteeism (among others). Schaninger and Turnipseed (2005) noted that social exchange is based on the norm of reciprocity and occurs when employees respond effectively to a donor (e.g. organization, supervisor or colleague) who provides something that is deemed to have value. Give and take between individuals in the workplace forms the basis of exchange relationships (Schaninger and Turnipseed 2005). Therefore, the combined perception of supervisor support and organizational support can be assumed to play a key role in stimulating employee commitment (EC), voluntary initiatives and extra efforts in the environmental domain. Two conceptual papers have already underlined this relationship. Daily et al. (2009) and Ramus and Killmer (2007) sought to account for the conditions of emergence of OCBEs by proposing models based on key variables of SET. The model proposed by Daily et al. (2009) posits that supervisor support for environmental efforts plays a key role in the emergence of OCBEs: ‘The norm of reciprocity and social exchange theory suggests that supervisor value and support for proenvironmental behavior is related to OCBE’ (p. 8). In exchange for the (implicit) consideration of their supervisor, employees may engage in eco-initiatives that meet or exceed the supervisor’s expectations, even though OCBEs are not directly or explicitly recognized by the organization/company (or formal reward system; see Organ et al. 2006). The conceptual model proposed by Ramus and Killmer (2007) also emphasizes the important role of supervisor support in promoting the emergence of OCBEs, without, however, referring explicitly to the SET framework. However, the relationships highlighted in both models remain hypothetical and require empirical validation. Both models also ignore the possible role of EMPs in the emergence of employee pro-environmental behaviour and are limited to informal factors in accounting for OCBEs, such as supervisor support, environmental concern and individual employee motivation. Generally speaking, the literature on OCBEs and their determinants remains embryonic and speculative despite the importance of eco-initiatives for improving corporate environmental practices and performance (Ramus and Killmer 2007; Boiral 2009; Daily et al. 2009; Perez et al. 2009).

This study makes two significant contributions to the emerging literature on this issue. First, the study examines the links between the literature on environmental management
and SET in order to improve our understanding of the possible determinants of OCBEs and to verify a number of hypotheses. Second, the study presents a model aimed at highlighting the complex relationships between EMPs, OCBEs and variables associated with SET. These relationships are particularly useful for analysing the extent to which EMPs contribute to factors that are considered to be essential in the general management of human resources: perceived supervisor support (PSS), perceived organizational support (POS) and EC to the organization. This paper is organized as follows. First, the theoretical background is presented based on a model that includes the main variables of the study and their hypothesized relationships. The methodology and the main results are then presented. Finally, the discussion section focuses on the main contributions of the study and suggests avenues for further research.

**Theoretical background and hypotheses**

EMPs can be defined as formal practices aimed at integrating environmental concerns in organizational management and at providing stakeholders with tangible evidence of the environmental commitment of the organization, including the implementation of an environmental policy, the adoption of ISO-norm 14001 and environmental reporting. The economic benefits (savings, innovation, etc.), environmental benefits (pollution prevention and waste minimization) and social benefits (improved image, relationships with stakeholders, etc.) of EMPs have been widely reported in the literature (Russo and Fouts 1997; Christmann 2000; Roy, Boiral and Lagacé 2001; Delmas and Toffel 2004). However, the effects of EMPs on human resource management (HRM), and in particular on EC to the organization and OCBEs, have been largely or entirely ignored. The effects of EMPs are not necessarily direct. According to SET, PSS and POS play a key role in determining EC and voluntary employee initiatives (Cropanzano and Mitchell 2005). Figure 1 summarizes the relationships between these variables and the different hypotheses associated with the variables.

**Environmental management practices, employee commitment and OCBE**

The potential benefits of EMPs for EC can represent a key challenge in efforts to foster the (internal) involvement of employees and sustain/improve the triple bottom line, i.e. economic, environmental and social performances. Employee commitment to the organization reflects the extent to which an employee is tied to the employer. Affective commitment to the organization reflects a desire of affiliation (O’Reilly and Chatman

![Figure 1. Research model.](image-url)
1986) and an emotional attachment (Allen and Meyer 1990), and refers to a psychological state whereby the employee shares the values of the organization and adheres to its objectives (Mowday, Steers and Porter 1979). The greater the convergence between the employee’s values and objectives and the values and objectives of the organization, the higher the level of EC. The literatures on HRM and organizational behaviour (OB) have provided evidence to suggest that the greater the fit between the values and objectives of employees and those of the employer, the greater the likelihood that work outcomes will contribute to organizational performance. On the basis of previous meta-analytic findings relating to commitment to the organization (e.g. Mathieu and Zajac 1990; Meyer, Stanley, Herscovitch and Topolnysky 2002), committed employees appear to be less prone to withdrawing voluntarily in terms of low employee lateness, low absenteeism and low desire to leave. Committed employees are also more likely to work hard in terms of job performance and extra efforts and less likely to develop counterproductive behaviours, such as non-ethical behaviour, sabotage and theft. Therefore, an important challenge for employers is to implement effective management practices aimed at fostering a high level of EC.

EMPs can help to achieve this objective, although their contribution has been largely overlooked in the literature. First, environmental measures increase the social legitimacy of organizations and help to meet the expectations of stakeholders (Corbett and Cutler 2000; Delmas 2001; Jiang and Bansal 2003; Christmann and Taylor 2006; Boiral 2007). Employees represent one of the main stakeholders and are therefore directly concerned by organizational commitment to the environment (Fernández, Junquera and Ordiz 2003; Boiral 2009; Perez et al. 2009). In view of the growing concern for environmental issues among employees (Hoffman 1993), it seems reasonable to posit that EMPs may support a relative fit between organizational values and individual values, thereby contributing to improving the image of the organization, employee adherence to the objectives of the organization and employee motivation and commitment, as speculated by Hoffman (1993). Second, the implementation of EMPs can contribute to improving corporate social performance (CSP) (Global Reporting Initiative 2006; Schwartz and Carroll 2008), thus increasing EC. The relationship between perceived CSP and commitment to the organization is well documented (see, for example, Peterson 2004; Brammer, Millington and Rayton 2007; Turker 2009; Stites and Michael 2011). SET has addressed this issue by examining the exchange process underlying EC and corporate social practices. For example, Perterson (2004) found an increase of commitment to the organization when employees perceived that their employer showed a concern for social issues by complying with ethical commitments (i.e. economical, legal, ethical and discretionary responsibilities). Brammer et al. (2007) examined CSP from two perspectives: first in terms of external CSP (i.e. external image and employer reputation), and second in terms of internal CSP (i.e. perceived procedural justice and training). Brammer et al. (2007) found that both external and internal CSPs had a positive impact on organizational commitment. Though interesting, these studies examined CSP in terms of community and not in terms of environmental issues. Stites and Michael (2011) proposed to take into account both community- and environmentally-related CSPs. Based on their findings, perceived corporate social and environmental performance appears to play a similar role in determining commitment to the organization. Stites and Michael (2011) found that both environmental practices and corporate social responsibility are related to EC to the organization. Therefore, the following relationship is expected.

**Hypothesis 1:** EMP and commitment to the organization (EC) are positively related.
The efficiency of EMPs is not only dependent on formal management systems and managers’ decisions, but also governed by more informal and discretionary factors related to employee behaviours (Andersson and Bateman 2000; Walley and Stubbs 2000; Daily et al. 2009). The success of EMPs is largely based on voluntary employee participation, such as employee involvement in recycling programmes and green committees. Employees may also operate independently of EMPs by suggesting ideas or innovative solutions for reducing the environmental impact of their activities in their work environment, such as changes in products or procedures and the identification of new pollution sources (Ramus and Steger 2000; Ramus 2001; Ramus and Killmer 2007). Voluntary and discretionary environmental behaviour of this kind can be likened to a form of OCB (Boiral 2009; Daily et al. 2009; Perez et al. 2009).

Over the last decade, OCB has emerged as an important outcome of commitment to the organization. Previous literature reviews and meta-analyses have shown that commitment to the organization and OCB are positively related, suggesting that a high level of commitment to the organization increases the willingness to cooperate by making extra efforts beyond the duties and requirements of the job (Organ and Ryan 1995; LePine, Erez, and Johnson 2002; Hoffman, Blair, Meriac and Woehr 2007). If such behaviours are not rewarded with traditional methods, why would employees display extra efforts beyond their duties? The OCB literature has addressed this issue from an SET perspective (Organ et al. 2006). For example, consistent with the premises of SET, Konovsky and Pugh (1994) argued that for a given employee, OCBs reflect a repayment in exchange for fair treatment by the employer.

A similar underlying process can be expected when the employer is committed to the environment and implements EMPs. Because environmental protection is a major social concern, including within the organization, EMPs meet social expectations and increase employee satisfaction (Hoffman 1993). From this perspective, EMPs can encourage OCBE in response to organizational commitment in this area. Daily et al. (2009, p. 246) defined OCBE as ‘discretionary acts by employees within the organization not rewarded or required that are directed toward environmental improvement’. Although OCBEs are discretionary, EMPs can send a positive signal in favour of employee environmental initiatives.

The findings of the study by Perez et al. (2009) based on research conducted in ISO 14001 firms provide evidence for this relationship. The study found that EMPs related to ISO 14001 implementation increased both the level of EC to the organization and OCBE. On the basis of previous environmental management studies, Daily et al. (2009) hypothesized that organizational commitment to the environment and OCBE (Proposition 2 in their paper) are positively related and that perceived performance in this area is positively related to commitment to the organization (Proposition 3). Although Daily et al. (2009) did not explore this issue, their propositions suggest that commitment to the organization can mediate the relationship between perceived CSP and OCBE. Therefore, based on previous findings, the following relationships are expected.

**Hypothesis 2**: EMP and OCBE are positively related.
**Hypothesis 3**: Commitment to the organization and OCBE are positively related.

**Environmental management practices and foci of support**

Blau (1964) suggested that social support is an important input for the social exchange process among entities involved in a given relationship. Social approval and intrinsic attraction are defined by Blau as two key mechanisms. First, people need the approbation
of others to justify their actions, decisions or gestures, and second, the mutual attractiveness of persons (or entities) will be greater if they share the same opinions, values and/or norms. In other words, by applying Blau’s contention to an environmental management context, employees may be said to feel support when they receive approbation in the form of encouragement from those with whom they share common values in terms of environmental protection. Employees who are motivated to develop and adopt pro-environmental behaviours can receive support from both the organization and their supervisor.

POS refers to an employee’s belief that the employer values his/her contributions and demonstrates concern for his/her well-being at work (Eisenberger, Huntington, Hutchison and Sowa 1986). For employees, POS reflects the extent to which an employer is committed to them. However, as suggested by support theory, the feeling of being supported by the organization implies that supportive actions must be voluntary and not imposed by a government decision or as a result of negotiations with a union (Rhoades and Eisenberger 2002). For example, if the actions of the employer are imposed by a union (for example, after a round of negotiations, the organization takes actions that improve the return to work after a long sick leave), employees will tend not to believe that the organization provides support. Conversely, if the actions of the employer are voluntary (e.g. introduction of a programme for promoting fitness or health among employees), employees will tend to feel supported. Similarly, if the employer adopts an environmental policy following a government reform (e.g. fiscal incentives), employees will tend not to believe that the employer is committed to pro-environmental objectives. This suggests that discretionary decisions, actions or facts generate a feeling that the time and effort devoted by the employer to employees or to an issue such as environmental protection are voluntary and not imposed.

PSS is defined as the degree to which supervisors value the contributions, opinions or gestures of their subordinates and care about their well-being (Rhoades and Eisenberger 2002). As such, PSS has been conceptualized to explain why subordinates display commitment to their supervisor. Kottke and Sharafinski (1988) developed a measurement to capture PSS. In addition, they found that employees reported more support from their supervisor than employers. On this basis, how might we define a supportive manager in the context of environmental management? Following Ramus (2001), a supportive supervisor may be said to encourage new ideas, is open-minded, provides regular training to subordinates, shares critical information, rewards efforts and shows a sense of responsibility.

Supervisor support is essential for promoting employee environmental initiatives (Ramus 2001). Generally speaking, employee initiatives in this area are essential for improving environmental performance (Andersson and Bateman 2000; Hanna et al. 2000; Walley and Stubbs 2000; Boiral 2009). However, in order to make a difference, employees’ actions must be encouraged and supported by the organization. Lack of support has been identified as the major impediment to eco-initiatives (Ramus 2001; Govindarajulu and Daily 2004). More often than not, a lack of support from management is explained by the tendency of managers to focus primarily on their core activities rather than peripheral activities (Ramus 2001). It has also been argued that ‘a company can devastate its efforts to become environmentally responsible if there is little or no support to train and encourage its employees to “do the right thing”’ (Govindarajulu and Daily 2004, p. 336). In short, the literature has tended to argue that EMPs promoted by the supervisor and the organization (i.e. the employer) can play a key role in supporting and fostering PSS and POS. Therefore, the following relationships are expected.
Hypothesis 4: EMPs and POS are positively related.
Hypothesis 5: EMPs and PSS are positively related.

Foci of support and OCBE
The importance of leadership for promoting employee environmental initiatives has been clearly emphasized in the literature (e.g. Daily and Huang 2001). However, with a few exceptions (Ramus and Steger 2000; Ramus 2001), the issue of which foci of support can foster employee eco-initiatives has been largely overlooked. We believe in the importance of multiple sources of support for managing and encouraging employee eco-initiatives in the workplace. However, although researchers in environmental management studies have recognized the importance of support, they have often focused on supervisor support and largely overlooked organizational support. As a result, the literature offers little evidence for showing how distinct foci of support promote innovative behaviours among employees. Some notable counter-examples have been provided in research by Ramus. For example, Ramus and Steger (2000, p. 623) found that employees are more prone to engaging in eco-initiatives when they perceive support from the company and their respective manager, suggesting that ‘companies that want to eco-innovate apparently need managers who use supportive behaviors to encourage employee environmental actions’. In another study, Ramus (2001) found that the efforts made by a company to encourage employee eco-innovations will have little or no impact if the immediate supervisor is not supportive. The findings suggest the usefulness of combining different foci of support to enhance employee motivation to engage in eco-initiatives.

Based on support theory in the OB/HRM literature, some interesting benchmarks can be given. Since the study of Kottke and Sharafinski (1988), researchers have found significant empirical evidence in support of the contention that PSS and POS are close but distinct constructs (Roadhes, Eisenberger and Armeli 2001; Stinglhamber, De Cremer and Mercken 2006). The implication is that employees are able to make a difference to the source of support they receive. In some studies, PSS and POS have been examined as alternative forms of support (Lavelle, Rupp and Brockner 2007). By contrast, in other studies, PSS has been examined as an antecedent of POS. Previous studies have found that PSS increases POS (e.g. Roadhes et al. 2001; Tepper and Taylor 2003; Maertz, Griffeth, Campbell and Allen 2007). Empirical research has reported a kind of domino effect. When the supervisor feels supported by the organization, he/she reciprocates by transferring the treatment he/she received to a third entity, such as customers (Bell and Menguc 2002) or subordinates (Tepper and Taylor 2003). In addition, supervisor actions and decisions are more legitimate when subordinates believe that their supervisor is supported by the employer (Roadhes-Shanock and Eisenberger 2006).

Although the literature on environmental management has not explicitly explored the positive impact of PSS on POS, a relatively similar process has been suggested in a number of previous studies. According to Marshall, Cordano and Silverman (2005), managerial attitudes play a key role in shaping proactive environmental behaviours among employees. Marshall et al. (2005) reported that proactive environmental behaviour emerges as a personal concern before strategic considerations. In addition, on the basis of semi-structured interviews, Harris and Tregidga (2012) reported that managers may show little evidence of environmental initiatives in the workplace despite adopting practices aimed at protecting the environment in their private life. Harris and Tregidga (2012) showed that these results are explained more by a lack of resources (money and time) than a lack of willingness. However, consistent with the support literature discussed below,
some studies in the field of environmental management have shown how top management encourages line managers to implement eco-innovations. For example, Ramus (2001, p. 87) reported that ‘supportive behaviors from supervisors, like time and resources to experimenting/developing ideas, rewarding ideas for environmental improvements, providing environmental competence-building opportunities, and being open to employees’ ideas can demonstrate that the company encourages eco-innovation’. Based on research by Ramus, and consistent with the recent advances in support theory outlined above, two important points need to be emphasized. First, a company encourages eco-innovation when its representatives (CEO, management team, managers, etc.) have developed an awareness of the importance of environmental management. Second, the company must deploy sufficient resources to enable employees to engage in pro-environmental behaviours. In line with Roadhes-Shanock and Eisenberger (2006), Ramus (2001) suggested that by granting resources to the supervisor, the employer contributes to legitimizing the eco-initiatives of the supervisor in the eyes of subordinates. Therefore, the following relationship is expected.

**Hypothesis 6:** PSS and POS are positively related.

There is significant evidence to suggest that POS is related to organizational performance. Consistent with the SET framework, when employees feel supported, they will tend to return the favour by exhibiting behaviours in the workplace that are highly valued by the employer. Previous findings indicate that POS increases employee retention by reducing the desire to leave the organization (Allen, Shore and Griffeth 2003), decreases absenteeism (Eisenberger et al. 1986) and increases performance effort (Eder and Eisenberger 2008, study 2). Previous findings that are more directly relevant to the issue addressed in this paper have shown that POS and OCBs are linked (Kauffman, Stamper and Tesluk 2001; Paille, Bourdeau and Galois 2010), indicating that employees are prone to making (or willing to make) extra efforts that benefit the employer, colleagues or the supervisor in exchange for fair treatment. As such, and consistent with the norm of reciprocity (Gouldner 1960), employee willingness to make extra efforts can be viewed as a form of repayment (Aselage and Eisenberger 2003). A similar process can be expected in an environmental context. If the employer develops a concern for the environment in response to stakeholder pressure, the resulting actions taken by the employer may not be interpreted as a commitment to protecting the environment in the eyes of employees. By contrast, if the employer believes that the protection of the environment is an important issue and takes appropriate measures, the employer fulfils employees’ needs relating to their environmental concerns. Although the relationships between POS and OCBs remain underexplored, Govindarajulu and Daily (2004) highlighted four key factors that are thought to promote EC to environmental performance: management commitment, employee empowerment, rewards and feedback. The authors discussed several studies that provide anecdotal and empirical data showing how organizations value and recognize the contribution of employees who make efforts by adopting good environmental practices. The findings of Govindarajulu and Daily (2004) are consistent with the core definition of POS. By valuing employee eco-initiatives, the employer creates a normative context that incites employees to reciprocate. OCBs can thus be viewed as a form of repayment in exchange for POS. Therefore, the following relationship is expected.

**Hypothesis 7:** POS is positively related to OCB.

The environmental management literature has highlighted the key role of the supervisor as a driver of proactive environmental behaviour (e.g. Marshall et al. 2005) or
as an important source of employee motivation in adopting pro-environmental initiatives (e.g. Ramus and Killmer 2007). Ramus and Killmer (2007) noted that supervisor support reflects one of the four key motivational drivers (the other factors are social norms, personal predisposition and self-efficacy) that help an individual to engage in eco-initiatives. Finally, Daily et al. (2009) argued that PSS for environmental efforts is positively related to OCBE (Proposition 5). Generally speaking, the environmental commitment of managers and supervisors is considered to be one of the main drivers of corporate greening and employee initiatives in this area (Andersson and Bateman 2000; Egri and Herman 2000; Bansal 2003). Based on the previous development, the following relationship is expected:

**Hypothesis 8:** PSS is positively related to OCBE.

**POS and commitment to the organization**

Cropanzano and Mitchell (2005) argued that in a social exchange context, the relationship between support and commitment reflects a somewhat similar process between an employer and an employee. For a given employee, POS reflects the extent to which an employer is committed to employees, while commitment to the organization reflects the extent to which employees are committed to their employer. Meta-analyses of POS (Riggle, Edmondson and Hensen 2009; \( k = 112, N = 42874, \) corrected \( r = 0.71 \)) and commitment to the organization (Meyer et al. 2002; \( k = 18, N = 7128, \) corrected \( r = 0.63 \)) have reported a high average positive correlation between the two constructs. Thus, we derive the following hypothesis:

**Hypothesis 9:** POS and commitment to the organization are positively related.

**Method**

**Sample**

Survey forms were sent to 2441 employees enrolled in the executive MBA programmes at a large Canadian university between 2004 and 2009. Of these, 731 responses were returned, yielding a response rate of 29.9%. After reading the invitation to participate (which explained the overall objectives of the study) and the consent form (which summarized the ethical guidelines of the research), 16 respondents opted to withdraw from the study. Of the 715 remaining questionnaires, only those that were fully completed were used. At this stage, 308 questionnaires were discarded. Therefore, the final sample included 407 individuals employed at the time of the study. Of the respondents 65.2% were women. A total of 68% worked for an organization with over 500 employees. The mean age of participants was 42.30 years (SD = 7.2), while the average number of years of work experience was 22.9 years (SD = 9.3).

**Measurement**

EMP s were measured using a list of statements drawn up by Ramus and Montiel (2005). The statements are related to typical requirements for an EMS to indicate the extent to which each environmental initiative has been implemented. The internal consistency (measured using Cronbach’s \( \alpha \)) was \( \alpha = 0.88 \).
POS was measured using three high-loading items from the SPOS (Items 1, 4 and 9, with factor loadings of 0.71, 0.74 and 0.83, respectively; see Table 1 in Eisenberger et al. 1986). The internal consistency (measured using Cronbach’s α) was α = 0.96.

Commitment to the organization was measured using the three-item scale developed by Bentein, Stinglhamber and Vandenberghhe (2002). The internal consistency (measured using Cronbach’s α) was α = 0.92.

PSS was measured using a short version (four items) of the POS scale (Eisenberger et al. 1986). Following Stinglhamber and Vandenberghhe (2003), items were used and adapted by replacing the term ‘organization’ by ‘supervisor’. The internal consistency (measured using Cronbach’s α) was α = 0.92.

OCBE was measured using the scale developed by Boiral and Paille (2012). This scale consists of several items from the Podsakoff and MacKenzie’s (1994) measurement, adapted to capture pro-environmental behaviour in the workplace. The internal consistency (measured using Cronbach’s α) was α = 0.94.

Finally, based on a Likert-type scale, all items (shown in Table 1) were measured on a seven-point scale ranging from 1 (disagree completely) to 7 (completely agree).

Data analysis
Because we were unable to collect data using a longitudinal design (the partner university refused to grant permission to conduct a survey in several stages), the recommendations of other studies were followed to assess the validity of the model by cross-model validation (e.g. Byrne 2010). There are several strategies for ensuring model validity (Byrne 2010). In this study, the three-stage procedure used by Camilleri (2006) was followed. First, the initial data-set (full sample) is randomly split into two data-sets (samples a and b, respectively). The second stage involves calculating the fit index and squared multiple correlations for each data-set. The third stage involves comparing the $R^2$ difference for each data-set. Model validity is achieved if the results show a small difference.

The two-stage process recommended by Anderson and Gerbing (1988) was also followed. The first stage examines the measurement model, while the second stage assesses the research model using structural equation modelling (SEM). In both stages, the $\chi^2$ statistic and several other fit indexes are used to examine the data; fit indexes included the root mean square error of approximation (RMSEA), the comparative fit index (CFI) and the non-normed fit index (NNFI). For RMSEA, the expected value should be below 0.05 (Schermelleh-Engel, Moosbrugger and Müller 2003); for CFI and NNFI, values higher than 0.90 are recommended (Hu and Bentler 1999).

Results
Testing for common method variance
Because self-reports were used for all the items, it was important to test for common method variance (CMV) bias. Podsakoff, MacKenzie, Lee and Podsakoff (2003) indicated that a single-common-method-factor approach is appropriate when the study falls within Situation 4 described in their paper (i.e. only one rating source, different contexts and an unidentifiable source of method bias). This widely used method (e.g. Andrews, Kacmar, Blakely and Blucklew 2008; Marler, Fisher and Ke 2009) requires adding a common factor (latent variable) to the measurement model. Following Marler et al. (2009), all items were loaded on their theoretical constructs as well as on a created latent method factor. The significance of the structural parameters was then examined both with and without the
Table 1. Measurement model (N = 407).

<table>
<thead>
<tr>
<th>Items</th>
<th>CR</th>
<th>ρ</th>
<th>AVE</th>
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<tbody>
<tr>
<td><strong>Environmental management practices</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publishing an environmental policy</td>
<td>0.78</td>
<td></td>
<td></td>
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<tr>
<td>Determining specific targets for environmental performance</td>
<td>0.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publishing an annual environmental report</td>
<td>0.86</td>
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<tr>
<td>Using an environmental management system</td>
<td>0.76</td>
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<tr>
<td>Determining environmental criteria for purchasing decisions</td>
<td>0.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making employees more responsible for the environmental performance</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perceived supervisor support</strong></td>
<td></td>
<td></td>
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<tr>
<td>My supervisor values my contributions</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My supervisor strongly considers my opinions</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Values help is available from my supervisor when I have a problem</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My supervisor really cares about my well-being</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perceived organizational support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My employer values my contributions</td>
<td>0.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My employer strongly considers my opinions</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Values help is available from my employer when I have a problem</td>
<td>0.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My employer really cares about my well-being</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Commitment to the organization</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I really feel that I belong in organization</td>
<td>0.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My organization has a great deal of personal meaning for me</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am proud to belong to my employer</td>
<td>0.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OCBE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I encourage my colleagues to express their ideas and opinions on environmental issues</td>
<td>0.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At work, I weigh my actions before doing something that could affect the environment</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I give my time to help my colleagues take the environment into account at work</td>
<td>0.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I speak to my colleagues to help them better understand the environmental problems</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I volunteer for projects or events that address environmental issues in my organization</td>
<td>0.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I suggest new practices that could improve the environmental performance of my organization</td>
<td>0.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I undertake environmental actions that contribute positively to my organization’s image</td>
<td>0.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I actively participate in environmental events organized in and/or by my company</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Continued)
latent factor. The measurement model with the method factor fitted the data well ($\chi^2 = 538.58$, $df = 277$, $p = 0.000$; CFI = 0.96; NNFI = 0.96; RMSEA = 0.04). However, the results of the $\chi^2$ difference indicate that the measurement model (see below) improved the fit compared to the measurement model with the method factor $\chi^2_{\text{diff}} (1) = 48.52$, $p = 0.001$. Therefore, following the authors, CMV bias was not a serious threat.

**First stage – measurement model**

A confirmatory factor analysis was performed to assess the psychometric properties of the measures. The measurement model included five factors (perceived environmental practices, POS, commitment to the organization, PSS and environmental citizenship behaviour) and provided an excellent fit of the data ($\chi^2 = 490.06$, $df = 278$, $p = 0.000$; CFI = 0.97; NNFI = 0.97; RMSEA = 0.04). All indicators loaded significantly ($p = 0.001$) onto their respective constructs; thus, convergent validity was evidenced.

Table 1 shows the composite reliability (CR) that estimates the extent to which a set of latent construct indicators share their measurement of a construct; average variance extracted (AVE), i.e. the proportion of the total variance due to the latent variable; and Jöreskog’s $\rho$ for each construct. According to Hair, Anderson, Tatham and Black (1998), the recommended threshold values for CR and AVE are above 0.70 and 0.50, respectively. Fornell and Larker (1981) recommend that Jöreskog’s $\rho$ should be above the 0.70 threshold. Following Fornell and Larker (1981) and Hair et al. (1998), since Jöreskog’s $\rho$ ranged from 0.88 to 0.92, CR ranged from 0.88 to 0.92 and AVE ranged from 0.57 to 0.71, the internal consistency of the constructs was evidenced. In addition, discriminant validity was assessed by comparing, for each pair of constructs, the average of their respective AVE and the shared variance. Following Fornell and Larker (1981), if the AVE of two constructs is greater than the shared variance, discriminant validity is evidenced. Table 2 shows results indicating that discriminant validity for each pair of constructs was demonstrated.

In summary, since the values obtained were above the recommended threshold values, we may conclude that the measurement model provided evidence of the reliability, convergent validity and discriminant validity of the measures.

**Model validation and second stage – SEM**

Table 3 summarizes cross-validation for model selection. Overall, the cross-validation procedure yielded good results. The fit indices were above the recommended threshold (CFI ranged from 0.95 to 0.97, NNFI ranged from 0.94 to 0.96 and RMSEA ranged from 0.04 to 0.05). In addition, $\Delta R^2$ for samples a and b were small, suggesting similar explained variances. Therefore, the validity of the model was demonstrated.
Table 4 presents the descriptive statistics and zero-order correlations among the variables of the study. Reliability coefficients have been given in the measurement section.

For the second stage (SEM), the measurement model was used to examine the research model (see Anderson and Gerbing 1988). The quality of fit of the model (full model in Table 1) to the data was excellent: \( \chi^2 \ (277, N = 407) = 523.14, p = 0.000, \ CFI = 0.96, \ NNFI = 0.97, \ RMSEA = 0.04. \)

First, the positive association between EMP and EC to the organization \( (\beta = 0.087, \ t \ value = 2.04, p = 0.04) \) provided support for H1. The positive association between EMP and OCBE \( (\beta = 0.142, \ t \ value = 2.53, p = 0.01) \) provided support for H2. Since the relationship between commitment to the organization and OCBE was non-significant \( (\beta = 0.075, \ t \ value = 0.94, p = 0.341) \), H3 was not supported.

The positive relationships between EMP, POS \( (\beta = 0.148, \ t \ value = 3.34, p = 0.000) \) and PSS \( (\beta = 0.166, \ t \ value = 3.08, p = 0.002) \) provided support for H4 and H5. The positive relationship between PSS and POS \( (\beta = 0.582, \ t \ value = 12.13, p = 0.000) \) provided support for H6. The positive relationship between POS and OCBE \( (\beta = 0.184, \ t \ value = 2.00, p = 0.04) \) provided support for H7. Since the relationship between PSS and OCBE was significant \( (\beta = -0.143, \ t \ value = -2.09, p = 0.036) \) but not in the direction predicted (negative rather than positive), H8 was not supported. Finally, the positive relationship between POS and commitment to the organization \( (\beta = 0.681, \ t \ value = 12.73, p = 0.000) \) provided support for H9.
Table 3. Results of model cross-validation.

<table>
<thead>
<tr>
<th>Fit indices for the models including all variables</th>
<th>Full sample (N = 407)</th>
<th>Sample a (N = 203)</th>
<th>Sample b (N = 204)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$</td>
<td>496.67***</td>
<td>471.26***</td>
<td>424.59***</td>
</tr>
<tr>
<td>df</td>
<td>277</td>
<td>277</td>
<td>277</td>
</tr>
<tr>
<td>NNFI</td>
<td>0.96</td>
<td>0.94</td>
<td>0.95</td>
</tr>
<tr>
<td>CFI</td>
<td>0.97</td>
<td>0.95</td>
<td>0.96</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.04</td>
<td>0.05</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Structural fit index ($R^2$)

<table>
<thead>
<tr>
<th>Predicted variables</th>
<th>$R^2$ in full sample</th>
<th>$R^2$ in sample a</th>
<th>$R^2$ in sample b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived supervisor support</td>
<td>0.033</td>
<td>0.060</td>
<td>0.010</td>
</tr>
<tr>
<td>Perceived organizational support</td>
<td>0.390</td>
<td>0.388</td>
<td>0.391</td>
</tr>
<tr>
<td>Commitment to the organization</td>
<td>0.460</td>
<td>0.443</td>
<td>0.483</td>
</tr>
<tr>
<td>OCBE</td>
<td>0.081</td>
<td>0.130</td>
<td>0.056</td>
</tr>
</tbody>
</table>

$\Delta R^2$ for sample a and sample b

$***p < 0.000.$
Additional analyses

The research model shown in Figure 1 suggests that five possible mediations need to be examined (first, the mediating role of PSS in the relationship between EMP and OCBE; second, the mediating role of POS in the relationship between EMP and OCBE; third, the mediating role of POS in the relationship between PSS and OCBE; fourth, the mediating role of EC in the relationship between POS and OCBE; and fifth, the mediating role of EC in the relationship between EMP and OCBE). Following the requirements defined by Holmbeck (1997), mediations that involved PSS were not assessed since the relationship with OCBE was negative rather than positive. Finally, mediations that involved commitment to the organization were not examined since the relationship with OCBE was not significant. Therefore, of the five possible mediations, only one was examined – the mediating role of POS in the relationship between EMP and OCBE.

In order to test the mediating role of POS on the relationship between EMP and OCBE, the bias-corrected bootstrap method was performed, because of its statistical power (Cheung and Lau 2008). Findings for H2 reported that the direct effect of EMP on OCBE was statistically significant. In the model with POS as a mediator, the standardized direct effect of EMP on OCBE is 0.168. The 95% bias-corrected confidence intervals for this direct effect are between 0.057 (lower bound) and 0.274 (upper bound), with a $p$-value < 0.002 for two-tailed significance test. The standardized indirect effect of EMP on OCBE through POS was 0.037. The 95% bias-corrected confidence intervals for this indirect effect are between 0.010 (lower bound) and 0.078 (upper bound), with a $p$-value < 0.007 for two-tailed significance test. These results lead to the conclusion that POS played a partial mediation EMP and OCBE.

Discussion

The purpose of the study was to analyse the relationships between EMPs and OCBE from the perspective of SET. More specifically, the study aimed to assess a model in which EMPs influence OCBE through the support provided by the supervisor and the employer, and commitment to the organization. Of the nine hypotheses examined, seven were supported (H1 and H2, H4–H7 and H9), while two were not (H3 and H8). Consistent with the literature on environmental management and HRM, the findings indicate that EMP is positively related to commitment to the organization (e.g. Stites and Michael 2011), OCBE (Ramus and Killmer 2007), POS (Govindarajulu and Daily 2004) and PSS (e.g. Ramus 2001). Consistent with previous findings (e.g. Maertz et al. 2007), the study also found a positive relationship between PSS and POS. In line with previous research (e.g. Riggle et al. 2009), a positive relationship between POS and commitment to the

Table 4. Correlation matrix.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>EMP</th>
<th>PSS</th>
<th>POS</th>
<th>OC</th>
<th>OCBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMP</td>
<td>17.8</td>
<td>6.4</td>
<td>0.167**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSS</td>
<td>22.5</td>
<td>4.9</td>
<td>0.236**</td>
<td>0.589**</td>
<td>0.668**</td>
<td>0.152**</td>
<td></td>
</tr>
<tr>
<td>POS</td>
<td>20.8</td>
<td>4.7</td>
<td>0.225**</td>
<td>0.413**</td>
<td>0.174**</td>
<td>0.019**</td>
<td></td>
</tr>
<tr>
<td>OC</td>
<td>17.2</td>
<td>3.4</td>
<td>0.190</td>
<td>0.019**</td>
<td>0.174**</td>
<td>0.152**</td>
<td></td>
</tr>
<tr>
<td>OCBE</td>
<td>41.9</td>
<td>11.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: EMP, environmental management practices; PSS, perceived supervisor support; POS, perceived organizational support; OC, organizational commitment; OCBE, organizational citizenship behaviour for the environment. **$p < 0.01$. 

The International Journal of Human Resource Management 15
organization was also found. In addition, the study did not find a significant direct relationship between EC and OCBE. Finally, findings revealed a direct negative (rather than positive) relationship between PSS and OCBE. Based on the data, the study showed that while EMP influences OCBE directly, the variables involved in the social exchange process (except for PSS) provide adequate conditions for sustaining and fostering employee willingness to engage in OCBE. Figure 2 summarizes the main relationships highlighted by the data analysis.

**Contributions of the study**

This paper makes several contributions to the environmental literature. This study is the first to provide empirical data by encompassing, within the same research model, perceived environmental practices, social exchange variables (POS, PSS and EC) and OCBE to account for employee willingness to sustain and support the environmental efforts of the organization. With the exception of conceptual research by Ramus and Killmer (2007) and Daily et al. (2009), very few studies have used the premises of social exchange framework to explain why employees are willing to engage in OCBE. The data improve our understanding of the key variables driving employees to engage in OCBEs. Employees engage in proactive environmental behaviours as a result of a process of reciprocity between the actions of the organization and their own. Consistent with the social exchange framework, reciprocity is the key tenet (Blau 1964). In a work context, a desire for reciprocity between two entities emerges when one of the two entities performs an action that enables the second entity to carry out their work efficiently or to fulfil their objectives. In this study, reciprocity was examined at two levels – between the organization and superiors and between superiors and subordinates. Following previous findings (e.g. Walley and Stubbs 2000; Ramus 2001), and in line with advances in the literature on support (e.g. Tepper and Taylor 2003), it was also assumed that an employee is more likely to make extra environmental efforts if he/she perceives that the organization supports his/her supervisor by granting him/her the decision-making latitude and necessary resources to engage in pro-environmental behaviour. The results contribute to the literature since the use of the premises of SET explained the nature of the relationships between the organization, superiors and employees in an environmental management context. In this sense, the results confirm the findings of previous studies, although they also provide an SET-based account of the factors that drive an employee to engage in environmental citizenship behaviours.

![Figure 2. Final model.](image-url)
The study also highlighted the role of EMPs in strengthening key aspects of HRM, such as PSS, POS and EC. The positive relationships between EMP and the foci of support (PSS and POS) confirm the initial hypotheses concerning the role of environmental practices as a means of demonstrating the support of the organization for values shared by the employees. POS for these values tends to reinforce perceived organizational and supervisor support for employees. Although the positive impact of support on EC is consistent with SET (Cropanzano and Mitchell 2005), this study is the first to provide evidence of this in the particular context of EMPs. The study also showed the positive influence of EMP on EC. Therefore, the findings extend the results obtained by Stites and Michael (2011), who provided empirical evidence for the positive influence of environmental management on EC to the organization. The positive influence of environmental management shows that EMP can promote the sense of belonging and the positive outcomes associated with this feeling, such as employee motivation, participation and loyalty to the organization. This finding confirms the links between EC and organizational practices in the area of social responsibility (Peterson 2004; Brammer et al. 2007).

The study also sheds light on the main determinants of OCBE. The determinants of OCBE appear essentially to be linked to measures that provide evidence of organizational support for environmental actions (EMP) and employees (POS). This result is somewhat surprising given the emphasis on the role of supervisors (PSS) in the literature on the determinants of OCBE (Ramus and Killmer 2007; Daily et al. 2009). Furthermore, given the individual, discretionary and non-prescriptive nature of OCBE, their links with formal environmental practices (EMP) are not necessarily predictable. The results appear to indicate that the organization can play an active role in the development of OCBE and that OCBE do not necessarily emerge independently of established practices. Employees appear to be more inclined to commit individually and voluntarily to environmental objectives when the organization shows commitment through EMP and supports its employees. One possible explanation for the relationships found in this study is that some EMPs, such as the introduction of an environmental policy or the implementation of an environmental management system, tend to increase the likelihood of voluntary actions on the part of employees, even if these actions are not formally prescribed. Therefore, EMPs can be seen as a positive signal that provides evidence of the environmental concerns of the organization, and encourages voluntary pro-environmental initiatives in the workplace. Another explanation in terms of social exchange is that employees will tend to reciprocate the commitment of the organization in an area they consider to be important to them. From this perspective, environmental actions allow for reciprocal exchanges based on common values that, if promoted, will strengthen social approval between employees and the organization (see Hoffman 1993).

The study also clarifies a number of key concepts, including OCBE, PSS and POS, by verifying a number of links associated with SET. The negative relationship between PSS and OCBE is a somewhat surprising result, indicating that a supportive manager tends to discourage subordinates to engage in OCBE. These findings are not consistent with the theoretical proposals made by Daily et al. (2009) and the empirical results of the study by Ramus and Killmer (2007). Daily et al. (2009) suggested viewing the supervisor as a key antecedent of OCBE. This contention is based on little previous evidence, and the widespread assumption of SET is that an employee reciprocates support from a supportive entity by making extra efforts to help the entity to achieve its objectives. Therefore, if a supervisor is sensitive to environmental concerns, and if he/she is perceived to be a supportive supervisor, subordinates will be more likely to devote time to environmental matters and to make pro-environmental efforts. In the light of the literature, how might we explain the findings
indicating that supervisor support and OCBE are negatively related? Lack of organizational support for the supervisor is one possible explanation. Consistent with previous findings in the HRM and environmental literatures, when a supervisor feels supported by the organization, she/he reciprocates by transferring the good treatment to a third entity such as subordinates. Therefore, the actions, decisions and managerial choices of the supervisor are viewed as legitimate by subordinates. In line with previous findings, our data show a significant positive relationship between PSS and POS, indicating that employees believe their supervisors are supported by the organization. However, despite the significant relationship between PSS and POS, the results of this study reflect the situation described by Harris and Tregidga (2012) who found that in the absence of specific temporal and financial resources provided by the employer, supervisors may give the impression to their subordinates that they are neglecting to support environmental concerns. Therefore, the findings of this study may reflect a comparable situation to the results of the study by Harris and Tregidga (2012). Our data indicate that both POS and EMP are positively related to OCBE. In addition, compared to EMP and PSS, POS is the best predictor of OCBE, suggesting that employees perceive POS as a key determinant of their willingness to make extra efforts to promote environmental concerns in the workplace.

The negative relationship between PSS and OCBE may provide an additional explanation in the light of the results of two previous studies, the first drawn from the environmental management literature (Ramus 2002) and the second from the social exchange literature (Schaninger and Turnipseed 2005). Ramus (2002, p. 160) indicated that ‘employees who felt their supervisors were supportive of environmental actions were more likely to try environmental initiatives than those who did not feel their supervisors used supportive behaviors’. Based on the results of the study by Ramus (2002), it seems reasonable to posit that despite organizational support, supervisors make little effort to engage in pro-environmental behaviours in their work because they consider that efforts in this area are performed inadequately by the organization. More recently, Schaninger and Turnipseed (2005) showed on the basis of a proximal and distal approach that exchanges at the level of the organization, the superior and colleagues are incorporated in a network of social exchanges in which the variables involved are summative rather than compensatory. To take the opposite example, an experience of poor exchanges between an employee and the employer is not compensated by a positive experience with the superior. The results of the studies by Ramus (2002) and Schaninger and Turnipseed (2005) improve our understanding of the negative relationship between PSS and OCBE.

The negative relationship between PSS and OCBE can also be explained by low level of environmental concern exhibited by managers. Dangelico and Pujari (2010) reported that the origin of an internal environmental orientation derives from the personal commitment of the top management and managers. Therefore, if managers are not convinced by the necessity to act in order to protect the natural environment, they cannot be a source of inspiration for their subordinates to become eco-innovators.

Finally, contrary to expectations, our study failed to find a significant relationship between commitment to the organization and OCB for the environment. Therefore, the study provides no evidence for the contention that commitment to the organization plays a mediating role between EMP and OCBE, as argued by Daily et al. (2009). As noted above, commitment to the organization indicates the extent to which an individual is tied to the organization. A high level of commitment indicates that an employee shares the values and objectives of the organization. A low level of commitment reflects a possible divergence, suggesting that the employee does not adhere to the values and objectives of the employer. However, based on our data, the participants showed a high level of commitment to the
organization, suggesting that they shared the values and objectives of their employer. Therefore, a lack of shared values cannot be used as a basis for explaining the absence of significant relationship between commitment to the organization and OCBE. Since the literature on HRM has identified a wide range of behaviours empirically related to EC (e.g. turnover and job performance), this finding might be explained by a missing variable not included in the study.

Finally, except for the relationship between PSS and POS, and POS and EC, we must recognize that the correlations are somewhat moderate. Given the novelty of OCBE, and lack of available findings, it remains difficult to interpret these data. However, some of our findings are similar to those observed by Ones, Dilchert and Biga (2010) (cited by Mesmer-Magnus, Vwsevaran and Wiernik 2012) who have found a moderate correlation between POS and employee green behaviours. Depending on the context employee, green behaviours can be discretionary (see explanations given by Ones and Dilchert 2012, p. 107). In addition, for the relationship between EMP and OC, we reported a weak relationship. Even so, for measuring environmental policies, Stites and Michael (2011) have used different tools (i.e. perceived environmentally-related CSP), our findings are also similar to those revealed by the latter.

**Managerial implications**

The results show that EMPs can have a positive impact on HRM by increasing perceived organizational and supervisor support and strengthening EC. Therefore, independently of their environmental and economic benefits, EMPs can have a positive impact on organizational factors that have been largely overlooked in the environmental management literature but which have a significant impact on HRM and organizational efficiency. These positive effects may partly account for the positive relationship found in many studies between environmental actions and economic performance (Russo and Fouts 1997; Roy et al. 2001; Christmann 2000; Ambec and Lanoie 2008). Therefore, EMPs may contribute to improving economic performance because practices are based on environmental values that are shared by employees, thus increasing their commitment, motivation and adherence to the objectives of the organization (see Hoffman 1993).

However, in order for these positive effects to be manifested, it seems reasonable to assume that EMP must result in a substantive (as opposed to a purely symbolic) commitment to the environment. Many studies have shown that EMPs are often implemented superficially in response to external pressures or stakeholder expectations rather than to improve environmental performance (Crane 2000; Jiang and Bansal 2003; Springett 2003; Boiral 2007). As shown by neo-institutional theory, organizations often implement new practices with a view to increasing their social legitimacy rather than improving their performance (Meyer and Rowan 1977; Townley 2002). The frequently blatant gap between stated practices and the environmental actions that are effectively taken by organizations could be negatively perceived by employees and contribute to reducing their EC rather than increasing it. Therefore, managers who want to improve EC by implementing EMPs must ensure that environmental practices are perceived as a substantial effort in favour of a concern that is likely to generate significant internal mobilization, and not as a marketing strategy aimed at meeting stakeholder expectations. The managerial implications of the study also concern the role of the supervisor in an environmental management context, even if an unexpected negative impact of supervisor support on OCBE was found. Having been described from a theoretical perspective (Daily et al. 2009), this role is beginning to be well documented empirically, particularly in
research by Ramus and Steger (2000), Ramus (2001, 2002) and Harris and Tregidga (2012). The supervisor is generally described as a particularly useful agent for promoting the implementation of decisions linked to environmental management issues and for inciting subordinates to make efforts to become eco-innovators (Ramus 2001). In the absence of any visible effort on the part of supervisors, subordinates may feel that supervisors have little interest in environmental matters. The situation highlighted by the results of this study is consistent with the analysis by Govindarajulu and Daily (2004) who found that the environmental efforts of the organization can be fruitless if employees are not encouraged to do what is expected of them. However, this study produced significantly different findings. Even if employees perceive that their supervisor is supported by the organization, the results indicate that this appears to affect their willingness to engage in OCBE. Therefore, the results suggest a possible counter-effect on employee willingness to make extra efforts in the form of pro-environmental behaviours. Even if employees feel that their supervisor is supported by the organization but that the latter does not give the supervisor the necessary resources to enable them to develop a range of pro-environmental actions autonomously, employees may not feel concerned by the need to make extra efforts to help and support the actions of their supervisor. This suggests the emergence of a process of cannibalization whereby too much POS may harm PSS. Similarly, employees must also be careful not to involuntarily reduce the latitude of supervisors in the eyes of their subordinates. From this perspective, and consistent with Harris and Tregidga (2012), the role of supervisors needs to be reaffirmed. Another possibility noted by Ramus and Steger (2000) involves reinforcing the portfolio of supervisor skills linked to the environmental expectations of the employer by using an appropriate form of communication to explain the role of the supervisor to subordinates. Finally, following Govindarajulu and Daily (2004), employers must provide supervisors with the tools and resources needed to motivate and reward their subordinates.

Limitations and future research
Despite its contributions, the study has some limitations. First, although a number of methodological precautions were taken to limit the effects of common variance bias and to ensure the validity of the research model, it is important to recognize that the data were collected in a single stage. Therefore, future studies could extend the findings by collecting data based on a longitudinal research design. Second, at the time of the study, contrary to other measures linked to the research variables, there was no existing research that had used the measurement of OCBEs giving a basis for comparison. Although the psychometric properties of the measurement scale used in this study were excellent, further research is required to pursue the validation of the OCBE measurement scale. Third, though supported by the organization in the eyes of subordinates, the data showed that PSS and OCBE are negatively related, suggesting that the greater the perception of supervisor support among subordinates, the lower the likelihood of OCBE. It is impossible to account for this paradox based on the collected data. Further research is required to explain this result.

References


Global Reporting Initiative (2006), Sustainability Reporting Guidelines, Amsterdam: GRI.


