

The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance

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ARTICLE INFO

Keywords:

Green human resource management
Eco-friendly behavior
Environmental performance
Social identity theory

ABSTRACT

The subject of human resource management in hotels' environmentally friendly management remains relatively underexplored. This study examines how to improve employees' eco-friendly behavior and hotels' environmental performance through green human resource management. The findings show that green human resource management enhances employees' organizational commitment, their eco-friendly behavior, and hotels' environmental performance. This study suggests that hotel top management and HR managers should establish green human resource management policies.

1. Introduction

The preservation of the natural environment (hereafter, "environment") has been an important issue for the last few decades. Nearly every industry has embraced environmental protection practices. Most manufacturing companies have aimed to eliminate waste created during the production and disposal of their products and, therefore, have improved corporate performance (Melnyk et al., 2003). In terms of service industries such as hotels, their green efforts include reducing waste, conserving energy and water in their operations, and educating customers and employees (Bohdanowicz et al., 2011; Rahman et al., 2012). For example, to protect the environment, Hilton established operational goals and policies and eco-friendly programs and developed reporting tools to monitor its progress. As a result, Hilton Worldwide reduced its overall water consumption by 14.1% and energy usage by 14.5% from the period of 2009–2014. Marriott International, another large hotel chain, has promoted preservation initiatives to help conserve the environment.

Most of previous environmental management research has examined hotel firms' environmental management practices (e.g., energy saving and water preservation) (Hsiao et al., 2014; Molina-Azorín et al., 2015). For example, Hsiao et al. (2014) established environmental management attributes for the hotel industry to use to audit green hotels. In addition, studies have approached environmental research in the hotel industry from two distinct aspects: *the consumer* and *the employee*. However, most of the studies have concentrated mainly on green marketing, *the consumer perspective* (Kim and Choi, 2013). For instance,

Manaktola and Jauhari (2007) explored consumer attitudes and behaviors concerning hotels' environmentally friendly practices. Kang et al. (2012) disclosed that American hotel consumers had deeper concerns about their environment and showed a higher price premium for green hotels. The other stream, *the employee perspective*, deals with issues pertaining to the attitudes or awareness of hotel staff (Bohdanowicz, 2005; Harris and Crane, 2002). However, regardless of the important role of employees' behavior in enhancing environmental outcomes, there is a lack of empirical studies that link human resource management (HRM) to environmental performance via employees' commitment and their behavior (Fernández et al., 2003; Paillé et al., 2014). HRM supports a company's strategic vision and goal. Traditionally, the roles of HR are to communicate corporate executives' strategic vision to their workers and to help them comprehend the vision (Evans, 1986; Lado and Wilson, 1994). Evans (1986) argued that the direct consequences of HRM include success in the implementation of the strategic vision and organizational effectiveness. Considering the important role of HRM in an organization, this study links HRM to environment conservation in the hotel industry. The term GHRM is used as shorthand for green human resource management. GHRM includes hiring and maintaining eco-friendly employees, providing environmental training, and reflecting on employees' eco-friendly contributions in employee performance appraisals (Guest, 1997). GHRM is instrumental in environmental management since the HR function plays an important role in accomplishing environment-friendly corporate goals (Bohdanowicz et al., 2011; Jabbour and Santos, 2008; Paillé et al., 2014).

The success of a firm's environmental management hinges on

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employees' eco-friendly behavior because their behavior improves the firm's environmental performance in the aggregate (Daily et al., 2009; Lo et al., 2012). For a company to achieve ecological sustainability, it is critical to comprehend how GHRM affects employees' eco-friendly behavior, which in turn, influences a company's environmental performance. Social identity theory provides a theoretical base for employees' psychological process of a firm's green efforts: organizational commitment acts as a mediator of GHRM on eco-friendly behavior. Based on social identity theory, employees who are likely to integrate positive organizational values (Ashforth and Mael, 1989; Carmeli, 2005; Peterson, 2004) tend to demonstrate strong organizational commitments (Turker, 2009). If employees are concerned about environment conservation, they are more likely to attach themselves to their company's implementation of environmental management initiatives, including GHRM. Once employees become emotionally involved in their company, they are likely to demonstrate a higher level of organizational commitment to the company (Bhattacharya et al., 2009). Organizational commitment is "the relative strength of an individual's identification with and involvement in a particular organization" (Mowday et al., 1979, p. 4). Organizational commitment is a vital element of employee attitude because it leads to employees' altruistic or prosocial behavior, for example, organizational citizenship behavior (Balfour and Wechsler, 1996; Carmeli, 2005; O'Reilly and Chatman, 1986). However, previous studies have rarely considered employees' eco-friendly behavior as an outcome variable of organizational commitment. In addition, few studies have investigated the association between employees' eco-friendly behavior and a company's environmental performance. Environmental performance refers to a hotel's environmental outcome from environmental activities it implements to reduce the negative effects on the environment. In sum, there has been a notable lack of research that explores how GHRM stimulates employees' commitment and eco-friendly behavior, empowering hotels to improve their environmental performance. The main contribution of this research endeavor is to facilitate a better understanding of how implementing GHRM practices enhances environmental performance via employees' commitment and eco-friendly behavior.

The purpose of the study is to investigate the interrelationship between hotels' GHRM and environmental performance via employees' eco-friendly behavior. The objectives of this research are fivefold: (1) to investigate the relation between GHRM and employees' eco-friendly behavior (EEB); (2) to assess the role of employees' organizational commitment (EOC) between GHRM and employees' eco-friendly behavior (EEB); (3) to examine the role of EEB between GHRM and hotel environmental performance (HEP); (4) to investigate the relation between employees' eco-friendly behavior and HEP; and (5) to explore a non-green hotel's boundary effect in the relationships among GHRM, EOC, EEB, and HEP.

2. Literature review

2.1. The link of HRM and environmental management: GHRM

Some scholars have linked HRM with environmental management, naming it "green human resource management" or "environmental human resource management" (Renwick et al., 2013). The current study uses the term "green human resource management (GHRM)." GHRM pertains to the human resource management aspect of environmental management (Renwick et al., 2013). Scholars have developed specific procedures for implementing green HRM practices. For example, Milliman and Clair (1996) proposed four steps for an environmental HRM model: (1) provide an environmental vision as a guide, (2) train employees to share their environmental vision and goals, (3) evaluate employee environmental performance, and (4) recognize employee environmental activities using reward programs. Similarly, Daily and Huang (2001) suggested a conceptual framework for implementing elements of human resource in the environmental

management system. The proposed model included (1) the support of senior executives, (2) training, (3) empowerment, and (4) rewards as main components of environmental HR. Top management communicates the environmental policy, plan, and other pertinent information to employees. Training employees helps them understand new environmental practices, and empowered employees tend to engage in environmental activities. Also, rewards can stimulate employees to be environmentally responsible. In addition, Renwick et al. (2013) categorized elements of the HR perspective of environmental management. First, GHRM relates to developing green abilities in recruiting, selecting, training, and developing green leadership. Second, GHRM deals with motivating green employees by evaluating and rewarding employees' green performance. Third, GHRM relates to stimulating employees' involvement by empowering them and generating an environmentally friendly organizational culture.

2.2. Theoretical background

People classify themselves into groups and identify with teams to cultivate a positive self-concept (Tajfel and Turner, 1979). Ashforth and Mael (1989) stated that societal membership may influence an individual's self-concept. Social identity theory posits that people are pleased when they attach themselves to groups that have positive standings since the belonging helps reinforce their self-concept with regards to their association with the group (Ashforth and Mael, 1989; Tajfel and Turner, 2004). Social identity theory helps explain the relationship between a company and its employees. Some scholars argue that employees who integrate their company's positive activities and values tend to demonstrate strong organizational commitment (Ashforth and Mael, 1989; Peterson, 2004). For example, employees who have a positive perception of corporate social responsibility activities tend to exhibit a high level of organizational commitment (Brammer et al., 2007; Turker, 2009). Likewise, workers with favorable perceptions of environmental management initiatives are likely to exhibit high levels of organizational commitment (Yen et al., 2013). In addition, social identity theory postulates employees' organizational commitment correlates with their behavior (O'Reilly and Chatman, 1986). Shen and Benson (2016) suggested that employees' organizational commitment accelerates their extra-role behavior beyond their duties, often referred to as organizational citizenship behavior (OCB). Other studies confirmed that employees who identify with their company tend to devote extra effort to accomplish the company's goal and vision through extra-role behavior or OCB (Balfour and Wechsler, 1996; O'Reilly and Chatman, 1986).

2.3. Hypotheses development

HRM scholars have suggested that strategic HRM practices influence employee attitudes, such as commitment (Domínguez-Falcón et al., 2016; Gould-Williams and Davies, 2005; Takeuchi et al., 2009). Specifically, Gould-Williams and Davies (2005) stated that strategic HRM improves employees' performance by developing and empowering employees to achieve the specific goals of a company. In contrast, traditional HRM focuses on the external recruitment of competencies and behavioral controls (Bratton and Gold, 2017). For example, Arthur (1994) proposed that strategic HRM practices influence employee attitudes and behaviors by developing a psychological connection between a company and its employees. In addition, Domínguez-Falcón et al. (2016) postulated that firms can foster their employees' commitment by utilizing strategic HRM and empirically confirmed that strategic HRM practices directly leads to employees' organizational commitment.

Scholars can apply the concept of strategic HRM to the areas of corporate social responsibility (CSR) and environmental conservation. Shen and Benson (2016) proposed that socially responsible human resource management (SRHRM) is an integral part of CSR initiatives.

SRHRM includes providing CSR training, assessing employees' socially responsible behavior, and retaining socially responsible employees. They reported that SRHRM was positively associated with employees' organizational commitment. By the same token, GHRM in this study focuses on environmental issues but still falls under the umbrella of SRHRM. Previous environmental management research in the context of the hotel industry suggested that environmental management includes aspects of GHRM, such as employee environmental training programs (Hsiao et al., 2014; Yen et al., 2013). Yen et al. (2013) found that hotels' environmental management has a significant impact on employees' organizational commitment level. Drawing on the social identity theory and previous studies, Hypothesis 1 is formulated as follows:

Hypothesis 1. GHRM has a positive impact on employees' organizational commitment.

HRM practices increase employees' discretionary efforts (Huselid, 1995). Van Knippenberg et al. (2007) suggested that when workers perceive the high quality of the exchange relationship with their company or supervisors, they are likely to exert themselves for the company. For example, the higher front-line employees' perception of HRM practices, the higher the levels of their service behavior, a finding confirmed by Tsaor and Lin (2004). They demonstrated that service staffs with affirmative perception of HRM practices (e.g., recruiting and training) provided excellent services to hotel customers by going above and beyond their duties.

In environmental literature, the subject of organizational citizenship behavior for the environment (OCBE) has gained attention and seems to be a practical approach for understanding environmentally friendly behavior in the work environment (Daily et al., 2009; Paillé et al., 2013). OCBE is defined as "discretionary acts by employees within the organization not rewarded or required that are directed toward environmental improvement" (Daily et al., 2009, p. 246). Paillé et al. (2014) found that strategic human resource management, which is equivalent to green human resource management, has a positive relationship with employees' OCBE.

This study proposes the eco-friendly behavior concept to supplement the shortcoming of OCBE since it defines eco-friendly behavior as only an individual action for reducing one's harmful influence on the environment (Kollmuss and Agyeman, 2002). Eco-friendly behavior focuses on specific behaviors related to energy usage, water usage, and waste reduction, which are suitable in the hotel context. In lieu of OCBE, which is limited to only voluntary and discretionally behaviors, the eco-friendly behavior concept is suitable since it is free from those limitations.

According to the above discussion and synthesis, this study expects that GHRM will have a significant impact on employees' eco-friendly behavior, therefore, the authors propose the following hypothesis:

Hypothesis 2. GHRM has a positive impact on employees' eco-friendly behavior.

Employees' organizational commitment increases their willingness to make extra efforts beyond their duties (Podsakoff et al., 2014). Previous studies have shown that organizational commitment has a significantly positive relationship with OC. Organ and Ryan (1995) demonstrated that organizational commitment is strongly associated with OCB. Bishop et al. (2000) found that frontline employees' organizational commitment strongly influences their OCB. Meyer et al. (2002) showed that affective organizational commitment and OCB had a moderate correlation. Supporting the positive relationship between affective commitment and altruistic OCB, Liden et al. (2003) stated that employees with high organizational commitment defined their tasks more broadly and, hence, engaged in altruistic behavior, a selfless helping behavior. Carmeli (2005) also clarified that employees with strong attachment to their organizations are likely to develop altruistic OCB because they want to be good citizens in good organizations.

Utilizing a meta-analytical approach, Ng and Feldman (2011) found a positive relationship between affective organizational commitment and OCB. Drawing on the social identity theory and previous studies, the authors expect that employees' strong organizational commitment will lead to a high level of eco-friendly behavior.

Hypothesis 3. Employees' organizational commitment has a positive impact on their eco-friendly behavior.

Becker and Gerhart (1996) asserted that human resource management influences organizational performance by enhancing efficiency, cost control, and value creation. From the review of extensive empirical studies, they found a significant relationship between a firm's HRM system and its organizational performance. For example, HR activities such as selection and compensation have a positive impact on corporate performance. Jiang et al. (2012) demonstrated that HRM has a direct and indirect positive impact on financial outcomes via operational outcomes (i.e., productivity, service, and innovation). The HRM in the study consists of three dimensions: (1) skill-improving HR activities, (2) motivation-increasing HR activities, and (3) opportunity-enhancing HR practices.

In terms of environmental literature, most scholars identified the outcome of environmental management as a direct environmental performance rather than a comprehensive organizational or corporate performance. For example, Judge and Douglas (1998) showed that a high level of integration of a firm's environmental management positively relates to its environmental performance. They defined a firm's environmental performance as "a firm's effectiveness in meeting and exceeding society's expectations with respect to concerns for the natural environment (p. 245)." For the current study, the researchers define hotel environmental performance as a hotel's environmental outcome from the environmental activities to reduce negative effects on the environment.

López-Gamero et al. (2009) examined the impact of environmental management on environmental performance. The environmental management construct in their study has three factors, and one factor of environmental management relates to HR practices (e.g. environmental knowledge management). The findings supported that environmental management with HR practices improves environmental performance. Similarly, Melnyk et al. (2003) found that companies adopting official environmental management systems (EMS) showed a high level of environmental performance. EMS includes HR practices such as training employees for the protection of the environment. In short, GHRM is one feature of the environmental management system, and the authors expect the positive relationship between EMS and environmental performance will hold in the relationship between GHRM and hotel environmental performance. Thus, the authors propose the following hypothesis:

Hypothesis 4. GHRM has a positive impact on hotel environmental performance.

Podsakoff and MacKenzie (1997) suggested that employees' OCBs improve organizational performance, and they summarized the reasons. For instance, employees can help each other with job-related problems. Employees who actively participate in meetings can help distribute information in the company, and employees who learn new skills can improve the firm's ability to adapt to changes in its environment. Walz and Niehoff (2000) empirically tested the relationship between employees' OCB and restaurant performance. They found that employees' OCB strongly influences financial performance, customer satisfaction, and restaurant quality performance. Koys (2001) found through a time-series analysis that restaurant employees' OCB influences restaurant profitability. In addition, Nielsen et al. (2009) content analyzed more than 35 studies and examined the relationship between OCB and corporate performance (e.g., sales, profit margin, and customer satisfaction). They concluded that OCB is positively related to corporate performance.

Few empirical research has confirmed the association between employees' OCBE and environmental performance except for the study by Paillé et al. (2014). Their results revealed that employees' OCBE is a direct driver of environmental performance. Daily et al. (2009) proposed that employees' environmental actions, such as waste reduction, should help firms attain their environmental goals and increase environmental performance in the aggregate. Similarly, Roy et al. (2013) insisted that the spontaneity of an eco-friendly behavior can improve environmental performance by supplementing environmental management systems. Thus, this study investigates the direct relationship between employees' eco-friendly behavior and hotel environmental performance.

Hypothesis 5. Employees' eco-friendly behavior has a positive impact on hotel environmental performance.

3. Methodology

3.1. Sample and data collection

The researchers collected data from hotel employees with at least one-year work experience in Phuket, the second hottest tourism destination in Thailand and one of the most popular destinations in the top twenty cities in the world (Geerts, 2017). In the first stage, the researchers obtained the list of the 177 hotels in Phuket, Thailand from Smith Travel Research. In the second stage, the researchers contacted the top management or directors of human resource departments of the 177 hotels. The researchers also asked a short question concerning the hotels' training or education programs for environmental protection to check whether the hotels implemented GHRM practices on their premises. In other words, the researchers invited only the hotels that were initiating green HRM practices to the survey. This study classified a hotel as green if it had received any kind of green hotel certification and operationalized non-green hotels with no green certificate but with GHRM practices. In sum, due to disqualified hotels and denial of participation, the authors narrowed the 177 hotels to 14 hotels (6 green and 8 non-green hotels). The 14 hotels comprised of three luxuries, nine upper upscales, one upscale, and one midscale class. Half of the 14 hotels were chains, and the other half were independent hotels. The number of employees ranged from 101 to 800 and was 412 on average, and the number of rooms ranged from 91 to 665 and was 330 on average. In the third stage, the researchers designed the online questionnaire with Qualtrics, and the participated hotels distributed the universal resource locator of the online questionnaire to their employees. In the last stage, hotel employees voluntarily participated in the survey and responded to the questions using a self-administration technique.

The online questionnaire consisted of four parts. The first part, the introduction of the survey, addressed the purpose of the investigation, the answering procedures, and respondents' confidentiality and anonymity. The second section asked a screening question about the employees' working period. The survey automatically removed respondents who had worked less than one year. The third part randomly evaluated the scale items for the study, administered different cover stories for each scale to lower the common method bias (CMB), and included four questions regarding social desirability that is used in the diagnosis of potential CMB. The last section asked for the respondents' age, gender, education level, working positions, job role, and department. To enhance data validation, this study also controlled the survey with several remedies. To prevent respondents' ballot box stuffing, the Qualtrics system detected each respondent's internet protocol (IP) address and automatically prevented respondents from taking the survey more than once. In addition, the concealed timer recorded how long the respondents spent on the survey and then discarded abnormal responses, which were those with either too short or too long response times.

Out of 14 hotels, 390 employees completed their surveys with the completion rate of 73%. After removing responses that did not meet the above screening process, the researchers retained 306 valid responses (138 employees at green hotels and 168 employees at non-green hotels). To balance the sample size from non-green hotels with that of green hotels, the researchers additionally discarded 30 responses of non-green hotels by a simple random sampling technique. The researchers, consequently, employed 276 valid cases (138 employees at green hotels and 138 employees at non-green hotels) for further statistical analysis. The respondents' brief demographic profile and other job-related characteristics are described here. Regarding respondents' gender, female employees (green hotel: 66.7%; non green hotel: 63.0%) were greater than males. In terms of age distribution, the majority of employees were in their twenties or thirties (green hotel: 81.2%; non green hotel: 89.1%) and had a bachelor's degree in their educational levels (green hotel: 71.0%; non green hotel: 71.0%). Regarding their job related characteristics, most respondents worked in front of house (green hotel: 72.5%; non green hotel: 76.8%) in non managerial positions (green hotel: 77.5%; non green hotel: 76.8%). In addition, the respondents' length of service in the green hotel sample ranged from one to twenty years and was 4.8 (SD = 3.2) years on average, while those in the non green hotel sample ranged from one to fifteen years and was 3.9 (SD = 2.2) years on average.

3.2. Measurement

The authors wrote the questionnaire in English, hired a bilingual researcher to translate the text into Thai, and then hired another bilingual scholar to back-translate the questionnaire into English. A Likert-type scale ranging from "strongly disagree (1)" to "strongly agree (5)" measured each item of the GHRM, ECO, EEB, and HEP variables.

3.2.1. Green HRM

The authors derived the six-item green HRM scale from the CSR HRM scale by Shen and Benson (2016) and the staff education element of environmental management system (EMS) scale from Hsiao et al. (2014). The sample items were "My hotel provides adequate training to promote environmental management as a core organizational value;" "My hotel relates employees' eco-friendly behavior to rewards and compensation;" "Employees fully understand the extent of corporate environmental policy;" and "My hotel stimulates ethics for environmental issues."

3.2.2. Employees' organizational commitment

The authors measured the eight-item EOC scale adopted from Mowday et al. (1979). The sample items were "I find that my values and the firm's values are very similar;" "I am proud to tell others that I am a part of this firm;" and "I am willing to put in a great deal of effort beyond what the firm normally expects in order to help my firm be successful."

3.2.3. Employees' eco-friendly behavior

The authors derived the seven-item EEB scale from Chou (2014); Hsiao et al. (2014); Scherbaum et al. (2008); and Tudor et al. (2007). The sample items were "I sort and recycle garbage in the workplace;" "When I leave a room that is unoccupied, I turn off the light;" and "I pay close attention to water leak."

3.2.4. Hotel environmental performance

The authors constructed the seven-item scale for HEP based on input from Paillé et al. (2014); Melnyk et al. (2003); and Ilinitch et al. (1998). The sample items were "Environmental management within our hotel has reduced purchases of non-renewable materials, chemicals, and components;" "Environmental management within our hotel has conserved water usage;" and "Environmental management within our hotel has conserved energy usage."

3.3. Data analysis

The authors employed two sub-samples (green and non-green hotel employees) and a combined sample for all the analytical processes of the study. According to the formula (equation) on the minimum sample size in a covariance-based structural equation modeling (Westland, 2010), the authors calculated the recommended sample size at 166. The overall sample size of 276 was large enough to adopt CB-Sem in this study, but each sub-sample size of 138 was too small to use CB-Sem. Thus, the authors employed a partial least squares structural equation modeling (PLS-SEM) that allowed for a small-sized sample in the structural model analysis and utilized SmartPLS version 3 to analyze the valid data. Specifically, in the first stage, they produced three to four parceled indicators from the initial measurement items based on the previous studies (Liang et al., 2007; Little et al., 2002). In the second stage, the authors detected a potential CMB in various ways suggested by Podsakoff et al., 2003 and computed the average variance extracted (AVE), composite reliability (CR), and Cronbach's alpha coefficients for each construct to examine the construct validity (convergent and discriminant validity) and scale reliability. In the last stage, the authors carried out a PLS-SEM to verify the hypotheses posited in this study.

4. Results

4.1. Common method bias

In the behavioral sciences, data collection from different sources is the most ideal research approach to avoid a CMB. Nonetheless, this approach has some disadvantages. First, a researcher must collect and archive respondents' private information (i.e., employee ID; name) to incorporate the dyadic data (Podsakoff et al., 2003) – since predictors and outcomes are measured from different sources, a researcher has to link each individual response (i.e., an employee) to the coincident response measured from the others (i.e., a supervisor). Second, this approach also decreases respondents' willingness to participate in surveys because they tend to feel that the researcher cannot guarantee their anonymity and confidentiality. Not only to improve response rates but also to comply with anonymity and confidentiality, the survey of this study did not adopt a different sources technique. Nevertheless, the findings may not be free from the effects of CMB because this study measured all the variables from the same resources with self-administration under a cross-sectional research design. However, the authors implemented procedural remedies to mitigate CMB by employing several techniques – assuring for respondents' anonymity and confidentiality; randomly assigning scale items; and employing different cover stories (Podsakoff et al., 2003).

Furthermore, to detect possible CMB, the authors employed three statistical techniques. First, in Harman's single-factor test, the authors carried out a principal component analysis with the unrotated solution. The results show that not only did they extract four factors based on the eigenvalues (over 1.0) but also the general factor accounts for 41% of the total variance of the measures. This result is the first indication that the substantial variance by the common method was not at a serious level in the current study. Second, the authors analyzed the PLS model with the latent method factor (so called a marker variable) that measures four items of social desirability (Podsakoff et al., 2003). As addressed in Liang et al.'s (2007, pp. 85–87) study, the authors designed the PLS diagram so that each indicator had its own first-order latent variable, and the first-order latent variables linked to each corresponding second-order construct, then the marker variable directly associated to all the first-order latent variables. The results of the transformed PLS model indicate that the underlying CMB was not a major issue because the average method variance by the marker variable was only 0.2% ($-0.096 \leq \lambda \leq 0.059$, while the average explained variance by research constructs was 81.9% ($0.833 \leq \lambda \leq 0.977$). Third,

Table 1

Reliability and construct validity of measures.

	Alpha	CR	AVE	GHRM	EOC	EEB	HEP
<i>Green hotels</i>							
GHRM	.896	.896	.742	.862	.661	.570	.240
EOC	.894	.897	.686	.659	.828	.728	.303
EEB	.833	.833	.625	.571	.728	.791	.344
HEP	.964	.964	.900	.240	.303	.346	.949
<i>Non-green hotels</i>							
GHRM	.901	.902	.756	.870	.435	.522	.596
EOC	.907	.907	.709	.441	.842	.718	.829
EEB	.875	.875	.700	.526	.718	.837	.810
HEP	.910	.910	.772	.601	.830	.809	.878
<i>Combined sample</i>							
GHRM	.898	.899	.749	.865	.545	.550	.377
EOC	.901	.901	.696	.546	.834	.716	.508
EEB	.862	.861	.674	.553	.715	.821	.505
HEP	.946	.946	.854	.379	.508	.505	.924

Notes: CR is an abbreviation of construct reliability. AVE is an abbreviation of average variance extracted. Diagonal values with the bold-faces are the square root values of AVEs for each construct. Lower triangular matrices represent correlation coefficients between the constructs. Upper triangular matrices represent Heterotrait-Monotrait ratios between the constructs.

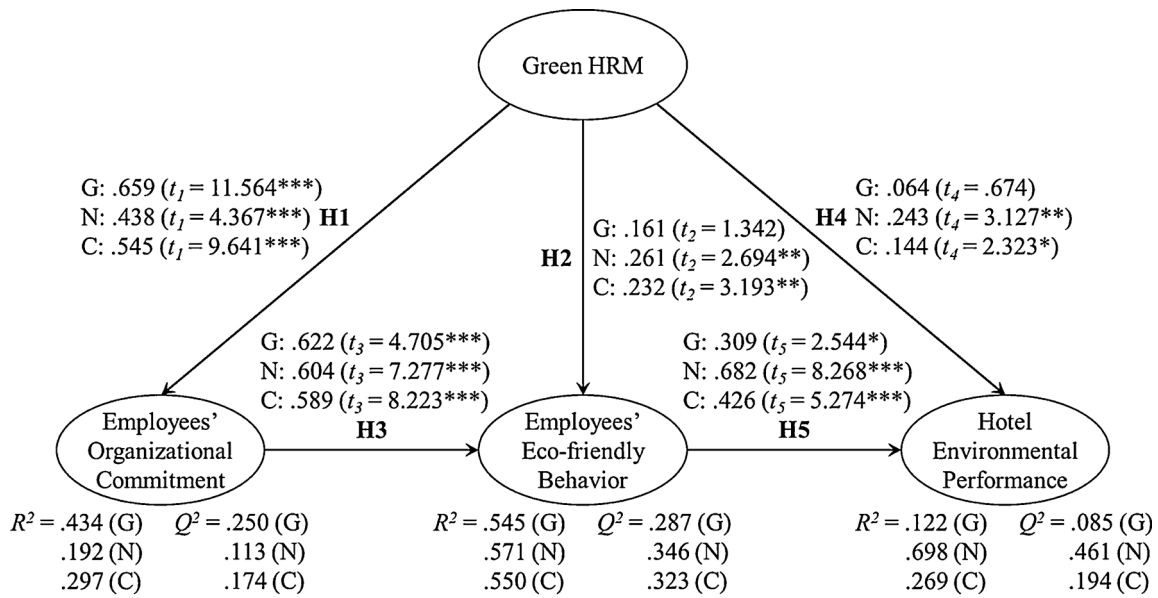
the authors tested a full collinearity of the PLS model, and the results indicate that the PLS model was free from CMB because all the variance inflation factors ($1.369 \leq VIF \leq 2.221$) were less than the criterion values (3.3) suggested by Kock (2015). Judging from the above results, the authors did not detect serious CMB in any examination of the above three tests; consequently, the researchers believe that the possible effects of CMB on the results is not a serious concern.

4.2. Reliability and validity

Table 1 shows the results of the reliability, convergent, and discriminant validity of the scales. The Cronbach's alpha coefficients fluctuated between 0.833 and 0.964 in the green hotel sample, between 0.875 and 0.910 in the non-green hotel sample, and between 0.862 and 0.946 in the combined sample. Similarly, the construct reliability (CR) values fluctuated between 0.835 and 0.968 in the green hotel sample, between 0.876 and 0.921 in the non-green hotel sample, and between 0.861 and 0.948 in the combined sample. The results show a satisfactory level of an internal consistency of the scales in not only the combined data but also both the green and non-green hotel settings.

This study employed average variance extracted (AVE) for the convergent validity test. The values of AVE in the green, non-green hotel, and combined sample were respectively 0.742, 0.756, and 0.749 for GHRM; 0.686, 0.709, and 0.696 for EOC; 0.625, 0.700, and 0.674 for EEB; and 0.900, 0.772, and 0.854 for HEP, which means that the latent variables of this study had a high convergent validity because all AVEs were above the criterion of 0.50 recommended by Fornell and Larcker (1981).

The researchers confirmed the discriminant validity using two methods—comparing the root-squared values of AVEs with the corresponding correlation coefficients and examining the Heterotrait-Monotrait ratio of correlations (HTMT). Discriminant validity occurs either when the square root values of AVEs exceed their corresponding correlation coefficients between constructs (Fornell and Larcker, 1981) or when the HTMT ratios are less than the criterion (Henseler et al., 2015). As reported in Table 1, the square root values of AVEs ranged from 0.791 to 0.949 in green hotels, from 0.837 to 0.878 in non-green hotels, and from 0.821 to 0.924 in the combined sample, while the corresponding correlation coefficients between the constructs ranged from 0.240 to 0.728 in green hotels, from 0.441 to 0.830 in non-green hotels, and from 0.379 to 0.715 in the combined sample. The smallest square root AVEs were far higher than the highest correlation



Model fit. Green hotel [SRMR = .048], Non-green hotel [SRMR = .039], Combined sample [SRMR = .077].
Multicollinearity. Green hotel [VIF_{EEB} = 1.766; VIF_{HEP} = 1.483], Non-green hotel [VIF_{EEB} = 1.237; VIF_{HEP} = 1.381], Combined sample [VIF_{EEB} = 1.423; VIF_{HEP} = 1.441].
Notes. G is for green hotel, N for non-green hotel, and C for combined sample. * $p < .05$; ** $p < .01$; *** $p < .001$

Fig. 1. Results of hypotheses tests.

coefficients in all the samples. In addition to this, the highest HTMT ratios (0.728 in green hotels, 0.829 in non-green hotels, and 0.716 in combined sample) were less than the threshold value, 0.9 in all the samples (Henseler et al., 2015).

4.3. Hypotheses testing

To examine the posited hypotheses, the researchers ran the PLS model for the green, non-green, and combined sample, respectively, by using a consistent PLS bootstrapping algorithm, a resampling technique used to optimally test path coefficients in a reflective PLS-SEM (Dijkstra and Henseler, 2015). Specifically, the bootstrapping generated 1000 resamples, then the authors corrected the biases within 95% of the confidence intervals. Fig. 1 displays the results and includes variance inflation factor (VIF) values for the inner models, the model fit index, the standardized path coefficients, the t- and p-statistics, and the R-square (R^2) and Q-square (Q^2) values.

With respect to multicollinearity, the maximum values of the inner VIFs (1.766 in green; 1.381 in non-green; 1.441 in combined sample) that were less than the threshold of 5.0 (Hair et al., 2011) explicitly indicate that the multicollinearity was not a concern in all PLS models with each data set. Moreover, in accordance with the model fit, the researchers employed the standardized root mean square residual (SRMR) as a model fit index for the PLS models. The results support that the model satisfactorily fits three observational covariance matrices because all SRMR values for each sample context (0.039 in green; 0.077 in non-green; 0.048 in combined sample) were less than the criterion (0.08) suggested by Hu and Bentler (1999). Regarding the explanatory power of predictors for the outcomes, most R-squared values reveal that the PLS models have a moderate in-sample predictive power (Chin, 1998). Regarding the out-of-sample predictive power, all the Q-squared values greater than zero clearly support that the PLS models have a substantial predictive-relevance (Henseler et al., 2009).

Hypothesis 1 focused on the relationship between GHRM and EOC. In accordance with the hypothesis, the PLS-SEM results demonstrate that GHRM of green hotels, non-green hotels, and the combined sample have a positive ($\gamma_{1G} = 0.659$; $\gamma_{1N} = 0.438$; $\gamma_{1C} = 0.545$) and significant

($t_{1G} = 11.564$; $t_{1N} = 4.367$; $t_{1C} = 9.641$) impact on EOC. Therefore, all hotel settings support Hypothesis 1. This study formulated a positive relationship between GHRM and EEB as Hypothesis 2. The results show that GHRM positively ($\gamma_{2N} = 0.261$; $\gamma_{2C} = 0.232$) and significantly ($t_{2N} = 2.694$; $t_{2C} = 3.193$) influences EEB in non-green hotels and the combined sample, while there is no significant effect in the green hotel setting ($\gamma_{2G} = 0.161$; $t_{2G} = 1.342$). Thus, the findings support Hypothesis 2 for only the non-green hotels and the combined sample contexts. This study proposed Hypothesis 3: EOC is positively related to EEB. As anticipated, the results also show that the positive effects of EOC on EEB ($\beta_{3G} = 0.622$; $\beta_{3N} = 0.604$; $\beta_{3C} = 0.589$) are significant ($t_{3G} = 4.705$; $t_{3N} = 7.277$; $t_{3C} = 8.223$) across the three samples. Hence, Hypothesis 3 was fully supported across all samples. The positive effects of GHRM on HEP are posited as Hypothesis 4. The results show that GHRM has positive ($\gamma_{4N} = 0.243$; $\gamma_{4C} = 0.144$) and significant ($t_{4N} = 3.127$; $t_{4C} = 2.323$) effects on HEP in non-green hotels and the combined sample, and there are no significant associations in the green hotel setting ($\gamma_{4G} = 0.064$; $t_{4G} = 0.674$). Therefore, Hypothesis 4 was supported for only the non-green hotels and the combined samples. Lastly, Hypothesis 5 anticipated that EEB positively affects HEP. The SEM results confirm that EEB of green hotels, non-green hotels, and the combined sample positively ($\beta_{5G} = 0.309$; $\beta_{5N} = 0.682$; $\beta_{5C} = 0.426$) and significantly ($t_{5G} = 2.544$; $t_{5N} = 8.268$; $t_{5C} = 5.274$) influence HEP. Therefore, Hypothesis 5 was fully supported across the three samples.

4.4. Mediation effects

The relationship between GHRM and HEP consists of a direct and an indirect effect. Specifically, the authors expected the direct influence of GHRM on HEP as well as an indirect influence through the single mediator of EEB and the sequential mediator of EOC and EEB. The results of the PLS-SEM with the consistent bootstrapping algorithm yield the total, direct, and indirect effects, including the single and sequential mediations. The results of the mediation tests, as displayed in Table 2, demonstrate the decomposed total effect between GHRM and HEP in each sample. Specifically, the total effects in the

Table 2
Decomposed total effects between green HRM and hotel environmental performance.

Types	Green hotels		Non-green hotels		Combined sample	
	Effect size (L/U)	t-Value	Effect size (L/U)	t-Value	Effect size (L/H)	t-Value
Total effect	.240 (.052/.416)	2.535*	.601 (.469/.715)	9.903***	.379 (.262/.513)	5.716***
Direct effect	.064 (-.124/.245)	.674	.243 (.081/.398)	3.127**	.144 (.025/.272)	2.323*
Indirect effect	.176 (.039/.327)	2.334*	.358 (.246/.504)	5.437***	.236 (.147/.336)	4.850***
Single	.050 (-.022/.155)	1.126	.178 (.028/.297)	2.642**	.099 (.033/.170)	2.859**
Sequential	.127 (.020/.261)	2.053*	.180 (.080/.326)	2.890**	.137 (.075/.221)	3.494***

Notes. The significances of differences were estimated by bootstrapping samples of 1000 with bias corrected in a 95% confidence interval. “L” and “U” respectively represent the lower and upper bounds of the effect sizes.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

relationship between GHRM and HEP are 0.240 ($t = 2.535$; $p < 0.05$) for green hotels, 0.601 ($t = 9.903$; $p < 0.001$) for non-green hotels, and 0.379 ($t = 5.716$; $p < 0.001$) for the combined sample, and all those total effects were significant. The total effects break down into direct and indirect effects. The direct effects between GHRM and HEP were equal to the path coefficients between the constructs in Fig. 1. Repeatedly, the direct effects were significant in non-green hotels (effect size = 0.243 $t = 3.127$; $p < 0.01$) and the combined sample (effect size = 0.144 $t = 2.323$; $p < 0.05$), while the effect in green hotels was not significant (effect size = 0.064 $t = 0.674$; $p > 0.05$). The indirect effects between GHRM and HEP was 0.176 ($t = 2.334$; $p < 0.05$) for green hotels, 0.358 ($t = 5.437$; $p < 0.001$) for non-green hotels, and 0.236 ($t = 4.850$; $p < 0.001$) for the combined sample, and all those indirect effects were significant. The indirect effects included the single mediation effects of EEB and the sequential mediation effects of EOC and EEB. The single mediation effects of EEB were 0.178 ($t = 2.642$; $p < 0.01$) for non-green hotels and 0.099 ($t = 2.859$; $p < 0.01$) for the combined sample, and those were significant. On the other hand, the single mediation effect (0.050) for green hotels was not significant ($t = 1.126$; $p > 0.05$). The sequential mediation effects of EOC and EEB was 0.127 ($t = 2.053$; $p < 0.05$) for green hotels, 0.180 ($t = 2.890$; $p < 0.01$) for non-green hotels, and 0.137 ($t = 3.494$; $p < 0.001$) for the combined sample, and all those sequential mediation effects were significant. In sum, the effects of GHRM on HEP were fully mediated only by the sequential mediators of EOC and EEB in green hotels, while those in non-green hotels were partially mediated by not only the single mediator of EEB but also the sequential mediators of EEB and HEP.

5. Discussion and implications

This study investigates the relationship between hotels' GHRM and environmental performance via employees' organizational commitment and eco-friendly behavior in two different settings (green and non-green hotels). The researchers derived the results from a PLS-SEM technique in accordance with each hotel setting and the combined sample.

According to the results from the combined sample, as anticipated, hotel employees' perception of GHRM in their properties generally enhanced their commitment to their organizations, their eco-friendly behaviors, and the environmental performance of their properties. The findings appertaining to the positive effects of GHRM on EOC, EEB, and HEP were consistent with previous scholars' findings (López-Gamero et al., 2009; Paillé et al., 2013). For example, Paillé et al. (2013) found a positive impact of environmental management practices on organizational commitment. In their study, they broadly measured environmental management practices (e.g., publishing environmental policy, annual environmental report). The current study focuses on GHRM, one element of environmental management since, in general, HRM is a key

resource to achieving organizational goals via employee participation (de la Cruz Déniz-Déniz and Saá-Pérez, 2003; Domínguez-Falcón et al., 2016). This study extends the environmental management literature by examining the effects of GHRM on employees' behavior and organizational performance. The findings confirm the effectiveness of the implementation of GHRM. On the other hand, López-Gamero et al. (2009) revealed that proactive environmental management improves environmental performance. In their study, employees' eco-friendly behaviors were not included in the hypothesized model. However, many scholars have suggested exploring employees' eco-friendly behaviors in organizations (Daily et al., 2009; Lo et al., 2012). Thus, the current study highlights employees' psychological process of involving themselves in their firms' pro-environmental efforts. Integrating the analyses of organizational and individual variables, the authors suggest that the psychological relationship between the organization (i.e., hotel's GHRM) and the individual (i.e., employee) is an important factor in employees' pro-environmental behavior.

In particular, based on social identity theory, this study extends the literature by investigating the role of employees' organizational commitment between GHRM and employees' eco-friendly behavior. Limited studies in environmental literature have explored the role of organizational commitment as a mediator between HRM practices and employees' behavior. Stites and Michael (2011) revealed that environmental management practices influence employees' organizational commitment. Paillé et al. (2013) provided the evidence for the positive effect of environmental management on organizational commitment. However, the studies did not consider employees' behavior as an outcome variable of organizational commitment. The current study proposes that organizational commitment is a determinant of individual employees' behavior. According to the findings, hotel employees' strong commitment to their organizations brings about active eco-friendly behavior, which increases the success of the environmental performance of their properties. These findings reinforce the assertions of previous studies (Carmeli, 2005; Liden et al., 2003) regarding the hypothesis that EOC is one of the key factors that enables the fostering of positive behavior dedicated to organizational interests. The findings of this study disclose the significant mediating roles of EEB and EOC on GHRM and HEP. According to the results, after decomposing the total effects of GHRM on HEP with the combined sample, a significant single mediation effect of EEB and a significant sequential mediation effect through EOC and EOB underscore the observed relationship between GHRM and HEP. In sum, this study supports that the social identity perspective has strong implications for employees' eco-friendly behavior. Employees are driven to act to pursue their company's environmental goal when it is integrated with their values. In addition, this study provides empirical evidence for the proposition that individual employees' environmental actions increase their company's environmental performance in the aggregate (Daily et al., 2009).

Interestingly, the two types of hotels have different results.

Specifically, GHRM of non-green hotels not only directly but also indirectly contributes to the achievement of a good pro-environment performance, while that of green hotels indirectly plays a part in having good environmental performance but only through the sequential mediating path of EOC and EEB. That is, GHRM directly influences HEP in non-green hotels but not in green hotels. In addition, a total effect is mathematically equal to a direct effect before intervention of the mediators. According to the results of the study, the total effects between GHRM and HEP are all significant in both types of hotels but are far greater in non-green than in green hotels. Similarly, the non-green hotels' R-squared value of HEP is higher than that of green hotels. The reason for the difference in green and non-green hotels is attributed to the structural differences in green infrastructure. Specifically, most green hotels have renovated their facilities to eco-friendly ones to meet the criteria of environmental certificates such as ISO 140001 and Green Seal. Therefore, the HEP of green hotels may be relatively less likely to directly rely on their GHRM program because their well-established eco-friendly facilities and equipment can contribute to the enhancement of HEP. Unlike the green hotels, non-green hotels' physical environment often does not satisfy green standards. Thus, the role of GHRM in improving HEP is much more critical for non-green hotels because their level of investment in green facilities to conserve energy and water and reduce waste is much lower than that of green hotels. One of the caveats of the findings is in their interpretation. It is important to note that the findings do not indicate that the non-green hotels are achieving more successful performances in environment protection than the green hotels but that environmental performance relies on GHRM more in the non-green hotels than in the green hotel settings.

5.1. Theoretical contribution

The findings of this study make important contributions to the literature. First, based on social identity theory, the results reveal the relationship between GHRM and EOC. Employees may perceive implementing GHRM practices as a positive organizational gesture that reflects genuine concerns about the environment. If hotel employees' perception of GHRM is favorable, they tend to exhibit a higher level of organizational commitment to the organization. The findings are consistent with that of Paillé et al. (2013), confirming that researchers can employ the principles of social identity theory to explain the nature of the psychological relation between a company and its employee in an environmental management context. This study invokes and gives empirical evidence for social identity theory on the relationship between GHRM and EOC in hotel organizations, adaptable to not only green hotels but also to non-green hotels.

The second important contribution lies in finding different patterns on the effects of GHRM on HEP for hotels with green certification versus those without. These findings are important due to the absence of evidence on the effectiveness of GHRM on HEP between green and non-green hotels. Since environmental protection and sustainability management has received much attention from hospitality academics, copious studies have focused on identifying environmental management standards to obtain green or eco-friendly certifications (e.g., Hsiao et al., 2014; Rahman et al., 2012). However, previous scholars paid relatively little attention on what efforts should be made to stimulate employees' participation in environmental protection from non-green hotels that are not likely to have enough funds to afford any type of green certificate. Furthermore, some previous scholars (Bohdanowicz et al., 2011; Yoon et al., 2016) called for the importance of GHRM in the hotel industry. However, they did not compare the effects of GHRM on its outcomes between green and non-green hotels. The findings of this study reveal that the influence of GHRM on HEP in green hotels are fully mediated by EOC and EEB, and those in non-green hotels are partially mediated. The interesting findings shed new light on better understanding the different role of GHRM practices on hotel

environmental performance on green and non-green hotels. Such new findings highlight the importance of GHRM as a critical initiative of non-green hotels for environmental protection and sustainable management, which contributes to hospitality research as a cornerstone that leads to the expansion of future research related to the GHRM of non-green hotels.

The third noteworthy contribution relates to the integrated GHRM scale, which future researchers can adopt for studies regarding GHRM in the hotel industry. None of the literature sources provided a compatible GHRM scale for the hotel industry even though a few scholars offered the scale of strategic HRM (Bohdanowicz et al., 2011), the social responsibility HRM (Shen and Benson, 2016), and staff education in respect to the environmental management system (Hsiao et al., 2014). The scale of this study focused on employees' perceptions of their organizations' GHRM implementations and how the hotels endeavor to encourage their employees' participation in the protection of the environment. This study generated the GHRM scale results by reviewing the relevant literature mentioned above and then corroborating the satisfactory levels of the scale reliability and construct validity in three different data sets. The researchers believe that this scale can be a footstep to facilitating hospitality scholars' further study of GHRM.

5.2. Practical implications

Many scholars and practitioners in the hospitality field have begun to recognize that having sustainable management, including environmental conservation, is becoming one of the significant responsibilities of hospitality organizations (Hsiao et al., 2014; Rahman et al., 2012; Yen et al., 2013). To deal with this responsibility, hospitality organizations should provide GHRM before other functional efforts in environmental management. According to the findings, it is important for hotel organizations to carry out pertinent GHRM as it assists in employees' feeling proud of their organizations' role in environmental protection, which not only reinforces employees' commitment to their organizations but also encourages eco-friendly behavior, resulting in the successful environmental performance of hotel organizations. More specifically, hotel organizations should make GHRM a top priority, whether the hotel property has or does not have green certificates.

In addition, this study strongly encourages hotel top management and HR managers to establish organizational core values aimed at environmental management when they formulate their GHRM policies. It may also be important for hotel organizations to hire employees who have similar environmental preservation values. Top management and HR practitioners thus need to consider how they can recruit and select employees who cherish environmental protection. HR practitioners can set a good example by describing their organizations' environmental values in the job posting and by evaluating applicants' values by utilizing situational questions with respect to environmental protection in the interview process. Moreover, HR practitioners need to provide their employees with education and training programs in association with environmental protection, which will help employees to fully understand not only the hotels' environmental policies but also enhance employees' awareness of the importance of environmental conservation.

Lastly, the different structural patterns of GHRM on HEP between green (full mediation: only through sequential mediation of EOC and EEB) and non-green (partial mediation: through both direct and indirect effects) hotels indicate that non-green hotel managers should develop different GHRM strategies from those of green hotels. To enhance environmental performance, green hotels should implement environmental training and educational programs that focus on encouraging their employees to take pride in belonging to a green hotel and to increase their level of commitment, thereby enabling employees to engage in eco-friendly behavior. Furthermore, green hotel HR managers may consider offering praise and recognition to stimulate employees' active participation in eco-friendly practices by giving non-

monetary awards. Somewhat differently, the direct effect of GHRM on EEB was significant for non-green hotels, implying that non-green hotel organizations should consider adopting reward programs such as monetary compensation rather than an emotional approach that helps lead to employees' eco-friendly behavior or a high level of participation in their hotels' environmental performance. In sum, to stimulate workers to engage in recommended eco-friendly behaviors, hotel managers could utilize extra, more custom-made support or monetary rewards for their staff members. Furthermore, the above suggestions for green hotels are based on a long-term vision of ecological sustainability, while the recommendations for non-green hotels originate from short-term strategies of top management.

6. Limitations and future research

There are some limitations in the present study, but the limitations can serve as avenues for future research. First, common method affects the findings in this study because the predictor (i.e., GHRM) and criterion variable (i.e., EFB) were self-rated by the same respondents. Bou-Llusar et al. (2016) suggest that researchers obtain predictor and criterion variables from different raters or sources to limit the risk of common method bias. Future studies should consider collecting data from supervisors or coworkers to rate employees' eco-friendly behavior. Second, this study collected data from an eastern country, Thailand. Hence, scholars should use caution when generalizing the findings. This study does not investigate cultural differences; therefore, future studies across different cultural contexts would decide whether the outcomes of this research are culture specific.

For future research to be most informative, it is critical to integrate other factors as determinants of eco-friendly behaviors in the workplace. For example, individual self-efficacy is a potential determinant of eco-friendly behavior. People with high levels of confidence in their abilities to complete tasks tend to participate in eco-friendly behavior (Meinhold and Malkus, 2005). Thus, future research should continue to search for appropriate individual personal variables including self-efficacy. In addition, the authors suggest that future studies include more organizational factors, such as supervisory support behaviors, since supervisors can help individual employees to understand a vision of long-term sustainable environmental management (Egri and Herman, 2000).

Appendix A. . Description of measures

Green HRM

1. My hotel provides adequate training to promote environmental management as a core organizational value.
2. My hotel considers how well employee is doing at being eco-friendly as part of their performance appraisals.
3. My hotel relates employee's eco-friendly behavior to rewards and compensation.
4. My hotel considers personal identity-environmental management fit in recruitment and selection.
5. Employees fully understand the extent of corporate environmental policy.
6. My hotel encourages employees to provide suggestions on environmental improvement.

Employees' organizational commitment

1. I talk up my firm to my friends as a great firm to work for.
2. I find that my values and the firm's values are very similar.
3. I am proud to tell others that I am a part of this firm.
4. I am willing to put in a great deal of effort beyond what the firm normally expects in order to help my firm be successful.
5. My firm really inspires the very best in me in the way of job

performance.

6. I am extremely glad that I chose this firm to work for over the others I was considering at the time I joined.
7. I really care about the fate of this firm.
8. For me, this is the best of all possible firms for which to work.

Employees' eco-friendly behavior

1. Before I get off work, I turn off the electric appliances, such as computers, TV monitor, etc.
2. When I leave a room that is unoccupied, I turn off the light.
3. I sort and recycle garbage in the workplace.
4. I conserve materials at work
5. I reuse materials at work
6. I limit water use in toilet to save water.
7. I pay close attention to water leak

Hotel environmental performance

Environmental management within our hotel has...

1. Reduced wastes
2. Conserved water usage
3. Conserved energy usage
4. Reduced purchases of non-renewable materials, chemicals, and components.
5. Reduced overall costs
6. Improved its position in the marketplace
7. Helped enhance the reputation of our hotel

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