



# Top management green commitment and green intellectual capital as enablers of hotel environmental performance: The mediating role of green human resource management

Kavitha Haldorai<sup>a</sup>, Woo Gon Kim<sup>a,\*</sup>, R.L. Fernando Garcia<sup>b</sup>

<sup>a</sup> International Center for Hospitality Research & Development, Dedman College of Hospitality, Florida State University, 288 Champions Way, UCB 4117, P.O. Box 3062541, Tallahassee, FL, 32306, USA

<sup>b</sup> SM Hotels and Conventions Corporation, Calabarzon, Philippines

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## ABSTRACT

The importance of hotel environmental performance has been acknowledged by scholars. However, the factors that drive hotel environmental performance have not been thoroughly investigated. To address this gap, and drawing on the resource-based view perspective, this study investigated the impact of top management green commitment and green intellectual capital on green human resource management and, in turn, its impact on hotel environmental performance. The mediating role of green human resource management was also examined. To collect data from 800 hotel employees in Manila, a longitudinal study using an online survey was employed. The findings suggest that top management green commitment and green intellectual capital had a direct impact on green human resource management and hotel environmental performance. The results also support the mediated relationships. The theoretical and practical implications are discussed. The limitations and areas of future research are outlined.

## 1. Introduction

The Philippines is prone to natural disasters such as earthquakes, volcanic eruptions, typhoons, floods, and landslides. It suffers equally from human-caused environmental degradation aggravated by pollution and deforestation (Juan, 2020). The Philippines is ranked near the tail-end among countries promoting sustainable tourism, and Manila, the capital, has been judged to be one of the least sustainable cities in the 2018 Sustainable Cities Index (Gomez, 2018). The Philippines is listed as the ninth most vulnerable country according to the Climate Change Vulnerability Index (Federigan, 2020). The international tourist emission factor is highest in the Philippines. The average international tourist emission factor is above three, indicating that international travelers to the Philippines emit carbon at more than three times the rate of a local (Arora, 2021). The Philippines tourism industry contributed 39.3% to total carbon dioxide emissions in 2019 (Philippine Statistics Authority, 2019). Hotels use over 60% of the energy, via direct combustion of fuel (UNEP, 2019). In addition, the Philippines hotel industry is the largest consumer of single-use plastics leading to the pollution of land and water, with packaging alone accounting for up to 40% of a hotel's waste

stream (Reef-World, 2020). To tackle environmental issues, the Philippines came up with a sustainable development strategy, which includes assimilating environmental consideration in administration, promoting environmental education, and strengthening citizens' participation in environment protection. For instance, the Trade Union Congress of the Philippines has taken initiatives to make business firms greener and more sustainable (Ocampo, 2010). Similarly, the National Economic and Development Authority launched the Philippine Development Plan (2017–2022) to “green” high energy consuming industries, such as the hospitality industry (NEDA, 2021). Furthermore, UNEP (2019) stated that to make the Philippines a globally recognized tourism destination, the only possibility is through a more environmentally sustainable tourism sector.

Since the hospitality industry contributes directly to environmental concerns regarding water, energy, and waste (Chan et al., 2014), the conservation of the environment has remained a critical issue in the hospitality industry (Gossling, 2000; Kim et al., 2020). Driven significantly by global consumer awareness, the hospitality industry has started to integrate green strategies into their design, construction, and daily operations. In the Philippines, the trend toward green hotel

\* Corresponding author.

E-mail addresses: [khaldorai@fsu.edu](mailto:khaldorai@fsu.edu) (K. Haldorai), [wkim@fsu.edu](mailto:wkim@fsu.edu) (W.G. Kim), [rl.fernando.garcia@outlook.com](mailto:rl.fernando.garcia@outlook.com) (R.L.F. Garcia).

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operations has begun recently. To improve environmental performance, they have not only begun to use green products, adopt waste reduction and management policies, and use water recycling, but they have also started greening human resource management (Ragas et al., 2017). This is significant because ultimately organizational members are responsible for enacting green policies.

It is widely recognized that support for environmental issues from the top management team leads to positive perception of green practices among employees, which in turn results in sustainable environmental performance. Due to senior executives' positional influence within the corporate hierarchy, the top management team is arguably one of the hotel's most valuable resources, as are the likely implications resulting from their commitment to specific goals (Michalisin et al., 2004). Also, in line with the logic of the resource-based view (RBV), a top management team's commitment to addressing environmental issues is not only "valuable," but also "rare," "expensive to emulate," and "non-substitutable" (commonly known as the "VRIN" criteria) (Harvey et al., 2013). At the same time, Banerjee et al. (2003) stated that top management commitment is identified as an antecedent to the internal environmental orientation of organizations. Similarly, intellectual capital (IC) is also consistent with RBV's four firm resource attributes: it is "rare," "valuable," "costly to imitate," and "non-substitutable." In other words, IC literature has its base deeply rooted in the RBV (Peppard & Rylander, 2001). IC is thus considered context-specific, and investments in IC are likely to vary depending on the type of organization (Bontis et al., 1998). Studies on IC have gained widespread interest among researchers in management literature; however, the concept of integrating environmental concepts with IC (green IC) was put forward by Chen in 2008 and did not emerge as a significant area until recently. Kamasak (2017) noted that the contribution of organizational resources, such as IC, in affecting a firm's environmental performance is understudied in academic literature. An organization's environmental performance reflects its degree of commitment to conserve the natural environment. The environmental performance of a firm is measured by a series of metrics such as pollution reduction, recycling efforts, and waste minimization (Molina-Azorín et al., 2015). Nearly all industries have recently adopted environmental management practices and have demonstrated increased efficiency through effective waste handling and the responsive disposal of hazardous materials. In general, this is because of the global awakening in the 1970s, which recently gained momentum in ASEAN countries and forced firms to become environmentally conscious (Yong et al., 2020). In this study, we consider top management's green commitment (TMGC) and green intellectual capital (GIC) as two important factors which lead to environmental performance for the following reasons: The RBV theory postulates that organizations should develop and effectively integrate unique bundles of strategic resources to achieve superior performance (Barney et al., 1991). Therefore, in this study, we consider how a hotel's TMGC and GIC can influence hotel environmental performance (HEP). Additionally, to achieve a higher level of environmental performance, firms must also leverage human resources to embrace green objectives, thereby linking environmental performance and human resource management (HRM) (Jackson et al., 2014). Thus, the concept of "green human resource management" (GHRM) has been formulated (Jabbour, 2011; Jackson et al., 2011; Renwick et al., 2013) as a response to the crucial need to expand HRM's role in pursuing environment-friendly business operations. In this study, we adopt Ren et al.'s (2018) definition of GHRM. They defined it as "phenomena relevant to understanding relationships between organizational activities that impact the natural environment and the design, evolution, implementation, and influence of HRM systems" (p.778). Furthermore, when top management is committed to the environment and green intellectual capital, it is expected that they will lead the implementation of GHRM by attracting, developing, and retaining employees who are environmentally conscious (Daily & Huang, 2001)(Daily & Huang, 2001; Obeidat et al., 2020). Hence, the study will also examine the direct and mediating role

of GHRM on HEP.

## 2. Theoretical background and hypotheses development

### 2.1. Resource-based view

This study is based on the resource-based view (RBV) theory of the firm. The RBV theory of the firm originated in the early 1980s and became progressively more visible in the 1990s (Barney, 1991; Wernerfelt, 1984), playing an important role in legitimizing the importance of HRM to strategy research (Wright et al., 1994). RBV argues that firms must possess resources that are "valuable," "rare," "imperfectly imitable," and "non-substitutable;" resources with these attributes hold the potential for sustained competitive advantage over other organizations (Hoskisson et al., 1999). According to the RBV of the firm, a competitive advantage can be attained when organizations use their resources to leverage internal strengths and neutralize weaknesses in their external environment. The extent to which an organization possesses and manages such resources determines the height of a firm's performance (Barney, 1991). From the RBV perspective, a firm's resources include physical, human, and organizational capital. Physical capital includes equipment, raw materials, and any other physical assets of the firm. Human capital refers to the firm's collective experience, training, and intelligence, as well as the insights of its employees. Organizational capital reflects the firm's reporting structure and systems, as well as relationships among groups in the firm and within its environment. Resources are "valuable when they enable a firm to conceive of and implement strategies that improve its efficiency and effectiveness" (Barney, 1991, p. 106). A resource is deemed valuable and rare as long as it is possessed by only a few competitors. At times, a single resource can be ineffective and a bundle of physical, human, and organizational capital is essential to implement a strategy to gain a sustainable competitive advantage. In either case, a firm's resources or resource bundle enables them to conceptualize and implement strategies that others cannot. This happens because the current or potential competitors lack similar resources and the ability to formulate similar strategies, to execute them, or both (Barney, 1991). Although a firm's resources can be diverse, RBV emphasizes IC as one of the most important intangible resources (Wright et al., 1994). In the current study, we consider the green commitment of top management and green intellectual capital to be two important intangible resources that can influence GHRM and contribute to the environmental performance of firms. In line with the RBV paradigm, TMGC and GIC are valuable organizational resources that drive GHRM, which in turn contributes to superior environmental performance.

### 2.2. Hypotheses development

#### 2.2.1. Top management's green commitment and green human resource management

TMGC refers to the degree to which an organization's senior members are regarded as stewards of the natural environment. Chadwick et al. (2015) considered that as these members are responsible for leveraging an organization's resources, their commitment is therefore required to accomplish an organization's strategic objectives. Implementation of green initiatives involves all employees throughout the organization and this can be achieved only with commitment from senior management (Yusliza et al., 2019). When top management is committed to environmental issues, they make the necessary resources available for the successful implementation of GHRM. Yusliza et al. (2019) found that the commitment of top management is related to all dimensions of GHRM including "green analysis and description of job position," "green recruitment and green selection," "green training," "green performance," and "green rewards." Top management commitment is believed to be one of the crucial aptitudes in organizations that aid in the development and execution of corporate environmental

practices. As a central component, top management plays a key role in evaluating HRM practices as they are implemented in organizations. As such, it is expected that when the top management of an organization is aware of the merits of environmental performance, they will adopt HRM practices geared toward organizational environmental outcomes (Bansal & Roth, 2000). They noted that top management teams have recognized the importance of combining environmental management and human resource management. El-Kassar and Singh (2019) contended that the success of environmental management initiatives depends on top management commitment to fostering change and employee empowerment, as well as to communicating environmental information. Top management teams who are committed to the environment tend to identify the potential benefits and market opportunities that result in environment-friendly HRM practices. Hence, they adopt an open and supportive attitude toward such HR practices. The researchers concluded that HRM is a bridge that connects an organization's goals to its intended performance. In a similar vein, top management that is committed to the environment achieves its intended environmental performance through GHRM. Therefore, we posit that:

**H1.** "TMGC can positively influence GHRM."

### 2.2.2. Green human resource management and hotel environmental performance

Past research has demonstrated that HRM practices play a major role in the success of environmental performance programs (Jabbour, 2011). Environmental performance refers to the "commitment of organizations to protect the environment and to demonstrate measurable operational parameters that are within the prescribed limits of environmental care" (Roscoe et al., 2019, p. 2). Hotel environmental performance is defined as "a hotel's environmental outcome from the environmental activities that reduce negative effects on the environment" (Kim et al., 2019, p. 85). (Jabbour (2011)) investigated ISO 14001 certified organizations and found that the organizations where employees were motivated through appropriate HRM practices had superior environmental performance. Yusoff et al. (2020) demonstrated that GHRM practices, including "green recruitment and selection," "green training," "green performance appraisal," and "green compensation," are important strategies that enhance an organization's environmental performance. They further noted that those organizations that wish to hire applicants with eco-friendly attitudes will ask questions related to the environment during the interview session and will choose applicants with strong environmental values. With this type of candidate, organizations can enhance their environmental performance. Through green training, organizations can update their employees on green practices and procedures and communicate both the benefits of environmental performance and the organization's work toward enhancing its environmental performance. As employees gain knowledge on environmental issues via environmental training, their contribution to the environmental performance of the organization increases. Therefore, environmental training is vital for environmental performance (Renwick et al., 2013). Further, green training empowers employees with the "knowledge, attitudes, and skills" that can assist them in identifying environmental issues and taking appropriate action at the workplace to improve green performance (Latan et al., 2018). Green training enables employees to recognize environmental issues and take appropriate actions at the workplace that can increase green performance of the organization (Pham et al., 2019). Similarly, Ma et al. (2021) asserted that when employees are given green training, it enhances their skills, abilities, knowledge, commitments, and attitude toward environment management. Organizations that emphasize green employee engagement create opportunities for employees to contribute their green knowledge and abilities to environmental-related tasks, take on green initiatives at work, and give innovative green solutions for waste minimization, thus improving the efficiency of resource utilization and boosting the environmental performance of the organization (Pham

et al., 2020). To promote a culture of environmental performance, environment-related criteria are included in the performance evaluations of employees. Green performance assessment is important in achieving environmental performance goals because it offers a strategy for measuring the performance of workers based on green criteria (Jabbour, 2011). Assessing the environmental performance of employees aligns behaviors, guarantees responsibility, and keeps the focus on environmental objectives, which in turn improves the organization's green performance (Guerci et al., 2016). Compensation plays an important role in motivating and gaining commitment from employees. When compensation is linked to green awareness, it minimizes unacceptable behaviors and reinforces acceptable ones (Jackson et al., 2011). To improve organizations' environmental performance, it is critical to introduce a reward system that includes both financial and non-financial compensation for employees (Jabbour, 2011). With a proper green reward system, the firm benefits from environmental performance. Therefore, organizations can achieve superior environmental performance via GHRM, because it creates "green employees" by concentrating on "green recruitment and selection," "green training," "green performance appraisal," and "green compensation." In sum, GHRM includes environment-friendly HR activities that contribute to improved efficiencies, cost reduction, and superior environmental performance. A significant body of research has established the link between GHRM and environmental performance (Latan et al., 2018; Ren et al., 2018; Yusoff et al., 2020). Specifically, Kim et al. (2019) and Pham et al. (2020) demonstrated that GHRM leads to environmental performance in the hospitality industry. Therefore, it can be hypothesized that:

**H2.** "GHRM positively influences HEP."

### 2.2.3. Top management green commitment and hotel environmental performance

Considering environmental issues at the strategic level benefits organizations because it enables organizations to recognize new business prospects using environmental performance as a source of strategic edge (Bansal & Roth, 2000). The researchers further asserted that top management teams understand that commitment to environmental issues leads to competitive advantages through lower costs, higher market share, improved image, and technological leadership. Daily et al. (2007) asserted that top management teams could serve as stewards of change to help the organization implement an environmental management system. Top management commitment is necessary for firms that would like to be considered environment-friendly because this commitment contributes to improved environmental performance (Colwell & Joshi, 2013). Top management teams who are environmentally conscious can effectively coordinate environmental management activities across departments, as well as firm boundaries (Teixeira et al., 2016). They further asserted that top management teams with a concern for environmental issues are regarded as intangible assets in the context of continuous environmental improvement. When senior management recognizes the possible gains of environmental initiatives, they will be committed to participating in measures that will eventually boost environmental performance (Latan et al., 2018). Spencer et al. (2013) found that firms that follow a more sophisticated structure to achieve their environmental performance goals reflect the commitment of top management to environmental sustainability. Top management participation in the sustainability management of an organization is one of the main success drivers for sustainable development in an organization. Top managers not only provide employees with resources and act as role models for facilitating sustainability initiatives, they also build a green organizational culture through their active commitment and leadership (Kiesner & Baumgartner, 2019). Conversely, studies have shown that a lack of top management commitment to the environment would cause environmental efforts to fail, leading to poor environmental performance. Therefore, it is hypothesized that:

**H3.** "TMGC is positively related to HEP."

From the above discussion it is evident that although proper drivers are necessary, superior environmental performance through green practices may not be attained without top management commitment. However, there is a paucity of research examining the mediating role of GHRM (Obeidat et al., 2020). Lopez-Gamero et al. (2008) suggested that certain contextual factors are important and can serve as prerequisites to adopting HRM. They noted that top management who are committed to the environment achieve environmental performance by investing in HRM. Similarly, it can be asserted that commitment from top management is necessary for implementing GHRM, which in turn can have a positive impact on environmental performance. Additionally, since TMGC is positively related to GHRM, which in turn is positively related to HEP, we also hypothesize:

**H4.** “GHRM mediates the relationship between TMGC and HEP.”

#### 2.2.4. Green intellectual capital and hotel environmental performance

IC is the driving force behind organization performance and the creation of future wealth (Bontis et al., 1998). The RBV theory has been employed in several studies to demonstrate the link between IC and firm performance (Molodchik et al., 2012). The theory postulates that it is organizational resources and capabilities that contribute to value creation and high firm performance, not industry structure (Bontis et al., 1998). In other words, the RBV emphasizes the effective utilization of internal resources, both tangible and intangible, by organizations to create a competitive advantage (Wernerfelt, 1984). According to Wernerfelt (1984), these internal assets include brand names, patents, internal technological know-how, employee expertise, business contacts, equipment, and efficient practices and procedures. Intangible resources that are developed internally have the ability to produce the most valuable benefits, in comparison to tangible resources that are acquired. The RBV supports the idea that the effective utilization of intangible resources will generate value over time. RBV theory demonstrates that organizations that make continuous efforts to increase intellectual capital can heighten their long-term growth and performance. IC has traditionally been categorized into three components: “human capital,” “structural capital,” and “relational capital” (Roos et al., 1997). “Human capital” refers to the skills and knowledge that an organization’s employees have generally acquired during their working life (Bontis, 1998). It includes education, experience, attitudes, knowledge, professional skills, mental abilities, competencies, and creativity. The results of Wright et al. (1994) demonstrated that having strong human capital is advantageous to organizations as it is not only valuable but also very difficult to imitate. “Structural capital” is the intangible infrastructure that a firm has built over the years. It includes organizational structure, management philosophy, corporate governance, patents, intellectual property, information systems and technology, performance metrics, procedures and manuals, databases, and the state of technology. “Relational capital” includes distribution channels, customer and supplier relations, customer loyalty, strategic partnerships, governmental and industrial networking, intermediaries, and partners (Ginesti, 2019). To extend this to the context of environmental management, Chen (2008) introduced the term green intellectual capital. He indicated that GIC helped firms to follow stringent international environmental regulations and generate value, as well as fulfill strong expectations from customers on environment-related issues. Chen (2008) further classified GIC into “green human capital” (employees’ knowledge, skill, capability, experience, attitude, creativity, innovation, and commitment regarding environment protection), “green structural capital” (compensation systems, information systems and technology, databases, operation procedures, management philosophy, organizational culture, organization image, patent, copyright, and trademarks regarding environmental protection), and “green relational capital” (collaborative relationships with customers, vendors, and partners for corporate environmental management and green innovation). He also demonstrated that these factors enable organizations to produce positive

environmental outcomes. For instance, Tonial et al. (2019) found that Brazilian firms that adopted human, structural, and relational capital management practices were able to maximize their sustainability-oriented activities and performance. Yusliza et al. (2019) found that the dimensions of GIC had a positive impact on economic, environmental, and social performance among manufacturing firms. Similarly, Mansoor et al. (2021) demonstrated that the environmental performance of a firm is highly dependent on GIC. Therefore, we propose:

**H5.** “GIC will be positively related to HEP.”

#### 2.2.5. Green intellectual capital and green human resource management

Previous research has shown how HRM practices impact the development of various aspects of intellectual capital (Yang & Lin, 2009). But, Kong and Thomson (2009) contradicted these views and argued that intellectual capital, strategic HRM, and HRM concepts are closely linked, and they further suggested that intellectual capital should be the driving force in these relationships. They asserted that the components of intellectual capital are interlinked, and intellectual capital should play a pivotal role in HRM practices if firms are to achieve optimum human resource effectiveness. They contended that measuring both tangible and intangible assets assists the organization’s management in making strategic human resource decisions that strengthen HRM performance. They suggested that future research should empirically explore the relationships between intellectual capital and HRM practices. According to the RBV perspective, an organization’s intangible resources like GIC are more likely to contribute to GHRM (Yusoff et al., 2020). Yong et al. (2019) found “green human capital” and “green relational capital” promoted the adoption of GHRM among manufacturing firms. Similarly, Mansoor et al. (2021) noted that employees may have gathered environmental knowledge from their previous jobs and can facilitate environmental knowledge development in the current firm. The sensitivity and concern for environmental issues demonstrated by employees motivates HR departments to promote this kind of knowledge. Therefore, we hypothesize the following:

**H6.** “GIC will be positively related to GHRM.”

The ability of an organization to acquire, integrate, store, share, and apply knowledge is enhanced when every member is treated as a part of the “knowledge crew.” This brings increased importance to strategic HRM processes and HRM practices (Kong & Thomson, 2009). They further stated that intellectual capital emphasizes “re-thinking,” “re-designing,” and integrating intellectual resources into an organization’s strategy. This includes the concerns senior HR executives and HR practitioners may have about developing knowledge through hiring, training, and job rotation. In sum, the level of intellectual capital found in an organization is likely to influence the organization to make better decisions, improving organizational performance through well-defined strategic HRM and HRM. In a similar vein, Mansoor et al. (2021) asserted that GIC will be promoted in an organization when the HR department strongly pursues initiatives that are related to environmental care. Hence, GHRM mediates the relationship between GIC and environmental performance. Also, since GIC is positively related to GHRM, which in turn positively influences HEP, we also postulate that:

**H7.** “GHRM mediates the relationship between GIC and HEP.”

The hypothesized relationships are shown in Fig. 1.

### 3. Methodology

#### 3.1. Sample and data collection

First, we generated a list of the top 25 green hotels determined by disclosure of the “ANAHAW” certification on their corporate web page. The Department of Tourism Philippines has recently awarded the first



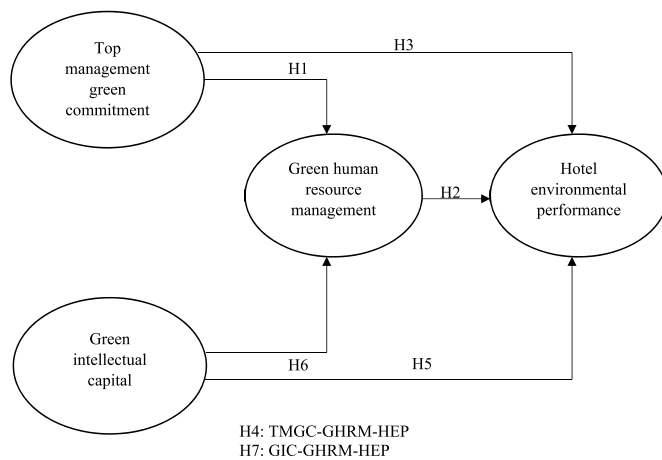


Fig. 1. Proposed research model.

national green certification, known as the “ANAHAW-Philippine Sustainable Tourism Certification,” to these hotels. ANAHAW, launched in 2018, is a joint initiative of the Department of Tourism and Center for Appropriate Technology through the “Zero Carbon Resorts” project, funded by the European Union under the “Switch Asia Program.” The ANAHAW certification empowers hotels through innovations and techniques that help them to reduce waste and carbon emissions, save energy, water, fuel, and other resources, and improve their overall operational efficiency (Talavera, 2018). Additionally, most of these hotels also had either a silver or gold US-based “Leadership in Energy and Environmental Design (LEED)” certificate that is internationally recognized. One of the research team members contacted these hotels to find out if the hotel firms were implementing green human resource practices, and to discuss the purpose of the study. Eight hotels, including two luxury, two upscale, and four mid-scale, agreed to participate in our research endeavor. An online survey was designed to investigate the proposed research model and to test the relationships. The survey was developed with the assistance of three professors with experience in hospitality HR and sustainability research, and three practitioners who have participated in the implementation of green practices from the industry, to check and strengthen the validity of the scale. A revised version of the survey was finalized and then used to test the hypothesized relationships. The target population consisted of both middle and senior-level managers (including general managers, HR managers, sustainability managers, owners, and other senior managers directly responsible for the design and implementation of green policies), as well as full-time employees who met the following criteria: they were involved in the adoption of green practices, had knowledge of the environmental performance of their hotel, and had a minimum of one-year of work experience in these eight hotel firms. These employees and managers knew the green practices adopted, as well as the environmental performance of the organization. Since the proposed model includes mediated relationships, a three-wave design was utilized where cause and effect were temporally separated for two months. The independent variables (TMGC and GIC) and demographic variables were collected at time 1, the mediator (GHRM) at time 2, and the dependent variable (HEP) at time 3. The time gap between each wave was two months. We developed an online survey and the human resource managers of the hotels co-ordinated the survey administration. Before the second and third-wave survey, we also confirmed that the hotels had not made substantial changes in their green policies and practices, as that might affect the responses in the subsequent waves. At the beginning of each wave, we guaranteed the confidentiality and anonymity of employee data and assured the participants that the responses were accessible only by the research team. Once the participants accessed the survey link, the system automatically assigned a unique identification code to protect the address that contained private data (name and/or

surname, if used in the email address). This unique identification code was used in subsequent surveys to match responses. The survey link was valid for seven days and automatically sent a reminder inviting employees to participate on the third day. The online survey was designed in such a way that it did not allow the participants to move backward while completing the survey; this prevented employees from changing the answers they gave initially. The system also blocked the participants from participating in the survey more than once. Additionally, a timer recorded the time taken by the participants to complete the survey. Participants who took a very short time to respond were excluded following the recommendations of Wise and Kong (2005). After the initial survey was completed, the system automatically sent an invitation reminder to participate in follow-up surveys. At the end of the first wave, we obtained 950 responses; the number of responses dropped to 873 by the end of the second wave. At the end of the third wave, we obtained 800 matched responses. Further, the results of the *t*-test for demographic variables showed that there was no significant difference between participants who completed all the surveys and those who did not, indicating non-response bias was not a problem in this study (Armstrong & Overton, 1977).

### 3.2. Measures

All measures were rated on a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

**Top management green commitment:** To measure TMGC, the authors adapted four-items from Daily et al.’s (2007) management commitment to the environmental management system. A sample item includes: “Top management and ownership groups allocate sufficient resources to implement environmental projects.” TMGC was assessed as a first-order reflective construct.

**Green intellectual capital:** GIC was measured using three dimensions, namely, “green human capital” (five items), “green structural capital” (nine items), and “green relational capital” (five items). These items were adapted from Chen (2008). GIC was assessed as a reflective second-order latent construct whose three first-order dimensions are reflective.

**Green human resource management:** GHRM was assessed using four dimensions, namely “green recruitment and selection” (four items), “green training and development” (five items), “green performance management and appraisal” (three items), and “green compensation and rewards” (three items). These items were adapted from Jabbour (2011). GHRM is a reflective second-order construct with four reflective first-order dimensions.

**Hotel environmental performance:** HEP was measured using seven items from Kim et al. (2019). The sample items included: “Environmental management within our hotel has reduced waste,” and “Environmental management within our hotel has conserved water usage.” HEP was assessed as a first-order formative construct.

### 3.3. Data analysis

To analyze the proposed research model, we employed PLS-SEM using SmartPLS software (Ringle et al., 2015) because of the soft assumptions on distribution, the prediction-oriented nature of the study, the complex model (first and second-order constructs with reflective and formative indicators), and the ease of model specification. Additionally, it allows the capability to simultaneously deal with multiple dependency relationships represented with unobservable concepts with statistical efficiency (Hair et al., 2019). Also, a bootstrapping method was employed to determine the significance levels of the loadings, weights, and path coefficients.

## 4. Results

### 4.1. Descriptive statistics

The employees' experience in the hotel industry ranged from 1 to 46 years with an average of 12.9 years. The experience in the current hotel firm ranged from 1 to 11 years with an average of 6.7 years. The mean and standard deviations (denoted in parentheses) of the constructs are as follows: TMGC: 3.631 (0.954), green human capital: 4.056 (0.541), green structural capital: 4.057 (0.516), green relational capital: 4.073 (0.557), green recruitment and election: 4.058 (0.537), green training and development: 4.042 (0.540), green performance management and appraisal: 4.039 (0.579), green compensation and reward: 4.065 (0.558), and hotel environmental performance: 4.059 (0.504). The respondent profile is shown in Table 1. As indicated in Table 1, the majority of the 800 participants are male and approximately one-half of these falls in the age group 25–34 years. More than half the respondents have earned a 4-year college degree and are affiliated with the Food and Beverage department.

### 4.2. Hypotheses testing

The proposed model was tested using the two-step approach suggested by Anderson and Gerbing (1988). First, we assessed the measurement model to test the validity and reliability of the instruments following the recommendations of Hair et al. (2019). Second, the structural model was examined to test the proposed hypotheses. For the measurement model, the loadings, average variance extracted (AVE), and the composite reliability (CR) were assessed. The loadings for all reflective items exceeded the threshold value of 0.7 (except TMGC1 and GSC9), the AVE is above the 0.5 threshold, and the CR was above 0.7 (Hair et al., 2019). Since the study had 2 s-order constructs, namely GIC and GHRM, the validity and reliability of the second-order constructs was also examined, as shown in Table 2. The second-order measurements were also valid and reliable. The factor weights were examined to validate the formative measures. As shown in Table 2, the formative indicators significantly contribute to their respective constructs as they are significant at  $p < 0.05$  (Chin, 1998). We then assessed the multicollinearity, and the results indicated that the variance inflation factor (VIF) was less than 5 (Hair et al., 2019).

The discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) criterion (Henseler et al., 2015). The HTMT values

**Table 1**  
Profile of respondents.

Category	Frequency	Percentage
<i>Gender</i>		
Male	472	59
Female	328	41
<i>Age (years)</i>		
<25	144	18
25–34	384	48
35–44	176	22
45–54	72	9
>55	24	3
<i>Education level</i>		
High school graduate and below	200	25
2-year college	48	6
4-year college	544	68
Post graduate	8	1
<i>Department</i>		
Front Office	136	17
Housekeeping	120	15
Food and Beverage	280	35
Food Production	104	13
Marketing & Sales	24	3
Human Resources	64	8
Maintenance	72	9

**Table 2**  
Results of measurement model.

Construct	Loading	CR	AVE
<b>Top management green commitment (First-order reflective)</b>		0.781	0.542
Top management at our company treats environmental protection as an important issue.	0.739		
Top management and ownership groups allocate sufficient resources to implement environmental projects.	0.717		
Top management at our company follows up on suggestions for improvement on environmental protection.	0.753		
<b>Green intellectual capital (Second-order reflective)</b>		0.926	0.500
<b>Green human capital (First-order reflective)</b>		0.860	0.552
The contribution of environmental protection of employees in our firm is better than our major competitors.	0.710		
Employee competence with respect to environmental protection in our firm is better than that of our major competitors.	0.741		
The product and/or service qualities of environmental protection provided by the employees of this firm are better than our major competitors.	0.746		
The amount of cooperative teamwork with respect to environmental protection in our firm is more than that of our major competitors.	0.756		
Our managers fully support our employees in achieving their goals with respect to environmental protection.	0.760		
<b>Green structural capital (First-order reflective)</b>		0.906	0.547
The management system for environmental protection in our firm is superior to that of our major competitors.	0.713		
Our firm is more innovative with respect to environmental protection than our major competitors.	0.720		
The profit earned from the environmental protection activities of our firm is greater than that of our major competitors.	0.712		
The ratio of investments in R&D expenditures to sales for environmental protection in our firm is more than that of our major competitors.	0.739		
The ratio of employees to the total employees in our firm who are engaged in environmental management is more than that of our major competitors.	0.700		
Investments in environmental protection facilities in our firm are greater than those of our major competitors.	0.751		
Competence in developing green products in our firm is better than that of our major competitors.	0.787		
The knowledge management system for environmental management in our firm is favorable for the accumulation of knowledge of environmental management.	0.791		
<b>Green relational capital (First-order reflective)</b>		0.887	0.611
Our firm designs products and/or services in compliance with the environmental desires of our customers.	0.793		
Customer satisfaction with respect to environmental protection is greater at our firm than at our major competitors.	0.776		
The cooperative relationships with our upstream suppliers concerning environmental protection at our firm are stable.	0.758		
The cooperative relationships with our downstream clients or channels concerning environmental protection at our firm are stable.	0.799		
Our firm has good cooperative relationships concerning environmental protection with our strategic partners.	0.782		
<b>Green human resource management (Second-order reflective)</b>		0.929	0.501
	0.898	0.840	0.568

(continued on next page)

Table 2 (continued)

Construct	Loading	CR	AVE
<b>Green recruitment and selection (First-order reflective)</b>			
This organization is very particular about mainly recruiting and selecting employees with environmental concerns, knowledge, and attitude.	0.748		
In the recruitment process, our organization focuses on applicants with environmental insights, attitude, and concerns.	0.741		
This organization is rigorous in identifying, recruiting, assessing, and selecting new employees with environmental concerns, knowledge, and attitude.	0.767		
Applicants for positions in this organization, undergo well-designed interviews which include questions about their environmental attitude, knowledge, and concerns.	0.758		
<b>Green training and development (First-order reflective)</b>			
This organization offers ecological training for all employees.	0.747		
In this organization environmental training is a priority.	0.737		
Organizational members who receive ecological training have the opportunity to implement green knowledge in everyday activities.	0.746		
In this organization environmental training is continuous.	0.754		
In this organization environmental training is an important investment.	0.718		
<b>Green performance management and appraisal (First-order reflective)</b>			
Environmental goals and objectives are implemented in this organization for all employees.	0.785		
Contributions to environmental management are assessed.	0.782		
If an employee does not contribute to improving environmental performance, his/her chance of career advancement will be negatively affected.	0.798		
<b>Green compensation and reward (First-order reflective)</b>			
Employees are rewarded for making suggestions for improvement on environmental programs.	0.780		
Employees who have achieved or surpassed their environmental goals are rewarded with bonus pay or other monetary awards.	0.785		
Employees are recognized for taking initiative for environmental management through company environmental awards to individuals or teams.	0.779		
<b>Hotel environmental performance (First-order formative)</b>			
Environmental management within our hotel has reduced waste.	Weights	t-values	VIF
Environmental management within our hotel has conserved water usage.	0.194	2.631	1.179
Environmental management within our hotel has conserved energy usage.	0.187	2.579	1.093
Environmental management within our hotel has reduced purchases of non-renewable materials, chemicals, and components.	0.192	2.622	1.091
Environmental management within our hotel has reduced overall costs.	0.204	3.416	1.085
Environmental management within our hotel has improved its position in the marketplace.	0.232	3.644	1.079
Environmental management within our hotel has helped enhance the reputation of our hotel.	0.282	3.781	1.072
	0.291	3.977	1.068

≤ 0.85 represent the stricter criterion and values ≤ 0.90 represent the lenient criterion. As shown in Table 3, the values of HTMT were below the stricter criterion of 0.85. In sum, the reflective measurement model showed sufficient convergent and discriminant validity.

Next, the structural model was assessed. The bootstrapping procedure was followed with 5000 subsamples (Hair et al., 2019). First, the

Table 3

Discriminant validity.

	TMGC	GIC	GHRM	HEP
TMGC				
GIC	0.648			
GHRM	0.659	0.708		
HEP	0.622	0.613	0.682	-

effect of the two predictors on GHRM was tested. The R<sup>2</sup> was 0.842, indicating that the two predictors explained 84.2% of the variance in GHRM. TMGC (β = 0.217, p < 0.001) and GIC (β = 0.431, p < 0.001) are positively related to GHRM, thus supporting H1 and H6. Next, the effect of GHRM on HEP was examined. GHRM (β = 0.504, p < 0.001) was positively related to HEP, thus supporting H2. An R<sup>2</sup> of 0.805 indicated that TMGC, GIC, and GHRM explain 80.5% of the variance in HEP. TMGC (β = 0.141, p < 0.001) and GIC (β = 0.384, p < 0.001) were positively related to HEP, supporting H3 and H5. To test the mediation hypotheses, bootstrapping the indirect effect was performed, following the recommendations of (Preacher and Hayes (2008)). Results showed that TMGC → GHRM → HEP (β = 0.290, p < 0.05) and GIC → GHRM → HEP (β = 0.144, p < 0.05) were significant. The confidence intervals bias-corrected 95% also did not show any intervals straddling a zero, thus confirming the findings. Hence, H4 and H7 were also supported. The results of hypotheses testing are summarized in Table 4.

5. Discussion

As expected, the findings are consistent with prior studies. TMGC was positively related to GHRM (Yusliza et al., 2019) indicating that top management can propagate practices with an environmental approach at all levels of the organization. Previous studies have underscored the role of top management as an integral part of the implementation of management programs in general, and environmental management programs in particular (Daily et al., 2007). This result is also in line with the findings of Obeidat et al. (2020) that top management commitment to the environment is likely to increase the chances of GHRM being practiced as the HR strategy. Hence, top management plays a critical role in promoting GHRM. Also, top management commitment is vital in organizations in the Philippines due to the power-distance culture, in which employees seek the approval and preference of their seniors before initiating changes. Consistent with previous research (e.g., Guerci et al., 2016; Umrani et al., 2020), the findings indicate that GHRM enhances environmental performance. Specifically, the study empirically demonstrated that GHRM is positively related to HEP and this result is consistent with prior studies in hospitality literature (Kim et al., 2019; Pham et al., 2020). Employees are influenced by GHRM practices to develop an appreciation for environmental protection. Adequate training for employees, as well as providing them with opportunities to participate in green suggestion schemes, could improve green performance. The findings further confirm that GHRM practices are a new avenue for improving HEP, reinforcing the notion that HEP may be enhanced by influencing the behavior and attitude of employees. The findings revealed that TMGC positively predicts HEP. Top management teams who are conscious of environmental issues and are committed to

Table 4

Summary of results.

Hypotheses	Path coefficient	t-value	Result
H1: TMGC → GHRM	0.217	5.866	Supported
H2: GHRM → HEP	0.504	12.922	Supported
H3: TMGC → HEP	0.141	3.749	Supported
H4: TMGC → GHRM → HEP	0.290	CI [0.267, 0.317]	Supported
H5: GIC → HEP	0.384	9.921	Supported
H6: GIC → GHRM	0.431	7.267	Supported
H7: GIC → GHRM → HEP	0.144	CI [0.121, 0.173]	Supported

monitoring the environmental activities of their firms can improve their environmental performance (Teixeira et al., 2016). GHRM mediated the relationship between TMGC and HEP. This shows that top management facilitates environmental performance through the values of GHRM. GHRM also mediated the relationship between GIC and HEP. These findings confirm that GHRM may act as a potential mediator. In the presence of GHRM practices, the effects of intangible resources such as TMGC and GIC are amplified, which can boost a firm's environmental performance. This is one of the few studies in which such effects have been investigated, filling the existing research gap in published studies. GIC was positively related to GHRM. This is consistent with Kong and Thomson (2009) and Yong et al.'s (2019) assertion that intellectual capital is the driving force for implementing the human resource management practices that enhance organizational performance. The findings also revealed that GIC is positively related to HEP, demonstrating that a balance in human, structural, and relational capital leads to improved performance. This finding is aligned with the results of a previous study by Yusoff et al. (2020), showing that GIC predicts sustainability. Furthermore, the findings also corroborate the assertions of the RBV theory, which affirms that organizational performance is linked to intangible resources.

### 5.1. Theoretical contributions

The study contributes to the literature in several ways. First, the study makes an important contribution to RBV theory. A significant amount of the empirical research on the RBV focused on developed countries and relatively very little is known outside of this context (Kamasak, 2017). In this context, drawing on RBV theory, this study investigated the impact of organizational resources, including TMGC and GIC, on HEP when mediated through GHRM among hotel employees in the Philippines. Furthermore, by employing the RBV theory to develop the research model, the study supplements the theorization of GHRM research, which so far remains under-theorized (Ren et al., 2018). Although the prevailing behavioral viewpoint in the current GHRM literature is useful for realizing the motivation of employees, it is inadequate when it comes to completely divulging the internal dynamics of an organization toward the strategic pursuit of heightened environmental performance (Ren et al., 2020). RBV theory provides an alternate logic for understanding the relationships among various internal resources.

Secondly, based on the extant literature, organizations are under pressure to identify business practices that not only boost their economic performance but also their environmental performance (El-Kassar & Singh, 2019). The benefits of adopting GHRM and their influence on environmental performance have been examined in hospitality literature (Kim et al., 2019; Pham et al., 2020). However, the factors that drive GHRM remain to be studied (Obeidat et al., 2020; Ren et al., 2020). The current study contributes to this line of research by empirically testing the role of TMGC as the driver of GHRM that stimulates a hotel firm's environmental performance. Additionally, Kong and Thomson (2009) claimed that IC is the driving force in the implementation of HRM practices in a firm; however, the relationship between GIC and GHRM is yet to be examined. Accordingly, Yong et al. (2019) had called for further research to examine the relationship between GIC and GHRM in developing countries. Given this gap, the current study empirically examined the impact of GIC on GHRM. In sum, the study has identified TMGC and GIC as the antecedents of GHRM. The commitment of top management to the environment plays an important role in building an organizational culture that puts environmental performance at its heart (Latan et al., 2018). The study also examined the crucial role of GIC in influencing environmental performance. Therefore, our findings, derived from a firm-level analysis, demonstrate that the effective utilization of GHRM needs to be understood in the context of internal organizational resources.

Thirdly, the study demonstrated that GHRM mediated the TMGC-

HEP and GIC-HEP relationships. This further contributes to the literature, suggesting the need for causal models where the effects of HRM act as a mediating mechanism between organizational factors and organizational outcomes (Jackson et al., 2014). The study also responds to the suggestion of Guerci et al. (2016) that called for further research on mediating models, where HR practices can mediate the impact of organizational factors on firm performance. Therefore, the study contributes to this line of research by examining the mediating role of GHRM.

Fourth, conducting this study in the Philippines further contributes to the existing knowledge of GHRM in the Asian context. While it is imperative to transform business models to alleviate resource scarcity in Asia, studies on how GHRM can lead to improved environmental performance in Asia are limited (Yong et al., 2019), specifically in the hospitality industry (Pham et al., 2020). Additionally, Pham et al. (2020) measured GHRM with "green training," "green performance management," and "green employee involvement." They suggested the use of a more comprehensive measure of GHRM, including green policies such as "green rewards" and "green recruitment." We believe our study has responded to this limitation by utilizing a more comprehensive measure of GHRM. Furthermore, Kim et al. (2019) investigated the relationship between GHRM and HEP based on a cross-sectional design. They suggested future studies may be conducted based on a more rigorous design. Therefore, by adopting a longitudinal design the current study has also addressed this limitation.

Lastly, several studies in hospitality literature have treated HEP as a reflective measure (Kim et al., 2019; Pham et al., 2020; Umrani et al., 2020). However, this study considered HEP a formative construct for the following reasons: (i) the items that form HEP are treated as causes and not as effects, (ii) the indicators of this construct don't have to co-vary at a high level empirically, and (iii) each item may occur independently of the others, i.e. these indicators are not conceptually interchangeable (e.g., conserved water cannot be interchanged with the reduced purchase of non-renewable materials, chemicals, and components). Lastly, (iv) the indicators need not have similar nomological networks (Fornell, 1982; Podsakoff et al., 2006). Furthermore, Pereira-Moliner et al. (2012) encouraged the consideration of environmental performance as a formative construct. For these reasons, we believe a formative measurement model represents the best option for the measurement of HEP.

### 5.2. Practical implications

This study has three implications, especially for hotel professionals and policymakers. First, the results indicated that the success of GHRM and HEP hinges on the commitment of top management to the environment. At the firm level, hotel top management can show their commitment to the environment by incorporating it in the mission and making it a business objective and priority, thus demonstrating their full support for environmental sustainability. Top managers and ownership groups can prioritize environmental issues when establishing strategies and operational practices. They can develop a clear written policy communicating their commitment to providing the leadership and resources necessary to maintain the required environmental standards at the hotel firm. Their commitment to the environment must not only be communicated to the employees within the firm but also to their suppliers, contractors and sub-contractors, and customers. Top management can link their commitment to GHRM to accomplishing the environmental initiatives introduced by the organization. They should play a critical role in increasing a hotel firm's active involvement in GHRM practices. Senior managers should realize that the implementation of GHRM will be successful only if a commitment from top management is established, as that commitment is one of the strategies for achieving environmental performance. To ensure effective environmental performance, top management can devote more funds to training key personnel involved in GHRM (Yusliza et al., 2019). Top management teams can send consistent environment-related messages to their



line managers who are responsible for the actual implementation of all relevant practices. At the same time, top management can create an organizational culture focusing on environmental protection (Renwick et al., 2013). Employees are committed to achieving environmental goals when the hotel firm has a strong environmental culture. Top management can provide feedback to employees regularly to keep them informed about their hotel firm's green practices. Senior managers may include mid-level hotel managers in the development and implementation of environmental programs. They must periodically review their environmental programs to evaluate their progress in meeting their stated objectives, identifying gaps, and taking necessary actions.

Second, the proposed framework presented in this study is intended to act as a reference for hotel firms to understand the impact of GIC on GHRM. In light of the fact that GHRM has gained prominence in recent years, adopting the proposed model of GHRM in the hospitality industry in developing countries can improve a hotel's environmental performance. Additionally, the findings of this study demonstrated that GIC has a significant impact on GHRM. The first dimension of GIC, "green human capital," is embedded in employees and can simply vanish from a firm when employees quit an organization (Chang & Chen, 2012). Since the environmental knowledge and skills rooted in employees are crucial for hotels to develop GHRM, it is important for hotel firms to recruit the best human capital and to train and develop their existing employees so that they can promote the growth of green hotels. Hotel firms can strengthen their human capital by educating them on environmental issues. Hospitality policymakers may design and conduct environmental protection training programs for hotel employees to improve the efficiencies and competencies of "green human capital" in establishing GHRM. Hotel managers may invest in and establish strong information systems to retain their "green structural capital," the second dimension of GIC. Furthermore, to enhance "green relational capital," the third dimension of GIC, hotel managers can create collaborative "green relationships" with their upstream vendors, downstream clients, and strategic stakeholders, which facilitates the sharing of information on environmentalism by the hotel and promotes the development of environment-related knowledge (Yong et al., 2019). Specifically, hotel firms can reinforce their "green relationship" with their suppliers by conducting frequent meetings and openly communicating their green plans, expressing their willingness to collaborate on environmental protection and thus encouraging suppliers to engage in environmental activities. "Relationship-specific investments," including supplier sustainability development, can help in developing trust between the hotel firm and suppliers (Yu et al., 2020). These initiatives may also help suppliers understand the hotel's environmental standards and requirements so that they can provide environmentally friendly products. Additionally, hotel firms can conduct environmental audits to evaluate if the green practices of the suppliers meet the hotel firms' environmental objectives. Similarly, hotel firms can maintain close relationships with their customers by regularly communicating about their green products/services and requesting feedback on the hotel firm's environmental strategies and goals.

Third, since GHRM leads to improved environmental performance, hotel firms can strengthen their GHRM by setting department-specific green goals and environmental performance measures. Hotel firms may recruit new talent with a desire to protect the environment. Therefore, hotel managers are encouraged to include an environmental component in their recruitment policies to improve environmental performance (Umrani et al., 2020). Environment-related training may be conducted to empower employees to achieve environmental goals, and their environmental performance can be rewarded. Hotel firms may train employees to develop the skills required to minimize emissions, classify and identify wastes, and conserve water, electricity, and other resources (Pham et al., 2019). Additionally, hotel firms may set up an independent board to oversee the daily environmental activities of employees and to provide environment-related feedback from customers, managers, and their supervisors. Hotel firms may also evaluate

their employees' environmental performance. To motivate employees, hotel HR may reward outstanding actions performed toward achieving green initiatives. Creative green promotions would be a great tool to motivate green participation. GHRM can be a more noticeable part of a hotel firm's corporate social responsibility reports.

## 6. Conclusion, limitations, and direction for future research

The business landscape today is very different than ever before due to resource constraints, technological advancements, emerging markets, environmental degradation, and the challenges made by new businesses to traditional firms. Increasing environmental awareness has made the concept of "going green" a focal point of many organizations. Green drivers such as top management green commitment and green intellectual capital are important for achieving a high level of environmental performance. Additionally, green human resource management plays a mediating role in linking these green drivers to hotel environmental performance. This study has certain limitations that must be acknowledged when interpreting its results, and these limitations suggest avenues for future investigation. First, this research was undertaken in a particular national context, i.e., the hospitality industry in Manila; hence, the results cannot be extended to other industries or other cultural contexts. Consequently, the results should be viewed with caution when generalizing them. To validate the proposed model, future studies may test it in other industries in other countries. Second, this study assumes all the proposed relationships are unidirectional. Thus, it ignores the ability of HEP to impact TMGC either directly or indirectly. There is a possibility that feedback and learning may play a role in this complex process. Hence, improved HEP may further trigger the commitment of top management to the environment. Future studies may further explore if there exists a bi-directional relationship between TMGC and HEP. Third, the current study only included environmental performance as the outcome. Future studies may also explore the triple bottom line of sustainability, i.e., economic performance, social performance, and environmental performance. Finally, the current study only examined the role of two organizational resources on HEP. Future studies may also investigate the role of other tangible and intangible resources on HEP.

### Declaration of competing interest

The author(s) declare(s) that there is no conflict of interest.

### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.tourman.2021.104431>.

### Author contribution

Woo Gon Kim- Conceptualization, Writing – review & editing, Visualization, Supervision, project management. Kavitha Haldorai- Conceptualization, Formal analysis, Writing – original draft preparation. Fernando Garcia, R. L- Conceptualization, Methodology, Investigation.

### Impact statement

Asia is facing a new economic landscape, increasingly impacted by resource scarcity and threats to the environment. Many hotels are facing pressures from internal and external stakeholders that require them to focus on environmental preservation and develop environment-friendly hotel services that are safe for consumers and do not pose any harm to the ecosystem. The current study serves as a base to encourage organizations to integrate environmental sustainability into their business models. Greening businesses supports the community and economy, which are dependent on a healthy planet. This study demonstrates that among the diverse techniques organizations are mobilizing to

proactively address environmental concerns, green human resource management and its drivers are seen as crucial tools for the effective implementation of green strategy. Greening traditional human resource practices adds value to the burgeoning field of sustainable development and contributes social benefits to society and stakeholders.

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Kavitha Haldorai is a researcher at the International Centre for Hospitality, Dedman College of Hospitality, Florida State University, USA. She earned her doctorate in human resource management. Her research interests include human resource management and organizational behavior in hospitality and tourism industry.



Woo Gon Kim is Dedman Professor of Hospitality Management and the director of the International Center for Hospitality Research & Development in the Dedman College of Hospitality at Florida State University, USA. Dr. Kim has published more than 150 articles in the leading hospitality and tourism journals. He received the John Wiley and Sons Lifetime Research Achievement Award at the 2017 I-CHRIE conference. He is an associate editor of the Journal of Quality of Assurance in Hospitality and Tourism. In addition, he serves on seven journal editorial boards and reviewer for a number of journals.



R.L. Fernando Garcia is highly skilled, experienced, talented, and accomplished hospitality professional with profound expertise in planning, organizing and directing wide range of hotel operational and human resources activities. He earned his master's degree in hospitality management and currently working on his doctorate degree in business administration. At this time, he is the Corporate Senior Manager- Human Resources handling the Learning and Development initiatives and strategies of SM Hotels and Conventions Corporation.