

Hong, Nguyen Thi Hoa et al.

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Green Human Resources Management and employees' green behavioral intention: the role of individual green values and corporate social responsibility

Nguyen Thi Hoa Hong^a , Truong Thi Hanh^b, Nguyen Quynh Anh^b, Dang Ngoc Anh^b, Tran Minh Ngoc^b and Nguyen Duong Lan Nhi^b

^aFinancial Management – Statistics Analysis Department, Faculty of Business Administration, Foreign Trade University, Ha Noi, Vietnam; ^bFaculty of Business Administration, Foreign Trade University, Ha Noi, Vietnam

ABSTRACT

This study examines the relationships between Green Human Resources Management and employees' intention to engage in environmentally responsible behaviors. Conducted within the context of 380 employees in Vietnam, a developing country, the research collected data from these workers, which were processed using SmartPLS. The research results indicated that Green Human Resources Management has a positive impact on employees' green behavioral intention and also highlighted the moderating impact of individual green values and the mediating role of Corporate Social Responsibility. These results offer invaluable guidance for organizations seeking to cultivate environmental sustainability through effective HRM practices. Simultaneously, they emphasize the importance of promoting social responsibility and enhancing business performance within the unique Vietnamese business landscape. This research underscores the pivotal role HRM plays in steering organizations towards a greener and more socially responsible future, particularly in emerging economies like Vietnam.

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1. Introduction

The emergence of green human resource management (Green HRM) is attributed to the escalation of environmental concerns and the imperative for sustainability (Ren et al., 2018). Green HRM aligns human resource processes such as training, performance evaluation, recruitment, and rewards, with the organization's environmental goals, fostering environmental responsibility (Tang et al., 2018). The requirement for Green HRM arises from offering eco-friendly products and operations, effectively managing corporate ecological initiatives, and tackling the challenges of implementing such programs (Wehrmeyer, 2017). Recent studies have indicated the impacts of Green HRM at both the macro and micro levels. Renwick et al. (2013) contend that a collection of HRM practices enhances ecological performance by implementing environmental values and principles within the organizational framework. Engaging in Green HRM, such as hiring, training, evaluating performance, and involving employees in Green HRM, can put some pressure on employees by affecting their thoughts, social norms, and how they think about controlling their actions. Consequently, their personal attitudes and social norms related to the environment would have a positive influence on their intention to engage in environmentally friendly behavior (Al-Ghazali & Afsar, 2020).

Several research papers examine the effects of Green HRM on employees' green behavioral intentions while mentioning individual green values. Al-Ghazali and Afsar (2020) indicate that when employees approach Green HRM practices, they might be dedicated and motivated to participate in environmentally responsible actions. Consequently, their green values would likely have a positive

CONTACT Nguyen Thi Hoa Hong  hongnht@ftu.edu.vn  Financial Management – Statistics Analysis Department, Faculty of Business Administration, Foreign Trade University, 91 Chua Lang Street, Dong Da District, Ha Noi, Vietnam.

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impact on their intention to engage in eco-friendly behavior. Ahmed et al. (2023) found that personal green values enhance the connection between Green HRM practices and employees' green behavioral intentions. Additionally, prior studies have primarily emphasized the effects of Green HRM on firm performance and employees' green behavioral intentions and only mentioned the role of corporate social responsibility (CSR) instead of conducting in-depth investigations (Ahmed et al., 2020; Suba et al., 2021). Niazi et al. (2023) have investigated that Green HRM and CSR have a close relationship and mutually influence each other. Moreover, the perception of CSR involvement correlates positively with one's intention to engage in pro-environmental behavior (Wut & Ng, 2023). CSR seems to hold considerable importance for promoting employees' green behavioral intention through using Green HRM (Suba et al., 2021). Therefore, the question arises: Can CSR mediate the impact of Green HRM on employees' green behavioral intention?

According to Ngoc Lan (2021), Green HRM involves the sustainable utilization of resources within a company to enhance productivity, boost employee contentment, and foster eco-friendly economic development. This approach is gaining popularity among businesses globally, including those in Vietnam. In Vietnam, most recent studies on Green HRM (Luu, 2021; Le Ha & Uyen, 2021; Tuan, 2022; Nguyen et al., 2023) have been conducted within the hospitality sector. Although Nguyen et al. (2018) designed a comprehensive framework for understanding CSR in Vietnam, their study only examined the correlation between CSR and Green HRM. Researching individual green values also poses ongoing challenges. For example, Nguyen et al. (2020) explored the impact of cultural values on environmentalism, which shapes unique individual values and behaviors. However, these studies are considered not to have accurately contextualized CSR within Vietnam's unique cultural and social landscape (Phan, 2018). These studies have limitations in focusing on investigating Green HRM within the broader economic context and the relationship between Green HRM and CSR. Additionally, there is a relatively limited number of studies focusing on individual green values as a mediating variable within the relationship between Green HRM and green behavioral intention. Recent research has primarily explored the connections between individual green values, Green HRM, and green behavior, without delving significantly into the narrower aspect of intention. Furthermore, despite the growing interest in Green HRM, there is a lack of comprehensive research on this topic within the context of developing countries. Therefore, our study aims to investigate the impact of Green HRM on employees' green behavioral intention, as well as the mediating role of CSR and the moderating role of individual green values in this relationship in the Vietnam context, by collecting data from enterprises in the two biggest cities, namely Hanoi and Ho Chi Minh City.

Our paper makes several contributions to the existing literature. Firstly, our findings from PLS-SEM provide additional evidence of a positive association between Green HRM and employees' green behavioral intention in the context of Vietnam, supporting the studies conducted by Al-Ghazali and Afsar (2020). Secondly, while there are a few studies on Green HRM that specifically focus on analyzing the link between Green HRM, CSR, and individual green values, this study examined both the moderating role of individual green values and the mediating role of CSR in the relationship between Green HRM and employees' green behavioral intention. Niazi et al. (2023) and Sabokro et al. (2021) mentioned that Green HRM has positive effects on CSR. Additionally, in the hospitality industry, employees' perceptions of these CSR initiatives impact their attitudes and behaviors in the workplace, ultimately contributing to an increase in employees' involvement in environmentally friendly behaviors (De Roeck & Farooq, 2018). When an organization imparts environmentally friendly values to its employees, typically through Green HRM practices, and these values align with the employees' green values, employees show a stronger intention to join in green actions. Thirdly, our study also has some implications for managers in constructing green programs in their companies and the government toward sustainable development.

The remainder of this research paper is structured as follows: Section 2 elaborates on related literature and the development of hypotheses; Section 3 provides the research methodology, including data collection, variables measurement, and data analysis methods. Section 4 presents empirical results, while Section 5 comprises the discussion. Theoretical and practical implications are presented in Sections 6 and 7, respectively. Finally, Section 8 outlines some limitations and suggests directions for further research.

2. Literature review and hypotheses development

2.1. *The relationship between Green Human Resources Management and employees' green behavioral intention*

Green HRM is regarded as the area of HRM that interacts with environmental sustainability standards and includes HRM policies, philosophies, and practices (Harvey et al., 2013). Green HRM practices are concerned with environmental issues, including green hiring, green training, and involvement, enhancing employee engagement (Liu & Zhang, 2022), management and appraisal, and reward and pay (Amjad et al., 2021). Green HRM is a crucial instrument for attaining sustainable behavior in a company. Many recent researches focus on exploring the relationship between Green HRM and employees' green behavioral intention (Chaudhary, 2019; Sabokro et al., 2021; Song et al., 2022). The studies on Green HRM by Chaudhary (2019) and Song et al. (2022) provide information on its ability to encourage environmental behavior among employees through initiatives and practices. Applying the theory of planned behavior (TPB) (Ajzen, 1991), Song et al. (2022) precisely clarified the same linkage between perceived Green HRM and employees' green innovation behavior. The TPB claims that behavioral intention is a trustworthy substitute for actual conduct. The 'green behavioral intention' of employees is their dedication to acting in an environmentally responsible manner (Norton et al., 2017). According to Ramus and Steger (2000), an individual's perceived subjective inclination when engaging in environmental conduct is believed to be his or her inclination to carry out that environmental behavior. Employees are more likely to engage in green behavior because the effect of environmental behavioral intention activates their moral obligation and personal disposition and makes them passionate about environmental protection (Zhang et al., 2021).

Vietnam's strong economic growth in recent years has drawn attention to social responsibility and environmental sustainability challenges. (Tien et al., 2020). In that context, the deciding factor and key competitive advantage for rapid, effective, and sustained development is high-quality human resources (Tien et al., 2021). The overarching goal of enhancing human resources in Vietnam was to elevate the Vietnamese workforce into a pivotal asset, fostering sustainable national development to approach the level of developed nations worldwide (Government, 2011). Most studies about the relationship between Green HRM and employees' green behaviors undertaken in the hotel industry in Vietnam have found evidence of the positive effects of Green HRM and employees' intention to adopt green behaviors (Nguyen et al., 2023; Pham et al., 2020). Pham et al. (2020) indicate that under Green HRM methods and responsible leadership, employees' perceived responsibility and organizational citizenship behavior for the environment are likely to be more strongly invoked in Vietnam, a country with a high collectivism but a low long-term orientation. Therefore, our study expects that when we expand the observation into enterprises in different industries, Green HRM still positively affects employees' green behavioral intentions in Vietnam. The first hypothesis is constructed as follows:

H1: Green Human Resources Management positively affects Employees' Green Behavioral Intention

2.2. *The moderating role of individual Green values in the relationship between Green Human Resources Management and employees' green behavioral intention*

Green values are the product of sustainable development, mainly referring to individual attitudes and behaviors in sustainable development (Dumont et al., 2017). An organization's commitment to Green HRM practices may enhance an individual's engagement in greening behaviors if their values are rooted in environmental restoration beliefs (Al-Ghazali & Afsar, 2020). Studies by Dumont et al. (2017); Gilal et al. (2019); and Islam et al. (2021) support the idea that the association between green HRM and employees' green behavior can be moderated by personal green values. Edwards and Shipp (2007) research pointed out that 'when personal values align with those supplied by the organization, this has a positive impact on employee work attitudes and behavior'. Recent studies on pro-environmental values further emphasize the link between Green HRM practices and environmental intention by promoting eco-friendly behaviors at work (Chou, 2014). According to Ahmed et al. (2023), individual green values strengthen the relationship between Green HRM practices and employees' behavioral intentions.

Based on the aforementioned empirical investigations, we hypothesize that when an individual's green values align with such practices, Green HRM practices will be more effective and promote the employees' green behavioral intention. However, in Vietnam, green values have only recently been recognized in studies as a valuable aspect of green entrepreneur businesses to avoid direct conflicts with traditional competitors (Tien et al., 2020) or as a personal resource contributing to hospitality firms' green goals (Tuan, 2022). Despite its significant influence on employees' behaviors and attitudes (Low, 2013; Hameed et al., 2022), individual green values have been overlooked in Vietnam's human resource research. As a result, we propose the second hypothesis as follows:

H2: Individual Green Values positively moderate the relationship between Green HRM and Employees' Green Behavioral Intention

2.3. The mediating role of corporate social responsibility in the relationship between Green Human Resources Management and employees' green behavioral intention

Corporate Social Responsibility (CSR) involves a company's alignment with social responsibility principles, encompassing actions, procedures, and initiatives related to social networks (Wood, 1991, Tran & Nguyen, 2021). CSR programs address the environmental, social, and economic impacts of organizational operations beyond profit maximization (Chowdhury et al., 2019; García-Sánchez & Araújo-Bernardo, 2020). CSR represents a long-term commitment to ethical business practices and improving societal well-being through discretionary business practices and corporate resources (Ahmed et al., 2020). According to Su and Swanson (2019), CSR includes actions that generate positive impacts on society and the environment. Specifically, CSR in relation to Green HRM is about fulfilling a company's environmental responsibilities (Siregar & Zulkarnain, 2021). Kolk (2016) expands this to include concerns like pollution, resource depletion, and climate change, affecting both internal and external stakeholders.

The relationship between CSR and Green HRM practices highlights the importance of inclusive, sustainability-oriented HR strategies (Hameed et al., 2022; Sabokro et al., 2021). Cheema et al. (2017) identified factors such as managerial positions, recruitment processes, reward systems, and performance appraisals that positively impact CSR. HR functions like attraction, recruitment, training and development, performance management, compensation, career planning, talent management, and employee retention can help create and implement effective CSR initiatives, fostering a harmonious relationship between HRM and CSR (Jamali et al., 2015).

The connection between CSR and green behavioral intention has been increasingly studied. AlSuwaidi et al. (2021) find that CSR significantly drives employees' green behavioral intentions, with the hotel's environmental strategy serving as a crucial moderating factor. This aligns with Su and Swanson (2019) findings, which indicate that employees are more likely to engage in eco-friendly behaviors when their employer participates in such initiatives. CSR initiatives encourage employees to adopt environmentally friendly behaviors (De Roeck & Farooq, 2018). Companies involved in environmental conservation motivate staff to align their behaviors with the company's green objectives (Lee et al., 2013).

In summary, Green HRM positively influences CSR, which in turn enhances employees' green behavioral intentions, suggesting that CSR mediates the relationship between Green HRM and employees' green behaviors. This mediation indicates that implementing Green HRM practices strengthens CSR initiatives, fostering a work environment conducive to sustainable behavior. CSR activities provide the framework and motivation for employees to adopt and maintain green behaviors, bridging the gap between HRM practices and employees' actions (Lee et al., 2013). In developing countries like Vietnam, although some scholars have investigated CSR policies related to HRM, most focus on individual practices rather than a comprehensive examination of the overall Green HRM strategy and its effect on employees' green behavioral intentions. Nguyen et al. (2020) and Khuda et al. (2023) examine the impact of CSR on recruitment practices, whereas Thang and Fassin (2017) and Ngo and Ngo (2023) explore factors affecting green organizational commitment (Figure 1).

Based on these insights, we formulate the following hypotheses:

H3: Green Human Resources Management positively affects Corporate Social Responsibility

H4: Corporate Social Responsibility positively affects Employees' Behavior Intention

H5: Corporate Social Responsibility mediates the relationship between Green Human Resources Management and Employees' Green Behavioral Intention

Based on the above assumptions, we designed the research model shown in Figure 1 below.

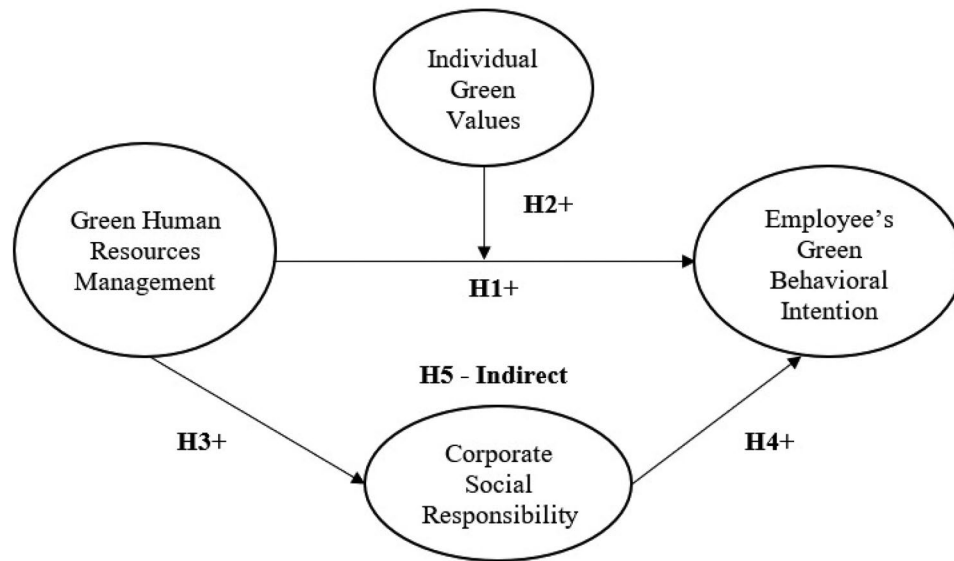


Figure 1. Research model.

3. Research methodology

3.1. Data collection and sample size

The survey participants are employees working in businesses that undertake social responsibilities within Vietnam. With the support and collaboration of the Competition Commission under the Ministry of Industry and Trade, we obtained a list of 300 social enterprises and socially impactful businesses, along with the contact information of their leaders. We employed a proportionate stratified random sampling method to categorize them based on common characteristics related to economic development and demographic diversity, resulting in the formation of two distinct groups (two strata): Hanoi and Ho Chi Minh City. Approximately 60 companies were randomly selected from each group. The stratified random sampling approach minimizes bias compared to other limited sampling methods and offers greater efficiency than the simple random sampling method. Furthermore, it ensures improved representation of each significant population segment and yields richer and more distinct information (Uma, 2009).

Initially, the leaders of the companies were contacted directly and provided with information about the research, including an explanation of its necessity and significance. After receiving permission from the company leaders, the questionnaire was sent via email with a commitment to information security, accompanied by an incentive to increase response rates. The leaders were aware that the gathered data would be treated with confidentiality, processed as aggregated data, and guaranteed complete anonymity. In addition, all respondents were fully informed about the purposes of our study and how we would use and store their responses. Therefore, before responding to the questionnaire, participants were required to complete a written consent form to indicate their willingness to participate. Once consent was confirmed, participants began answering the questionnaire provided by the companies' leaders. Ethical approval was obtained from our institution, Foreign Trade University, Vietnam. Moreover, we ensured we also obtained the participants' consent before collecting the data.

We received the filled-out questionnaires through an online form. Upon receiving the completed questionnaires, any with incomplete or unengaged responses were excluded, and only the fully completed questionnaires were utilized for data analysis. Subsequently, the collected data underwent input, cleansing, and evaluation procedures to ensure high data quality. Finally, a total of 392 questionnaires were collected. After excluding responses that were deemed invalid, 380 final questionnaires were used for analysis, meeting the sample size requirements for the Structural Equation Modeling (SEM) model (Hair et al., 2021).

3.2. Variables measurement

The research model consists of four concepts: Green Human Resources Management, Employees' Green Behavioral Intention, Individual Green Values, and Corporate Social Responsibility. To verify the proposed research model, the authors conducted a survey using a questionnaire, based on the application of a 5-point Likert scale, ranging from '1' - Strongly disagree to '5' - Strongly agree. The questionnaire items were derived from a review of prior studies and underwent a two-way translation process to ensure semantic accuracy (Table 1). A preliminary version of the questionnaire will be pilot-tested with a randomly selected sample of 50 employees, which the authors used random sampling to choose. Furthermore, we sought feedback and expert opinions from professionals in the fields of human resource management and corporate social responsibility. These responses were used to assess and refine the questionnaire's appropriateness and clarity.

3.3. Data analysis

The Structural Equation Modeling (SEM) framework is utilized to test theories in various fields because the statistical methods and mathematical models of SEM are suitable for estimating complex multivariate structures (Kaplan, 2008). This study also opts for the PLS-SEM method as it is appropriate for small sample sizes and suitable for exploratory modeling studies (Hair et al., 2021). We used SmartPLS 4.0 software to analyze this sample. Initially, the study assessed the convergent validity of the measurement model by applying standard reliability and validity criteria, such as Factor Loadings, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted. Discriminant validity was then evaluated by using the Fornell-Larcker criterion and heterotrait-monotrait (HTMT) (Hair et al., 2021). After validating the measurement model, the structural model and hypotheses are tested. The authors use the Bootstrapping technique in PLS-SEM to evaluate the moderating relationship between Individual Green Values (IGV) and Green Behavioral Intention (GBI). Besides, in this research, we have utilized SPSS version 25.0 to evaluate the demographic characteristics of the sample and conduct descriptive statistical analyses.

4. Empirical results

4.1. Descriptive statistics

Table 2 shows the descriptive statistics for the demographic information of the research sample. In terms of gender, the research sample consisted of 46.1% male participants, 47.6% female individuals, and the remaining 6.3% identified as other genders. Regarding the age of participants, the data reveals that 19.2% belong to the age group of 18 to under 22, 26.8% are between 22 to under 30 years old, 22.4% fall within the range of 30 to under 40, 18.2% are aged between 40 and under 50 years old, and the remaining 13.4% are 50 or older. As for the present professional location, 51.6% of the participants in the research sample are presently employed in Hanoi, and the remaining 48.4% work in an office in Ho Chi Minh City. Concerning the vocational domains of all respondents, 23.7% work in the education and training sector, 20.5% are affiliated with the healthcare field, 32.4% are employed in the finance sector, and 23.4% are associated with the retail sector. In terms of the organizational characteristics of the respondent's workplace, 28.7% of the participants are employed in public sector organizations, an equivalent proportion of 28.7% work in private sector organizations without foreign investment, and 39.2% of respondents are employed in private sector organizations with foreign investment.

Table 1. Measure items for variables.

Factor	Constructs/items		References
Green HRM (GHRM)			
<i>Green recruitment and selection (GRS)</i>	GRS1	To include environmental criteria in the recruitment messages	Opatha, 2013 ; Masri & Jaaron, 2017
	GRS2	Look for candidates who are personally committed to environmental sustainability	
	GRS3	This organization considers candidates' environmental concerns and interests as selection criteria	
	GRS4	Include questions on the environment in the interview process to assess whether an applicant's values are congruent with the company's mission	
<i>Green training and development (GTD)</i>	GRS5	Job description specification includes environmental concerns	Masri & Jaaron, 2017 ; Islam et al., 2021 ; Haldorai et al., 2022
	GTD1	My company takes into account the needs of environmental issues when training requirements analyzed	
	GTD2	In my organization, environmental training is continuous	
	GTD3	In my organization, environmental training is an important investment	
	GTD4	All training materials are available online for employees to reduce paper cost	
<i>Green performance management and appraisal (GPMA)</i>	GTD5	Organizational members who receive ecological training have the opportunity to implement green knowledge in everyday activities	Masri & Jaaron, 2017 ; Saeed et al., 2019 ; Al-Ghazali & Afsar, 2020
	GPMA1	Employees know their specific green targets, goals and responsibilities	
	GPMA2	Corporate incorporates environmental management objectives and targets with the performance evaluation system of the organization	
	GPMA3	This organization provides regular feedback to the employees or teams to achieve environmental goals or improve their environmental performance	
<i>Green reward and compensation (GRC)</i>	GPMA4	Includes a separate component for progress on greening in the performance feedback interview	Masri & Jaaron, 2017 ; Al-Ghazali & Afsar, 2020
	GRC1	My company offers a monetary bonuses for eco-friendly achievements	
	GRC2	My company offers extra paid time off for participating in sustainability initiatives	
	GRC3	Employees' suggestions for innovative environmental initiative are rewarded	
<i>Green empowerment and participation (GEP)</i>	GRC4	My company offers career advancement opportunities for sustainability champions	Masri & Jaaron, 2017 ; Saeed et al., 2019 ; Al-Ghazali & Afsar, 2020
	GRC5	Environmental performance is recognized publically	
	GEP1	I am involved in making green decisions that affect my work	
	GEP2	Top managers use teamwork to successfully manage and produce awareness of the environmental issues of the company	
	GEP3	My company offers workshops or forums for staff to improve environmental behavior and exchange their tacit knowledge	
Employee's green behavioral intention (GBI)	GEP4	My organization has introduced communication channels and help-lines to support green initiatives	Norton et al., 2017 ; Kautish & Sharma, 2019
	GEP5	My company recognize employee as a key stakeholder in environmental management	
	GBI1	I intend to carry out environmentally friendly behaviors at work	
	GBI2	I plan to stop wasting natural resources in the forthcoming month	
Corporate Social Responsibility (CSR)	GBI3	I would recommend the green products to my friends and/or others	Modak et al., 2019 ; Sabokro et al., 2021
	GBI4	I would like to increase purchase/use of green products in the future	
	GBI5	I intend to encourage my co-workers to implement green practices	
	CSR1	The company has special programs and policies to minimize adverse environmental effects	
	CSR2	Our company makes well-planned investments to avoid environmental degradation	
	CSR3	Our company encourages its employees to engage in social volunteering related to environmental preservation	
Individual green value (IGV)	CSR4	Our company extends efforts to participate in community services and volunteerism	Steg et al., 2005 ; Bissing-Olson et al., 2013 ; Islam et al., 2021
	CSR5	Our company helps to improve educational institutes	
	CSR6	Our company extends efforts to improve the welfare of the community	
	IGV1	I feel obliged to bear the environment and nature in mind in my daily behavior	
	IGV2	I feel obliged to save the environment from degradation, regardless of what others do	
	IGV3	I would prefer to buy eco-friendly appliances	
	IGV4	I took the initiative to act in environmentally friendly ways at work	
	IGV5	I feel guilty when I contribute to environmental degradation	

Table 2. Demographics of respondents.

		Frequency	Percent
Gender	Male	175	46.1
	Female	181	47.6
	Others	24	6.3
	Total	380	100.0
Age	18 to under 22 years old	73	19.2
	22 to under 30 years old	102	26.8
	30 to under 40 years old	85	22.4
	40 to under 50 years old	69	18.2
	50 years old or older	51	13.4
	Total	380	100.0
The present workplace	Hanoi	196	51.6
	Ho Chi Minh City	184	48.4
	Total	380	100.0
Occupational fields	Education and Training	90	23.7
	Healthcare	78	20.5
	Finance	123	32.4
	Retail	89	23.4
	Total	380	100.0
The characteristics of the organization	Public Sector	122	32.1
	Private Sector without Foreign Investment	109	28.7
	Private Sector with Foreign Investment	149	39.2
	Total	380	100.0

4.2. Measurement model assessment

For the validation of the model assessment, two main types of validity should be examined: convergent validity and discriminant validity. Firstly, the convergent validity of the measurement model is scrutinized using Outer Loadings, Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE) (Hair et al., 2019). Then, discriminant validity is evaluated using the Fornell-Larcker criterion and HTMT (Hair et al., 2019).

As presented in Table 3, all factor loadings, ranging from 0.760 to 0.918, are significant and above the recommended cut-off of 0.7. The values of Cronbach's alpha (from 0.859 to 0.926) and CR of the research variables in the model (ranging from 0.899 to 0.942), all exceed the suggested threshold of 0.7. Moreover, AVE values between 0.641 and 0.750 for all research variables in the model exceed the acceptable threshold of 0.5 (Hair et al., 2021).

From Table 4, all square roots of AVE (highlighted cells) surpass all correlation values between latent variables in both the corresponding column and row, meeting Fornell and Larcker (1981) criterion. Hence, all the research scales used in the model, encompassing independent variables, dependent variables, and moderator variables, exhibit discriminant validity.

In Table 5, all of the HTMT values presented are below the permissible threshold required to achieve a discriminant value of 0.9. Notably, the parameter with the highest value in the table is 0.803, which is less than 0.85 and 0.9. Values below 0.85 indicate a high level of discriminative value. Based on the above analysis, it can be inferred that the existing scales utilized in the study model demonstrate a high level of discriminant validity, as evidenced by the HTMT testing results.

4.3. Structural model assessment

After validating the measurement model, the structural model is tested. The evaluation is based on several criteria: multicollinearity problem, coefficient R^2 , coefficient f^2 , and relevance of the forecast Q^2 and q^2 . Table 6 indicates that the VIF for each indicator falls below the suggested threshold of 5 (Hair et al., 2021), with a significant number of indicators even below 3. Hence, there is no presence of multicollinearity among the variables under investigation.

Table 7 summarizes the results of R^2 value and Q^2 value. The adjusted R^2 value for the dependent variable CSR is 0.471; similarly, the R^2 value for GBI is 0.672, indicating that preliminary inferences can be made regarding the appropriateness of the study model. The Q^2 values of the two endogenous variables exhibit a statistically significant increase compared to the threshold value of 0. In particular,

Table 3. Reliability and convergent validity.

Construct	Measure items	AVE	CR	CA	Outer loading
GHRM		0.750	0.938	0.917	
GRS		0.758	0.940	0.920	
	GRS1				0.862
	GRS2				0.836
	GRS3				0.876
	GRS4				0.862
	GRS5				0.915
GTD		0.771	0.944	0.926	
	GTD1				0.882
	GTD2				0.873
	GTD3				0.877
	GTD4				0.880
	GTD5				0.879
GPMA		0.782	0.935	0.907	
	GPMA1				0.882
	GPMA2				0.867
	GPMA3				0.868
	GPMA4				0.918
GRC		0.754	0.939	0.918	
	GRC1				0.851
	GRC2				0.834
	GRC3				0.870
	GRC4				0.888
	GRC5				0.896
GEP		0.725	0.929	0.905	
	GEP1				0.837
	GEP2				0.867
	GEP3				0.857
	GEP4				0.858
	GEP5				0.837
GBI		0.641	0.899	0.859	
	GBI1				0.760
	GBI2				0.793
	GBI3				0.799
	GBI4				0.792
	GBI5				0.856
CSR		0.731	0.942	0.926	
	CSR1				0.844
	CSR2				0.841
	CSR3				0.851
	CSR4				0.867
	CSR5				0.879
	CSR6				0.864
IGV		0.700	0.921	0.893	
	IGV1				0.798
	IGV2				0.865
	IGV3				0.845
	IGV4				0.824
	IGV5				0.850

Table 4. Fornell – Larcker criterion.

	CSR	GBI	GHRM	IGV
CSR	0.855			
GBI	0.635	0.800		
GHRM	0.687	0.714	0.866	
IGV	0.403	0.634	0.478	0.837

Table 5. HTMT.

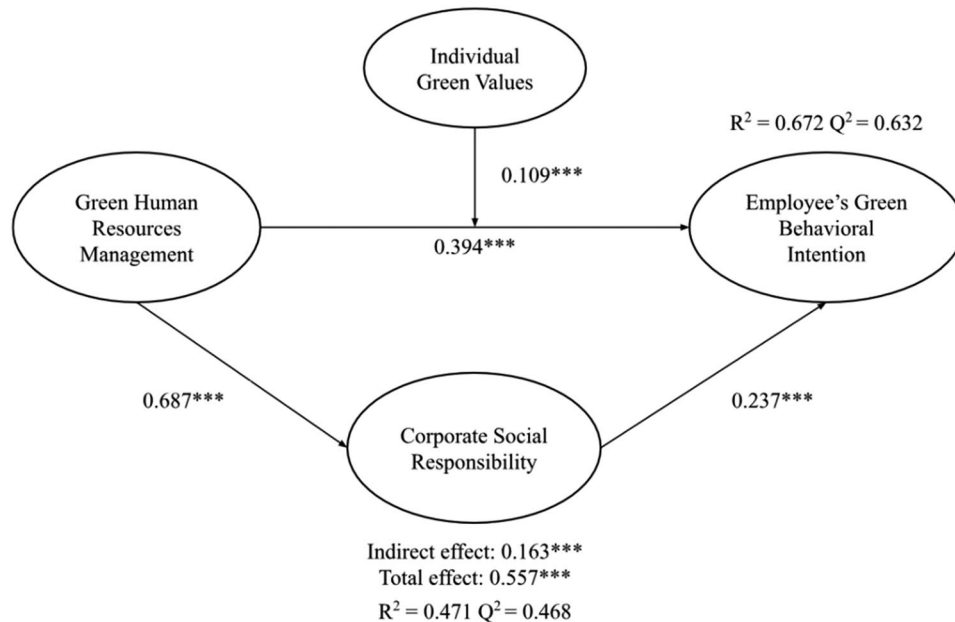
	CSR	GBI	GHRM	IGV	IGV x GHRM
CSR					
GBI	0.709				
GHRM	0.741	0.803			
IGV	0.439	0.722	0.525		
IGV x GHRM	0.181	0.041	0.184	0.263	

Table 6. Collinearity assessment (inner VIF values).

Reflective construct	Inner VIF value
GHRM	2.086
IGV	1.360
GHRM x IGV	1.074
CSR	1.926

Table 7. Result of R^2 and Q^2 .

	R-square	R-square adjusted	Q-square predict
CSR	0.472	0.471	0.468
GBI	0.676	0.672	0.632

**Figure 2.** Structural model.

Note: The symbol *** indicate statistical significance at 1%.

the construct of CSR exhibits a Q^2 value of 0.468, whereas the GBI demonstrates a Q^2 value of 0.632. This finding indicates the presence of a predictive association between the model and the endogenous variables. The observed values of the impact coefficient f^2 for the relationships within the research model all exhibit a magnitude greater than or equal to 0.02, particularly ranging from 0.090 to 0.894. The empirical findings of this study indicate that the relationships within the research model exhibit a notable degree of influence, with the majority of these relationships demonstrating moderate to high levels of influence.

4.4. Hypotheses testing

The results of hypothesis testing are depicted in Figure 2 and Table 8. Based on the coefficient of 0.394 between Green HRM and GBI, it can be inferred that GHRM positively impacts GBI. This conclusion is supported by the p-value coefficient of 0.000, which is less than the significance level of 0.01; thus, validating hypothesis H1. The study also supports H3, which suggests a positive link between GHRM and CSR. This is evidenced by the p-value of 0.000, which is less than the significance level of 0.01. Moreover, the research findings indicate a significant positive relationship between CSR and GBI, meaning H4 is supported. This result is corroborated by the statistical analysis, as evidenced by the p-value of 0.000, which is less than the predetermined significance level of 0.01.

4.4.1. Moderation analysis

The second hypothesis (H2) suggests that individual green values (IGV) moderate the positive relationship between green human resource management (GHRM) and employees' green behavioral intention (GBI). The PLS product–indicator approach is employed to conduct moderation analysis. By incorporating the error that weakens the estimated relationships, PLS provides comparatively more reliable results for moderator effects. In order to evaluate this moderating effect, the interaction term (GHRM×IGV) is constructed by multiplying the predictor (GHRM) with the moderator (IGV) to predict employees' green behavioral intentions. Our study findings indicate a significant moderating effect (coefficient = 0.109, $t=4.915$, $p=0.000$), explaining 3% of the variance, as depicted in Figure 2, Table 9, and Figure 3. Consequently, we accept this hypothesis, supporting the moderating role of IGV in the positive relationship between GHRM and GBI.

4.4.2. Mediating analysis

The mediating role of corporate social responsibility (CSR) between green human resource management (GHRM) and employees' green behavioral intention (GBI) was examined through both direct and indirect paths. First, the direct path between GHRM and GBI was found to be significant ($p=0.000$). Second, the indirect path was analyzed by multiplying the coefficients of the paths from GHRM to CSR and from CSR to GBI. The variance accounted for (VAF) method was employed to evaluate the impact of mediation, but the calculation of VAF is considered only when the indirect effect is significant (Hair et al., 2016). As shown in Table 8, the indirect effect in our mediation model (0.163) is statistically significant ($p=0.000$). The size of the indirect effect is determined by VAF in relation to the total effect, which is the sum of the direct and indirect effects ($0.394+0.163=0.557$; $VAF = 0.163/0.557=0.293$). According to Hair et al. (2016), partial mediation is indicated by a VAF between 0.20 and 0.80. Thus, CSR was found to play the role of partial mediator between GHRM and employees' green behavioral intentions, supporting hypothesis H5.

5. Discussion

Firstly, this study found that Green HRM has a positive impact on employees' green behavioral intentions. The application of Green HRM in companies can influence employees' attitudes and nurture their intentions to engage in environmental protection behavior. This outcome is consistent with the research conducted by Al-Ghazali and Afsar (2020). According to Dumont et al. (2017), if a company creates a setting that aligns with an employee's principles, leading to a match between the employee's green values and those of the organization, it can be anticipated that the employee would have more intentions to demonstrate eco-friendly behaviors in the workplace. In developing countries, the implementation of Green HRM presents a major sub-set in environmental activities. Therefore, the application of Green HRM in developing countries needs some practical approaches (Usman & Mat, 2021).

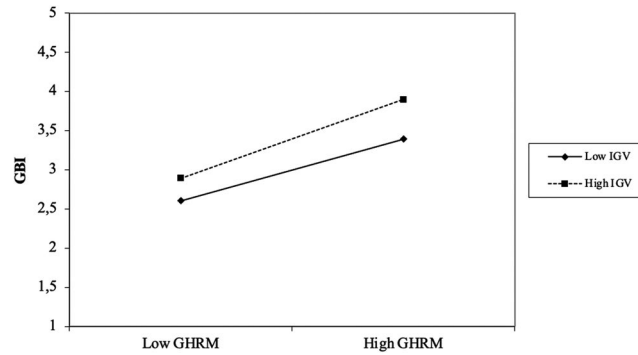
Secondly, individual green values moderate the relationship between Green HRM and employees' green behavioral intentions. In other words, individual green values, including norms, values, and beliefs, could affect the impacts of Green HRM on employees' green behavioral intentions. This result parallels the research conducted by Ahmed et al. (2023). When an organization imparts environmentally friendly values to its employees, typically through Green HRM practices, and these values align with the

Table 8. Testing of research hypotheses.

	Path coefficient	T value	P value	Result
GHRM→ GBI	0.394	6.544	0.000	H1 is supported
GHRM→ CSR	0.687	17.405	0.000	H3 is supported
CSR→ GBI	0.237	4.439	0.000	H4 is supported
<i>Moderating role of IGV</i>				
IGV x GHRM→ GBI	0.109	4.915	0.000	H2 is supported
<i>Mediating role of CSR</i>				
<i>GHRM→ CSR→ GBI</i>				
Direct path	0.394	6.544	0.000	
Indirect path	0.163	4.358	0.000	H5 is supported

Table 9. Hierarchical regression for moderation.

	Path coefficients	P value
<i>Step 1</i>		
GHRM—> GBI	0.394	0.000
IGV—> GBI	0.394	0.000
R ²	0.646	
<i>Step 2</i>		
IGV x GHRM—> GBI	0.109	0.000
R ²	0.676	
ΔR^2	0.030	

**Figure 3.** Plotting graph for the moderation effect.

employees' green values, employees show a stronger intention to join in green actions. This result is consistent with the Theory of Planned Behavior (TPB) mentioned above. One's intention to perform a behavior is shaped by beliefs about the behavior, social norms, and perceived control.

Thirdly, CSR plays a mediating role in the relationship between Green HRM and employees' green behavioral intentions. Green HRM has positive effects on CSR, which means that when the applications of Green HRM are more significant, CSR will emerge more effectively. This finding is in line with Sabokro et al. (2021) and Niazi et al. (2023). According to Mishra (2017), CSR initiatives are conducted either by the Human Resources (HR) department or by a distinct team that collaborates closely with the HR department. However, Cheema et al. (2020) assumed that the adoption of Green HRM is a response to the increasing demand for CSR. When companies demonstrate their commitment to social and environmental concerns, it often inspires employees to align their actions with these values, fostering a greater intent to participate in green activities and make eco-friendly choices. In the hospitality industry, employees' perceptions of these CSR initiatives impact their attitudes and behaviors in the workplace, ultimately contributing to an increase in employees' involvement in environmentally friendly behaviors (De Roeck & Farooq, 2018).

6. Theoretical implications

The study has advanced the theoretical foundation of Green HRM as well as employees' green behavioral intention, considering the role of individual green values and corporate social responsibility. It stands out as one of the few research pieces providing additional evidence of a positive association between Green HRM and employees' green behavioral intention in the context of Vietnam. Furthermore, while existing studies have primarily focused on analyzing the connection between Green HRM, CSR, and individual green values separately, this study delved into not only the moderating influence of individual green values but also the mediating role of CSR in the relationship between Green HRM and employees' green behavioral intention.

Our findings from PLS-SEM affirm the positive impact of Green HRM on employees' green behavioral intention within the Vietnamese context. Given Vietnam's recent robust economic growth, there is an increased emphasis on social responsibility and environmental sustainability challenges, making high-quality human resources a pivotal factor for rapid, effective, and sustainable development. Consequently, our study has significant implications for corporations, highlighting the considerable

influence of Green HRM on employees' green behavioral intentions, with a particular focus on the roles of CSR and individual green values.

Secondly, prior research has predominantly explored the relationship between Green HRM and CSR (Hameed et al., 2022), Green HRM and employees' behavioral green intention (Zhang et al., 2021), and the conceptual framework of CSR in Vietnam (Nguyen et al., 2018). However, our study extends this understanding by demonstrating that individual green values moderate the relationship between Green HRM and employees' green behavioral intention, thereby supporting the hypothesis concerning the significance of individual green values. Moreover, CSR serves as a mediator in the relationship between Green HRM and employees' green behavioral intentions. Niazi et al. (2023) and Sabokro et al. (2021) have noted the positive effects of Green HRM on CSR. In the hospitality industry, where employees' perceptions of CSR initiatives influence their attitudes and behaviors, ultimately fostering greater intentions to engage in environmentally friendly practices in the workplace (De Roeck & Farooq, 2018).

7. Practical implications

The results of this study clearly demonstrate the significant impact of Green Human Resources Management (GHRM) on encouraging employees to adopt environmentally friendly behaviors. This underscores the urgent need for businesses and governments to develop effective strategies to promote GHRM. For businesses, a key step is to embed environmental awareness into every stage of the employee journey, starting from orientation and onboarding. By offering comprehensive training programs focused on sustainability, companies can ensure that new hires understand the importance of sustainable practices from the outset. Additionally, providing continuous learning opportunities and resources helps employees develop and maintain sustainable habits, making sustainability an integral part of the organizational culture. Encouraging employees to incorporate sustainability into their daily tasks and decision-making processes is equally important. Practical initiatives such as recycling programs, energy conservation measures, and sustainable purchasing policies can support this effort. Leaders within the organization play a pivotal role; by actively participating in these initiatives and leading by example, they set a tone that resonates throughout the company. Open and transparent communication is also crucial. Establishing regular channels for sharing information about green initiatives and accomplishments fosters a sense of community and involvement among employees. This can be achieved through internal newsletters, sustainability reports, or dedicated sections on the company's intranet. When employees feel informed and involved, they are more likely to engage in and support the company's environmental activities.

Governments also play a vital role in promoting the adoption of GHRM. By encouraging community involvement in green projects, they can extend the reach of sustainability efforts and inspire businesses and employees to participate actively in making their environments more eco-friendly. This can be facilitated through grants, incentives, and public recognition for significant contributions to sustainability. Additionally, governments should implement and enforce policies that mitigate environmental risks and liabilities, with regulations concerning waste management, emissions control, and resource conservation being crucial. Offering incentives like tax breaks, subsidies, or public acknowledgments can further motivate companies to integrate GHRM into their practices. Acting as a bridge between businesses and non-governmental organizations, governments can facilitate collaboration on large-scale green projects. By encouraging partnerships with community organizations, governments not only extend the reach of sustainable initiatives but also foster creativity and knowledge sharing among stakeholders. Organizing workshops and conferences on green human resource management provides a forum for businesses to exchange experiences and learn from best practices. Raising awareness and providing continuous training help businesses understand the importance of green human resource management and motivate them to adopt and improve sustainable strategies.

8. Limitations and suggestions for future research

Our study on Green Human Resources Management (HRM) and its impact on employees' green behavioral intention has made significant contributions while acknowledging certain limitations. One notable

limitation is the research's limited geographical scope, primarily focusing on major Vietnamese cities like Hanoi and Ho Chi Minh City. While this provides valuable insights into urban settings, it restricts the generalizability of findings to a broader context. To address this, future research should consider expanding its scope to encompass more diverse regions, both within and beyond Vietnam, facilitating a more comprehensive understanding of how Green HRM practices influence green behavioral intentions across varied contexts.

Another key limitation concerns the measurement instruments used to evaluate HRM practices, green values, and CSR initiatives. Future research should prioritize the development of more accurate measurement tools to capture the intricate relationships between Green HRM, individual green values, CSR, and green behavioral intentions. These refinements hold the potential to offer deeper insights into the complex interplay of factors that drive sustainable business practices and enhance employee engagement on a global scale, benefiting both academia and the business world. Furthermore, future research should consider new variables as suggested by recent studies, including the connections between corporate sustainability, organizational resilience, and corporate purpose, as examined by Florez-Jimenez et al. (2024), and the detrimental effects of job-related uncertainty on employees' well-being, which are mediated by job anxiety, as emphasized by Gutiérrez-Broncano et al. (2024). By incorporating these variables into future research, we could enhance our comprehension of the ways in which external pressures and organizational resilience affect the efficacy of Green HRM and CSR initiatives, thereby influencing employees' green behavioral intentions.

Authors' contributions

Nguyen Thi Hoa Hong: Conceived and designed the work; Revised the paper critically for intellectual content; Final approval of the version to be published. Truong Thi Hanh: Conceived and designed the work; Analyzed tools and data; Drafted the paper. Nguyen Quynh Anh: Acquired and analyzed the data for the work, Analyzed tools and data; Drafted the paper. Dang Ngoc Anh: Acquired and analyzed the materials for the work; Drafted the paper. Tran Minh Ngoc: Acquired and analyzed the materials for the work; Drafted the paper. Nguyen Duong Lan Nhi: Acquired and analyzed the materials and data for the work; Drafted the paper.

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No potential conflict of interest was reported by the author(s).

Ethical approval

Ethical approval was obtained from the authors' institution – Foreign Trade University, Vietnam. The authors also obtained the participants' consent before collecting the data.

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About the authors

Dr. Nguyen Thi Hoa Hong is a lecturer of financial management in Faculty of Business Administration at Foreign Trade University (FTU), Vietnam. She is interested in corporate finance, enterprise risk management, corporate governance and sustainable development.

Truong Thi Hanh, Nguyen Quynh Anh, Dang Ngoc Anh, Tran Minh Ngoc and *Nguyen Duong Lan Nhi* are senior students majoring in International Business Management, Faculty of Business Administration, Foreign Trade University (FTU), Vietnam. They are interested in corporate sustainable development.

ORCID

Nguyen Thi Hoa Hong  <http://orcid.org/0000-0003-0648-0028>

Data availability statement

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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Appendix - Questionnaire

We, a collective comprising lecturers and students affiliated with the Faculty of Business Administration, Foreign Trade University, Vietnam, are currently engaged in a research paper pertaining to the topic 'Green Human Resources Management and Employees' Green Behavioral Intention: The role of Individual Green Values and Corporate Social Responsibility'. Your feedback is invaluable to our efforts in refining this research. Rest assured, all data provided will be used solely for academic purposes, with a strict commitment to maintaining the confidentiality of all shared information. We extend our sincere gratitude for your cooperation and assistance in this pursuit.

Part 1 - demographic questions

1. What is your gender?
 1. Male
 2. Femal
 3. Others
2. What is your age?
 1. 18 to under 22 years old
 2. 22 to under 30 years old
 3. 30 to under 40 years old
 4. 40 to under 50 years old
 5. 50 years old or older
3. Where is your current workplace?
 1. Hanoi
 2. Ho Chi Minh
4. What is your occupational field?
 1. Education and Training
 2. Healthcare
 3. Finance
 4. Retail
5. What is the characteristic of your current organization?
 1. Public sector
 2. Private sector without foreign investment
 3. Private sector with foreign investment

Part 2 - main measurement questions

Below we provide scale questions regarding Green Human Resource Management and employees' Green Behavioral Intentions. Kindly indicate your level of disagreement/ agreement with each statement down here.

Criteria	Statement	Level of agreement (1: totally disagree, 5: totally agree)				
		1	2	3	4	5
Green recruitment and selection (GRS)	To include environmental criteria in the recruitment messages Look for candidates who are personally committed to environmental sustainability This organization considers candidates' environmental concerns and interests as selection criteria Include questions on the environment in the interview process to assess whether an applicant's values are congruent with the company's mission					
Green training and development (GTD)	Job description specification includes environmental concerns My company takes into account the needs of environmental issues when training requirements analyzed In my organization, environmental training is continuous In my organization, environmental training is an important investment All training materials are available online for employees to reduce paper cost Organizational members who receive ecological training have the opportunity to implement green knowledge in everyday activities					
Green performance management and appraisal (GPMA)	Employees know their specific green targets, goals and responsibilities Corporate incorporates environmental management objectives and targets with the performance evaluation system of the organization This organization provides regular feedback to the employees or teams to achieve environmental goals or improve their environmental performance					
Green reward and compensation (GRC)	Includes a separate component for progress on greening in the performance feedback interview My company offers a monetary bonuses for eco-friendly achievements My company offers extra paid time off for participating in sustainability initiatives Employees' suggestions for innovative environmental initiative are rewarded My company offers career advancement opportunities for sustainability champions Environmental performance is recognized publicly					
Green empowerment and participation (GEP)	I am involved in making green decisions that affect my work Top managers use teamwork to successfully manage and produce awareness of the environmental issues of the company My company offers workshops or forums for staff to improve environmental behavior and exchange their tacit knowledge					
Employee's green behavioral intention (GBI)	My organization has introduced communication channels and help-lines to support green initiatives My company recognizes employees as a key stakeholder in environmental management I intend to carry out environmentally friendly behaviors at work I plan to stop wasting natural resources in the forthcoming month I would recommend the green products to my friends and/or others I would like to increase the purchase/use of green products in the future					
Corporate Social Responsibility (CSR)	I intend to encourage my co-workers to implement green practices The company has special programs and policies to minimize adverse environmental effects Our company makes well-planned investments to avoid environmental degradation Our company encourages its employees to engage in social volunteering related to environmental preservation Our company extends efforts to participate in community services and volunteerism Our company helps to improve educational institutes					
Individual green value (IGV)	Our company extends efforts to improve the welfare of the community I feel obliged to bear the environment and nature in mind in my daily behavior I feel obliged to save the environment from degradation, regardless of what others do I would prefer to buy eco-friendly appliances I took the initiative to act in environmentally friendly ways at work I feel guilty when I contribute to environmental degradation					