

# The Impact of Green Human Resource Management on Organizational Citizenship Behavior for the Environment (OCBE)

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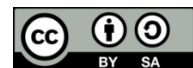
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## ABSTRACT

This study investigates the impact of Green Human Resource Management (GHRM) practices on Organizational Citizenship Behavior for the Environment (OCBE) in Indonesia. Using a quantitative approach, data were collected from 130 employees across various industries through a structured questionnaire measured on a five-point Likert scale. The data were analyzed using Partial Least Squares-Structural Equation Modeling (SEM-PLS 3). Results show that GHRM significantly and positively influences OCBE, with an explained variance ( $R^2$ ) of 42%. Among the dimensions of GHRM, green training and green rewards emerged as the strongest predictors of OCBE, while green recruitment and green performance appraisal also demonstrated significant but slightly weaker effects. These findings highlight the strategic role of HRM in fostering voluntary pro-environmental behaviors among employees, particularly in the Indonesian cultural context where collectivist values support sustainability. The study contributes to the literature by validating the GHRM-OCBE relationship in a developing country and by identifying the relative importance of different HR practices. Practically, organizations are encouraged to design HR strategies that integrate sustainability into training, rewards, recruitment, and performance management systems to strengthen both environmental performance and employee engagement.

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## 1. INTRODUCTION

Sustainability has become a central agenda in global business, as organizations are increasingly pressured by governments, stakeholders, and communities to integrate environmental responsibility into their operations. The environmental crisis, marked by climate change, resource depletion, and pollution, requires companies to rethink strategies not only for profitability but also for

ecological balance. In this context, the human resource function plays a pivotal role, since employees translate organizational visions into daily practices. One concept bridging HR and sustainability is Green Human Resource Management (GHRM), which integrates environmentally friendly principles into HR practices such as recruitment, training, performance evaluation, and rewards. GHRM fosters eco-friendly behaviors among employees while aligning operations with

ecological goals, helping organizations reduce environmental impact, enhance reputation, and attract green-conscious talent. Key practices include Green Recruitment, attracting candidates with sustainability values [1], [2]; Eco-friendly Training, emphasizing sustainable practices [1], [3]; Sustainability-based Performance Evaluation, incorporating environmental criteria into appraisals (Abhisha & Melvin, 2024; Shahrulnizam et al., 2024); and Green Pay and Rewards, offering incentives for eco-contributions. The benefits of GHRM include reduced impact, cost efficiency, and improved employee engagement [4], [5], while challenges involve resistance to change, limited resources, and measurement difficulties, making leadership commitment and cultural alignment crucial for success [1], [2].

Parallel to this development, the notion of Organizational Citizenship Behavior for the Environment (OCBE) has gained attention as a behavioral outcome of Green Human Resource Management (GHRM). OCBE represents discretionary and voluntary employee actions directed toward environmental improvement, such as reducing energy consumption, promoting recycling, or advocating eco-friendly policies within the workplace, and unlike formal job duties, it reflects employees' intrinsic motivation and commitment to environmental values. In a rapidly industrializing country like Indonesia, where economic growth often comes at the expense of environmental sustainability, fostering OCBE has become increasingly important, as it allows organizations not only to contribute to environmental protection but also to strengthen their social legitimacy and long-term competitiveness. GHRM practices, such as green recruitment, selection, and training, have been shown to positively impact OCBE by enhancing employee engagement and environmental commitment [6], [7], with green recruitment and selection particularly influential because they ensure that employees with a strong environmental orientation are brought into the organization [6]. Moreover, employee engagement serves

as a mediator between GHRM practices and OCBE, suggesting that engaged employees are more likely to participate in environmentally friendly behaviors [6], while factors such as employee personality traits and green innovative culture can moderate the relationship, further enhancing the effectiveness of these practices [6], [7]. By fostering OCBE, organizations can achieve a competitive advantage, as environmentally conscious behaviors contribute to improved organizational performance and sustainability [8], [9], while the integration of GHRM practices into organizational culture remains crucial for long-term business sustainability by aligning employee behaviors with environmental goals [9].

Indonesia is among the largest emerging economies in Asia, with industries from manufacturing, mining, and agriculture to services and digital sectors that significantly contribute to GDP but also create challenges such as carbon emissions, deforestation, and waste management. Although the government has issued sustainability regulations, including commitments to reduce greenhouse gas emissions, their success depends on how organizations internalize green values, highlighting the need to align employee behavior with environmental goals. Yet, most studies on Green Human Resource Management (GHRM) and Organizational Citizenship Behavior for the Environment (OCBE) focus on developed countries, leaving a gap in the Indonesian context. Evidence shows that GHRM in Indonesia positively influences green human capital and innovation, with managerial environmental concerns as antecedents to green innovation [10]. In the palm oil industry, GHRM is crucial for reducing emissions and promoting sustainable practices, requiring employee engagement and policy commitment [11]. OCBE further strengthens environmental performance, as Employee Green Behavior (EGB) mediates the link between GHRM and organizational outcomes, as seen in PT. PLN Distribution Jakarta Raya [12]. This alignment is supported by the HR Global Environmental Competency Model, which fosters sustainable

practices through green economic diplomacy [12]. Despite these benefits, challenges persist, making tailored training and awareness programs essential to overcome barriers and align with the UN Sustainable Development Goals (SDGs) [13].

In Indonesia, organizational culture, leadership style, and employee attitudes differ from Western contexts due to collectivist values, hierarchical structures, and socio-cultural influences, where employees often show group loyalty but rely on formal authority for direction. Examining how Green Human Resource Management (GHRM) influences Organizational Citizenship Behavior for the Environment (OCBE) thus provides theoretical and practical insights, revealing whether global theories hold locally and how cultural factors shape HR-environmental behavior links. Research shows GHRM, when aligned with green culture and leadership, positively impacts OCBE [9], [14]. Studies confirm a positive correlation between GHRM and OCBE, with green transformational leadership inspiring employees to adopt environmental goals [14], while collectivist culture enhances effectiveness by fostering shared commitment [14], [15]. Mediating factors further strengthen this link, as organizational commitment in Sharia Banks fosters environmental citizenship [15], and green organizational culture enhances environmental performance. Practically, managers should encourage open discussions on environmental issues, acknowledge green initiatives [14], and adopt sustainability frameworks to integrate GHRM and OCBE for long-term business sustainability [9].

Previous studies have established that Green Human Resource Management (GHRM) can foster pro-environmental attitudes and behaviors by embedding sustainability into HR practices, and evidence from Southeast Asia further supports this link. A study in Cebu City, Philippines, found a positive relationship between GHRM, OCBE, and business sustainability, showing that GHRM practices significantly influence organizational culture and performance [9]. In Indonesia, research identified specific GHRM

practices that enhance organizational sustainability by aligning employees with environmental policies, thereby strengthening OCBE [16]. Green recruitment and training are pivotal in fostering environmental knowledge and values essential for OCBE [17], [18], while performance appraisals and rewards tied to environmental criteria motivate employees to internalize and demonstrate green values [18]. Nevertheless, integrating GHRM into organizational culture faces challenges, including resistance to change and balancing short-term costs with long-term goals [18], yet it remains a strategic approach to achieving sustainability and improving organizational effectiveness [19]. For instance, green recruitment signals organizational commitment to sustainability and attracts eco-conscious employees, green training equips them with the necessary skills, and performance appraisals with rewards encourage them to act consistently with environmental values. Despite these insights, the direct link between GHRM and OCBE remains underexplored, particularly in Southeast Asia, as most studies have focused more on organizational environmental performance or employee attitudes such as environmental commitment.

Moreover, limited empirical research has applied advanced analytical techniques such as Structural Equation Modeling-Partial Least Squares (SEM-PLS) to investigate the complex relationships between GHRM and OCBE. SEM-PLS enables the testing of multiple pathways simultaneously, providing a more robust analysis of direct and indirect effects. By employing this method, the present study aims to address methodological gaps and contribute more rigorous evidence to the literature. Given the urgency of environmental issues and the growing interest in sustainability in Indonesia, it is necessary to understand how HRM practices can be leveraged to promote environmental citizenship behaviors among employees. While the concept of GHRM has been widely discussed, empirical evidence linking it to OCBE in Indonesia is still scarce. Organizations may adopt green policies, but

without understanding their impact on employee behaviors, these policies risk being symbolic rather than substantive. The problem, therefore, lies in the lack of empirical knowledge on how GHRM practices translate into employees' voluntary environmental behaviors in Indonesian organizations.

The primary objective of this study is to analyze the impact of Green Human Resource Management on Organizational Citizenship Behavior for the Environment (OCBE) in Indonesia. Specifically, this study seeks to: (1) examine the extent to which GHRM practices are implemented in Indonesian organizations; (2) investigate the relationship between GHRM and employees' OCBE using SEM-PLS analysis; and (3) provide empirical evidence on how HR policies can foster voluntary pro-environmental behavior in the workplace.

## 2. LITERATURE REVIEW

### 2.1 *Green Human Resource Management (GHRM)*

Green Human Resource Management (GHRM) is a strategic approach that integrates environmental sustainability into human resource practices to align employee behaviors with corporate sustainability strategies through initiatives such as green recruitment, training, performance appraisal, and compensation, which collectively foster a culture of environmental responsibility within organizations. GHRM not only contributes to sustainability but also enhances outcomes like innovation, efficiency, and reputation, serving as a driver of competitive advantage, though its effectiveness depends on employees internalizing these values and translating them into voluntary actions, known as Organizational Citizenship Behavior for the Environment (OCBE) [1], [8]. Green recruitment and selection attract environmentally conscious employees by signaling organizational commitment to sustainability [1], [4], while green training equips employees with skills and awareness to implement eco-friendly practices [1], [4]. Green performance appraisal incorporates environmental criteria into evaluations,

encouraging pro-environmental behavior [1], [2], and green compensation and rewards provide tangible and intangible incentives for sustainable actions [1], [4]. Collectively, these practices foster OCBE, enhancing competitive advantage by encouraging voluntary green behaviors that support sustainability objectives [7], [8], although challenges such as resistance to change, limited leadership commitment, and difficulties in measuring the impact of green initiatives remain as barriers to full implementation [1], [2].

### 2.2 *Organizational Citizenship Behavior for the Environment (OCBE)*

Organizational Citizenship Behavior for the Environment (OCBE) is a critical component in achieving organizational sustainability goals, as it involves voluntary, eco-friendly actions by employees that are not formally rewarded but significantly reduce environmental impact. Research shows that OCBE is driven by intrinsic motivation, personal values, and organizational culture, and is influenced by factors such as perceived organizational support, environmental concern, and organizational commitment. Employees are more likely to engage in OCBE when they perceive strong organizational support for environmental efforts, which creates a psychological contract that motivates them to reciprocate with eco-friendly behaviors [20], [21]. Personal concern for the environment is also a strong predictor of OCBE, as employees who value sustainability are naturally inclined to support green practices [21], while organizational commitment can mediate this relationship, indicating that committed employees are more likely to act voluntarily toward environmental goals [21]. The impact of OCBE extends to organizational effectiveness by reducing waste, conserving resources, and strengthening environmental reputation, with different effects observed across public and private sectors [22]. Moreover, cultural and personal values such as environmental beliefs, green values, and self-efficacy play an important role in predicting OCBE, underscoring the significance of individual identity and values in fostering sustainable behaviors [23]

### 2.3 Linking GHRM to OCBE

The relationship between Green Human Resource Management (GHRM) and Organizational Citizenship Behavior for the Environment (OCBE) is grounded in social exchange theory and the norm of reciprocity, where organizational investments in green HR practices—such as providing environmental training or recognizing eco-friendly performance—are perceived by employees as organizational support, motivating them to reciprocate through discretionary pro-environmental behaviors that align with sustainability goals. Green recruitment plays a crucial role in attracting employees with strong environmental values, which enhances value congruence and willingness to engage in OCBE, and has been shown to exert the most significant influence on OCBE by aligning organizational and employee values [6]. Green training further equips employees with the necessary knowledge and skills for resource conservation and eco-friendly practices, thereby strengthening their capability to act sustainably [24], [25], while also positively affecting employee engagement that mediates the relationship between green recruitment and OCBE [6]. Similarly, embedding environmental criteria into performance appraisal reinforces the message that green behaviors are valued, although its direct effect on OCBE can vary [24], and providing green rewards—both monetary and symbolic—acknowledges and reinforces eco-friendly actions, fostering a culture of environmental responsibility [24]. Collectively, these GHRM practices create an organizational environment that enhances employees' competence and motivation to engage in OCBE [7], [26], with employee engagement acting as a mediator that further strengthens the impact of GHRM on OCBE [6].

### 2.4 Hypothesis Development

Based on the theoretical and empirical review above, the following hypotheses are developed:

H1: Green Human Resource Management (GHRM) has a significant positive effect on Organizational Citizenship Behavior for the Environment (OCBE).

To refine the analysis, the study also considers the dimensions of GHRM practices: H1a: Green recruitment has a significant positive effect on OCBE.

H1b: Green training has a significant positive effect on OCBE.

H1c: Green performance appraisal has a significant positive effect on OCBE.

H1d: Green compensation and rewards have a significant positive effect on OCBE.

## 3. METHODS

### 3.1 Research Design

This study employs a quantitative research design with a cross-sectional survey approach. The purpose of using this design is to test the causal relationship between Green Human Resource Management (GHRM) practices and Organizational Citizenship Behavior for the Environment (OCBE). Quantitative methods are particularly suitable for this study because they allow for the measurement of constructs using structured instruments and enable the testing of hypotheses through statistical modeling. The research is explanatory in nature, seeking to examine the extent to which GHRM influences employees' voluntary environmental behaviors in Indonesian organizations.

### 3.2 Population and Sample

The population of this research consists of employees working in medium- and large-scale organizations in Indonesia that have implemented sustainability initiatives or environmentally related policies. The rationale for selecting this population is that such organizations are more likely to have adopted green HR practices, making it possible to observe their influence on employee behaviors. The study used purposive sampling to ensure that respondents had sufficient exposure to environmental initiatives within their organizations, and a total of 130 respondents participated in the survey. This sample size is considered adequate for data analysis using Partial Least Squares–Structural Equation Modeling (SEM-PLS), which can reliably handle small to medium sample sizes.

According to methodological standards, a sample above 100 is sufficient to test complex models with multiple latent variables in SEM-PLS.

Demographically, respondents represented diverse sectors such as manufacturing, services, education, and financial institutions. They also varied in terms of age, gender, education, and organizational tenure, ensuring that the sample reflected a broad perspective on the implementation of GHRM and the manifestation of OCBE. This diversity strengthens the robustness of the study findings, as it captures a wide range of organizational contexts and employee characteristics that influence how green HR practices are perceived and how they encourage employees to engage in pro-environmental discretionary behaviors.

### **3.3 Data Collection Procedure**

Data were collected using a structured questionnaire distributed both online and offline. The questionnaire consisted of two main parts: (1) demographic information of respondents, and (2) measurement items for GHRM and OCBE constructs. Respondents were assured of confidentiality and anonymity to encourage honest responses.

Before distributing the questionnaire widely, a pilot test involving 20 respondents was conducted to ensure clarity, reliability, and validity of the items. Feedback from the pilot study was used to refine the wording of some items, ensuring that they were easily understood by Indonesian employees with different educational backgrounds. After revisions, the final questionnaire was distributed and data collection was completed within two months.

### **3.4 Measurement of Variables**

All variables in this study were measured using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"), chosen for its simplicity, reliability, and widespread use in behavioral research to capture respondents' attitudes and perceptions. Green Human Resource Management (GHRM) as the independent variable was measured through four

dimensions adapted from previous studies: green recruitment and selection (e.g., "My organization considers environmental values when hiring employees"), green training and development (e.g., "Employees receive training on how to reduce environmental impact in their work"), green performance appraisal (e.g., "Environmental performance is included in employee performance evaluation"), and green compensation and rewards (e.g., "Employees are rewarded for contributing to environmental initiatives"). Organizational Citizenship Behavior for the Environment (OCBE) as the dependent variable was measured using established scales that capture voluntary pro-environmental behaviors, including items such as "I voluntarily engage in activities that help reduce the organization's environmental impact," "I encourage colleagues to adopt environmentally friendly practices," and "I make suggestions to improve the organization's environmental performance." All items were adapted to the Indonesian context and translated into Bahasa Indonesia to ensure comprehension, with a back-translation technique applied to maintain the accuracy of the translated items.

### **3.5 Data Analysis Technique**

Data analysis was conducted using Partial Least Squares-Structural Equation Modeling (SEM-PLS) with SmartPLS 3 software, chosen for its flexibility with small to medium sample sizes, its ability to handle complex models by testing multiple relationships simultaneously, and its predictive orientation that emphasizes maximizing explained variance, making it suitable for exploratory studies in emerging research fields such as GHRM and OCBE. With a sample of 130 respondents, SEM-PLS was considered robust and appropriate, and the analysis followed a two-step approach: measurement model assessment (outer model) and structural model assessment (inner model). The outer model evaluation tested reliability using Cronbach's Alpha and Composite Reliability, and validity through convergent validity with Average Variance Extracted (AVE) and discriminant validity using Fornell-Larcker and HTMT criteria.

Once the measurement model was confirmed, the inner model assessment examined the structural relationships among constructs by evaluating path coefficients, t-statistics, and p-values to test the significance of hypotheses, while the model's explanatory power was determined using  $R^2$  values and its predictive relevance through  $Q^2$ . To ensure robustness and accuracy of results, bootstrapping with 5,000 resamples was performed.

## 4. RESULTS AND DISCUSSION

### 4.1 Results

#### 4.1.1 Descriptive Statistics

Table 1. Demographic Profile of Respondents

Demographic Variable	Category	Frequency	Percentage
Gender	Male	68	52%
	Female	62	48%
Age	< 30 years	33	25%
	30–40 years	59	45%
	> 40 years	38	30%
Education	High School/Diploma	33	25%
	Bachelor's Degree	78	60%
	Postgraduate	19	15%
Tenure	< 5 years	46	35%
	5–10 years	52	40%
	> 10 years	32	25%

The demographic profile of respondents is presented in Table 1. The sample consisted of 52% male and 48% female employees, indicating a relatively balanced gender distribution. In terms of age, the majority of respondents were between 30–40 years old (45%), followed by those under 30 years (25%) and above 40 years (30%). Educational background varied, with 60% holding a bachelor's degree, 25% having a diploma or high school qualification, and 15% possessing postgraduate qualifications. Regarding tenure, 35% of employees had worked for less than 5 years, 40% between 5–

Descriptive analysis was conducted to provide an overview of the characteristics of respondents and their perceptions of the study variables. A total of 130 valid responses were collected from employees working in various organizations in Indonesia, representing sectors such as manufacturing, services, education, and finance. The diversity of respondents ensures that the data capture a broad spectrum of experiences related to the implementation of Green Human Resource Management (GHRM) and the exhibition of Organizational Citizenship Behavior for the Environment (OCBE).

10 years, and 25% more than 10 years, reflecting a mix of early-career and experienced employees.

#### Descriptive Analysis of Variables

Descriptive statistics for the main variables (GHRM dimensions and OCBE) are summarized in Table 2. Each item was measured using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The mean values provide an indication of respondents' overall agreement, while the standard deviation shows the variability of responses.

Table 2. Descriptive Statistics of Research Variables

Variable / Dimension	Mean	SD	Interpretation
Green Recruitment (GR)	3.85	0.64	Moderate to High
Green Training (GT)	4.02	0.58	High

Green Performance Appraisal (GPA)	3.76	0.61	Moderate
Green Rewards (GRW)	3.90	0.59	Moderate to High
Organizational Citizenship Behavior for the Environment (OCBE)	4.05	0.55	High

As shown in Table 2, the mean values for all constructs were above 3.5, indicating that respondents generally perceived their organizations as implementing GHRM practices at a moderate to high level, and that they themselves engaged in OCBE at a high level. Among the GHRM dimensions, green training received the highest mean score ( $M = 4.02$ ), suggesting that organizations are actively equipping employees with environmental knowledge and skills. In contrast, green performance appraisal had the lowest mean ( $M = 3.76$ ), indicating that while environmental issues are recognized, they may not yet be consistently embedded into formal evaluation systems. The mean value of OCBE ( $M = 4.05$ ) indicates that employees often engage in voluntary pro-environmental

behaviors beyond their formal job responsibilities. The relatively low standard deviations (0.55–0.64) suggest that responses were consistent across participants.

#### 4.1.2 Measurement Model (Outer Model)

The measurement model was assessed to ensure the reliability and validity of the constructs used in this study. Following the SEM-PLS procedure, three key aspects were evaluated: indicator reliability, internal consistency reliability, and construct validity (convergent and discriminant validity).

##### Indicator Reliability

Indicator reliability was tested by examining the factor loadings of each item. A loading value greater than 0.70 indicates that the indicator explains more than 50% of the variance in the underlying construct.

**Table 3. Outer Loadings of Indicators**

Construct / Dimension	Items (Examples)	Loading
Green Recruitment (GR)	GR1: "Organization considers environmental values in hiring."	0.785
	GR2: "Job postings emphasize eco-friendly culture."	0.812
	GR3: "Selection favors candidates with green awareness."	0.854
Green Training (GT)	GT1: "Employees receive training to reduce waste."	0.826
	GT2: "Workshops increase environmental awareness."	0.881
	GT3: "Organization provides skills for eco-practices."	0.742
Green Performance Appraisal (GPA)	GPA1: "Performance evaluation includes eco-criteria."	0.715
	GPA2: "Employees assessed on resource conservation."	0.797
	GPA3: "Environmental goals influence performance review."	0.832
Green Rewards (GRW)	GRW1: "Eco-friendly behavior recognized with rewards."	0.864
	GRW2: "Incentives encourage environmental initiatives."	0.816
	GRW3: "Recognition given for green suggestions."	0.732
OCBE	OCBE1: "I voluntarily conserve resources at work."	0.886
	OCBE2: "I promote recycling among colleagues."	0.841
	OCBE3: "I make suggestions for eco-improvements."	0.762
	OCBE4: "I encourage co-workers to behave green."	0.816



Table 3 presents the outer loadings of indicators for each construct, all of which exceed the 0.70 threshold, indicating good reliability. For Green Recruitment (GR), the three indicators (GR1–GR3) load strongly between 0.785 and 0.854, showing that recruitment practices emphasizing environmental values, eco-friendly job postings, and the selection of green-aware candidates are well captured. Green Training (GT) indicators (GT1–GT3) load from 0.742 to 0.881, confirming that waste reduction training, awareness workshops, and eco-skill development reliably measure the construct. Green Performance Appraisal (GPA) indicators (GPA1–GPA3) load between 0.715 and 0.832, highlighting the role of eco-criteria in evaluations. Green Rewards (GRW)

indicators (GRW1–GRW3) show loadings from 0.732 to 0.864, indicating that recognition and incentives for environmentally responsible behaviors are effectively captured. Finally, OCBE indicators load from 0.762 to 0.886, demonstrating that voluntary eco-behaviors such as conserving resources, promoting recycling, and encouraging colleagues strongly reflect the construct. Overall, these results confirm that all constructs are well measured by their indicators, providing a solid foundation for further structural model analysis.

#### Internal Consistency Reliability

Internal consistency was evaluated using Cronbach's Alpha and Composite Reliability (CR). Both values should be above 0.70 to demonstrate adequate reliability.

Table 4. Reliability Statistics

Construct	Cronbach's Alpha	Composite Reliability (CR)	Threshold
Green Recruitment (GR)	0.815	0.876	> 0.70
Green Training (GT)	0.842	0.892	> 0.70
Green Performance Appraisal (GPA)	0.805	0.881	> 0.70
Green Rewards (GRW)	0.837	0.905	> 0.70
OCBE	0.871	0.922	> 0.70

Table 4 presents the reliability statistics of the constructs, showing that all Cronbach's Alpha and Composite Reliability (CR) values exceed the recommended threshold of 0.70, thereby confirming strong internal consistency. Green Recruitment (GR) demonstrates reliability with Cronbach's Alpha of 0.815 and CR of 0.876, indicating that the indicators consistently measure the construct. Green Training (GT) shows even stronger reliability with Cronbach's Alpha of 0.842 and CR of 0.892, reflecting the robustness of training-related measures. Similarly, Green Performance Appraisal (GPA) records Cronbach's Alpha of 0.805 and CR of 0.881, suggesting that environmental aspects embedded in evaluations are reliably assessed. Green Rewards (GRW) yields

Cronbach's Alpha of 0.837 and CR of 0.905, underscoring the consistency of reward-related measures. Finally, OCBE achieves the highest reliability values, with Cronbach's Alpha of 0.871 and CR of 0.922, confirming that voluntary pro-environmental behaviors are measured with strong consistency. Overall, the results confirm that all constructs meet the required reliability standards, ensuring their suitability for subsequent validity and structural model testing.

#### Convergent Validity

Convergent validity was examined using Average Variance Extracted (AVE). An AVE value greater than 0.50 indicates that the construct explains more than half of the variance of its indicators.

Table 5. Convergent Validity (AVE)

Construct	AVE	Threshold
Green Recruitment (GR)	0.582	> 0.50

Green Training (GT)	0.621	> 0.50
Green Performance Appraisal (GPA)	0.574	> 0.50
Green Rewards (GRW)	0.616	> 0.50
OCBE	0.658	> 0.50

Table 5 presents the results of convergent validity testing using Average Variance Extracted (AVE), where all constructs exceed the recommended threshold value of 0.50, thus confirming that the indicators adequately capture the underlying constructs. Green Recruitment (GR) records an AVE of 0.582, indicating that more than half of the variance in its indicators is explained by the construct. Green Training (GT) achieves an AVE of 0.621, reflecting strong convergence among its measures related to environmental training and awareness. Similarly, Green Performance Appraisal (GPA) shows an AVE of 0.574, confirming that its indicators consistently represent the construct of eco-criteria in performance evaluations. Green Rewards (GRW) with an AVE of 0.616 further demonstrates that recognition and incentive-based measures converge well on the construct. Finally, OCBE attains the highest AVE value of 0.658, showing that voluntary pro-environmental behaviors are strongly captured by their respective indicators. These results collectively confirm that the measurement model fulfills convergent validity requirements, ensuring the constructs are conceptually sound for further structural analysis.

#### Discriminant Validity

Discriminant validity was assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. According to the Fornell–Larcker criterion, the square root of each construct's AVE should be greater than its correlation with other constructs. Meanwhile, HTMT values below 0.85 indicate good discriminant validity. Both criteria were satisfied,

confirming that each construct was distinct from the others.

#### 4.1.3 Structural Model (Inner Model)

##### Collinearity Assessment

Before testing the structural relationships, collinearity was assessed using the Variance Inflation Factor (VIF). VIF values for all predictor constructs were below the recommended threshold of 5.0, indicating no multicollinearity issues. This ensures that the path coefficient estimates are reliable and not inflated by redundant predictors.

##### Coefficient of Determination ( $R^2$ )

The  $R^2$  value indicates the proportion of variance in the dependent variable (OCBE) explained by the independent variables (GHRM dimensions). The model produced an  $R^2$  value of 0.42, meaning that GHRM practices jointly explained 42% of the variance in OCBE. According to Chin (1998),  $R^2$  values of 0.19, 0.33, and 0.67 are considered weak, moderate, and substantial, respectively. Therefore, the  $R^2$  of 0.42 suggests a moderate explanatory power of the model.

##### Predictive Relevance ( $Q^2$ )

The Stone–Geisser  $Q^2$  test was used to evaluate predictive relevance through a blindfolding procedure. The  $Q^2$  value for OCBE was 0.29, which is greater than zero, indicating that the model has satisfactory predictive relevance. This means the constructs of GHRM provide meaningful predictive power for explaining OCBE in the sample.

##### Path Coefficients and Hypothesis Testing

Bootstrapping with 5,000 resamples was conducted to estimate the significance of path coefficients. The results are presented in Table 6.

Table 6. Structural Model

Hypothesis	Original Sample (OS)	t-value	p-value
H1: GHRM → OCBE	0.655	11.20	0.000
H1a: Green Recruitment → OCBE	0.212	3.15	0.002

H1b: Green Training → OCBE	0.283	4.07	0.000
H1c: Green Performance Appraisal → OCBE	0.186	2.61	0.009
H1d: Green Rewards → OCBE	0.251	3.78	0.000

Table 6 presents the results of structural model assessment and hypothesis testing, showing that all hypothesized relationships between Green Human Resource Management (GHRM) practices and Organizational Citizenship Behavior for the Environment (OCBE) are supported. The overall effect of GHRM on OCBE (H1) is strong and significant, with an original sample (OS) coefficient of 0.655, a t-value of 11.20, and a p-value of 0.000, indicating that GHRM practices collectively play a crucial role in fostering voluntary pro-environmental behaviors among employees.

At the dimensional level, each GHRM practice significantly influences OCBE. Green Recruitment (H1a) has a positive effect with OS = 0.212,  $t = 3.15$ , and  $p = 0.002$ , suggesting that hiring employees with strong environmental values enhances their likelihood of engaging in OCBE. Green Training (H1b) shows the strongest impact among the dimensions (OS = 0.283,  $t = 4.07$ ,  $p = 0.000$ ), highlighting the importance of providing employees with environmental knowledge and skills to encourage eco-friendly discretionary behaviors. Green Performance Appraisal (H1c) is also significant (OS = 0.186,  $t = 2.61$ ,  $p = 0.009$ ), confirming that incorporating environmental criteria into evaluations motivates employees to align their behaviors with sustainability goals. Finally, Green Rewards (H1d) demonstrates a substantial effect (OS = 0.251,  $t = 3.78$ ,  $p = 0.000$ ), showing that recognition and incentives further strengthen employees' motivation to participate in environmentally responsible activities.

## 4.2 Discussion

### 4.2.1 GHRM as a Predictor of OCBE

The study demonstrates that GHRM has a positive and significant effect on OCBE, aligning with social exchange theory, which posits that when organizations invest in green HR practices, employees interpret these actions as organizational support and

reciprocate through voluntary pro-environmental behaviors. This finding resonates with research in other Asian contexts, such as China and India, where GHRM has been shown to foster employee green behaviors and commitment. For example, in India's hospitality industry, GHRM enhances employees' environmental commitment by promoting both task-related and proactive behaviors, supported by the Abilities, Motivation, and Opportunities (AMO) theory that explains how HR mechanisms encourage sustainability initiatives. Similarly, in Pakistan's textile industry, a green psychological climate and organizational pride were identified as mediators in the link between GHRM and voluntary pro-environmental behavior, underscoring the importance of a supportive organizational environment for employee engagement in green practices.

Further evidence from China shows that GHRM positively influences voluntary workplace green behavior through environmental commitment, though it may also result in emotional exhaustion, a negative effect that supervisory support can mitigate, highlighting the role of leadership in strengthening GHRM effectiveness [27]. Moreover, employee green behavior mediates the relationship between GHRM and organizational sustainable development performance, with green self-efficacy acting as a positive moderator [28]. The role of negotiated exchanges also emerges as critical, where supervisory support mediates the relationship between GHRM and eco-initiatives, particularly for employees with low felt responsibility for change, thereby enhancing cooperation in sustainability contexts [29]. This study extends these insights by validating the relationship in the Indonesian context, where cultural values of collectivism, loyalty, and community orientation reinforce reciprocity, leading employees to align personal actions with

organizational norms that benefit society at large. Thus, the positive link between GHRM and OCBE is consistent with global findings but is further strengthened by Indonesia's socio-cultural characteristics.

#### 4.2.2 The Role of Green Training

Among the four GHRM dimensions, green training emerged as the most influential predictor of OCBE, indicating that equipping employees with environmental knowledge and practical skills directly translates into voluntary pro-environmental behaviors. Training sessions not only raise awareness but also build competencies and foster motivation for employees to engage in eco-friendly actions beyond their formal job descriptions. This finding aligns with previous studies emphasizing that continuous education and training are essential in shaping sustainable behavior. In the Indonesian context, where environmental literacy in the workplace may vary, structured training provides the knowledge base needed to stimulate OCBE, reflecting the role of organizational learning as a key mechanism for embedding sustainability into daily practices.

The importance of continuous education and training is also evident across various sectors. In the environmental health sector, innovative approaches such as digital technology and interdisciplinary learning have been identified as effective strategies for enhancing competencies [30]. In the textile industry, green training combined with shared vision practices has been shown to directly impact OCBE, which in turn improves environmental performance [31]. Similarly, in educational settings, training and recruitment practices positively influence OCBE, highlighting the role of structured education in promoting sustainable behavior [32]. Furthermore, integrating green training and shared vision within organizations not only improves individual competencies but also fosters a culture of sustainability [31]. Supporting this, the application of stimulus-organism-response theory in Indonesia demonstrates that higher levels of employee education lead to increased pro-environmental intentions and behaviors,

underscoring the role of organizational learning in advancing sustainability [33].

#### 4.2.3 The Importance of Rewards and Recognition

The study also found that green rewards significantly influenced OCBE, as employees are more likely to demonstrate voluntary pro-environmental behaviors when they feel their contributions are valued and appreciated. Both financial and symbolic rewards serve as signals that the organization genuinely prioritizes environmental goals, thereby reinforcing employee commitment. In the Indonesian context, recognition and incentives play an especially important role as motivators. Even symbolic forms of acknowledgment, such as certificates, awards, or public appreciation, can enhance intrinsic motivation to participate in OCBE. This finding supports the argument that HR systems must align extrinsic incentives with employees' intrinsic environmental values to maximize behavioral outcomes. Recognition and incentives have been shown to be pivotal in boosting employee engagement and performance, with intrinsic motivators like personal growth and extrinsic motivators like recognition working together to encourage green behaviors.

Aligning HR systems with motivational strategies is crucial for building a supportive work environment that strengthens employee engagement. Performance-based rewards, recognition, and the integration of environmental values into HR practices ensure that extrinsic incentives complement employees' intrinsic motivations [34], [35]. Within Indonesia's collectivist cultural context, where social and familial values strongly shape work motivation, recognition and incentives become even more critical in promoting OCBE [35]. A culture that acknowledges employee contributions fosters a sense of belonging and pride, which in turn encourages voluntary and proactive behaviors that benefit both the organization and the environment [36]. Thus, the strategic alignment of HR systems with motivational drivers not only enhances OCBE but also strengthens organizational sustainability performance.

#### 4.2.4 Recruitment and Performance Appraisal as Foundations

Although their effects were slightly weaker compared to training and rewards, green recruitment and green performance appraisal were also found to be significant predictors of OCBE. Recruitment plays a crucial role by ensuring that individuals who already value sustainability are hired, creating an initial alignment between personal and organizational values. At the same time, performance appraisal institutionalizes sustainability by embedding environmental criteria into formal evaluation systems, which reinforces the importance of eco-friendly behaviors in day-to-day operations. These findings highlight that while green training and rewards may directly motivate pro-environmental behavior, recruitment and appraisal systems provide the structural foundation for embedding sustainability into organizational culture and employee practices.

Evidence from prior research supports these results, showing that green recruitment is increasingly integrated into organizational processes, with many employees selected based on their environmental awareness and job descriptions that emphasize sustainability [37]. Likewise, green performance appraisal systems that incorporate environmental indicators reinforce organizational commitment to sustainability [37]. Beyond recruitment and appraisal, training and rewards remain vital, as companies often provide environmental management training and job rotation to develop green leaders, although the impact of rewards may depend on mediating factors such as affective commitment [38]. More broadly, GHRM practices—including recruitment strategies and institutional initiatives—are shown to positively predict employee green behavior [39] and foster a green culture within organizations, positioning sustainability as a core principle [40].

#### 4.2.5 Theoretical Contributions

From a theoretical standpoint, this study contributes to the sustainability and HRM literature by validating the GHRM–

OCBE relationship in the Indonesian context, thereby extending insights beyond Western-centric studies. It also advances understanding through dimension-level analysis, showing that not all GHRM practices have the same impact, with training and rewards exerting stronger influence than recruitment and appraisal. Moreover, the study integrates cultural perspectives by highlighting the role of collectivist values in shaping reciprocity, suggesting that cultural context can amplify or moderate the strength of the GHRM–OCBE link.

#### 4.2.6 Practical Implications

The results provide actionable recommendations for managers and policymakers by emphasizing the need to prioritize training programs that not only teach eco-friendly practices but also cultivate a culture of sustainability, align rewards with green behaviors through incentives that encourage employees to demonstrate OCBE more frequently, utilize green recruitment as a screening tool by highlighting environmental values in job advertisements and selection processes to attract candidates aligned with sustainability goals, and embed sustainability in appraisals by incorporating green performance indicators into evaluations to ensure consistency between organizational objectives and employee behavior; by implementing these practices, Indonesian organizations can strengthen environmental performance while enhancing employee engagement and organizational legitimacy.

### 5. CONCLUSION

This study set out to examine the influence of Green Human Resource Management (GHRM) on Organizational Citizenship Behavior for the Environment (OCBE) in Indonesian organizations. Using SEM-PLS analysis on data from 130 employees, the results provide strong evidence that GHRM significantly enhances OCBE. The findings confirm that all four dimensions of GHRM—recruitment, training, performance appraisal, and rewards—positively affect employees' voluntary pro-environmental behaviors. Among these,

green training and rewards emerged as the most impactful, indicating that providing employees with environmental knowledge and recognizing their contributions are essential drivers of sustainability-oriented behavior. From a theoretical perspective, the study extends prior research by validating the GHRM-OCBE relationship in a developing country context and highlighting the role of cultural factors, such as collectivism, in strengthening reciprocity. From a practical standpoint, it suggests that Indonesian organizations should enhance their HR strategies by integrating sustainability principles into training programs, aligning rewards with green behaviors, embedding eco-criteria into recruitment and appraisals,

and fostering a workplace culture that values environmental stewardship.

Despite these contributions, the study has several limitations. The sample size, though adequate for SEM-PLS, was limited to 130 respondents and may not fully reflect the diversity of Indonesian industries. Future research could address this by expanding the sample size, incorporating longitudinal data, or examining mediating and moderating factors such as environmental commitment or organizational culture. Nonetheless, the findings provide meaningful insights for both academics and practitioners, reaffirming the strategic role of GHRM in advancing organizational sustainability goals and encouraging employees to act as proactive environmental citizens.

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