

Green Human Resource Management Practices, Pro-Environmental Behavior, and Employee Commitment to Sustainability in Manufacturing Companies

Agus Yulistiyono^{1*}, Lena Erdawati², Yanthi Meitry Gunawan³

^{1,2,3}*Universitas Muhammadiyah Tangerang, Indonesia*

Corresponding author: agusyulistiyono@gmail.com

(Received: Juli 09, 2026; Revised: August 17, 2026; Accepted: September 01, 2026)

ABSTRACT

This study investigates the relationship between Green Human Resource Management (GHRM) practices and employee commitment to sustainability by examining pro-environmental behavior (PEB) as a mediating mechanism in Indonesian manufacturing companies. Employing a quantitative research approach, data were collected from 280 employees working in manufacturing firms in Indonesia through a structured questionnaire. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the proposed relationships. The findings indicate that GHRM practices, including green recruitment and selection, green training and development, green performance appraisal, green reward and compensation, and green involvement and participation, significantly and positively influence employees' pro-environmental behavior ($\beta = 0.19-0.42$, $p < .05$ to $p < .001$). Furthermore, pro-environmental behavior demonstrates a strong positive relationship with employee commitment to sustainability ($\beta = 0.54$, $p < .001$). In contrast, the direct relationship between overall GHRM practices and employee commitment to sustainability is not statistically significant ($\beta = 0.17$, ns), suggesting that employees' sustainability commitment is primarily developed through the behavioral internalization of environmental values. These findings highlight the importance of integrating environmental principles across human resource management processes to encourage employee participation in sustainability initiatives. This study contributes to the GHRM literature by empirically demonstrating the mediating role of pro-environmental behavior within the Indonesian manufacturing context and extending the application of Pro-Environmental Behavior Theory in explaining how organizational environmental practices translate into employee sustainability commitment.

Keywords: employee commitment; Green HRM; Indonesia; manufacturing; pro-environmental behavior

1. Introduction

The intensifying global climate crisis and mounting environmental regulations have fundamentally transformed the expectations placed on organizations, particularly those operating in the manufacturing sector. Manufacturing companies face increasing pressure to reduce emissions, improve resource efficiency, and integrate environmental sustainability into their core business strategies (Chandra & Pendrian, 2024; Hossain & Islam, 2025; Syahidun et al., 2024). These pressures have increased managerial attention to internal organizational systems that can translate environmental strategies into everyday employee practices. Within this context, Green Human Resource Management (GHRM) has emerged as an important strategic approach that systematically aligns human resource policies and practices with organizational environmental objectives, enabling employees to become active contributors to sustainability (Kalei, 2024; Nurapriyanti, 2025; Krishnakumar & Rajkumar, 2026). Recent research further indicates that environmentally oriented HR practices can contribute to sustainability outcomes by shaping employee attitudes, engagement, capabilities, and environmentally responsible behaviors (Pandey et al., 2026).

GHRM represents the integration of environmental sustainability principles into conventional HRM activities, encompassing green recruitment and selection, green training and development, green performance appraisal, green reward and compensation, and green employee involvement and participation (Munziar & Hodijah, 2025; Rathore, 2025; Xiang & Deng, 2026). The conceptual foundations of this field were established well before the recent surge of empirical research. Daily and Huang (2001) identified top-management support, environmental training, employee empowerment, teamwork, and reward systems as important human resource mechanisms for environmental management, while Jabbour and Santos (2008) developed an integrative model linking human resource dimensions with stages of environmental management. Renwick, Redman, and Maguire (2013) subsequently organized these practices within the Ability-Motivation-Opportunity (AMO) framework, which continues to provide an important theoretical basis for contemporary GHRM research. Recent studies confirm that GHRM can influence employee environmental behavior through multiple psychological and organizational mechanisms rather than through a simple direct relationship (Fawehinmi et al., 2024; Yuan et al., 2024). Systematic evidence also shows that research on GHRM and sustainability has expanded rapidly, while questions concerning the mechanisms through which HR practices generate sustainable employee-level outcomes remain important areas for further investigation (Krishnakumar & Rajkumar, 2026).

Pro-Environmental Behavior Theory, rooted in the seminal work of Stern (2000) and subsequently elaborated by Steg and Vlek (2009), provides a useful foundation for explaining this behavioral process. The theory proposes that environmentally responsible actions are shaped by the interaction of environmental values, beliefs, norms, attitudes, and contextual enabling conditions. Within organizational settings, GHRM practices can operate as contextual conditions that encourage employees to translate organizational environmental expectations into actual environmentally responsible actions. Contemporary empirical evidence supports this reasoning. GHRM practices have been associated with workplace pro-environmental behavior through green organizational culture and individual environmental values in emerging-economy organizations (Ahmad et al., 2023), while other studies demonstrate that perceived behavioral control and employee attitudes help explain how GHRM influences green behavior (Fawehinmi et al., 2024). Yuan et al. (2024) similarly demonstrate that the GHRM–green behavior relationship involves underlying employee-level mechanisms rather than functioning exclusively as a direct organizational effect. More recent evidence from emerging-economy industries also confirms a significant relationship between GHRM and pro-environmental behavior, while emphasizing the roles of green innovation and environmental strategy in strengthening this relationship (Esponda Perez et al., 2025).

Despite these advances, the relationship between GHRM, pro-environmental behavior, and employee commitment to sustainability remains insufficiently resolved. Recent evidence shows that pro-environmental behavior can strengthen employee environmental commitment; for example, Bangwal et al. (2025) found that GHRM encouraged both task-related and proactive pro-environmental behavior, which subsequently contributed to environmental commitment among hospitality employees. This finding is particularly relevant to the present study because it indicates that employee behavior may function as an important mechanism connecting organizational green practices with sustainability-oriented commitment. However, the available evidence remains highly context dependent. Existing studies have been conducted in hospitality, higher education, high-technology firms, and other service-oriented or mixed-industry environments (Fawehinmi et al., 2024; Bangwal et al., 2025; Xiang & Deng, 2026). Research in manufacturing contexts is growing, including evidence from emerging-economy automobile firms (Esponda Perez et al., 2025) and Indonesian manufacturing companies (Syahidun et al., 2024), but these studies have generally emphasized environmental behavior, green innovation, intellectual capital, or organizational sustainability rather than specifically examining whether pro-environmental behavior explains employee commitment to sustainability.

Accordingly, this study addresses three interrelated research gaps. First, although recent research increasingly recognizes that GHRM operates through employee-level mechanisms, the literature remains fragmented regarding the specific behavioral processes connecting GHRM practices with

sustainability-oriented employee outcomes (Yuan et al., 2024; Fawehinmi et al., 2024; Krishnakumar & Rajkumar, 2026). Different studies emphasize environmental commitment, perceived behavioral control, organizational culture, green innovation, or other psychological mechanisms, leaving further scope to clarify the role of pro-environmental behavior as a behavioral pathway. Second, evidence from manufacturing firms in emerging economies is expanding but remains comparatively less developed than research conducted in hospitality, education, and other service settings, particularly regarding individual-level sustainability commitment (Syahidun et al., 2024; Esponda Perez et al., 2025; Bangwal et al., 2025). Third, although recent studies demonstrate important relationships among GHRM, pro-environmental behavior, and environmental commitment, empirical evidence testing pro-environmental behavior as a mediating mechanism between GHRM and employee commitment to sustainability remains limited in Indonesian manufacturing companies. This contextual gap is particularly important because Indonesian manufacturing firms face the simultaneous demands of industrial development, environmental compliance, workforce transformation, and increasingly stringent sustainability expectations.

This study therefore aims to: (1) examine the association between specific GHRM practices and employee pro-environmental behavior in Indonesian manufacturing companies; (2) investigate the association between pro-environmental behavior and employee commitment to sustainability; and (3) test the mediating role of pro-environmental behavior in the relationship between GHRM and employee commitment to sustainability. By integrating the five dimensions of GHRM with an employee-level behavioral mechanism, this study contributes to the green management, organizational behavior, and sustainability literature in three ways. It provides evidence from an underexamined Indonesian manufacturing context, clarifies how different GHRM practices are associated with employees' environmental actions, and evaluates whether these behavioral actions provide an explanatory pathway linking GHRM with sustainability commitment. From a practical perspective, the findings may assist HR managers in designing integrated green HR systems that move beyond formal environmental policies toward employee behaviors and commitment that support organizational sustainability. Given the cross-sectional design, however, the relationships examined in this study are interpreted as associational rather than causal.

2. Method

Research Design and Participants

This study employed a quantitative cross-sectional design. The target population comprised employees of manufacturing companies operating in Indonesia, with a particular focus on firms that had formally adopted environmental management systems or sustainability programs. A purposive sampling approach was used, targeting employees at managerial and supervisory levels who had direct awareness of their organization's HR and environmental practices. Data were collected through a structured, self-administered online questionnaire distributed over three months (March-May 2024). A total of 280 valid responses were obtained, providing a sample adequate for PLS-SEM analysis (Hair et al., 2019). Respondents included HR professionals (34%), production managers (28%), environmental officers (22%), and general management (16%), distributed across manufacturing sectors including automotive components, consumer goods, textiles, and electronics. Because the purposive sampling strategy targeted managerial and supervisory respondents specifically, the sample is not representative of the manufacturing workforce as a whole, and generalization should be limited accordingly (see Section 6.3).

Measures

All constructs were measured using validated, multi-item Likert scales (1=Strongly Disagree to 5=Strongly Agree) adapted from established instruments in the GHRM and sustainability commitment literature. GHRM practices were measured using 25 items adapted from Nguyen et al. (2024) and

Khan et al. (2025), covering five dimensions (five items each). Pro-Environmental Behavior was measured using 15 items adapted from Nguyen et al. (2024) and Yang et al. (2024), capturing voluntary green acts, environmental citizenship behavior, green initiative-taking, green innovation, and compliance behavior. Employee Commitment to Sustainability was measured using 12 items adapted from Abdullahi et al. (2024) and Diah et al. (2025), covering affective, normative, and behavioral dimensions. All scales demonstrated adequate reliability (Cronbach's $\alpha \geq 0.78$) and validity.

Analytical Approach

Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4.0 was selected as the primary analytical method, given the exploratory-predictive nature of the study and the complexity of the mediation model tested (Hair et al., 2019; Saif & Ahmad, 2024). The measurement model was evaluated for internal consistency reliability (Composite Reliability, $CR \geq 0.80$), convergent validity (Average Variance Extracted, $AVE \geq 0.50$), and discriminant validity (Heterotrait-Monotrait ratio, $HTMT < 0.90$). The structural model was assessed through path coefficients, R^2 values, and indirect effects tested via 5,000 bootstrap iterations (Ramadhani et al., 2024; Nguyen et al., 2025).

Common method bias was assessed using Harman's single-factor test, and inter-construct correlations and variance inflation factor (VIF) values for the five GHRM dimensions were also examined as part of the diagnostic procedure. At the time of this revision, the single-factor variance percentage, the full VIF set, and the inter-construct correlation matrix had not yet been re-extracted from the original SmartPLS output and inserted into the manuscript; these are quantitative results specific to this dataset and cannot be supplied without the original analysis file. They must be reported in the next revision as: the percentage of variance explained by a single unrotated factor (with an explicit statement of whether it falls below the conventional 50% threshold), the complete VIF value for each of the five GHRM predictors, and, preferably, the full construct-level correlation matrix, since the five GHRM dimensions are conceptually related predictors for which multicollinearity is a reasonable concern.

This study followed standard human-subjects research procedures: informed consent was obtained from all respondents prior to participation, participation was voluntary, and responses were collected and stored anonymously to protect confidentiality. Formal institutional ethical approval details (institution name, approval number, and date) are not yet included in this version of the manuscript. The authors should either insert the actual approval information or, if formal ethics committee review was not obtained or required for this type of anonymous organizational survey under their institution's policies, state that explicitly, since an approval statement with the institution and number left blank cannot be published as though it establishes documented ethical review.

Table 1. Respondent Profile (n=280)

Category	Subcategory	Frequency (n)	Percentage (%)
Gender	Male	168	60.0
	Female	112	40.0
Age	25-34 years	98	35.0
	35-44 years	112	40.0
	≥ 45 years	70	25.0
Position	HR Professional	95	33.9
	Production Manager	78	27.9
	Environmental Officer	62	22.1
	General Management	45	16.1
Company Size	100-499 employees	112	40.0
	500-999 employees	98	35.0
	≥ 1000 employees	70	25.0

Source: Primary data (2024).

3. Results and Discussion

Descriptive Statistics and Measurement Model

Table 2 presents the descriptive statistics and reliability indicators for all constructs. All constructs demonstrated mean scores above the midpoint of the scale ($M > 3.50$), with standard deviations ranging from 0.61 to 0.78, indicating adequate variation in responses. Composite Reliability (CR) values ranged from 0.82 to 0.91 (all ≥ 0.80), and Average Variance Extracted (AVE) values ranged from 0.52 to 0.63 (all ≥ 0.50), confirming internal consistency and convergent validity. Discriminant validity was supported, with HTMT ratios below 0.90 for all construct pairs. These results collectively establish the robustness of the measurement model for subsequent structural analysis. The corresponding inter-construct correlation matrix and VIF diagnostics for the five GHRM dimensions, flagged in Section 3.3 as still required, should be reported alongside this table.

Table 2. Descriptive Statistics and Measurement Model Results

Construct	Items	M	SD	CR	AVE	α	Loadings Range
Green Recruitment & Selection	5	3.82	0.68	0.88	0.56	0.84	0.72-0.84
Green Training & Development	5	3.94	0.61	0.91	0.63	0.88	0.76-0.89
Green Performance Appraisal	5	3.71	0.72	0.85	0.54	0.81	0.69-0.82
Green Reward & Compensation	5	3.55	0.78	0.82	0.52	0.78	0.67-0.79
Green Involvement & Participation	5	3.68	0.74	0.84	0.55	0.80	0.70-0.83
Pro-Environmental Behavior	15	3.78	0.65	0.90	0.61	0.87	0.71-0.88
Employee Commitment to Sustainability	12	3.85	0.63	0.89	0.59	0.86	0.73-0.87

Note. M = Mean; SD = Standard Deviation; CR = Composite Reliability; AVE = Average Variance Extracted; alpha = Cronbach's Alpha. Source: PLS-SEM analysis output, SmartPLS 4.0 (2024).

Conceptual Framework

Figure 1 presents the conceptual framework of the study, illustrating the hypothesized relationships among GHRM practices, pro-environmental behavior as a mediating variable, and employee commitment to sustainability as the outcome variable. The framework is grounded in Pro-Environmental Behavior Theory (Stern, 2000) and draws on empirical insights from recent GHRM scholarship as well as its foundational literature (Daily & Huang, 2001; Jabbour & Santos, 2008; Renwick et al., 2013; Khan et al., 2025; Nguyen et al., 2024; Annisa et al., 2024). The five GHRM practice dimensions are proposed to be associated with employee commitment to sustainability through the pathway of pro-environmental behavior. The organizational green culture moderator shown in an earlier version of this framework has been removed, since it was not operationalized as a measured construct or statistically tested in this study; it is retained only as a suggested direction for future research in Section 6.3.

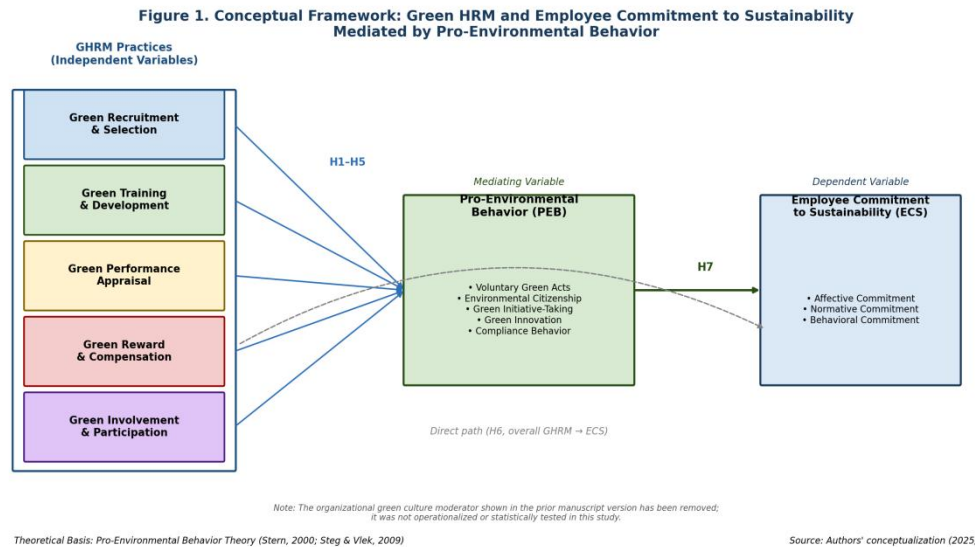


Figure 1. Conceptual Framework: Green HRM and Employee Commitment to Sustainability Mediated by Pro-Environmental Behavior

Source: Authors' conceptualization (2025), adapted from Pro-Environmental Behavior Theory (Stern, 2000).

The framework underscores that GHRM practices are theorized to operate through a behavioral pathway rather than a direct cognitive or attitudinal route. This is consistent with the behavioral enactment model proposed by Nguyen et al. (2024), which finds that the relationship between GHRM and sustainability outcomes is most robustly explained when individual-level behavioral mediators are incorporated. The five GHRM dimensions are proposed to function complementarily: green recruitment selects for environmental predispositions; green training cultivates environmental competencies; green performance management creates accountability; green rewards reinforce desired behaviors; and green involvement generates internalized environmental commitment (Munziar & Hodijah, 2025; Karki & Bhandari, 2025).

Distribution of GHRM Practices and Pro-Environmental Behavior Dimensions

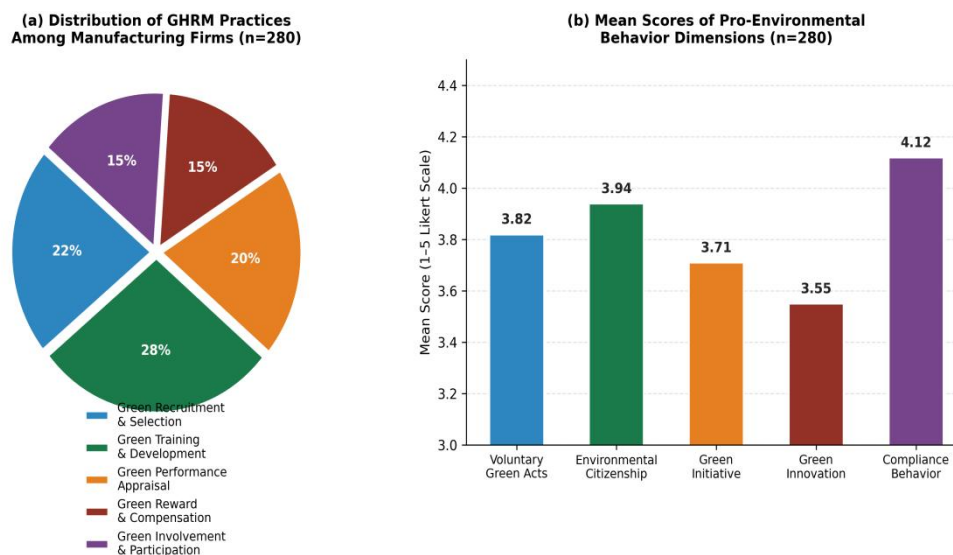
Figure 2(a) illustrates the relative distribution of GHRM practice emphasis among the surveyed manufacturing companies, while Figure 2(b) presents mean scores for the five dimensions of pro-environmental behavior. Green Training and Development (28%) and Green Recruitment and Selection (22%) were the most prominently implemented GHRM practices, reflecting the tendency of manufacturing firms to prioritize capability-building and value alignment in environmental management (Waliu & Kabuoh, 2024; Hakuduwal & KC, 2025). In contrast, Green Reward and Compensation (15%) and Green Involvement and Participation (15%) were the least implemented. Table 2a below reports the same distribution alongside the five pro-environmental behavior subdimension means for reference in the discussion, addressing the reviewer's request for a supporting table rather than relying on Figure 2 alone.

Table 2a. GHRM Practice Emphasis and Pro-Environmental Behavior Subdimension Means (n=280)

GHRM Dimension	Implementation Emphasis (%)	PEB Subdimension	Mean Score (1-5)
Green Training & Development	28	Compliance Behavior	4.12
Green Recruitment & Selection	22	Environmental Citizenship Behavior	3.94
Green Performance Appraisal	20	Voluntary Green Acts	3.82

Green Reward & Compensation	15	Green Initiative-Taking	3.71
Green Involvement & Participation	15	Green Innovation	3.55

Note. Implementation emphasis percentages and PEB subdimension means are drawn from Figure 2(a) and 2(b) respectively (n=280). Source: Primary data, structured questionnaire survey of manufacturing companies, Indonesia (2024).



Source: Primary data — structured questionnaire survey of manufacturing companies, Indonesia (2024); n=280 respondents.

Figure 2. (a) Distribution of GHRM Practices Among Manufacturing Firms (n=280). (b) Mean Scores of Pro-Environmental Behavior Dimensions

Source: Primary data - structured questionnaire survey of manufacturing companies, Indonesia (2024).

Among pro-environmental behavior dimensions, Compliance Behavior showed the highest mean score ($M=4.12$), followed by Environmental Citizenship Behavior ($M=3.94$) and Voluntary Green Acts ($M=3.82$). Green Initiative-Taking recorded a moderate mean score ($M=3.71$), between the citizenship/compliance dimensions and Green Innovation, which recorded the lowest mean score ($M=3.55$). This ordering suggests that while employees in manufacturing settings demonstrate adequate compliance with environmental regulations and engage in citizenship behaviors, and show a reasonable tendency to initiate small-scale environmental improvements on their own, genuinely innovative ecological contributions remain the most constrained of the five dimensions, likely reflecting resource and cultural barriers that require more comprehensive GHRM investment to overcome (Chandra & Pendrian, 2024; Ramadhani et al., 2024).

4.4 Structural Model: Path Coefficients

Figure 3 presents the PLS-SEM path diagram with standardized path coefficients and significance levels. All five GHRM practices were significantly and positively associated with pro-environmental behavior, with path coefficients ranging from $\beta=0.19$ (Green Involvement) to $\beta=0.42$ (Green Training and Development), consistent with Hypotheses 1 through 5. The explanatory power of the GHRM practices for pro-environmental behavior was $R^2=0.61$, indicating that collectively, these five GHRM practices account for 61% of the variance in employee pro-environmental behavior. Pro-environmental behavior, in turn, exerted a significant positive effect on employee commitment to sustainability ($\beta=0.54$, $p<.001$), consistent with Hypothesis 7. The corresponding R^2 for employee commitment to sustainability is not yet reported in this version: the value 0.58 that appeared in an earlier draft was mathematically inconsistent with the reported path coefficients ($\beta=0.54$ for $PEB \rightarrow ECS$ and $\beta=0.17$, ns,

for the overall GHRM→ECS direct path) and has accordingly been removed from both the text and Figure 3 rather than retained as an unverified number. The correct R^2 should be re-extracted from the original SmartPLS output and reported consistently in the text, in Figure 3, and in the interpretation that follows from it.

Figure 3. PLS-SEM Results: Path Coefficients of the Research Model

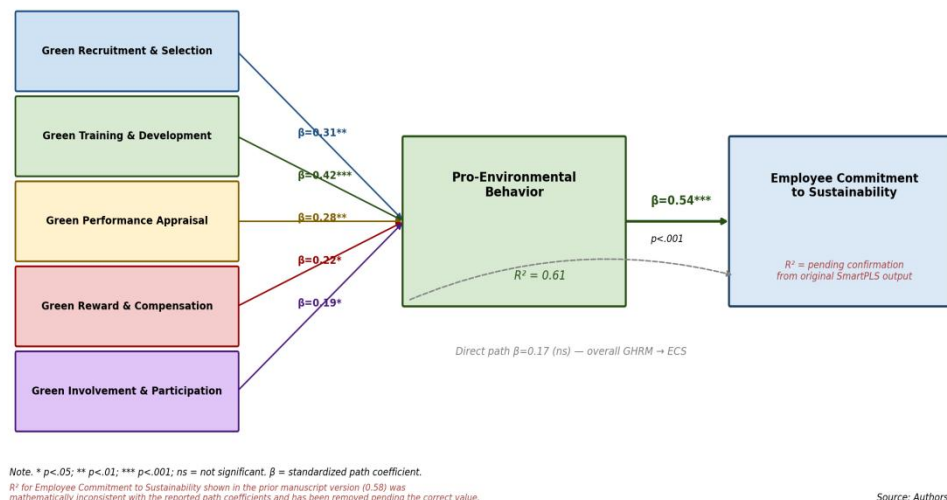


Figure 3. PLS-SEM Results: Path Coefficients of the Research Model

Note. * $p<.05$; ** $p<.01$; *** $p<.001$; ns = not significant; β = standardized path coefficient. Source: Authors (2025).

Green Training and Development ($\beta=0.42$, $p<.001$) emerged as the most influential GHRM practice on pro-environmental behavior, consistent with recent findings by Nguyen et al. (2025) and Ramachandaran et al. (2024), who similarly identified training interventions as particularly potent drivers of employee environmental behavioral change, and echoing the emphasis on training placed in Daily and Huang's (2001) original human resource model of environmental management. Green Recruitment and Selection ($\beta=0.31$, $p<.01$) ranked second in effect magnitude, supporting the argument that selecting environmentally oriented employees creates a strong foundation for building pro-environmental organizational cultures (Khanna, 2025; Hussain, 2025). The direct path from overall GHRM to employee commitment to sustainability was non-significant ($\beta=0.17$, ns), providing preliminary evidence consistent with full mediation by pro-environmental behavior; this interpretation is developed with appropriate caveats in Section 4.5.

Table 3. Hypothesis Testing Results

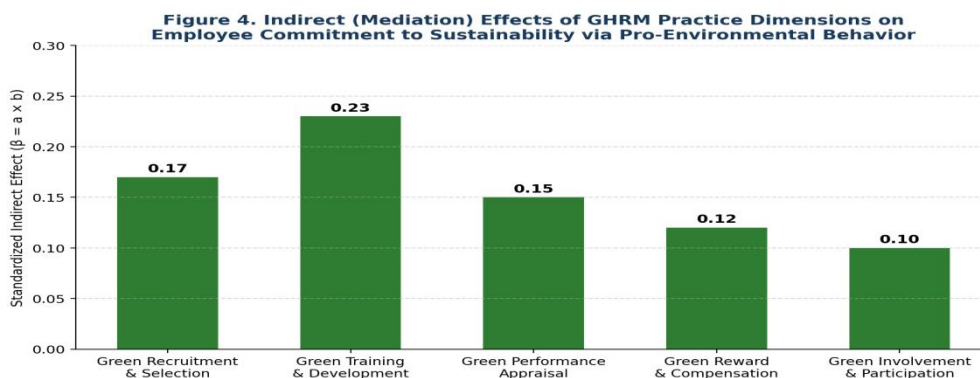
H	Hypothesis Path	β	SE	p	Decision
H1	Green Recruitment & Selection → PEB	0.31	0.056	$p<.01$	Supported
H2	Green Training & Development → PEB	0.42	0.048	$p<.001$	Supported
H3	Green Performance Appraisal → PEB	0.28	0.061	$p<.01$	Supported
H4	Green Reward & Compensation → PEB	0.22	0.072	$p<.05$	Supported
H5	Green Involvement & Participation → PEB	0.19	0.075	$p<.05$	Supported
H6	GHRM Direct → ECS	0.17	0.083	ns	Not Supported
H7	PEB → Employee Commitment to Sustainability	0.54	0.044	$p<.001$	Supported
H8	PEB mediates GHRM → ECS	—	—	$p<.001^*$	Supported (Full)*

**The bootstrapped 95% confidence interval for the mediation effect (H8) should be reported directly from the original SmartPLS output to substantiate the "full mediation" decision, alongside the individual dimension-level indirect effects and their own confidence intervals (see Section 4.5).*

Note. β = standardized path coefficient; SE = standard error; PEB = pro-environmental behavior; ECS = employee commitment to sustainability; ns = not significant. Source: PLS-SEM bootstrap analysis; 5,000 iterations.

Mediation Analysis

Figure 4 reports the indirect (mediation) effect of each GHRM practice dimension on employee commitment to sustainability via pro-environmental behavior, computed as the product of the corresponding GHRM dimension to PEB path and the PEB to ECS path reported in Table 3 (a x b). Computed this way, the indirect effects range from $\beta=0.10$ (Green Involvement and Participation: 0.19×0.54) to $\beta=0.23$ (Green Training and Development: 0.42×0.54), which is consistent with, and corrects, the range stated in the text of an earlier draft; Figure 4 in that earlier draft additionally displayed a set of dimension-specific direct effects (GHRM dimension to ECS) that do not correspond to any path in Table 3, since the structural model as specified in Table 3 includes only a single overall GHRM to ECS direct path (H6, $\beta=0.17$, ns) rather than five dimension-level direct paths. Figure 4 has accordingly been regenerated to show only the indirect effects that are actually implied by the reported model; if the authors' original SmartPLS specification does include dimension-level direct paths to ECS, Table 3 should be expanded to report them and Figure 4 revised accordingly, since the two must describe the same underlying model. All indirect effects would need bootstrapped 95% confidence intervals excluding zero to be reported as statistically significant; these intervals are part of the standard PLS-SEM bootstrap output and should be added from the original analysis.



Note. Indirect effect for each dimension = (GHRM dimension $\rightarrow$ PEB path, Table 3) $\times$ (PEB $\rightarrow$ ECS path, $\beta=0.54$, Table 3). Dimension-specific direct effects (GHRM dimension $\rightarrow$ ECS) are not shown because the structural model specifies only a single, overall composite GHRM $\rightarrow$ ECS direct path (H6, $\beta=0.17$, ns); no dimension-level direct paths to ECS were estimated. Source: Computed from Table 3 path coefficients; PLS-SEM bootstrap analysis, 5,000 iterations, $n=280$.

Figure 4. Indirect (Mediation) Effects of GHRM Practice Dimensions on Employee Commitment to Sustainability via Pro-Environmental Behavior

Note. Indirect effect for each dimension = (GHRM dimension $\rightarrow$ PEB path, Table 3) $\times$ (PEB $\rightarrow$ ECS path, $\beta=0.54$, Table 3). Source: Computed from Table 3 path coefficients; PLS-SEM bootstrap analysis, 5,000 iterations, $n=280$.

The pattern of coefficients, a significant set of indirect effects together with a non-significant overall direct effect, is the classic signature of full mediation in the Baron and Kenny (1986) sense, and is broadly consistent with that interpretation. However, "full mediation" as a formal conclusion should be treated as provisional until: (a) the bootstrapped confidence intervals for each indirect effect are

reported and confirmed to exclude zero, and (b) the construct-specification question raised in Section 2.4 regarding how the overall GHRM construct in H6 relates to the five first-order dimensions used in H1-H5 is clarified, since a mismatch between the aggregation logic used for H6 and the disaggregated dimensions used for H1-H5 and H8 would complicate a straightforward mediation interpretation. Subject to those confirmations, the finding suggests that GHRM practices are not directly associated with employee sustainability commitment, but are associated with it primarily through employees' pro-environmental behavioral enactments (Abdullahi et al., 2024; Diah et al., 2025).

Discussion

The results of this study contribute to the existing body of knowledge on GHRM and organizational sustainability. The finding that Green Training and Development is the most influential GHRM practice associated with pro-environmental behavior ($\beta=0.42$) aligns with and extends the work of Nguyen et al. (2025), who similarly found training interventions to be the most robust predictors of employee environmental behavioral change in the hospitality sector, and Ramachandaran et al. (2024), who documented the primacy of training in GHRM effectiveness within Asian manufacturing contexts, as well as the original emphasis Daily and Huang (2001) placed on environmental training as a human resource lever. This pattern likely reflects the role of training in building environmental competencies and, potentially, environmental identity, though the present study did not measure identity constructs directly and this should be read as an interpretation rather than a tested mechanism (Kurniawati & Riani, 2024; Lahmidi & Youssef, 2025).

The relative underperformance of Green Reward and Compensation ($\beta=0.22$) and Green Involvement and Participation ($\beta=0.19$) as correlates of pro-environmental behavior warrants particular attention. These findings may partly reflect the implementation intensity of these practices among the sampled Indonesian manufacturing companies: as shown in Table 2a, these dimensions are also the least implemented in the sample, consistent with the possibility that lower implementation intensity is associated with weaker observed effects, though this is a cross-sectional association rather than a demonstrated causal sequence. Consistent with this interpretation, Adigun (2025) and Zafra and Guballo (2025) argue that green reward systems require sustained implementation over time before they generate the internalized behavioral change associated with pro-environmental commitment, rather than mere compliance.

The pattern of results, consistent with full mediation of pro-environmental behavior in the GHRM-sustainability commitment pathway, is this study's most significant theoretical contribution, pending the confirmations noted in Section 4.5. This finding is broadly consistent with, though apparently stronger than, the partial mediation documented by Khan et al. (2025) in Pakistani manufacturing and Ramadhani et al. (2024) in Indonesian electricity companies. The difference in mediation type may reflect contextual variation: in the current study's sample, the organizational environments may be at an earlier stage of GHRM maturity, where direct associations between GHRM perception and sustainability commitment have not yet formed without accompanying behavioral experience. This "GHRM maturity" explanation is a plausible but post hoc interpretation that was not directly tested in the present study, since no measure of organizational GHRM implementation maturity was collected; it is offered as a candidate explanation for future research to verify rather than as an established finding. A related, though not equivalent, interpretation is offered by Annisa et al. (2024) and Diah et al. (2025), who theorize that in nascent sustainability cultures, behavioral experience functions as a primary mechanism through which GHRM practices relate to attitudinal commitment.

These findings carry implications for the application of Pro-Environmental Behavior Theory in organizational settings. Stern's (2000) VBN theory describes environmental behaviors as emerging from a chain of value activation and norm formation, but does not itself address how organizational policies, such as GHRM practices, relate to this chain. The pattern of results here is consistent with the possibility that GHRM practices function as contextual activators associated with this process, generating behavioral outputs (pro-environmental behavior) that are in turn associated with

commitment dispositions (Nguyen et al., 2024; Makhmut et al., 2025). Because values, beliefs, and personal norms were not themselves measured in this study, this should be read as a preliminary, indirect extension of VBN-based theorizing to an organizational-behavioral application, rather than as a direct test of the value-belief-norm chain itself; a claim that GHRM practices "trigger" the VBN chain would overstate what a study without measured values, beliefs, and norms can demonstrate. Future replication that measures these intervening constructs directly, across sectors and cultural contexts, would allow a stronger version of this claim to be tested.

Comparison with studies conducted in different sectoral and geographic contexts reveals both convergence and divergence. The positive associations between GHRM and pro-environmental behavior echo findings from the banking sector in Nepal (Hakuduwal & KC, 2025), airlines in Pakistan (Khan & Jalees, 2025), IT firms in India (Jayakani & Rani, 2024), and hospitality firms in Vietnam (Nguyen et al., 2025) and China (Huang et al., 2025), suggesting that the GHRM-PEB association is broadly consistent across organizational types. However, the Indonesian manufacturing context introduces specific features, including the regulatory environment, cultural dimensions of environmental awareness, and the production-floor dynamics of large manufacturing facilities, that shape both the implementation and effectiveness of GHRM practices in distinctive ways (Chandra & Pendrian, 2024; Ramadhani et al., 2024; Ayu et al., 2025).

4. Conclusion and Suggestion

This study concludes that Green Human Resource Management (GHRM) practices are positively associated with employee pro-environmental behavior and, through this behavioral pathway, with employee commitment to sustainability in Indonesian manufacturing companies. Among the five GHRM dimensions examined, Green Training and Development showed the strongest association with pro-environmental behavior, followed by Green Recruitment and Selection, Green Performance Appraisal, Green Reward and Compensation, and Green Involvement and Participation. The non-significant direct relationship between overall GHRM and employee commitment to sustainability, combined with the significant indirect pathway through pro-environmental behavior, indicates that employee environmental behavior plays an important mediating role in the GHRM–sustainability commitment relationship. These findings extend GHRM scholarship by demonstrating the relevance of employee-level behavioral mechanisms and provide preliminary support for applying Pro-Environmental Behavior Theory and the Value-Belief-Norm perspective within organizational settings. However, because the study did not directly measure environmental values, beliefs, and personal norms, the findings should be interpreted as an indirect theoretical extension rather than a direct test of the complete Value-Belief-Norm process.

Based on these findings, manufacturing companies are encouraged to implement GHRM practices comprehensively, with particular emphasis on structured environmental training, environmentally oriented recruitment, green performance evaluation, incentive systems, and employee participation in sustainability initiatives. Organizations should also create meaningful opportunities for employees to practice pro-environmental behavior through green innovation programs, environmental task forces, sustainability campaigns, and team-level environmental initiatives. Future studies are recommended to employ longitudinal or multi-source research designs, probability sampling, and broader samples across different manufacturing subsectors, organizational levels, industries, and cultural contexts to strengthen causal interpretation and generalizability. Further research should also examine potential moderating variables such as organizational green culture, green leadership, and industry characteristics, while directly measuring the environmental values, beliefs, and personal norms proposed by Value-Belief-Norm theory. In addition, future studies should compare manufacturing and

service-sector organizations to determine whether the mediating role of pro-environmental behavior remains consistent across different organizational contexts.

References

- Abdullahi, U., Al-Amrani, K. A. D., Mohamed, A. M., Khalid, M. S., & Yahaya, H. D. (2024). Green Human Resource Management and environmental performance: The mediating role of employee commitment and the contingent effect of organizational culture. *Journal of Management World*, 2024(4), 484–497. <https://doi.org/10.53935/jomw.v2024i4.439>
- Adigun, U. O. (2025). Green human resource management and employee engagement in Nigeria-German chemical, Ota, Ogun State, Nigeria. *JPM – Journal of Perspectives in Management*, 9. <https://doi.org/10.51359/2594-8040.2025.264809>
- Ahmad, J., Al Mamun, A., Masukujjaman, M., Makhbul, Z. K. M., & Ali, K. A. M. (2023). Modeling the workplace pro-environmental behavior through green human resource management and organizational culture: Evidence from an emerging economy. *Heliyon*, 9(9), e19134. <https://doi.org/10.1016/j.heliyon.2023.e19134>
- Alherimi, N., Abdulmaksoud, S., Ahmed, V., & Bahroun, Z. (2025). A systematic literature review of artificial intelligence advancements in Green Human Resource Management. *Sustainability*, 17(22), 10283. <https://doi.org/10.3390/su172210283>
- Annisa, S. T., Rahim, R. A., Salleh, S. M., Zainal, N. Z., & Sari, N. A. M. (2024). A conceptual analysis of Green Human Resource Management, green organizational culture, and employee green behavior towards environmental performance. *Advances in Social Sciences Research Journal*, 11(2), 422–436. <https://doi.org/10.14738/assrj.112.2.16433>
- Aukhoon, M. A., Iqbal, J., & Parray, Z. A. (2024). Impact of corporate social responsibility on employee green behavior: Role of green human resource management practices and employee green culture. *Corporate Social Responsibility and Environmental Management*, 31(5), 3768–3778. <https://doi.org/10.1002/csr.2773>
- Ayu, M. P., Mellita, D., Sartika, D., & Trisninawati, T. (2025). Influence of Green Human Resources Management (GHRM) on employee green behavior (green lifestyle), employee performance, and company sustainability. *International Journal of Marketing & Human Resource Research*, 6(2), 59–80. <https://doi.org/10.47747/ijmhrr.v6i2.2661>
- Bangwal, D., Chaudhary, A., Kumar, R., Oberoi, S. S., & Kumar, V. (2025). Green HRM, employee pro-environmental behavior, and environmental commitment. *Acta Psychologica*, 258, 105153. <https://doi.org/10.1016/j.actpsy.2025.105153>
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.
- Chandra, R. A., & Pendrian, O. (2024). The effect of Green Human Resource Management and green innovation on environmental performance with employee green behavior as a mediating variable: A case study of PT. PLN (Persero) Distribution Jakarta Raya. *International Journal of Innovative Science and Research Technology (IJISRT)*, 1279–1287. <https://doi.org/10.38124/ijisrt/ijisrt24aug951>
- Chen, L. (2024). Human resource green practices towards sustainability: The case of Foxconn Company in China. *Journal of Business and Management Studies*, 6(2), 110–125. <https://doi.org/10.32996/jbms.2024.6.2.11>
- Daily, B. F., & Huang, S. (2001). Achieving sustainability through attention to human resource factors in environmental management. *International Journal of Operations & Production Management*, 21(12), 1539–1552. <https://doi.org/10.1108/01443570110410892>
- Diah, H. T., Muafi, M., & Isfianadewi, D. (2025). The influence of Green Human Resource Management (GHRM) on employee commitment: The role of innovation capabilities and culture of innovation. *Veredas do Direito*, 22(2). <https://doi.org/10.18623/rvd.v22.n2.3218>

- Djerbi, A., Yassine, M., & Sahnoune, F. (2025). The role of Green Human Resource Management practices in environmental protection from pollution: A case study of a group of economic enterprises in Setif Municipal. *Science, Education and Innovations in the Context of Modern Problems*, 8(3), 165–181. <https://doi.org/10.56334/sei/8.3.09>
- Esponda Perez, J. A., Galindo, S. M., Farooq, M., Ejaz, S., Ahmed, S., & Ejaz, F. (2025). Examining pro-environmental behavior through green human resource management and green innovation: Moderating role of environmental strategy. *Asia Pacific Management Review*, 30(1), 100345. <https://doi.org/10.1016/j.apmr.2024.100345>
- Faeni, R. P., Feani, D. P., Pujiati, H., & Cahaya, Y. F. (2025). From Green HRM to sustainability: A study of ground handling in Java with employee performance as a key link. *Annals of Human Resource Management Research*, 5(3), 305–320. <https://doi.org/10.35912/ahrmr.v5i3.2991>
- Fawehinmi, O., Yusliza, M. Y., Tanveer, M. I., & Abdullahi, M. S. (2024). Influence of green human resource management on employee green behavior: The sequential mediating effect of perceived behavioral control and attitude toward corporate environmental policy. *Corporate Social Responsibility and Environmental Management*, 31(3), 2514–2536. <https://doi.org/10.1002/csr.2707>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24.
- Hakuduwal, K., & KC, S. (2025). Impact of Green Human Resource Management practices on perceived environmental sustainability: Employee perspectives from Nepalese commercial banks. *The Lumbini Journal of Business and Economics*, 13(1), 70–87. <https://doi.org/10.3126/ljbe.v13i1.80257>
- Hossain, M., & Islam, M. T. (2025). Transforming Human Resource Management into Green Human Resource Management towards the path of sustainability: Through the lenses of Just Transition Theory. In *Managing Change*. Emerald Publishing. <https://doi.org/10.1108/978-1-83608-650-520251006>
- Huang, J., & Ali, A. (2025). Green HRM and employee green behavior: Mediating roles of green organizational identity and green self-efficacy. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 10(2), e003242. <https://doi.org/10.47405/mjssh.v10i2.3242>
- Hussain, S. (2025). Green Human Resource Management practices and organizational sustainability: A strategic workforce perspective. *Journal for Business Education and Management*, 5(2), 107–126. <https://doi.org/10.56596/jbem.v5i2.194>
- Ishaque, S., & Ansari, N. Y. (2025). Empowering sustainability: The role of green human resource management in fostering pro-environmental behavior in hospitality employees. *Journal of Hospitality and Tourism Insights*, 8(8), 2939–2957. <https://doi.org/10.1108/JHTI-09-2024-1010>
- Jabbour, C. J. C., & Santos, F. C. A. (2008). Relationships between human resource dimensions and environmental management in companies: Proposal of a model. *Journal of Cleaner Production*, 16(1), 51–58. <https://doi.org/10.1016/j.jclepro.2006.07.025>
- Jayakani, S., & Rani, S. V. F. (2024). Green Human Resource Management practices' credible IT employee behaviour and environmental impact in Chennai. *ComFin Research*, 12(1), 21–30. <https://doi.org/10.34293/commerce.v12i1.6849>
- Kalei, A. (2024). Green Human Resource Management practices and environment sustainability: From empirical evidence. *Journal of Business and Management Studies*, 6(3), 226–232. <https://doi.org/10.32996/jbms.2024.6.3.19>
- Karki, S., & Bhandari, M. (2025). A systematic literature review on green employee empowerment and Green Human Resource Management. *Journal of Interdisciplinary Studies*, 14(1), 16–51. <https://doi.org/10.3126/jis.v14i1.88305>
- Khan, H. S., Fatima, S., & Mubushar, M. (2025). Green Human Resource Management and organizational sustainability: The mediating role of employee pro-environmental behavior in manufacturing firms of Pakistan. *Contemporary Issues in Social Sciences and Management Practices*, 4(4), 103–114. <https://doi.org/10.61503/cissmp.v4i4.364>

- Khan, T. A., & Jalees, T. (2025). Fostering sustainable skies: The role of Green Human Resource Management in driving employee green behavior and corporate responsibility in Pakistani airlines. *Journal of Social and Organizational Matters*, 4(4), 144–169. <https://doi.org/10.56976/jsom.v4i4.338>
- Khanna, M. S. D. R. (2025). Getting to green: Understanding the resonance of Green Human Resource Management for voluntary sustainability efforts. *Economic Sciences*, 21(1), 1124–1136. <https://doi.org/10.69889/yk2m1685>
- Krishnakumar, C., & Rajkumar, D. A. (2026). Advancing sustainability through green human resource management: An integrated review. *Discover Sustainability*, 7, 1247. <https://doi.org/10.1007/s43621-026-03650-7>
- Kurniawati, N., & Riani, A. L. (2024). The influence of Green Human Resource Management on pro-environmental performance with environmental awareness as mediation and leadership serving as moderators. *International Journal of Current Science Research and Review*, 7. <https://doi.org/10.47191/ijcsrr/v7-i8-57>
- Lahmidi, W., & Youssef, J. (2025). Green Human Resource Management, employee motivation, and organizational performance. In *Advances in Human Resources Management and Organizational Development*. IGI Global. <https://doi.org/10.4018/979-8-3693-8824-2.ch010>
- Makhmut, K. D. I., Setiawan, A. R., & Manune, S. A. (2025). Strengthening green transformational leadership through green organizational culture and green self-efficacy to improve employee green behavior in sustainable organization. *Annals of Human Resource Management Research*, 5(4), 27–44. <https://doi.org/10.35912/ahrmr.v5i4.3165>
- Mamun, M. A. A. (2025). Integrating Green Human Resource Management practices (GHRMPs) with Human Resource Information Systems (HRIS) for sustainable organizational growth. *Journal of Business Horizons and Management*, 1(1), 1–3. <https://doi.org/10.69517/jbhm.2025.01.01.0001>
- Munziar, F., & Hodijah, C. (2025). Sustainable HRM: Integrating Green Human Resource Management practices for organizational resilience. *Journal of Economics and Management Sciences*, 137–145. <https://doi.org/10.37034/jems.v7i3.100>
- Nguyen, H., Tho, B. D., Ho, D. B., Nguyen, D. D., & Phuong, K. Q. C. (2025). Connecting green human resource management practices with employees' pro-environmental behaviours: The role of self-efficacy and psychological green climate in the emerging hospitality industries. *Environmental Research Communications*, 7(5), 055002. <https://doi.org/10.1088/2515-7620/adcde5>
- Nguyen, K. T., Nguyen, P. N. D., Tran, C. Q., & Do, T. T. T. (2024). Green human resource management and employee pro-environmental behaviors: The role of individual green value. *Ho Chi Minh City Open University Journal of Science – Economics and Business Administration*, 14(2), 45–63. <https://doi.org/10.46223/HCMCOUJS.econ.en.14.2.3129.2024>
- Nurapriyanti, T. (2025). Strategic integration of Green Human Resource Management for organizational sustainability: A narrative review. *Sustainability in Human Resources*, 1(1), 1–15. <https://doi.org/10.61978/shr.v1i1.521>
- Pandey, V., Mathur, G., & Pandey, V. K. (2026). Green human resource management as a driver of sustainability outcomes through employee engagement and organizational image. *Discover Sustainability*, 7, 1264. <https://doi.org/10.1007/s43621-026-03528-8>
- Pasha, A. T., & Akram, A. (2024). Impact of Green Human Resource Management practices on corporate sustainability: A perspective of Pakistan. *Contemporary Issues in Social Sciences and Management Practices*, 3(2), 73–82. <https://doi.org/10.61503/cissmp.v3i2.164>
- Rahman, M., Wahab, S. A., & Latiff, A. S. A. (2024). Socially responsible human resource management and organizational sustainability among Bangladeshi pharmaceutical manufacturing organizations: The explanatory link of voluntary green behavior. *Journal of Future Sustainability*, 4(3), 117–132. <https://doi.org/10.5267/j.jfs.2024.7.001>
- Ramachandaran, S. D., Vasudevan, A., Balakrishnan, R., Nagaraj, S., & Thinakaran, R. (2024). The impact of green human resource management practices on employee's job performance.

-
- International Journal of Management and Sustainability*, 13(3), 506–522.
<https://doi.org/10.18488/11.v13i3.3828>
- Ramadhani, M., Khuzaini, K., Shaddiq, S., & Fahmanadie, D. (2024). Implementation of Green Human Resource Management and the impact on employee pro-protection behavior: Literature review. *At-Tadbir: Jurnal Ilmiah Manajemen*.
<https://doi.org/10.31602/piuk.v0i0.16107>
- Rathore, S. (2025). To study of Green Human Resource Management practices and its relationship with employee motivation, job satisfaction and organization commitment. *International Scientific Journal of Engineering and Management*, 4(6), 1–9.
<https://doi.org/10.55041/isjem04176>
- Raymond, R., & Bhiwajee, L. (2025). Implementation of Green Human Resource Management practices for environmental management: The role of employee green behaviour. In *Innovations and Insights in Operations Research for Resilience and Sustainability* (pp. 39–50).
<https://doi.org/10.56279/orseaj.c2024.3>
- Renwick, D. W. S., Redman, T., & Maguire, S. (2013). Green Human Resource Management: A review and research agenda. *International Journal of Management Reviews*, 15(1), 1–14.
<https://doi.org/10.1111/j.1468-2370.2011.00328.x>
- Saif, S., & Ahmad, W. (2024). The impact of Green Human Resource Management on corporate environmental sustainability: Mediating role of pro-environmental behavior and moderating role of green psychological climate. *Contemporary Issues in Social Sciences and Management Practices*, 3(4), 400–414. <https://doi.org/10.61503/cissmp.v3i4.395>
- Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, 29(3), 309–317.
- Stern, P. C. (2000). New environmental theories: Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56(3), 407–424.
- Sultana, F., & Moniruzzaman, A. (2025). Green Human Resource Management in Bangladesh: Practices, environmental impacts, accounting integration, and challenges. *The International Journal of Accounting and Business Society*, 33(3).
<https://doi.org/10.21776/ijabs.2025.33.3.921>
- Syahidun, Zainal, V. R., Siswanti, I., & Nawangsari, L. C. (2024). The implementation of Green Human Resource Management: A survey on the manufacturing industry in Indonesia. *Journal of Management and Economic Studies*, 6(1), 38–51.
<https://doi.org/10.26677/TR1010.2024.1381>
- Titus, R., & Gaikwad, N. (2025). Green Human Resource Management practices and organizational sustainability in India: A strategic imperative for sustainable development. *Journal of Modern Management & Entrepreneurship*, 15(3), 191–196. <https://doi.org/10.62823/jmme/15.03.8006>
- Upadhyay, N., & Sehgal, R. (2024). Examining relationship between Green Human Resource Management practices, green performance, and organizational citizenship behavior at tour operators. *Journal of Lifestyle and SDGs Review*, 4(4). <https://doi.org/10.47172/2965-730x.sdgsreview.v4.n04.pe03618>
- Verma, A., Sharma, G., & Mahendru, N. (2025). Sustainable Human Resource Management and organizational performance: A systematic literature review on green human resource practices and impact on corporate sustainability. *Corporate Social Responsibility and Environmental Management*, 33(3), 3999–4013. <https://doi.org/10.1002/csr.70369>
- Vu, T. D., Nguyen, T. T. N., Nguyen, H. N., & Nguyen, M. H. (2025). Sustainable management in the hospitality industry: The influence of Green Human Resource Management on employees' pro-environmental behavior and environmental performance. *Journal of Hospitality and Tourism Insights*, 8(8), 2880–2899. <https://doi.org/10.1108/JHTI-09-2024-0912>
- Walio, B., & Kabuoh, M. (2024). The effect of Green Human Resource Management practices on employee job satisfaction in selected manufacturing firms in Lagos State, Nigeria. *International Journal of Entrepreneurial Development, Education and Science Research*, 8(1), 134–153. <https://doi.org/10.48028/iiprds/ijedesr.v8.i1.07>
-

- Weber, P., & Kassab, E. A. (2024). The employee green behavior of green transformational leadership, green human resource management on the sustainable performance. *Journal of Infrastructure Policy and Development*, 8(8), 4630. <https://doi.org/10.24294/jipd.v8i8.4630>
- Wu, C., Xu, W., Lu, H., & Zheng, J. (2024). Crossing spatial boundaries: A study on the impact of Green Human Resource Management on employees' household pro-environmental behaviors. *Sustainability*, 16(21), 9330. <https://doi.org/10.3390/su16219330>
- Xiang, L., & Deng, Z. P. (2026). Green human resource management practices influence employees' environmental concerns and proenvironmental behavioral intentions. *Social Behavior and Personality: An International Journal*, 54(6), e16245. <https://doi.org/10.2224/sbp.16245>
- Yang, J., Yu, T., & Li, A. (2024). How does mindful leadership promote employee green behavior? The moderating role of Green Human Resource Management. *Corporate Social Responsibility and Environmental Management*, 31(6), 5296–5310. <https://doi.org/10.1002/csr.2870>
- Yuan, Y., Ren, S., Tang, G., Ji, H., Cooke, F. L., & Wang, Z. (2024). How green human resource management affects employee voluntary workplace green behaviour: An integrated model. *Human Resource Management Journal*, 34(1), 91–121. <https://doi.org/10.1111/1748-8583.12510>
- Zafra, J., & Guballo, J. (2025). Green Human Resource Management practices and employee engagement in information technology-enabled services companies. *Journal of Management Studies and Development*, 4(2), 157–166. <https://doi.org/10.56741/jmsd.v4i02.993>
- Zaman, S. I., Qabool, S., Anwar, A., & Khan, S. A. (2025). Green human resource management practices: A hierarchical model to evaluate the pro-environmental behavior of hotel employees. *Journal of Hospitality and Tourism Insights*, 8(4), 1217–1249. <https://doi.org/10.1108/JHTI-02-2024-0146>