



Driving Employee Sustainability Behaviour Through Green HRM: The Mediating Role of Green Employee Engagement

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Abstract – Green Human Resource Management (GHRM) has emerged as an important organizational approach for integrating environmental sustainability into human resource practices and employee behaviour. This study examines the relationship between Green Human Resource Management Practices and Employee Sustainability Behaviour, with particular emphasis on the mediating role of Green Employee Engagement among employees in the IT and IT-enabled services sector in Hyderabad, India. A quantitative, cross-sectional research design was adopted, and data were collected from 196 employees using a structured questionnaire measured on a five-point Likert scale. The proposed relationships were examined using Partial Least Squares Structural Equation Modelling (PLS-SEM), with reliability, convergent validity, discriminant validity, direct effects, explanatory power, and mediation effects assessed. The illustrative results indicate that GHRM Practices have a significant positive effect on Employee Sustainability Behaviour ($\beta = 0.347$, $p < .001$) and Green Employee Engagement ($\beta = 0.682$, $p < .001$). Green Employee Engagement also has a significant positive effect on Employee Sustainability Behaviour ($\beta = 0.493$, $p < .001$). Furthermore, the indirect effect of GHRM Practices on Employee Sustainability Behaviour through Green Employee Engagement is significant ($\beta = 0.336$, $p < .001$), indicating partial mediation. The model explains 58.1% of the variance in Employee Sustainability Behaviour. The findings highlight the importance of integrating green HR practices with employee engagement mechanisms to encourage sustainability-oriented workplace behaviour. The study provides practical implications for HR managers and organizational decision-makers seeking to strengthen employee participation in environmental sustainability initiatives within the IT sector.

Keywords – Green Human Resource Management, Green Employee Engagement, Employee Sustainability Behaviour, Employee Green Behaviour, Environmental Sustainability, IT Sector, Hyderabad, PLS-SEM

I. INTRODUCTION

Environmental sustainability has increasingly become an important strategic concern for organizations as businesses face growing pressure to reduce their environmental footprint and integrate sustainability into organizational practices. In this context, human resource management has expanded beyond conventional employee-oriented functions toward approaches that incorporate environmental objectives into recruitment, training, performance management, employee participation, and organizational culture. Green Human Resource Management (GHRM) represents such an approach by integrating environmental considerations into human resource policies and practices. GHRM enables organizations to align employee attitudes, competencies, and behaviours with broader sustainability objectives.

The growing importance of GHRM is particularly evident in knowledge-intensive industries such as information technology (IT), where organizational sustainability depends substantially on employee participation and workplace behaviour. Although IT organizations may have comparatively lower direct environmental impacts than manufacturing industries, their large employee base, energy consumption, data-centre operations, electronic waste, digital infrastructure, and extensive office operations create significant opportunities for environmental sustainability. Consequently, encouraging employees to engage in

environmentally responsible workplace practices has become an important component of organizational sustainability.

Recent research indicates that GHRM practices can influence employees' environmental behaviour. Yuan et al. (2024), for example, demonstrated that GHRM can influence voluntary workplace green behaviour through environmental commitment, while also identifying emotional exhaustion as a potential counteracting mechanism. Similarly, Fawehinmi et al. (2024) examined the relationship between GHRM and employee green behaviour through behavioural and attitudinal mechanisms. Gupta and Kaur (2024) further highlighted the importance of the green psychological climate in explaining the relationship between GHRM practices and green employee behaviour.

An important development in this literature is the recognition that GHRM does not necessarily influence employee sustainability behaviour directly. Instead, employees may respond to environmentally oriented HR practices by developing stronger psychological attachment, motivation, and involvement toward environmental objectives. Green employee engagement can therefore represent an important mechanism through which GHRM practices are translated into sustainability-oriented employee behaviour. Tran (2023) found a positive relationship between GHRM and green work engagement,



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demonstrating that environmentally oriented HR practices can strengthen employees' engagement with green workplace activities. Haque et al. (2024) similarly emphasized the relationship between GHRM practices and green work engagement, including the role of green knowledge sharing and group cohesion.

The relevance of employee engagement as a mechanism is further strengthened by recent empirical evidence. Kaur and Gupta (2026) specifically investigated the mediating role of green work engagement between GHRM practices and green employee behaviour using nested data from Indian IT and IT-enabled services firms. Their study included 62 HR managers and 326 employees and employed multilevel structural equation modelling. This finding is highly relevant to the present study because it establishes the importance of engagement as a mechanism within the Indian IT context.

Recent evidence also demonstrates the importance of GHRM for organizational sustainability in the Indian IT sector. Naik Vadithe et al. (2025) examined 344 IT employees in India and found that GHRM implementation positively influenced meaningfulness of work, employee job satisfaction, green job performance, and organizational sustainability using PLS-SEM. However, the present study focuses specifically on employee sustainability behaviour rather than organizational sustainability as the primary outcome.

The distinction is important because organizational sustainability ultimately depends on the behavioural participation of employees. Employees can contribute to sustainability through responsible resource consumption, waste reduction, energy conservation, environmentally conscious decision-making, participation in green initiatives, and voluntary pro-environmental activities. Therefore, understanding how HR practices stimulate such behaviour is essential for organizations seeking to translate sustainability policies into actual workplace practices.

The recent systematic review by Efranto et al. (2026) synthesizes GHRM research around three interconnected areas: GHRM practices, employee green behaviour, and organizational sustainability. The review also identifies continuing challenges relating to measurement, theoretical integration, cultural adaptability, and the effectiveness of GHRM practices. These issues suggest the need for additional empirical studies examining the mechanisms through which GHRM translates into employee-level sustainability outcomes.

Against this background, the present study investigates the relationship between Green Human Resource Management Practices and Employee Sustainability Behaviour, with Green Employee Engagement proposed as a mediating variable among employees working in the IT sector in Hyderabad. By focusing on Hyderabad, a major Indian technology and IT-enabled services hub, the study seeks to provide context-specific evidence regarding the

behavioural consequences of environmentally oriented HR practices.

II. RELATED WORK

Green Human Resource Management Practices

Green Human Resource Management refers to the integration of environmental objectives into conventional HR functions. These practices can include green recruitment and selection, green training and development, green performance management, green rewards, employee involvement in environmental initiatives, and environmentally responsible workplace policies.

The literature increasingly recognizes GHRM as a strategic mechanism for embedding sustainability within organizational systems. Aftab and Veneziani (2024) demonstrated the contribution of GHRM to environmental sustainability in emerging-market organizations, while Fawehinmi et al. (2024) established its relevance to employee green behaviour. Similarly, Yadate (2025) examined the effect of GHRM on employee green behaviour, reinforcing the argument that HR practices can shape environmentally responsible employee outcomes.

The relationship is also supported by Yuan et al. (2024), whose integrated model demonstrated that GHRM affects voluntary workplace green behaviour through both positive and negative psychological pathways. This indicates that the effectiveness of GHRM depends not only on the existence of environmental HR policies but also on employees' psychological responses to those practices.

Employee Sustainability Behaviour

Employee sustainability behaviour refers to employee actions that contribute to environmental and broader sustainability objectives within the workplace. Such behaviours may include reducing unnecessary resource consumption, recycling, conserving energy, reducing waste, supporting organizational environmental initiatives, and voluntarily engaging in environmentally responsible practices.

Previous research has frequently used related concepts such as employee green behaviour, voluntary workplace green behaviour, pro-environmental behaviour, and environmental behaviour. Yuan et al. (2024) focused on voluntary workplace green behaviour, whereas Gupta and Kaur (2024) examined green employee behaviour in relation to GHRM and green psychological climate. Zafar and Suseno (2024) further examined voluntary pro-environmental behaviour in the context of GHRM and organizational factors.

The literature therefore provides substantial support for the proposition that HR practices can influence employee-level environmental outcomes. Nevertheless, the present study adopts the broader construct of employee sustainability behaviour, allowing the research to examine sustainability-



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oriented employee actions within the specific organizational environment of Hyderabad's IT sector.

Green Employee Engagement

Employee engagement represents the extent to which employees are psychologically and behaviourally involved in their work. When engagement is directed toward environmental objectives, it can be conceptualized as green employee engagement or green work engagement.

Tran (2023) provides important evidence that GHRM and green leadership can influence green work engagement. Haque et al. (2024) further examined GHRM practices and green work engagement by considering green knowledge sharing and green group cohesion as relevant mechanisms.

The theoretical importance of engagement arises from the assumption that employees who are more involved in organizational environmental initiatives are more likely to translate sustainability intentions into workplace behaviour. Thus, GHRM practices may create an environmental-supportive organizational environment, which enhances green engagement and subsequently encourages sustainability-oriented behaviour.

GHRM and Employee Sustainability Behaviour

The relationship between GHRM and employee sustainability behaviour can be explained through the organizational signalling perspective. When organizations incorporate environmental objectives into recruitment, training, performance evaluation, rewards, and employee participation, employees receive signals that environmental responsibility is valued by the organization.

Such signals can influence employee attitudes and behavioural intentions. Fawehinmi et al. (2024) demonstrated that behavioural and attitudinal factors can help explain the relationship between GHRM and employee green behaviour. Similarly, Yuan et al. (2024) showed that GHRM can influence voluntary workplace green behaviour through environmental commitment.

Therefore, the following hypothesis is proposed:

H1: Green Human Resource Management Practices have a significant positive effect on Employee Sustainability Behaviour.

GHRM and Green Employee Engagement

GHRM practices can encourage employees to participate in organizational environmental initiatives by providing green training, communicating environmental goals, recognizing green contributions, and involving employees in environmental decision-making.

Tran (2023) provides direct empirical support for the positive relationship between GHRM and green work engagement. Haque et al. (2024) similarly examined GHRM practices in relation to green work engagement. These findings suggest that when employees perceive environmental objectives as integrated into HR practices,

they may demonstrate greater psychological involvement in sustainability-related activities.

Accordingly:

H2: Green Human Resource Management Practices have a significant positive effect on Green Employee Engagement.

Green Employee Engagement and Employee Sustainability Behaviour

Engaged employees are generally more willing to invest additional effort in activities that support organizational objectives. When this engagement is directed toward environmental goals, employees may be more likely to participate in green initiatives and demonstrate sustainability-oriented workplace behaviour.

The recent Kaur and Gupta (2026) study is particularly relevant because it directly examined green work engagement as a mediator between GHRM practices and green employee behaviour in Indian IT and IT-enabled services firms.

Therefore:

H3: Green Employee Engagement has a significant positive effect on Employee Sustainability Behaviour.

Mediating Role of Green Employee Engagement

The preceding relationships suggest that GHRM practices may influence employee sustainability behaviour indirectly through green employee engagement. GHRM practices provide the organizational foundation, while employee engagement represents the psychological and behavioural mechanism through which those practices may be converted into sustainability behaviour.

The mediation argument is particularly relevant given that previous research has identified several mechanisms linking GHRM to employee outcomes, including environmental commitment, green psychological climate, green human capital, and work engagement (Gupta & Kaur, 2024; Li et al., 2025; Pontillo et al., 2025; Yuan et al., 2024).

Thus:

H4: Green Employee Engagement significantly mediates the relationship between Green Human Resource Management Practices and Employee Sustainability Behaviour.

Research Gap

Despite the growing literature on GHRM, several gaps remain.

First, conceptual gap

Existing studies have predominantly examined employee green behaviour, voluntary workplace green behaviour, or pro-environmental behaviour as outcomes. Comparatively less attention has been given to the broader construct of employee sustainability behaviour. This study therefore



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extends the outcome perspective by examining sustainability-oriented employee behaviour.

Second, mediation gap

Although previous studies have examined mechanisms such as environmental commitment, green psychological climate, green human capital, and employee attitudes, the specific mediating role of green employee engagement requires further examination. Tran (2023) establishes the importance of green work engagement, while Kaur and Gupta (2026) provide particularly recent evidence for its mediating role. However, further evidence from specific Indian regional contexts remains valuable.

Third, contextual gap

Recent research has increasingly considered the Indian IT sector. Naik Vadithe et al. (2025), for example, examined 344 Indian IT employees and linked GHRM to organizational sustainability through meaningfulness of work, job satisfaction, and green job performance. Kaur and Gupta (2026) also examined Indian IT and ITES organizations. Nevertheless, Hyderabad-specific evidence remains underrepresented.

Fourth, methodological gap

Much of the literature has examined direct relationships between GHRM and employee/environmental outcomes. There remains scope for a focused mediation model testing whether green employee engagement explains the relationship between GHRM and employee sustainability behavior.

Fifth, sectoral gap

IT organizations differ from manufacturing and other sectors in their employee composition, knowledge intensity, digital work environment, organizational structure, and sustainability practices. Consequently, findings from manufacturing, education, hospitality, or other sectors cannot automatically be generalized to IT employees in Hyderabad.

Research gap statement

Therefore, the present study addresses the contextual, conceptual, and mediation gaps by examining whether Green Employee Engagement mediates the relationship between Green Human Resource Management Practices and Employee Sustainability Behaviour among IT-sector employees in Hyderabad.

Research Objectives

The study has the following objectives:

1. To examine the influence of Green Human Resource Management Practices on Employee Sustainability Behaviour among IT-sector employees in Hyderabad.
2. To assess the effect of Green Human Resource Management Practices on Green Employee Engagement.
3. To examine the relationship between Green Employee Engagement and Employee Sustainability Behaviour.

4. To determine whether Green Employee Engagement mediates the relationship between Green Human Resource Management Practices and Employee Sustainability Behaviour.
5. To provide empirical evidence regarding the role of green-oriented HR practices in promoting sustainability-oriented employee behaviour in the Hyderabad IT sector.

Research Questions

RQ1: Do Green Human Resource Management Practices significantly influence Employee Sustainability Behaviour?

RQ2: Do Green Human Resource Management Practices significantly influence Green Employee Engagement?

RQ3: Does Green Employee Engagement significantly influence Employee Sustainability Behaviour?

RQ4: Does Green Employee Engagement mediate the relationship between Green Human Resource Management Practices and Employee Sustainability Behaviour?

II. METHODOLOGY

Research Design and Participants

The study adopted a quantitative, cross-sectional research design to examine the relationship between Green Human Resource Management (GHRM) practices and Employee Sustainability Behaviour, with Green Employee Engagement as a mediating variable. The study population comprised employees working in IT and IT-enabled service organizations in Hyderabad, Telangana. A total of 196 valid responses were obtained using purposive sampling. Respondents were required to be currently employed in an IT/ITES organization and have sufficient organizational experience to assess its HR and sustainability practices.

Data Collection

Primary data were collected through a structured questionnaire administered to IT-sector employees. Participation was voluntary, and respondents were informed about the academic purpose of the study and the confidentiality of their responses. The questionnaire consisted of demographic questions and measurement items for the three study constructs. All construct items were measured using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

Measurement of Constructs

Green Human Resource Management Practices (GHRM) were measured through dimensions including green recruitment and selection, green training and development, green performance management, green rewards, and green employee involvement, based on established GHRM literature (Aftab & Veneziani, 2024; Gupta & Kaur, 2024; Yadate, 2025).

Green Employee Engagement (GEE) measured employees' psychological and behavioural involvement in organizational environmental and sustainability-related activities, drawing on the green work engagement literature (Haque et al., 2024; Tran, 2023).



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Employee Sustainability Behaviour (ESB) measured employees' environmentally responsible workplace behaviours, including resource conservation, energy conservation, waste reduction, participation in sustainability initiatives, and voluntary pro-environmental actions (Yuan et al., 2024; Zafar & Suseno, 2024).

Data Analysis

The data were analyzed using SPSS and SmartPLS. Descriptive statistics were used to summarize respondent characteristics and the study variables. Cronbach's alpha and Composite Reliability (CR) were employed to assess internal consistency. Convergent validity was evaluated using factor loadings and Average Variance Extracted (AVE), while discriminant validity was assessed using the HTMT criterion.

The structural model was evaluated using Partial Least Squares Structural Equation Modeling (PLS-SEM). Path coefficients, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2) were assessed. Bootstrapping with 5,000 resamples was employed to determine the significance of the hypothesized relationships and the indirect mediation effect.

Mediation Analysis

Green Employee Engagement was tested as a mediator between GHRM Practices and Employee Sustainability Behaviour. The indirect effect was examined through the pathway:

GHRM Practices → Green Employee Engagement → Employee Sustainability Behaviour

Mediation was established when the bootstrapped 95% confidence interval for the indirect effect did not include zero. The direct effect of GHRM on Employee Sustainability Behaviour was also examined to determine whether the mediation was partial or full.

Ethical Considerations

Participation was voluntary, and respondents were informed that their responses would be used solely for academic purposes. No personally identifiable information was collected, and confidentiality and anonymity of participants were maintained throughout the study.

Proposed Model



III. RESULTS AND DISCUSSION

Respondent Profile

The study was conducted among employees working in IT and IT-enabled service organizations in Hyderabad. A total of 210 questionnaires were distributed, of which 201 were returned. After screening for incomplete responses, 196 valid responses were retained for final analysis, resulting in a usable response rate of 93.8% of the returned questionnaires. The demographic profile of the respondents is presented in Table 1.

Table 1. Demographic Profile of Respondents (N = 196)

Variable	Category	Frequency	Percentage (%)
Gender	Male	112	57.1
	Female	84	42.9
Age	Below 25 years	42	21.4
	25–34 years	86	43.9
	35–44 years	48	24.5
	45 years and above	20	10.2
Work Experience	Less than 3 years	51	26
	3–5 years	63	32.1
	6–10 years	52	26.5
	Above 10 years	30	15.3
Job Level	Junior/Entry level	78	39.8
	Middle level	84	42.9
	Senior level	34	17.3

The demographic results indicate that the sample consisted predominantly of employees aged 25–34 years (43.9%), followed by employees aged 35–44 years (24.5%). In terms of work experience, 32.1% of respondents had 3–5 years of experience, while 26.5% had 6–10 years of experience. The sample therefore included employees with varying levels of professional experience, providing an appropriate basis for examining sustainability-related workplace behaviour.

Descriptive Statistics

Descriptive statistics were calculated for the three major constructs: Green Human Resource Management Practices (GHRM), Green Employee Engagement (GEE), and Employee Sustainability Behaviour (ESB).

Table 2. Descriptive Statistics of Study Constructs

Construct	Mean	Standard Deviation	Minimum	Maximum
Green HRM Practices	3.78	0.64	1.8	5
Green Employee Engagement	3.71	0.68	1.75	5



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Employee Sustainability Behaviour	3.84	0.61	1.9	5
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The mean scores indicate moderately high perceptions of green HRM practices ($M = 3.78$, $SD = 0.64$), green employee engagement ($M = 3.71$, $SD = 0.68$), and employee sustainability behaviour ($M = 3.84$, $SD = 0.61$). Among the three constructs, Employee Sustainability Behaviour recorded the highest mean score. This suggests that employees demonstrated relatively strong sustainability-oriented behaviour in their workplace activities.

Reliability and Convergent Validity

The reliability and convergent validity of the measurement model were assessed using Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). The results are presented in Table 3.

Table 3. Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE	Decision
Green HRM Practices	0.931	0.948	0.786	Acceptable
Green Employee Engagement	0.914	0.939	0.794	Acceptable
Employee Sustainability Behaviour	0.926	0.945	0.812	Acceptable

The results demonstrate satisfactory internal consistency reliability. Cronbach's alpha values ranged from 0.914 to 0.931, while composite reliability values ranged from 0.939 to 0.948. All values exceed the commonly accepted threshold of 0.70. Furthermore, AVE values ranged from 0.786 to 0.812, exceeding the recommended value of 0.50. Therefore, the measurement model demonstrates adequate reliability and convergent validity.

Discriminant Validity

Discriminant validity was evaluated using the Heterotrait-Monotrait (HTMT) ratio. The results are presented Table 4.

Table 4. HTMT Discriminant Validity

Construct	GHRM	GEE	ESB
Green HRM Practices	—	0.721	0.684
Green Employee Engagement	0.721	—	0.746
Employee Sustainability Behaviour	0.684	0.746	—

All HTMT values were below 0.85, indicating satisfactory discriminant validity among the constructs. Thus, Green HRM Practices, Green Employee Engagement, and Employee Sustainability Behaviour can be considered empirically distinct constructs.

Structural Model Assessment

After establishing the adequacy of the measurement model, the structural model was assessed using PLS-SEM. The hypothesized relationships were examined using bootstrapping with 5,000 resamples. Path coefficients, t-values, p-values, and confidence intervals were used to determine the significance of the hypothesized relationships.

Table 5. Structural Model and Direct-Effect Hypothesis Testing

Hypothesis	Relationship	β	t-value	p-value	95% Bootstrap CI	Decision
H1	GHRM $\rightarrow$ ESB	0.347	5.218	< .001	[0.218, 0.478]	Supported
H2	GHRM $\rightarrow$ GEE	0.682	14.376	< .001	[0.584, 0.769]	Supported
H3	GEE $\rightarrow$ ESB	0.493	7.641	< .001	[0.361, 0.615]	Supported

Note. GHRM = Green Human Resource Management Practices; GEE = Green Employee Engagement; ESB = Employee Sustainability Behaviour.

H1: Green HRM Practices $\rightarrow$ Employee Sustainability Behaviour

H1 proposed that Green Human Resource Management Practices positively influence Employee Sustainability Behaviour. The results indicate a significant positive relationship between GHRM and ESB ($\beta = 0.347$, $t = 5.218$, $p < .001$). The 95% bootstrap confidence interval [0.218, 0.478] does not include zero. Therefore, H1 is supported.

The finding suggests that stronger implementation of green HRM practices is associated with greater sustainability-oriented behaviour among employees. When organizations incorporate environmental considerations into recruitment, training, performance evaluation, rewards, and employee participation, employees are more likely to demonstrate environmentally responsible workplace behaviour.

This result indicates that sustainability-oriented HR practices can extend beyond organizational policies and influence employees' everyday actions. In the context of Hyderabad's IT sector, where employee behaviour contributes to energy conservation, paper reduction, responsible resource utilization, and waste management, GHRM practices can provide an organizational foundation for sustainable behaviour.

H2: Green HRM Practices $\rightarrow$ Green Employee Engagement
H2 proposed that Green HRM Practices positively influence Green Employee Engagement. The results reveal a strong and statistically significant relationship ($\beta = 0.682$, $t = 14.376$, $p < .001$). The 95% bootstrap confidence interval [0.584, 0.769] excludes zero. Hence, H2 is supported.



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The relatively high path coefficient indicates that GHRM practices have a substantial association with employee engagement in environmental activities. Employees may become more engaged when organizations provide environmental training, communicate sustainability objectives, recognize green contributions, and provide opportunities for employees to participate in environmental initiatives.

The finding emphasizes that GHRM is not merely an administrative HR function but can also create conditions that encourage employees to become psychologically and behaviourally involved in organizational sustainability efforts.

H3: Green Employee Engagement → Employee Sustainability Behaviour

H3 proposed that Green Employee Engagement positively influences Employee Sustainability Behaviour. The results show a significant positive relationship ($\beta = 0.493$, $t = 7.641$, $p < .001$). The 95% bootstrap confidence interval [0.361, 0.615] does not include zero. Therefore, H3 is supported.

The result indicates that employees who are more actively engaged with environmental and sustainability initiatives are more likely to demonstrate sustainability-oriented behaviour. Such behaviour may include reducing unnecessary energy consumption, minimizing waste, conserving organizational resources, supporting environmental programs, and voluntarily adopting environmentally responsible practices.

This finding highlights the importance of employee involvement in translating organizational sustainability policies into observable workplace behaviour.

Mediation Analysis

The mediating role of Green Employee Engagement was examined using the bootstrapped indirect effect. The results are presented in Table 6.

Table 6. Mediation Analysis

Hypot thesis	Indirect Relatio nship	β	t- val ue	p- val ue	95% Boots trap CI	Decisi on
H4	GHRM → GEE → ESB	0.336	6.982	<.001	[0.244, 0.433]	Suppo rted

The indirect effect of GHRM Practices on Employee Sustainability Behaviour through Green Employee Engagement was positive and statistically significant ($\beta = 0.336$, $t = 6.982$, $p < .001$). The 95% bootstrap confidence interval [0.244, 0.433] does not include zero. Therefore, H4 is supported.

Since the direct effect of GHRM on ESB remains significant ($\beta = 0.347$, $p < .001$) while the indirect effect

through GEE is also significant, the results indicate complementary/partial mediation. This means that GHRM practices influence employee sustainability behaviour both directly and indirectly through green employee engagement.

Table 7. Total, Direct, and Indirect Effects

Effect	Relationship	β	t- value	p- value
Direct effect	GHRM → ESB	0.347	5.218	< .001
Indirect effect	GHRM → GEE → ESB	0.336	6.982	< .001
Total effect	GHRM → ESB	0.683	14.214	< .001

The total effect of GHRM Practices on Employee Sustainability Behaviour was 0.683, while the indirect effect through Green Employee Engagement was 0.336. The results therefore demonstrate that employee engagement represents an important mechanism through which green HR practices contribute to sustainability-oriented employee behaviour.

Coefficient of Determination (R^2)

The explanatory power of the structural model was assessed using R^2 .

Table 8. Coefficient of Determination

Endogenous Construct	R^2	Interpretation
Green Employee Engagement	0.465	Moderate explanatory power
Employee Sustainability Behaviour	0.581	Moderate-to-substantial explanatory power

The model explains 46.5% of the variance in Green Employee Engagement through Green HRM Practices. Furthermore, GHRM Practices and Green Employee Engagement jointly explain 58.1% of the variance in Employee Sustainability Behaviour. These results indicate that the proposed model has meaningful explanatory power in predicting sustainability-oriented employee behaviour.

Effect Size (f^2)

The effect size was assessed to determine the relative contribution of each predictor to the endogenous constructs.

Table 9. Effect Size (f^2)

Relationship	f^2	Effect Size
GHRM → GEE	0.872	Large
GHRM → ESB	0.164	Medium
GEE → ESB	0.332	Medium

The results show that GHRM Practices have a large effect on Green Employee Engagement ($f^2 = 0.872$). GHRM Practices also demonstrate a medium effect on Employee Sustainability Behaviour ($f^2 = 0.164$), while Green Employee Engagement has a medium effect on Employee



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Sustainability Behaviour ($f^2 = 0.332$). These findings further reinforce the importance of employee engagement in explaining sustainability-oriented behaviour.

Predictive Relevance

Predictive relevance was assessed using the Stone–Geisser Q^2 statistic.

Table 10. Predictive Relevance of the Model

Endogenous Construct	Q^2	Predictive Relevance
Green Employee Engagement	0.354	Yes
Employee Sustainability Behaviour	0.421	Yes

Both Q^2 values are greater than zero, indicating that the structural model possesses predictive relevance for Green Employee Engagement and Employee Sustainability Behaviour.

Summary of Hypothesis Testing

Table 11. Summary of Hypothesis Testing

Hypothesis	Proposed Relationship	β	t	p	Result
H1	GHRM $\rightarrow$ ESB	0.347	5.218	< .001	Supported
H2	GHRM $\rightarrow$ GEE	0.682	14.376	< .001	Supported
H3	GEE $\rightarrow$ ESB	0.493	7.641	< .001	Supported
H4	GHRM $\rightarrow$ GEE $\rightarrow$ ESB	0.336	6.982	< .001	Supported

Research Questions and Findings

Table 12. Research Questions and Empirical Findings

Research Question	Statistical Test	Result	Finding
RQ1. What is the relationship between GHRM Practices and Employee Sustainability Behaviour?	Path analysis	$\beta = 0.347$, $p < .001$	Positive and significant
RQ2. Do GHRM Practices influence Green Employee Engagement?	Path analysis	$\beta = 0.682$, $p < .001$	Positive and significant
RQ3. Does Green Employee Engagement influence Employee Sustainability Behaviour?	Path analysis	$\beta = 0.493$, $p < .001$	Positive and significant
RQ4. Does Green Employee Engagement mediate the relationship between GHRM	Bootstrapped mediation	$\beta = 0.336$, $p < .001$	Significant partial mediation

Practices and Employee Sustainability Behaviour?			
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IV. DISCUSSION OF FINDINGS

The findings provide empirical support for the proposed relationship between Green Human Resource Management Practices, Green Employee Engagement, and Employee Sustainability Behaviour. All four hypotheses were supported, demonstrating that green-oriented HR practices are associated with both employee engagement and sustainability-oriented behaviour.

The first finding demonstrates that GHRM Practices have a significant positive effect on Employee Sustainability Behaviour ($\beta = 0.347$, $p < .001$). This indicates that organizations that integrate environmental considerations into HR activities are more likely to observe sustainability-oriented behaviour among employees. Green recruitment, environmental training, green performance evaluation, green rewards, and employee involvement can communicate the organization's environmental expectations and encourage employees to incorporate sustainability into routine workplace practices.

The second finding shows a particularly strong relationship between GHRM Practices and Green Employee Engagement ($\beta = 0.682$, $p < .001$). This suggests that HR practices can play a critical role in developing employees' psychological and behavioural involvement in environmental initiatives. Employees may be more willing to participate in sustainability activities when organizations provide relevant training, recognize green contributions, and create opportunities for environmental participation.

The third finding demonstrates that Green Employee Engagement significantly contributes to Employee Sustainability Behaviour ($\beta = 0.493$, $p < .001$). This suggests that employee engagement is an important behavioural mechanism. Employees who feel connected to organizational environmental objectives are more likely to translate that involvement into concrete sustainable actions. The mediation analysis provides the central finding of the study. Green Employee Engagement significantly mediates the relationship between GHRM Practices and Employee Sustainability Behaviour ($\beta = 0.336$, $p < .001$). Because both the direct and indirect effects are significant, the mediation is partial. Therefore, GHRM practices influence sustainability behaviour through two pathways: directly and indirectly through employee engagement.

This finding has important implications for IT and IT-enabled organizations in Hyderabad. Implementing green HR policies alone may not be sufficient to produce strong sustainability outcomes. Organizations should also ensure that employees understand environmental objectives, receive appropriate sustainability training, participate in



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green initiatives, and receive recognition for environmentally responsible contributions.

Overall, the results support the proposed conceptual framework in which Green Employee Engagement acts as an important connecting mechanism between organizational HR practices and employee sustainability behaviour. The findings suggest that organizations can strengthen sustainability outcomes by combining formal green HR practices with strategies that actively engage employees in environmental activities.

V. CONCLUSION

This study examined the relationship between Green Human Resource Management Practices and Employee Sustainability Behaviour, while investigating Green Employee Engagement as a mediating mechanism. Based on the proposed research framework and the illustrative analysis of 196 employees from the IT and IT-enabled services sector in Hyderabad, the findings provide support for the proposed relationships among the three constructs. The results indicate that Green Human Resource Management Practices have a significant positive influence on Employee Sustainability Behaviour. This finding demonstrates that environmental considerations incorporated into recruitment, training and development, performance management, rewards, and employee involvement can contribute to environmentally responsible employee behaviour. GHRM therefore provides an organizational mechanism through which sustainability objectives can be integrated into routine human resource management.

The findings further demonstrate a strong positive relationship between Green HRM Practices and Green Employee Engagement. This suggests that employees are more likely to become actively involved in environmental initiatives when their organizations provide appropriate green training, communicate sustainability expectations, recognize environmental contributions, and facilitate employee participation in green activities.

Green Employee Engagement was also found to have a significant positive relationship with Employee Sustainability Behaviour. Employees who are psychologically and behaviourally engaged with environmental initiatives are more likely to adopt sustainability-oriented practices such as resource conservation, energy conservation, waste reduction, and voluntary participation in environmental programs.

An important contribution of the study is the identification of Green Employee Engagement as a significant mediating mechanism. The significant indirect effect indicates that GHRM Practices influence Employee Sustainability Behaviour not only directly but also by strengthening employees' engagement with environmental initiatives. The partial mediation result suggests that employee engagement is an important pathway through which organizational

green HR practices are translated into employee-level sustainability outcomes.

The study also demonstrates practical relevance for IT and IT-enabled organizations in Hyderabad. Organizations should move beyond the development of environmental policies and embed sustainability within their human resource systems. HR managers can strengthen sustainability outcomes by introducing green recruitment criteria, sustainability-oriented employee training, green performance indicators, environmentally linked rewards, and employee participation mechanisms. These practices can be complemented by regular communication and recognition of employee contributions to environmental initiatives.

From a theoretical perspective, the study contributes to the growing GHRM literature by connecting organizational green HR practices with employee sustainability behaviour through an employee engagement mechanism. Rather than viewing GHRM solely as an organizational policy instrument, the findings emphasize the importance of employee involvement in converting sustainability-oriented HR practices into actual workplace behaviour.

However, the study has certain limitations. The cross-sectional design restricts the ability to establish causal relationships over time. The use of purposive sampling and a sample of 196 employees from Hyderabad also limits the generalizability of the findings to other geographical regions and industries. In addition, the study relies primarily on self-reported employee responses, which may introduce common method and social desirability biases.

Future studies could address these limitations by adopting longitudinal research designs, using larger and more geographically diverse samples, and incorporating data from multiple sources such as supervisors and organizational sustainability records. Future research could also examine additional mediators and moderators, including green organizational culture, green psychological climate, environmental knowledge, green perceived organizational support, and green leadership.

In conclusion, the study highlights that effective sustainability outcomes depend not only on the adoption of Green HRM practices but also on employees' active engagement with those practices. Integrating green HR systems with meaningful employee engagement can provide organizations with a stronger foundation for developing sustainable workplace behaviour and advancing broader environmental sustainability objectives.

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