Fostering Green Work Engagement Through Green HRM Practices: An Empirical Analysis

Dr. Vaneeta Aggarwal

Assistant Professor, Department of Management Studies, University of Madras
Chennai, Tamil Nadu, PIN: 600005
Email Id: drvaneetaresearchaward@gmail.com

Sabiya Ruhee

Research Scholar, Department of Management Studies, University of Madras
Chennai, Tamil Nadu, PIN: 600005
Email Id: sabiyaruhee1@gmail.com

Karunya Janaky Ravi

Research Scholar, Department of Management Studies, University of Madras
Chennai, Tamil Nadu, PIN: 600005
Email Id: karunyaj.unom@gmail.com

Bhuvaneswari B

Research Scholar, Department of Management Studies, University of Madras
Chennai, Tamil Nadu, PIN: 600005
Email Id: bhuvib1001@gmail.com

Abstract: *This research focuses on the influence of Green Human Resource Management (HRM) practices on Green Work Engagement (GWE) of employees. Data was obtained from 101 participants to test the relationship among four Green HRM practices—Green Rewards, Green Training, Green Recruitment, and Green Performance Management—and how they affect GWE. Descriptive statistics indicated an equilibrium sample with regards to gender and age, as most participants were having access to mid-level work and fewer than 3 years of experience. Reliability analysis verified the internal consistency of variables. Correlational analysis showed Green HRM practices to have positive significant correlations with GWE, and Green Training, Green Recruitment, and Green Performance Management having very strong associations. Regression analysis confirmed that collectively, the Green HRM practices accounted for 67.4% of the GWE variance and Green Training and Green Performance Management were the predictors. The results of this study confirm that the successful application of Green HRM practices can play a significant role in building GWE, which in turn can lead to the creation of a more sustainable and committed workforce. This study adds to the body of literature on how HR practices can be aligned with organizational sustainability and offers useful insights for practitioners in creating employee engagement through green initiatives.*

Keywords*: Green HRM, Green Work Engagement, Sustainability, Employee Engagement, HR Practices.*

Introduction

Over time, people have been increasingly worried about environmental concerns such as climate change, pollution, and natural resource depletion. Due to these global issues, organizations have begun adopting environmentally sustainable practices in their operations. Organizations and government have a massive expectation to respond to ecological adversity (Kassinis & Toteriou, 2009). Stakeholders have started demanding effective preventive and counteractive measures to be taken by organizations and government. This expectation is not only limited to reducing any further damage that has been caused but also to suggesting measures to counter the damage that has been done and reverse it. Among the different strategies, highlighting the role of Human Resource Management (HRM) in spearheading green initiatives has been a focus area. This has given rise to Green HRM, that is, the integration of green management in HR activities such as recruitment, training, performance appraisal, and employee involvement. Green human resource management helps organizations go beyond routine HR functions by fostering a workforce that is genuinely aware of environmental issues. At the same time, it supports the company's wider sustainability agenda. These practices influence the way employees perceive their role in protecting the environment and gradually shape their everyday behaviour. When organizations start to adopt greener processes and policies, employees are more likely to take part in such efforts, whether through small daily actions or through active involvement in larger initiatives. This engagement results in so-called Green Work Engagement (GWE)—in which employees are actively engaged in green work activities and motivated to contribute to sustainable initiatives. This research is interested in learning about the impact of Green HRM practices on Green Work Engagement. Through this, the research hopes to emphasize the contribution of HR towards facilitating environmental objectives and promoting a greener workplace culture. As environmental concerns continue to rise, organizations are increasingly called upon to adopt green practices, not only in their operations but also in their human resource management (HRM). While green initiatives are gaining momentum, there is still limited understanding of how specific HR practices—such as green recruitment, training, rewards, and performance management affect employees' engagement with sustainability goals. This research is significant as it aims to examine the impact of Green HR practices on Green Work Engagement. It seeks to fill the gap in knowledge regarding the interaction between HR and sustainability, offering valuable insights for organizations looking to align their people strategies with environmental objectives. The present work examines how green HR practices such as hiring with environmental values in mind, providing sustainability-oriented training, and linking rewards or performance systems to ecological goals affect the way employees engage with green initiatives at work. Attention is given to IT firms in Chennai, where development and consulting activities dominate and where pressure for sustainable practices has been steadily increasing. By looking at employees' own perceptions and the level of their participation, the study sheds light on how these practices are received in day-to-day organizational life. The evidence generated can guide other firms in the sector that wish to encourage stronger employee involvement while also advancing long-term sustainability commitments.

Review of Literature

Green HR Practices

Green HRM is the incorporation of conventional HRM activities—e.g., recruitment, performance appraisal, training, and rewards—into the company's environmental objectives (Haddock-Millar, Sanyal, & Müller-Camen, 2016). It is employed as a strategic framework for attaining ecological balance and sustainability (Yusoff, 2016; Goswami & Ranjan, 2015). It is, as Jabbour (2013) asserts, "the systematic, planned alignment

of typical human resource management practices with the organization's environmental goals" (pp. 147–148).

Opatha and Arulrajah (2014) have termed it as "all the activities involved in development, implementation, and on-going maintenance of a system that strives to make employees of an organization green," seeking to change employees for organizational and environmental gain (p. 104). Green HRM practices seek to advance employee knowledge, skills, and behavior towards environmental goals and enhance cooperation throughout the organizational value chain to minimize waste and save resources (Arulrajah, Opatha, & Nawaratne, 2015).

Renwick et al. (2013) posit that greening HRM cuts across all functions—job analysis, recruitment, training, performance management, and compensation—highlighting that every function plays a role in environmental sustainability.

Green Training

Green training is "a practice that emphasizes employee skill, knowledge, and attitudes development, forestalls EM (environment management) related knowledge, skill, and attitudes deterioration" (Zoogah, 2011, p.133). It entails training employees on the importance of environmental management, teaching them how to save energy, waste reduction, raise awareness, and participate in environment problem-solving. It, as North (1997) suggests, also assists in the change of employees' and managerial behavior towards more sustainable practices. Zoogah (2011) also emphasizes that it goes a long way in promoting the green behavior of employees. Through the emphasis laid by Jabbar and Abid (2015), green training gets employees prepared for workplace difficulties and encourages employees to be more proactive in their work. It also indirectly increases engagement by increasing motivation to take part in green activities, leading to organizational employee engagement systems (Curkovic, Melnyk, Handfield, & Calantone, 2000). Additionally, Jyoti (2019) adds that such practices are particularly effective in enhancing the engagement of new employees by bringing them into the organization's green culture.

Green Reward System

Organizations are increasingly experimenting with reward systems to get employees more involved in environmental practices. In many cases, these rewards may be financial, such as bonuses, but they are just as often non-financial, like public recognition or giving staff opportunities for career advancement tied to sustainability goals. The basic idea is simple: when people feel that their green efforts are acknowledged, they are more likely to continue supporting the company's environmental agenda. This is in line with Social Exchange Theory, which highlights reciprocity as a driver of employee behavior (Paillé et al., 2014). From another angle, the AMO framework suggests that rewards feed into motivation and give employees the push they need to act on the skills and opportunities already available to them (Bombiak, 2019). A growing number of studies across industries back this up. For example, some show that linking promotions or recognition programs to green performance makes staff more willing to participate in sustainability projects (Pham et al., 2019). Research from the hospitality field also notes that reward schemes not only encourage green actions but can help firms hold on to employees who care about working for environmentally responsible organizations (Darvishmotevali & Altýnay, 2022). Taken together, these findings suggest that, when carefully planned, reward systems can become an important link between HR practices and broader environmental outcomes.

Green Performance Management

As described by Ahmad (2015), performance management is "the process by which employees are encouraged to develop their professional skills which assist in accomplishing the organizational goals and objectives in a better manner" (p.6). With environmental management becoming a part

of global business strategies, performance management is also being affected by sustainable practices. Numerous firms now have environmental objectives as a component of worker appraisals, integrating them into the performance appraisal system (Ahmad, 2015; Jabbour, 2011). Green performance management systems try to improve employees' capacity to accomplish environmental targets effectively (Ahmad, 2015). This is done by green performance measurement, which is "the appraisal and registration of employees' environmental performance during their careers in a company and gives them feedback regarding their performance to avoid negative attitudes or reinforce outstanding behavior" (Jabbour et al., 2010). These systems provide ongoing feedback consistent with environmental objectives and encourage continuous improvement (Jackson et al., 2011). Moreover, engaging employees in green decision-making improves their performance, whereas rewarding and recognizing green efforts leads to greater motivation and commitment towards green goals. Employees who are informed about and involved in their company's green HRM practices are more likely to contribute to the success of its sustainability goals (Jabbar & Abid, 2015; Renwick et al., 2013).

Green Recruitment

Recruitment of quality employees is the biggest problem confronting HR practitioners in the modern work environment, including as awareness grows about environmental management. An enterprise's environmental profile and image become a crucial determiner in bringing in potential hires, especially by the younger populations who care so much about harmony with their world and personal views (Renwick et al., 2013). To complement this, some employers are increasingly embracing Green HRM strategies as a means to improve organizational images. Green recruitment refers to, according to Ahmad (2015), "the process of hiring people with knowledge, skills, style, and behaviours that resonate with environmental management systems in an organization" (p.6). Tang et al. (2018) identify green recruitment under three categories: (a) green employer branding, (b) green awareness of candidates, and (c) green steps taken to attract applicants. They point out that green-aware candidates are able to contribute to an organization's environmental missions, while green employer branding helps capture talent with competencies in sustainability. In addition, integrating green factors in selection and assessment guarantees sustainability alignment with the firm's ecological values. Hiring individuals of this nature gives a strategic edge, as these workers are already conversant with the principles of sustainability (Ahmad, 2015). Jabbour et al. (2010) also describe green selection as the "selection of people committed and sensitive to the environmental issue, with a potential contribution to the environmental management of a company" (p.1057), further supporting the fact that organizations need to give precedence to candidates with true environmental commitment (Jabbour, 2011).

Green Work Engagement

Green Work Engagement is the intellectual, affective, and behavioral devotion of staff to their ecologically oriented jobs. Saratun (2016) stressed that work engagement captures the psychological and emotional attachment of staff to their jobs, which fuels global performance. Schaufeli, Salanova, González-romá, and Bakker (2002) framed work engagement as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication and absorption". Vigor refers to the energy and persistence of an employee in the workplace despite challenges; dedication refers to the feelings of pride, enthusiasm, and importance at work; and absorption refers to being thoroughly engaged and fully focused on one's job, time speeding by quickly. Together, engagement captures the extent to which people find themselves emotionally, cognitively, and physically invested in their work. Expanding the same idea, Aboramadan (2020) defined Green Work Engagement as "the energy an employee invests in his green work-tasks, willingness to

put in efforts at the green level, and the green work's level of absorption" (p.4). Green Work Engagement plays a vital role in developing sustainability-oriented culture whereby employees are willingly engaged in eco-friendly activities and aligned with organizational environmental objectives.

GHRM and GWE

Green HRM practices can greatly promote green goals and reinforce positive workplace practices among employees (Hobfoll, 2001; Jabbar & Abid, 2015). Key green HRM practices like green rewards (GR), green performance management (GPM), green training (GT), green selection and recruitment (GSR), and green employment relations (GER) have the capability to greatly influence pro-environmental practices of employees (Rani & Mishra, 2014; Renwick et al., 2013). Cantor, Morrow, and Montabon (2012) noted that Green Work Engagement tends to occur when managers provide high levels of support and when companies have green HR practices in place, including green rewards and training. These practices engage employees, improve their abilities, and encourage them to practice sustainable behaviors and provide creative green solutions (Aboramadan, 2020). Green HRM not only enhances employee growth extrinsically and intrinsically but also matches career objectives, eventually intensifying employee commitment and encouraging involvement (Bakker Arnold & Demerouti, 2008; Aboramadan, 2020; Arasli, Nergiz, Yesiltas, & Gunay, 2020). Employees usually view Green HRM practices as favorable organizational practices, which subsequently increases their levels of green involvement (Ari, Karatepe, Rezapouraghdam, & Avci, 2020). GWE has also been shown to moderate the impact of Green HRM on different green behaviors such as individual green behaviors, pro-environmental behaviors, and in-role and extra-role green performance (Ababneh, 2021; Ari et al., 2020; Aboramadan, 2020). From the perspective of sustainability, GWE is an important result of Green HRM supported by good reward systems, green-oriented training, and management backing, all of which stimulate the commitment of employees towards the environment (Welmilla & Ranasinghe, 2020). Green HRM also results in greater green engagement when coupled with organizational-wide sustainability goals and corporate social responsibility (Casey & Sieber, 2016).

Figure 1: Proposed Model of the Relationship between GHRM Dimensions & Green Work Engagement

Objectives of the study

- In order to explore the relationship between Green Human Resource Management (GHRM) practices and Green Work Engagement (GWE) in employees.
- In order to examine the independent impact of green recruitment, training, reward, and performance management on the work engagement for green work.
- To examine the difference in green work engagement across demographic variables such as age, gender, and employment level.
- To provide feasible recommendations to organizations in an attempt to enhance GWE through effective implementation of green HR practices.

Research Method

This study used a descriptive research design to examine the effect of green HRM practices on employee green work engagement. The design allows for observing existing conditions without manipulating variables, making it ideal for assessing how practices like green rewards, training, performance management, and recruitment influence employees' involvement in environmentally sustainable activities. The research focuses on capturing employees' perceptions and experiences of green HRM within the organization. The population consists of employees from an IT organization in Chennai that has implemented green HRM practices to promote sustainability. The sample included 101 employees from various departments, ensuring a representative view of the workforce. The data were collected through a structured questionnaire, distributed via Google Forms, covering demographic details, green HR practices, and employee engagement in green work activities. The standardized questionnaire allowed for efficient analysis. Data were processed using SPSS, employing both descriptive and inferential statistics to analyze demographic data, responses, and correlations between green HRM practices and employee engagement.

Analysis & Results

Reliability Tests

Reliability test is a test applied to measure the consistency and stability of a measurement instrument (e.g., survey, questionnaire). In research, reliability indicates the degree to which the instrument yields similar results for repeated measurements or under identical conditions.

Green Rewards

Table 1: Reliability Statistics for Green Rewards

Reliability Statistics	
Cronbach's Alpha	N of Items
.722	2

The Cronbach's Alpha for Green Rewards is 0.722 based on 2 items. This reflects an appropriate amount of internal consistency (reliability) between items that were used to quantify this variable. More than 0.7 Cronbach's Alpha is considered to be reliable according to standard practices, which implies that items that were used to quantify Green Rewards are consistent and reliable in reflecting the intended concept.

Green Training

Table 2: Reliability Statistics for Green Training

Reliability Statistics	
Cronbach's Alpha	**N of Items**
.825	**3**

The Cronbach's Alpha value for the Green Training construct is 0.825, with 3 items. This is high internal consistency and shows that the items are measuring the same construct consistently. Anything above 0.8 is good, showing that the Green Training scale used in the study is consistent and reliable for further analysis.

Green Performance

Table 3: Reliability Statistics for Green Performance

Reliability Statistics	
Cronbach's Alpha	N of Items
.808	4

The Cronbach's Alpha for the Green Performance Management construct is 0.808 with 4 items. This is a satisfactory internal consistency measure, i.e., the items used are all consistently measuring the construct of Green Performance Management. Since the value is above the commonly accepted value of 0.8, the scale can be considered statistically reliable for analysis.

Green Recruitment

Table 4: Reliability Statistics for Green Recruitment

Reliability Statistics	
Cronbach's Alpha	N of Items
.720	2

The Cronbach's Alpha of Green Recruitment is **0.720** on 2 items. That is an adequate level of reliability, i.e., the items that have been employed to measure Green Recruitment are indeed consistent with each other. While not too high, the alpha score is much better than the customary cut-point of 0.7, and therefore the construct is reliable to employ for subsequent statistical analysis.

Green Work Engagement

Table 5: Reliability Statistics for Green Work Engagement

Reliability Statistics	
Cronbach's Alpha	N of Items
.717	6

Cronbach's Alpha for Green Work Engagement is 0.717 based on 6 items. It is an adequate internal consistency level, which reflects that the items are very consistent in measuring the construct. While it is less than that of other constructs, it is still greater than or equal to the minimum of 0.7, and thus the GWE scale is acceptable to use in further analysis of the study.

Correlation Studies

A correlation study is a type of research that seeks to determine the relationship or association between two or more variables. The goal is to understand whether changes in one variable are associated with changes in another variable, and to what extent they are related.

Correlation Between Green Rewards and Green Work Engagement

The correlation was done to interpret the relationship between the two selected variables. The relationship between Green Rewards and Green Work Engagement was studied using the correlation tool.

Table 6: Correlation Statistics for Green Rewards & Green Work Engagement Correlations

		Green Rewards	Green Work Engagement
Green Rewards	Pearson Correlation	1	.379*
	Sig. (2-tailed)		.018
	N	101	101
Green Work Engagement	Pearson Correlation	.379*	1
	Sig. (2-tailed)	.018	
	N	101	101

*. Correlation is significant at the 0.05 level (2-tailed).

Pearson correlation test was applied to ascertain the correlation between Green Rewards and Green Work Engagement. The outcome indicates a significant and positive correlation between the two variables, whereby the correlation coefficient is 0.379 and the p-value is 0.018 (which is lower than the 0.05 significance level).

This indicates that with increasing Green Rewards, Green Work Engagement among the employees also increases. The correlation is moderate in strength, and the significance indicates that the result is very unlikely to be due to chance. Thus, Green Rewards have a significant impact on Green Work Engagement in the firm.

Correlation Between Green Training and Green Work Engagement

The correlation was conducted to examine the relationship Green Training and Green Work Engagement

Table 7: Correlation Statistics for Green Training & Green Work Engagement

		Green Training	Green Work Engagement
Green Training	Pearson Correlation	1	.792**
	Sig. (2-tailed)		.000
	N	101	101
Green Work Engagement	Pearson Correlation	.792**	1
	Sig. (2-tailed)	.000	
	N	101	101
**. Correlation is significant at the 0.01 level (2-tailed).			

Pearson correlation test was applied to ascertain if Green Training correlates with Green Work Engagement. The correlation was highly positive with a correlation coefficient of 0.792 and p-value of 0.000, which is very significant at 0.01 level. This implies that as the level of Green Training rises, Green Work Engagement by employees also rises significantly. Strength in the relationship is high, implying that Green Training is a valid predictor of Green Work Engagement. Significance at the finding level ensures its validity and supports the hypothesis that green practice training impacts employees' green activity engagement to a significant level.

Correlation Between Green Recruitment and Green Work Engagement

The correlation was conducted to examine the relationship between the Green Recruitment and Green Work Engagement.

Table 8: Correlation Statistics for Green Recruitment & Green Work Engagement

		Green Recruitment	Green Work Engagement
Green Recruitment	Pearson Correlation	1	.292**
	Sig. (2-tailed)		.000
	N	101	101
Green Work Engagement	Pearson Correlation	.292**	1
	Sig. (2-tailed)	.000	
	N	101	101
**. Correlation is significant at the 0.01 level (2-tailed).			

The Pearson correlation analysis was performed to examine the relationship between Green Recruitment and Green Work Engagement. The results show a moderate positive correlation with a correlation coefficient of 0.292 and a p-value of 0.000, which is statistically significant at the 0.01 level.

What this means is that whenever the activities of Green Recruitment are being practiced, the employees' level of Green Work Engagement will also increase. The co-efficient of correlation is moderate in nature, indicating a visible yet not too strong correlation between the two variables. The significance of the result also confirms the fact that Green Recruitment has a positive and significant effect on Green Work Engagement in the organization.

Correlation Between Green Performance and Green Work Engagement

The correlation was conducted to examine the relationship between the Green Recruitment and Green Work Engagement.

Table 9: Correlation Statistics for Green Performance & Green Work Engagement

		Green Performance	Green Work Engagement
Green Performance	Pearson Correlation	1	.192**
	Sig. (2-tailed)		.000
	N	101	101
Green Work Engagement	Pearson Correlation	.192**	1
	Sig. (2-tailed)	.000	
	N	101	101
**. Correlation is significant at the 0.01 level (2-tailed).			

Pearson correlation analysis was employed to determine the correlation between Green Performance and Green Work Engagement. The results yield a weak positive correlation with a correlation coefficient of 0.192 and a p-value of 0.000, which is significant at the 0.01 level.

This means that there is a weak, positive correlation between Green Performance and Green Work Engagement, i.e., when Green Performance increases, the Green Work Engagement also increases, albeit weakly. The statistical significance of result means that the correlation is statistically significant.

Independent Sample T-Test

An Independent Sample T-test is a statistical test used to compare the means of two independent groups to determine if there is a statistically significant difference between them. This test is typically used when you have two separate groups and want to assess whether their average scores on a particular variable differ.

Independent Sample T-Test Between Gender and GWE

The Independent Sample T-test was conducted to examine whether there is a significant difference in Green Work Engagement (GWE) between male and female employees.

- **Variable 1 (Grouping):** Gender (Male/ Female)
- **Variable 2 (Tested):** Green Work Engagement

Hypotheses

- **Null Hypothesis (H€):** There is no significant difference in Green Work Engagement between male and female employees.
- **Alternative Hypothesis (H):** There is a significant difference in Green Work Engagement between male and female employees.

Table 10: Frequency Table for Gender

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
GWE	Male	63	3.83	.423	.053
	Female	38	3.73	.431	.070

Table 11: Independent Sample T-Test Between Gender and GWE

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
GWE	Equal variances assumed	.001	.970	1.092	99	.277	.096	.088	-.078	.269
	Equal variances not assumed			1.087	77.064	.280	.096	.088	-.079	.271

According to the p-value, 0.277, which is larger than 0.05, it is concluded that there is no difference in male and female employees' Green Work Engagement. We therefore accept the null hypothesis and conclude that gender does not have a significant effect on Green Work Engagement in this study.

ANOVA

ANOVA (Analysis of Variance) is a statistical test to see whether there are or not significant differences between the means of three or more independent groups

Comparison Of Age Group and GWE

The One-Way ANOVA was conducted to examine whether there is a significant difference in Green Work Engagement (GWE) among employees belonging to different age groups.

- **Variable 1 (Grouping):** Age Group (18–25, 26–35, 36–45, Above 45)
- **Variable 2 (Tested):** Green Work Engagement (GWE)

Hypotheses

- **Null Hypothesis (H€):** There is no significant difference in Green Work Engagement among employees from different age groups.
- **Alternative Hypothesis (H):** There is a significant difference in Green Work Engagement among employees from different age groups.

Table 12: ANOVA Statistics Between Age and GWE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.432	3	.144	.786	.504
Within Groups	17.757	97	.183		
Total	18.189	100			

Since p = 0.504, which is greater than 0.05, we conclude that there is no significant difference in Green Work Engagement among various age categories of employees. Thus, we accept H0, and we conclude that no significant effect exists of age categories on Green Work Engagement.

Regression Test

Regression analysis is used to explore the relationship between dependent variable and one or multiple independent variables.

Hypothesis:

- **Null Hypothesis (H€):** Green HR practices (Green Rewards, Green Training, Green Recruitment, and Green Performance Management) do not significantly predict Green Work Engagement.
- **Alternative Hypothesis (H):** Green HR practices (Green Rewards, Green Training, Green Recruitment, and Green Performance Management) significantly predict Green Work Engagement.

Table 13: Regression for Green HR Practices

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.821[a]	.674	0.659	.212

a. Predictors: (Constant), GPM Green Training, GR, Green Recruit

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.430	4	3.107	16.758	0.000
	Residual	5.759	96	0.060		
	Total	18.189	100			

a. Dependent Variable: GWE

b. Predictors: (Constant), GPM, GT, GR, Green Recruit

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)	3.839	.191		20.068	.000	
GR	.323	.060	.342	3.548	.032	
GT	.513	.120	.450	4.284	.000	
G Recruit	.471	.071	.322	4.007	.041	
GPM	.315	.082	.311	3.858	.000	
a. Dependent Variable: GWE						

Regression analysis indicates that all four Green HR practices—Green Rewards, Green Training, Green Recruitment, and Green Performance Management—affect Green Work Engagement and collectively explain 67.4% variance in GWE. Green Recruitment, Green Performance Management, and Green Training are the best predictors of GWE, and the variables are significantly intercorrelated. All the results establish the use of green HR practices in green employee engagement.

Findings and Conclusion

Findings

- The demographic profile of the respondents shows that most of the employees in the sample belong to the 18–25 years age group. The gender composition is fairly balanced, with 62.4% male and 37.6% female participants. A large proportion of the respondents are employed in entry- and middle-level positions, and almost all of them have less than one year of work experience.
- The reliability of the constructs was tested using Cronbach's alpha. All the Green HR practices—Green Rewards, Green Training, Green Recruitment, and Green Performance Management—as well as Green Work Engagement (GWE), recorded values ranging from 0.717 to 0.825, which indicates satisfactory internal consistency. Further, the validity tests confirmed convergent validity, as the Average Variance Extracted (AVE) and Composite Reliability (CR) scores were above the recommended cut-off levels. This supports the adequacy of the measurement instrument used in the study.
- The results also show a clear positive relationship between Green HR practices and Green Work Engagement. Regression analysis revealed that the Green HR practices together explained 67.4% of the variance in GWE. Among the four practices, Green Performance Management emerged as the most influential predictor, followed by Green Training and Green Recruitment. Although Green Rewards were also positively related to GWE, their effect was weaker compared to the other factors.

- When tested for demographic variations, no significant differences were found across gender ($p = 0.277$) or age groups ($p = 0.504$) with respect to Green Work Engagement. This suggests that Green HR practices can be equally effective across different categories of employees, irrespective of gender or age.
- Overall, the findings indicate that Green HR practices play a substantial role in enhancing Green Work Engagement, with Green Performance Management showing the strongest effect. The lack of demographic differences further points to the broad applicability of these practices and their potential to promote sustainability-oriented employee behaviour across the workforce.

Suggestions

- **Strengthen Green Recruitment Procedures:** Businesses should make recruiting sustainability value-shareholders a priority. By hiring those who have an interest in being environmentally responsible, businesses can foster a more engaged and sustainable staff.
- **Create an All-Encompassing Green Rewards Program:** While Green Rewards are less highly linked to GWE, having an all-encompassing Green Rewards program in place will enhance sustainable conduct. The rewards can be tied to environmentally friendly behaviour and reaching key sustainability benchmarks, motivating the employees to participate earnestly in green activities.
- **Foster Inclusivity in Green Programs:** Since there were no remarkable differences in GWE by gender and age, Green HR practices must remain inclusive. Ensure that all employees, regardless of demographic group, have equal opportunities to engage in sustainability activities.
- **Green HR Practices Monitoring and Improvements:** Regularly monitor the sufficiency of Green HR practices from feedback received by the employees as well as through work engagement surveys. This would enable organizations to better align the needs of their employees with improved enhancements of the practices, which will further enhance Green Work Engagement.
- **Align Green HR Practices with Corporate Sustainability Goals:** For the desired effect of Green HR practices to be obtained, they must be aligned in conjunction with the broader organizational sustainability agenda. Alignment will enable Green HR practices to perform well in their role to deliver corporate environmental goals.
- **Create Innovation for Sustainability:** Ask employees to suggest ideas for new sustainability projects and reward or recognize them for innovative ideas leading to environmental benefits. It can help create a culture for sustainability innovation.
- **Customize Green Initiatives by Employee Segments:** While no noteworthy demographic group differences were revealed, some usefulness can be seen in customizing specific Green HR practices to particular employee segments in order to boost motivation and green initiative engagement.
- **Encourage Cross-Departmental Collaboration:** To best implement Green HR practices, organisations can leverage interdepartmental

collaboration among the HR, sustainability, and operations departments to ensure green initiatives are integrated at all organisational levels.

Limitations of the Study

- The time frame of project study is confined to the duration of January 2024 to March 2024. Therefore, all the data gathered and the study context are confined to this particular time frame.
- This research is restricted to the employees working in IT industry in Chennai, and the results might not be generalizable to other companies or sectors.
- There is potential for response bias, since the information is derived from self-reported views that can be subject to personal or social influences.
- The research was carried out in a defined geographical area, which can influence the representativeness and diversity of the sample, restricting generalizability to a wider population.

The application of a specific sampling framework limits the degree to which findings can be extended to a broader population or to alternative organizational contexts.

Conclusion

In summary, the study demonstrates the important contribution of Green Human Resource (HR) practices towards boosting Green Work Engagement (GWE) of the employees. From the results, it can be seen that the Green HR practices like Green Training, Green Performance Management, and Green Recruitment make a big contribution to GWE. In addition, the research unveils that practices are successful within different groups, as there are no substantial variations in GWE between female and male workers, or among the different age ranges. Although a weaker relationship for Green Rewards has been shown against GWE, it remains contributing to the stimulus of sustainable activities. The regression analysis emphasizes the importance of incorporating performance management and sustainability goals, and Green Performance Management is found to be an important predictor of GWE. In general, the findings affirm the need for organizations to invest in and develop Green HR practices to increase employee involvement in sustainability initiatives. By creating a culture of sustainability, organizations not only enhance employee involvement but also contribute to their overall environmental objectives.

References

Ababneh, O. M. A. (2021). How do green HRM practices affect employees' green behaviors? The role of employee engagement and personality attributes. *Journal of Environmental Planning and Management*, 1–23. https://doi.org/10.1080/09640568.2020.1814708

Aboramadan, M. (2020). The effect of green HRM on employee green behaviors in higher education: The mediating mechanism of green work engagement. *International Journal of Organizational Analysis*. Advance online publication. https://doi.org/10.1108/ijoa-05-2020-2190

Ahmad, S. (2015). Green human resource management: Policies and practices. *Cogent Business & Management, 2*(1), 1030817. https://doi.org/10.1080/23311975.2015.1030817

Ahmed, U., AlZgool, M. R. H., & Shah, S. M. M. (2019). The impact of green human resource practices on environmental sustainability. *Polish Journal of Management Studies, 20*(1), 1–11. https://doi.org/10.17512/pjms.2019.20.1.01

Aktar, A., & Islam, Y. (2019). Green human resource management practices and employee engagement: Empirical evidence from RMG sector in

Bangladesh. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3363860

Alshaabani, A., & Rudnak, I. (2020). Impact of diversity management practices on organizational climate: An Egyptian study. *Vadyba Journal of Management, 1*(36), 7–17. https://doi.org/10.38104/vadyba.2020.01

Ángel del Brío, J., Junquera, B., & Ordiz, M. (2008). Human resources in advanced environmental approaches: A case analysis. *International Journal of Production Research, 46*(21), 6029–6053. https://doi.org/10.1080/00207540701352094

Arasli, H., Nergiz, A., Yesiltas, M., & Gunay, T. (2020). Human resource management practices and service provider commitment of green hotel service providers: Mediating role of resilience and work engagement. *Sustainability, 12*(21), 9187. https://doi.org/10.3390/su12219187

Ari, E., Karatepe, O. M., Rezapouraghdam, H., & Avci, T. J. (2020). A conceptual model for green human resource management: Indicators, differential pathways, and multiple pro-environmental outcomes. *Sustainability, 12*(17), 7089. https://doi.org/10.3390/su12177089

Arulrajah, A. A., Opatha, H., & Nawaratne, N. (2015). Green human resource management practices: A review. *Sri Lankan Journal of Human Resource Management, 5*(1), 1–16. https://doi.org/10.4038/sljhrm.v5i1.5624

Bagozzi, R. P., Yi, Y., & Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly, 36*(3), 421–458. https://doi.org/10.2307/2393203

Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International, 13*(3), 209–223. https://doi.org/10.1108/13620430810870476

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*(2), 238–246. https://doi.org/10.1037/0033-2909.107.2.238

Bombiak, E. (2019). Green human resource management – The latest trend or strategic necessity? *Entrepreneurship and Sustainability Issues, 6*(4), 1647–1662. https://doi.org/10.9770/jesi.2019.6.4(7)

Cantor, D. E., Morrow, P. C., & Montabon, F. (2012). Engagement in environmental behaviors among supply chain management employees: An organizational support theoretical perspective. *Journal of Supply Chain Management, 48*(3), 33–51. https://doi.org/10.1111/j.1745-493X.2011.03257.x

Casey, D., & Sieber, S. (2016). Employees, sustainability and motivation: Increasing employee engagement by addressing sustainability and corporate social responsibility. *Research in Hospitality Management, 6*(1), 69–76. https://doi.org/10.2989/RHM.2016.6.1.9.1297

Chaudhary, R. (2019). Green human resource management in Indian automobile industry. *Journal of Global Responsibility, 10*(2), 161–175. https://doi.org/10.1108/JGR-12-2018-0084

Chaudhary, R. (2020). Green human resource management and employee green behavior: An empirical analysis. *Corporate Social Responsibility and Environmental Management, 27*(2), 630–641. https://doi.org/10.1002/csr.1827

Chin, W. W. (1998). Commentary: Issues and opinion on structural equation modeling. *MIS Quarterly, 22*(1), vii–xvi.

Curkovic, S., Melnyk, S. A., Handfield, R. B., & Calantone, R. (2000). Investigating the linkage between total quality management and environmentally responsible manufacturing. *IEEE Transactions on Engineering Management, 47*(4), 444–464. https://doi.org/10.1109/17.895340

Daily, B. F., & Huang, S. C. (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

Darvishmotevali, M., & Altýnay, L. (2022). Green HRM, environmental awareness and green behaviors: The moderating role of servant leadership. *Tourism Management, 88,* 104401. https://doi.org/10.1016/j.tourman.2021.104401

DuBois, C. L., & Dubois, D. A. (2012). Strategic HRM as social design for environmental sustainability in organization. *Human Resource Management, 51*(6), 799–826. https://doi.org/10.1002/hrm.21504

Dumont, J., Shen, J., & Deng, X. (2017). Effects of green HRM practices on employee workplace green behavior: The role of psychological green climate and employee green values. *Human Resource Management, 56*(4), 613–627. https://doi.org/10.1002/hrm.21792

Goswami, T., & Ranjan, S. (2015). Approach to sustainability in current scenario. *Journal for Studies in Management and Planning, 1*(4), 250–259.

Haddock-Millar, J., Sanyal, C., & Müller-Camen, M. (2016). Green human resource management: A comparative qualitative case study of a United States multinational corporation. *The International Journal of Human Resource Management, 27*(2), 192–211. https://doi.org/10.1080/09585192.2015.1052087

Hair, J. F., Black, W. C., & Babin, B. J. (2010). *Multivariate data analysis: A global perspective*. Pearson Education.

Halawi, A., & Zaraket, W. (2018). Impact of green human resource management on employee behaviour. *Journal of Applied Business Research, 6*(2), 35–46.

Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology, 50*(3), 337–421. https://doi.org/10.1111/1464-0597.00062

Jabbar, M. H., & Abid, M. (2015). A study of green HR practices and its impact on environmental performance: A review. *Journal of Business and Management Research, 7*(2), 123–134.

Jabbour, C. J. C. (2011). How green are HRM practices, organizational culture, learning and teamwork? A Brazilian study. *Industrial and Commercial Training, 43*(2), 98–105. https://doi.org/10.1108/00197851111108926

Jabbour, C. J. C. (2013). Environmental training in organisations: From a literature review to a framework for future research. *Resources, Conservation and Recycling, 74*, 144–155. https://doi.org/10.1016/j.resconrec.2012.12.017

Jabbour, C. J. C., Santos, F. C. A., & Nagano, M. S. (2008). Environmental management system and human resource practices: Is there a link between them in four Brazilian companies? *Journal of Cleaner Production, 16*(17), 1922–1925. https://doi.org/10.1016/j.jclepro.2008.02.004

Jabbour, C. J. C., Santos, F. C. A., & Nagano, M. S. (2010). Contributions of HRM throughout the stages of environmental management: Methodological triangulation applied to companies in Brazil. *The International Journal of Human Resource Management, 21*(7), 1049–1089. https://doi.org/10.1080/09585191003783512

Jackson, S. E., Renwick, D. W. S., Jabbour, C. J. C., & Müller-Camen, M. (2011). State-of-the-art and future directions for green human resource management: Introduction to the special issue. *German Journal of Human Resource Management, 25*(2), 99–116. https://doi.org/10.1177/239700221102500203

Jerez-Gómez, P., Céspedes-Lorente, J., & Valle-Cabrera, R. (2005). Organizational learning and compensation strategies: Evidence from the Spanish chemical industry. *Human Resource Management, 44*(3), 279–299. https://doi.org/10.1002/hrm.20071

Jyoti, K. (2019). Green HRM – People management commitment to environmental sustainability. In *Proceedings of the 10th International Conference on Digital Strategies*

for Organizational Success (pp. 1–10). https://doi.org/10.2139/ssrn.3323800

Kane, A. (2011). Green recruitment, development and engagement. In D. Bartlett (Ed.), *Going green: The psychology of sustainability in the workplace* (pp. 6–15). London Metropolitan University.

Kaplan, D. (2001). Structural equation modeling. In N. J. Smelser & P. B. Baltes (Eds.), *International encyclopedia of the social & behavioral sciences* (pp. 15215–15222). Pergamon. https://doi.org/10.1016/B0-08-043076-7/00776-2

Kim, Y. J., Kim, W. G., Choi, H. M., & Phetvaroon, K. (2019). The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance. *International Journal of Hospitality Management, 76*, 83–93. https://doi.org/10.1016/j.ijhm.2018.04.007

Luu Tuan, T. (2017). CSR and organizational citizenship behavior for the environment in the hotel industry: The moderating roles of corporate entrepreneurship and employee attachment style. *International Journal of Contemporary Hospitality Management, 29*(11), 2867–2900. https://doi.org/10.1108/IJCHM-02-2016-0080

Naz, F., Oláh, J., Vasile, D., & Magda, R. (2020). Green purchase behavior of university students in Hungary: An empirical study. *Sustainability, 12*(23), 10077. https://doi.org/10.3390/su122310077

Network for Business Sustainability. (2021, April 15). Employee engagement and going green. https://www.nbs.net/articles/engaging-employees-in-going-green

North, K. (1997). *Environmental business management: An introduction*. International Labour Office.

Ojo, A. O., & Raman, M. (2019). Role of green HRM practices in employees' pro-environmental IT practices. In Á. Rocha et al. (Eds.), *New knowledge in information systems and technologies* (pp. 541–551). Springer. https://doi.org/10.1007/978-3-030-16181-1_64

Opatha, H. H. D. N. P., & Arulrajah, A. A. (2014). Green human resource management: Simplified general reflections. *International Business Research, 7*(8), 101–112. https://doi.org/10.5539/ibr.v7n8p101

Paillé, P., Chen, Y., Boiral, O., & Jin, J. (2014). The impact of human resource management on environmental performance: An employee-level study. *Journal of Business Ethics, 121*(3), 451–466. https://doi.org/10.1007/s10551-013-1732-0

Pham, D. D. T., Paillé, P., & Halilem, N. (2019). Systematic review on environmental innovativeness: A knowledge-based resource view. *Journal of Cleaner Production, 211*, 1088–1099. https://doi.org/10.1016/j.jclepro.2018.11.221

Ranasinghe, V., & Welmilla, I. (2020). Green employee engagement. In *Contemporary developments in human resource management* (pp. 67–76). Department of Human Resource Management, University of Kelaniya.

Rani, S., & Mishra, K. (2014). Green HRM: Practices and strategic implementation in the organizations. *International Journal on Recent Innovation Trends in Computing and Communication, 2*(11), 3633–3639. https://doi.org/10.17762/ijritcc.v2i11.3525

Ren, S., Tang, G., & Jackson, S. E. (2018). Green human resource management research in emergence: A review and future directions. *Asia Pacific Journal of Management, 35*(3), 769–803. https://doi.org/10.1007/s10490-017-9532-1

Renwick, D., Redman, T., & Maguire, S. (2008). Green HRM: A review, process model, and research agenda. *University of Sheffield Working Paper, 1*, 1–46. https://www.sheffield.ac.uk/polopoly_fs/1.120337!/file/Green-HRM.pdf

Renwick, D., 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

Saratun, M. (2016). Performance management to enhance employee engagement for corporate sustainability. *Asia-Pacific Journal of Business Administration, 8*(1), 84–102. https://doi.org/10.1108/APJBA-07-2015-0064

Schaufeli, W. B., Salanova, M., González-romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two-sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3*(1), 71–92. https://doi.org/10.1023/A:1015630930326

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach* (7th ed.). Wiley.

Tang, G., Chen, Y., Jiang, Y., Paillé, P., & Jia, J. (2018). Green human resource management practices: Scale development and validity. *Asia Pacific Journal of Human Resources, 56*(1), 31–55. https://doi.org/10.1111/1744-7941.12147

Unsworth, K. L., Dmitrieva, A., & Adriasola, E. (2013). Changing behaviour: Increasing the effectiveness of workplace interventions in creating pro-environmental behaviour change. *Journal of Organizational Behavior, 34*(2), 211–229. https://doi.org/10.1002/job.1837

Welmilla, I., & Ranasinghe, V. (2020). Green employee engagement. In *Contemporary developments in human resource management* (pp. 77–86). Department of Human Resource Management, University of Kelaniya.

Yusoff, Y. M. (2016). For a greener human resource management. *International Journal of Humanities and Management Sciences, 4*(2), 190–194.

Ziegler, A., & Seijas Nogareda, J. (2009). Environmental management systems and technological environmental innovations: Exploring the causal relationship. *Research Policy, 38*(5), 885–893. https://doi.org/10.1016/j.respol.2009.01.020

Zoogah, D. B. (2011). The dynamics of green HRM behaviors: A cognitive social information processing approach. *German Journal of Human Resource Management, 25*(2), 117–139