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RESEARCH ARTICLE

Fostering organizational sustainability through green HRM and green commitment in Nigeria

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ABSTRACT

This study examines the relationship between Green Human Resource Management (GHRM) practices and organisational sustainability in the Nigerian manufacturing sector, with a specific focus on the role of employees' green commitment. Drawing on the Ability–Motivation–Opportunity (AMO) framework and Social Exchange Theory, the study investigates how internal HR systems shape pro-environmental behaviours and sustainability outcomes. A quantitative descriptive survey design was employed, targeting 234 employees from five established manufacturing firms in Lagos State. Data were collected using validated scales measuring green recruitment, green training and development, green rewards and compensation, green commitment, and organisational sustainability across economic, environmental, and social dimensions. Partial Least Squares Structural Equation Modelling (PLS-SEM) was utilised to assess the measurement and structural models. The results indicate that green training and development and green reward and compensation practices have significant positive effects on organisational sustainability, whereas green recruitment shows no direct significant relationship. Green commitment, however, mediates the relationships between all three GHRM practices and organisational sustainability, underscoring its central psychological role in translating HR policies into sustainable outcomes. The findings highlight the importance of systematically implementing green training, development, and incentive systems to enhance employees' environmental competencies and motivations. The study contributes to the limited empirical evidence on GHRM in African manufacturing contexts and offers practical implications for managers and policymakers seeking to align HR systems with national sustainability agendas. It also identifies methodological and contextual limitations and proposes future research directions, including longitudinal and mixed-method designs and broader sectoral and geographical coverage.

Keywords: green human resource management; organisational sustainability; green commitment; social exchange theory; environmental behaviour

1. Introduction

Sustainability has emerged as a critical global concern, with organisations increasingly pressured to mitigate environmental degradation, enhance social responsibility, and ensure sustained economic performance. Industrial activities contribute substantially to greenhouse gas emissions, pollution, and resource depletion, intensifying expectations for organisations to integrate sustainability into their strategic

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and operational systems. In response, has gained prominence as a strategic approach that aligns human resource policies with environmental objectives and promotes sustainable employee behaviour[1]. GHRM influences organisational performance and ecological outcomes through practices such as green recruitment, green training and development, and environmentally linked reward systems[1]. In developing economies, particularly in Africa, rapid industrial growth has supported economic development while simultaneously intensifying environmental challenges, including air pollution, ineffective waste management, and inefficient energy use. In Nigeria, the manufacturing sector contributes approximately 10% of national GDP and is highly concentrated in Lagos State. However, the sector has been widely criticised for its environmental footprint, which is attributed to weak regulatory enforcement, limited sustainability governance, and high levels of resource exploitation[2]. Despite these challenges, empirical research on environmental human resource management in Nigeria remains scarce, with most existing studies focusing on developed economies. This creates a significant gap in understanding how GHRM influences sustainability outcomes in African industrial contexts.

This study advances theoretical understanding by integrating the Ability-Motivation-Opportunity (AMO) framework into Social Exchange Theory (SET) to explain the connection between individual capacities, motivation, and organisational structures in promoting sustainable behaviour. AMO theory provides a comprehensive framework for understanding how employees' behaviour and performance are shaped by their skills and competencies (ability), their willingness and psychological drive to act (motivation), and the extent to which organisational systems provide structured channels for participation and involvement (opportunity). In the context of sustainability, organisations can cultivate a sustainable organisational culture that enhances competitiveness and performance while simultaneously benefiting the environment by systematically identifying employees' environmental skills, strengthening their motivation, and offering opportunities for engagement in green practices[48]. Empirical evidence supports the applicability and effectiveness of AMO theory in explaining GHRM outcomes. Yong et al.[49] demonstrate that GHRM practices grounded in the AMO framework significantly enhance employees' pro-environmental behaviours by strengthening their environmental competencies and intrinsic motivation. Similarly, Yu et al.[50] argue that AMO theory offers a robust explanatory basis for understanding how HR systems can be strategically designed to support environmental sustainability objectives while maintaining organisational performance.

However, while AMO theory explains how organisational practices develop behavioural capacity, it does not fully account for the psychological mechanisms that motivate employees to reciprocate organisational investments in sustainability. This limitation is addressed through Social Exchange Theory (SET), which conceptualises employee behaviour as a function of reciprocal social relationships between individuals and organisations[47,51]. SET posits that when employees perceive organisational practices as fair, supportive, and valuable, they develop feelings of obligation and trust, which motivate them to respond with positive attitudes and discretionary behaviours. In the context of GHRM, when employees interpret green HR practices as genuine organisational investments in environmental responsibility and employee well-being, they are more likely to develop a sense of reciprocal obligation that manifests as green commitment. Green commitment reflects employees' emotional attachment to organisational environmental values and their willingness to exert extra effort beyond formal job requirements to support sustainability objectives[52,53]. This commitment becomes the psychological mechanism through which HR systems are transformed into sustained pro-environmental behaviours.

Integrating AMO theory with SET, therefore, provides a holistic theoretical explanation of GHRM effectiveness. GHRM practices initially enhance employees' abilities, motivation, and opportunities to engage in sustainable behaviour, and subsequently activate social exchange processes that foster green

commitment. This psychological commitment serves as a key mediating mechanism, translating HR systems into environmental, social, and economic sustainability outcomes. Through this integrated framework, the present study moves beyond descriptive associations and offers a theoretically grounded explanation of how and why GHRM influences organisational sustainability, particularly within the institutional realities of Nigerian manufacturing firms, where regulatory enforcement is limited and employee-driven mechanisms play a critical role in sustainability performance.

Sustainability has become a significant topic in global business discussions; however, Nigerian manufacturing firms face challenges in reconciling productivity with environmental protection and social responsibility. Industrial pollution, ineffective waste management, and elevated energy consumption continue to pose significant challenges, especially in Lagos, where manufacturing activities are concentrated[2]. Although organisations are increasingly recognising the importance of sustainability, many lack structured human resource systems that facilitate pro-environmental practices among employees. GHRM serves as a mechanism to influence employees' abilities, motivations, and opportunities to engage in environmentally friendly behaviour; however, there is a lack of empirical evidence on the impact of these practices on organisational sustainability in developing countries. Current research infrequently investigates the psychological mechanisms, such as green commitment, that may elucidate the relationship between HR practices and sustainable performance. This study aims to address the significant gap created by the lack of contextualised findings in the Nigerian manufacturing sector. Research on GHRM has predominantly taken place in developed countries, with relatively few studies addressing the situation in Africa, despite the continent's increasing industrial growth and environmental challenges[3]. The manufacturing sector in Nigeria operates in distinct operational and regulatory landscape; however, empirical research linking GHRM to sustainability is limited. Although GHRM is linked to sustainability outcomes, limited research investigates the psychological mechanisms, such as green commitment, that elucidate the influence of HR systems on employee behaviour[4]. Examining green commitment as a mediator enhances the theoretical understanding within the AMO and Social Exchange frameworks. Current research frequently analyses individual HR practices separately, rather than employing a comprehensive perspective on GHRM systems. This study combines practices such as recruitment, training, and rewards to provide a more comprehensive evaluation of internal sustainability drivers.

Organisational sustainability has emerged as a global priority, with firms increasingly allocating resources to tackle environmental and social challenges stemming from decades of ecological degradation caused by industrial production[5,6]. Green Human Resource Management (GHRM) has developed as a strategic approach to integrate sustainability into organisational practices. Green commitment, grounded in organisational commitment theory, is a crucial psychological factor that link environmental management practices to pro-environmental behaviour[4,7]. Empirical evidence indicates that green commitment encourages employees to exceed formal role expectations by engaging in sustainability initiatives, thereby converting HR strategies such as green recruitment, training, and reward systems into significant sustainability outcomes[8,9]. Previous studies have emphasised the strategic importance of HR in promoting sustainability[10,11]. However, methodological limitations, such as cross-sectional designs, Western-centric measurement scales, and an overreliance on self-reported behaviours, have restricted generalisability and empirical clarity. Comparative findings indicate that the effects of GHRM differ by context: in China, implementation is primarily influenced by state incentives and supply chain pressures[12,13], while in Europe, it is reinforced by stakeholder accountability and established HR systems[14]. In Nigeria, where regulatory enforcement is inadequate, evidence indicates that success is largely contingent upon employee-driven mechanisms, including green commitment, passion, and skill development. This thesis conceptualises

GHRM through green recruitment and selection, green training and development, and green compensation and rewards. It examines organisational sustainability from the dual perspectives of environmental and social sustainability, highlighting the unexplored nature of social sustainability and its growing importance in sustainable the development discourse[15].

The economic dimension of sustainability, as articulated in Hicks' Value and Capital (1939), underscores the importance of fulfilling current consumption requirements while preserving resources for future generations. Evaluation typically occurs through the lenses of development, growth, and productivity[16,17]. Organisations with skilled employees to implement sustainability strategies are more likely to enhance financial performance and meet stakeholder expectations, underscoring the critical importance of human resources[18]. Economic sustainability is unachievable if companies persist in exploiting natural resources beyond ecological thresholds[19]. Global sustainability initiatives require prioritising of environmental preservation over immediate economic benefits[20,21]. This underscores the significance of Green Human Resource Management in reducing pollution and industrial waste[20,23]. Social sustainability focuses on the management of social impacts by organisations on employees, customers, and communities, highlighting the importance of stakeholder engagement for business continuity[24,25]. This study measures social sustainability via corporate social responsibility focussing on commitments to social programs and societal obligations[26-28].

2. Materials and methods

The study utilised a quantitative design with a descriptive survey approach, suitable for analysing perceptions and relationships among latent variables in organisational contexts[29]. Lagos State was selected because it represents Nigeria's primary industrial and commercial hub, accounting for a substantial proportion of the country's manufacturing output and workforce. The concentration of manufacturing firms in Lagos makes it a strategic context for examining the interaction between GRHRM practices and sustainability challenges. The data was drawn from five manufacturing companies using stratified random sampling to ensure appropriate representation across organisational groups and departments. While this approach enhances internal validity and reduces sampling bias, it also implies that the findings are context-specific and may not represent the diversity of Nigeria's manufacturing sector.

Data were collected through a structured questionnaire designed using validated scales from prior studies on GHRM and sustainability. The instrument included items that assessed green recruitment, green training, green rewards, green commitment, and organisational sustainability to ensure cultural relevance and contextual appropriateness for the Nigerian setting, the questionnaire underwent a multi-stage adaptation process. First, items were reviewed by academic experts in human resource management to assess content and contextual validity. Second, the questionnaire underwent to a pilot test prior to circulation to verify clarity, content validity, and reliability. Third, statistical analyses, such as Cronbach's alpha and composite reliability, demonstrated that the instrument met acceptable standards of internal consistency[20]. The questionnaire was disseminated in both physical and electronic formats to enhance accessibility and response rates, considering the operational conditions of employees in the manufacturing sector. The demographic analysis of the 234 respondents indicates a balanced gender distribution, comprising 52.6% males and 47.4% females. The majority of respondents were aged 41 to 50 years (37.2%), followed by those aged 31 to 40 years (34.2%), 21 to 30 years (17.9%), and a smaller proportion aged 51 or over(10.7%). A significant proportion of participants were married (83.3%), with 7.3% single, 3.8% widowed, 3.0% divorced, and 2.6% separated. Regarding educational attainment, nearly half of the respondents held an HND/B.Sc qualifications (48.3%), while 29.9% possessed M.Sc/M. ED/MBA, 11.5% had PhD./DBA, 6.4% held other professional

certifications, and 3.8% had NCE/OND. The departmental distribution reveals that the majority of respondents were from the Operations unit (60.7%), followed by smaller percentages from Finance (9.4%), Corporate Planning (9.0%), Marketing (6.4%), Internal Audit (6.0%), Procurement (3.0%), Human Resources (2.6%), Business Development (1.7%), and administrative roles (1.3%). The data indicate that a significant proportion of respondents occupied senior-level positions (72.2%), with middle-level roles comprising 16.2%, management at 10.3%, and junior-level positions at 1.3%. The distribution indicates that the sample mainly consists of experienced professionals with significant organisational responsibilities, providing informed insights into workplace practices.

This study outlines the analytical methods used to evaluate the hypotheses. The data underwent initial screening for missing values, response errors, and normality, followed by the application of Partial Least Squares Structural Equation Modelling (PLS-SEM) utilising SmartPLS. PLS-SEM was chosen for its effectiveness in predictive modelling, its ability to accommodate small-to-medium sample sizes, and it analysis of complex constructs involving mediation effects[30]. This analytical method facilitated the investigation of the direct impacts of GHRM practices on sustainability. Given the reliance on self-reported data, several steps are taken to minimise potential response and common method biases. Procedurally, respondents were assured of anonymity and confidentiality and were informed that there were no right or wrong answers. Measurement items were adapted from established and validated scales and were carefully worded using neutral language to avoid ambiguity or leading responses. Statistically, common method variance was assessed using Harman's single-factor test, which revealed that no single factor accounted for the majority of variance. This indicates that there is no single factor accounted for the majority of variance, indicating that common method bias was unlikely to significantly affect the results.

The study targeted employees from five established manufacturing firms in Lagos State, Nigeria, including both male and female staff across junior, senior, and managerial levels. These organisations were selected for their long-standing presence and credibility in the Nigerian manufacturing sector, as well for their alignment with sustainability principles reflected in their corporate missions and operations. Their participation was considered valuable because manufacturing activities in Nigeria are subject to regulatory oversight, and employees' insights could help policymakers strengthen sustainability initatives for the sector. As such, the unit of analysis for this research was the individual employee, enabling an in-depth understanding of staff perceptions, experiences, and involvement in Green Human Resource Management (GHRM) practices and organisational sustainability outcomes[29]. A sample size of 234 employees was determined at a 95% confidence level and a 0.5 error margin, representing a systematic proportion of the population to ensure adequate representation across the selected organisations. To identify respondents, stratified sampling was applied to distribute the sample proportionally to organisational size, ensuring equal representation of employees across the five firms. This approach allowed questionnaires to be administered in a manner reflective of each firm's workforce structure and supported a balanced dataset for statistical analysis[31]. The questionnaire includes closed-ended items rated on 5-point Likert scale, from 1 (Strongly Disagree) to 5 (Strongly Agree). Section A gathers demographic data, Section B evaluates green human resource management (GHRM) practices, which include green recruitment[32], green training and development (Shah, 2019), and green rewards and compensation[33], while Section C assesses organisational sustainability across economic, environmental, and social dimensions[34]. The scale exhibited high overall reliability (Cronbach's $\alpha = 0.91$) and acceptable reliability for the subscales: economic ($\alpha = 0.77$), environmental ($\alpha = 0.82$), and social ($\alpha = 0.87$).

Consistent with the multi-stage sampling approach recommended by Rajabpour et al.[6], the study combined stratified and convenience sampling techniques to ensure methodological soundness and

practicality. The first stage involved stratifying the broader industrial landscape by narrowing the study location to Lagos State, given its high concentration of manufacturing firms and accessibility for data collection. In the second stage, individual respondents from diverse departments and job levels were selected using convenience sampling based on their availability and willingness to participate. This hybrid design ensured that data were efficiently gathered while capturing a wide range of employee perspectives, following Creswell's[29] guidance on systematic yet adaptable sampling procedures.

3. Results

This study employed SPSS's missing value analysis to specifically examine missing data. Among the 234 survey responses, no missing values were observed presumably because the survey design required completion of all questions. This ensured the dataset's reliability and eliminated the need for imputation or alternative corrective methods. Normality was evaluated by analysising of skewness and kurtosis values, which reflect the symmetry and peakedness of the data distribution. Hair et al.[31] and Pallant[35] indicate that acceptable thresholds for skewness and kurtosis are ±3 and ±10, respectively, although there is variations in the literature. This study found that all variables demonstrated skewness and kurtosis within acceptable limits, with values below 3.00 and 7.00 for all items, suggesting that the data were approximately normally distributed. Items exhibiting both positive and negative skewness were noted, indicating the inherent variability of the constructs rather than an issue with the data. The data satisfied the assumptions of normality and were considered appropriate for further analysis using the PLS-SEM method. This study assessed multicollinearity using tolerance and the Variance Inflation Factor (VIF) as outlined by Pallant[35]. The Variance Inflation Factor (VIF) quantifies the degree of collinearity among predictors in a the model[36]. In contrast, tolerance indicates the proportion of variability in a specific independent variable that remains unexplained by the other independent variables[35]. According to Pallant[35], multicollinearity is identified when the Variance Inflation Factor (VIF) exceeds 10 or when tolerance is below 0.10.

The assessment of the measurement model shown in **Table 1** illustrates the reliability and validity of the study's construct. The model indicates that all constructs possess acceptable psychometric characteristics. The minimum factor loadings for all items range from ≥0.78 to ≥0.95, surpassing the prescribed threshold of 0.70 and demonstrating that the indicators reliably represent their respective constructs[20]. Convergent validity is additionally corroborated by the AVE values, which range from 0.688 to 0.895 and exceed the minimum threshold of 0.50 as advised by Fornell and Larcker[37]. Furthermore, all constructs demonstrate strong internal consistency, with Composite Reliability (CR) scores spanning from 0.898 to 0.962 and Cronbach's alpha values ranging from 0.848 to 0.941, both surpassing the commonly accepted threshold of 0.70[20]. Collectively, these findings affirm that the measurement model exhibits robust reliability and convergent validity, enabling subsequent analysis of the structural model to be undertaken with confidence.

Table 1. Results of the assessment of the measurement model for constructs.

Construct	Number of items	Minimum factor loading	AVE	CR	α
Green Recruitment	3	≤0.81	0.845	0.946	0.914
Green Training	3	≤0.91	0.813	0.929	0.885
Green Compensation	3	≤0.88	0.861	0.949	0.919
Green Passion	3	≤0.92	0.87	0.952	0.925
Developing Green Abilities	3	≤0.95	0.895	0.961	0.941
Social Sustainability	3	≤0.82	0.894	0.898	0.848
Environmental Sustainability	3	≤0.78	0.688	0.917	0.87
Economic Sustainability	3	≤0.83	0.787	0.962	0.941

Abbreviations: *AVE: Average variance extracted; CR: Composite reliability; α: Cronbach's alpha.*

The analysis of discriminant validity demonstrates that all constructs within the model are empirically distinct. **Table 2** illustrates that the square roots of the AVE values on the diagonal, which range from 0.829 to 1.000, exceeding the inter-construct correlations in their respective rows and columns. This indicates that each construct shares a more variance with its own indicators than with those of other constructs. This meets the Fornell–Larcker criterion for discriminant validity[37]. The low inter-construct correlations suggest no multicollinearity, confirming that each construct represents a distinct conceptual domain within the model. The results collectively indicate that discriminant validity has been established, thereby affirming the appropriateness of the measurement model for further structural analysis[20].

Table 2. Discriminant validity of constructs based on AVE square roots and inter-construct correlations.

Items	DGA	ECS	ENS	GCR	GP	GRT	GTD	SOS
Developing Green Abilities	0.946							
Economic Sustainability	1.000	0.946						
Environment Sustainability	0.382	0.383	0.829					
Green Compensation	0.262	0.264	0.349	0.928				
Green Passion	0.48	0.48	0.396	0.261	0.933			
Green Recruitment	0.083	0.083	0.057	0.014	0.067	0.924		
Green Training	0.115	0.116	0.116	0.004	0.263	0.08	0.901	
Practices Social Sustainability	0.234	0.233	0.169	0.056	0.164	0.343	0.118	0.887

The second part determined the effects of green human resource management on organisational sustainability, emphasising green commitment in manufacturing organisations through the use of structural equation modelling (SEM). This is a statistical tool employing partial least squares (PLS) via SmartPLS software, designed to assess the psychometric properties of the measurement model and estimate the parameters of the structural model illustrated in **Figure 1**.

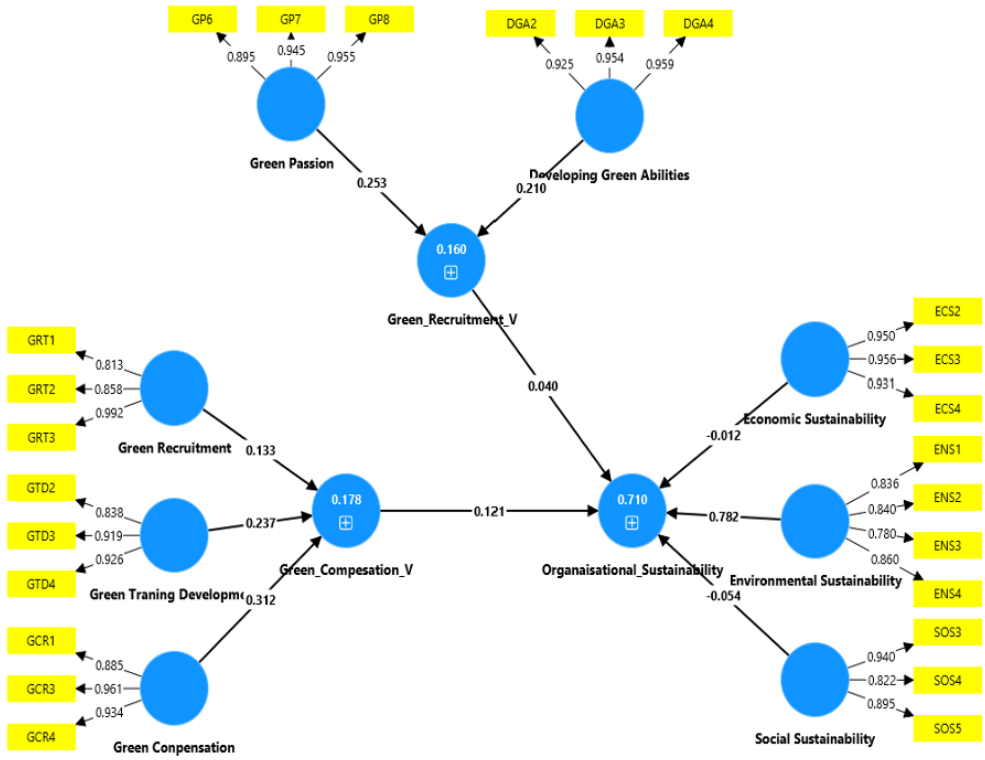

Figure 1. Measurement model showing factor loadings and average variance extracted for organisational sustainability, green recruitment and green compensation.

Figure 1 presents the full structural model that demonstrates the interconnections between green human resource management (GHRM) constructs and organisational sustainability outcomes. The results presented in **Figure 1**, indicate that Green Training Development (β = 0.312) and Green Passion (β = 0.253) have the most significant positive impact on Green Compensation. Additionally, Developing Green Abilities (β = 0.210) and Green Training Development (β = 0.237) also play a substantial role in Green Recruitment. Green Compensation (β = 0.121) has a stringer predictive effect on Organisational Sustainability than Green Recruitment (β = 0.040), suggesting that reward mechanisms are more influential than recruitment practices in determining sustainability outcomes. The structural model presented in **Figure 1** indicates that Organisational Sustainability is a strong predictor of Environmental Sustainability (β = 0.782) and Economic Sustainability (β = 0.956), with Social Sustainability (β = 0.822) following. This confirms that organisational sustainability serves as a central driver of the triple-bottom-line dimensions. All constructs show strong indicator loadings (≥ 0.78), indicating reliable measurement. The R^2 value of 0.710 for Organisational Sustainability indicates that the predictors in the model has more explanatory power. The structural model highlights the significance of green HRM practices, particulary green compensation and green training, in fostering organisational sustainability, which in turn improves environmental, economic, and social sustainability outcomes. This result suggest that employee-driven green practices have a greater impact on environmental and social outcomes than on short term economic performances in the Nigerian manufacturing context.

Table 3 provides the descriptive statistics for the constructs utilised in this study. The findings indicate that participants exhibited moderate levels in all dimensions of green human resource management (GHRM) and associated sustainability outcomes. Among the constructs of Green Human Resource Management (GHRM), Green Compensation and Reward Practices exhibited the highest mean score (M = 3.26, SD = 1.08), followed by Green Training and Development Practices (M = 3.19, SD = 1.12) and Green Passion (M = 3.00, SD = 1.23). These results suggest stronger employee perceptions regarding reward mechanisms, training initiatives, and intrinsic motivation related to environmental practices. Green Recruitment (M = 2.98, SD = 1.28) and Developing Green Abilities (M = 2.82, SD = 1.25) exhibited lower mean scores, indicating potential areas for enhancement in recruitment practices and sustainability skill development. Regarding sustainability outcomes, Social Sustainability exhibited the highest mean score (M = 2.91, SD = 1.12), followed by Environmental Sustainability (M = 2.73, SD = 1.35) and Economic Sustainability (M = 2.41, SD = 1.30). This suggests that the performance in environmental and economic sustainability is inferior to that of social sustainability within the surveyed manufacturing organisations.

Table 3. Results of the assessment of the measurement model for constructs.

Construct	Mean	Std.
Green Recruitment	2.98	1.28
Green Training and Development Practices	3.19	1.12
Green Compensation and Reward Practices	3.26	1.08
Green Passion	3.00	1.23
Developing Green Abilities	2.82	1.25
Economic Sustainability	2.41	1.3
Environmental Sustainability	2.73	1.35
Social Sustainability	2.91	1.12

4. Discussion

The findings of this study show a significant positive correlation between green training and development and organisational sustainability in manufacturing firms located in Lagos, Nigeria. The findings suggests that employees perceive green training as a critical mechanism for improving sustainability outcomes. Green training equips employees with the necessary skills to reduce waste, conserve resources and adopt sustainable production practices. These findings is consistent with Yadav and Mathew[38], who argued that green learning and development play a central role in addressing environmental challenges and embedding sustainability within organisational culture. Similarly, Oyedokun[39] posits that green training enhances employees' innovative capacity, enabling them to generate and implement eco-friendly ideas that improve environmental, economic, and social performance. Fapohunda et al.[40] highlighted that green training is particularly important in the Nigerian context where formal environmental awareness remains limited, and organisational sustainability depends heavily on employee learning and behavioural change. This study underscores the necessity for manufacturing firms, especially in Lagos, to effectively implement green training and development programs to advance sustainability objectives.

The study also demonstrates a significant positive relationship between green reward and compensation practices and organisational sustainability within manufacturing firms in Lagos, Nigeria. This indicates that reward systems are effective in motivating employees to engage in pro-environmental activities. Consistent with previous research[41-43], the findings suggest that effective green compensation systems such as automated reward, bonuses, special leave, and sabbaticals enhance employee motivation and commitment to sustainability goals. This study emphasises the importance of recognising employees' achievements in environmental initiatives, as failure to acknowledge such contributions may result in disengagement, diminished commitment, and heightened long-term motivational costs for organisations. Although green reward and compensation are identified as the least influential factor among the GHRM practices, it remain as important emotional tool in contexts characterised by economic constraints and limited regulatory enforcement. In Lagos manufacturing firms, where financial pressures are high, even a modest reward system can generate meaningful behavioural change. However, the relatively weaker effect observed in this study may reflect employees' stronger reliance in intrinsic motivation and skill development rather than purely financial incentives, which support the arguments for integrating both monetary and non-monetary incentives to sustain long term environmental engagement[41].

Interestingly, the findings reveal no significant direct relationship between green recruitment and organisational stability. This result contrasts with studies conducted in developed economies where green recruitment is often associated with improved sustainability performance. In the Nigerian context, this may be attributed to structural labour market conditions, including high performance rate, limited availability of environmentally skilled applicants and recruitment processes that emphasise skill competence rather than sustainability orientation. Consequently, green recruitment may have a limited immediate impact on sustainability unless supported by internal mechanisms such as training, leadership support and reward systems. The findings highlight the contextual nature of GHRM effectiveness and suggest that in developing economies, post-entry HR practices may be more influential than entry-stage recruitment strategies.

From a theoretical perspective, the result supports the integration of social exchange theory (SET) and the Ability-Motivation-Opportunity (AMO) framework in explaining how GHRM influences sustainability

outcomes. Social exchange theory posits that individuals aim to maximise benefits and minimise costs in their relationships[44]. When employees perceive green HR as a genuine organisational investment, they develop a sense of obligation that manifests as green commitment and green passion. The AMO framework complements this explanation by demonstrating that employees require not only motivation but also the ability and opportunity to engage in sustainable practices. Previous studies indicate that employees generally perceive organisations favourably when they emphasise sustainability and integrate eco-friendly practices into human resource policies[45]. The theory emphasises the significance of interpersonal networks in shaping employees' attitudes and behaviours, suggesting that organisational social structures can bolster pro-environmental actions, aligning with Granovetter's[46] concept of embeddedness. Based on Blau's[47] foundational work on exchange dynamics, the theory has demonstrated applicability across multiple fields remains pertinent for understanding environmental responsibility within organisations. This study enhances the understanding of how Green HRM practices, such as green recruitment and selection, green training and development, and green reward and compensation, contribute to organisational sustainability in manufacturing firms in Lagos, Nigeria. The findings indicate that integrating GHRM with the Ability–Motivation–Opportunity (AMO) framework provides a thorough explanation of the emergence of sustainable behaviour. This occurs through initiatives that enhance employees' environmental skills, motivate them with incentives, and provide opportunities to engage in sustainability activities.

From the practical perspectives, the study provides important implications for policymakers and organisational leaders. Nigerian manufacturing firms should prioritise continuous green training and development, integrate sustainability criteria into the performance appraisal system and design a reward system that recognises both individual and collective environment contributors. Government and regulatory agencies can further support these efforts by offering incentives, tax relief, and capacity building program aligned with sustainability agendas such as Vision 2030. By strengthening institutional support to GHRM, organisations can enhance environmental and social sustainability even in the context characterised by regulatory limitations and economic constraints.

Overall, this study contributes to the sustainability literature by demonstrating that in developing economies, employee-driven initiatives, particularly green training, development, and compensation, play a more decisive role in organisational sustainability than recruitment-based strategies. The findings extend existing theories by providing context-sensitive evidence from Nigeria and highlighting the. Importance of psychological and behavioural processes in achieving sustainable organisational performance.

5. Conclusion

This study aimed to examine the relationship between green human resource management and organisational sustainability in industrial organisations in Nigeria. The study was modified and utilised previously established equipment used in prior studies. This study identifies several limitations that present opportunities for future research in manufacturing organisations in Lagos, Nigeria. The sample was confined to employees of specific manufacturing firms in Lagos State, thereby restricting the generalisability of the findings to other organisations or regions in Nigeria. The cross-sectional survey design relied on participants' self-reported perceptions at a single time point, whereas longitudinal studies could more effectively capture temporal changes in green commitment, GHRM and organizational sustainability. Third, the variations in the thematic focus and variables of this study comapored with prior research may limit its capacity to reflect wider organisational contexts. The study focused solely on five large manufacturing companies: Emzor Pharmaceutical Industries, Nexans Kabelmetal, Procter & Gamble, Coca-Cola, and Cadbury Nigeria. Consequently, the findings may not represent the complete diversity of the Nigerian manufacturing sector.

Future research on Green Human Resource Management (GHRM) and organisational sustainability should employ longitudinal and mixed-method approaches to effectively capture the evolution of green attitudes and behaviours over time, rather than relying exclusively on cross-sectional perceptions. Longitudinal studies may investigate the impact of training, incentives, and recruitment strategies on the sustainability of pro-environmental behaviours. Additionally, mixed-method designs, including case studies and ethnography, could reveal underlying organisational factors such as culture, leadership, and informal norms. This study indicates a weak connection between green recruitment and organisational sustainability, highlighting the necessity for a strategic revision, especially given that many Nigerian job seekers possess limited sustainability knowledge due to inadequate environmental education in higher education institutions. Enhancing collaboration between universities and industry, incorporating sustainability into vocational and business curricula, and implementing interdisciplinary courses would cultivate graduates equipped with green values and competencies. Organisations should advance past mere symbolic green hiring practices by integrating environmental values into job criteria, onboarding processes, performance evaluations, and behavioural reinforcement mechanisms, including gamification and eco-feedback systems. Future studies should enhance generalisability by extending beyond Lagos manufacturing firms to include other states, regions, and sectors such as energy, agriculture, construction, and telecommunications, while incorporating diverse stakeholder perspectives. Researchers should utilise complementary theoretical frameworks, including the Resource-Based View, Stakeholder Theory, and Institutional Theory, to elucidate the interactions among organisational resources, stakeholder pressures, and institutional norms in shaping GHRM adoption and sustainability outcomes.

Author contributions

Conceptualization, S.R.; methodology, EO.K.; software, EO.K.; validation, S.R.; formal analysis, N.MS.; investigation, S.R.; resources, S.A.; data curation, EO.K.; writing original draft preparation, EO.K.; writing review and editing, S.A.; visualization, S.A.; supervision, S.R.; project administration, S.R.; funding acquisition, S.R. All authors have read and agreed to the published version of the manuscript.

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Conflict of interest

The authors declare no conflict of interest.

References

1. Ren S, Jackson SE, Shaw JD. The future of green HRM: Research directions and implications for practice. Hum Resour Manag Rev. 2023;33(1):100871.
2. Ajayi A, Bello R, Adeola O. Industrial pollution and public health in Lagos, Nigeria: Implications for sustainable development. Environ Sci Policy. 2023;144:50–59.
3. Chaudhary R. Green human resource management and employee green behavior: A systematic review and future research agenda. Sustain Dev. 2023;31(1):203–219.
4. Paillé P, Raineri N. Linking environmental management practices to environmental performance through employee commitment. 2015.
5. Chaudhary R. Industrial production and environmental degradation: a sustainability perspective. 2023.
6. Rajabpour E, Fathi MR, Torabi M. Analysis of factors affecting the implementation of green human resource management using a hybrid fuzzy AHP and type-2 fuzzy DEMATEL approach. Environ Sci Pollut Res. 2022;29(32):48720–48735.

7. Paillé P, Boiral O, Chen Y. Environmental citizenship behaviour and organisational sustainability outcomes. 2013.
8. Lamm E, Tosti-Kharas J, King C. Empowering employees for sustainability: the role of environmental commitment. 2015.
9. Pham NT, Tučková Z, Jabbour CJC. Greening HRM and sustainability in manufacturing firms. 2019.
10. Renwick DWS, Redman T, Maguire S. Green HRM: linking people, the environment and organisational performance. 2008.
11. Jackson SE, Seo JA. The greening of strategic HRM: integrating environmental issues into HR systems. 2010.
12. Geng Y, Mansouri SA, Aktas E. Linking green training and operational initiatives to environmental performance. 2017.
13. Tuan LT. State incentives and green human resource management adoption in industrial firms. 2022.
14. Guerci M, Carollo L. Institutionalisation of Green HRM in European companies. 2016.
15. Fapohunda TM, Adeoye O, Salami A. Green training as a catalyst for sustainability in Nigerian organisations. 2022.
16. Antwi HA, Hamza K. Understanding economic sustainability in modern production systems. 2015.
17. Khan M, Rahman F, Suleiman A. Competitive advantage through environmental initiatives in industrial organisations. 2023.
18. Murad R, Li X. Competent workforce and sustainability strategy for organisational financial performance. 2024.
19. Ren S, Tang G, Wang X. Limits of economic sustainability under natural resource over-exploitation. 2023.
20. Hair JF, Hult GTM, Ringle CM, Sarstedt M. A primer on partial least squares structural equation modeling (PLS-SEM). 2nd ed. Thousand Oaks, CA: SAGE Publications; 2019.
21. Kellner A, Peeters J, Simmons P. Environmental responsibility and sustainable organisational practices. 2019.
22. Akinola O, Adeoye A, Salami B. Greening human resource management practices in the global business context. 2020.
23. Shah K. Environmental degradation and organisational responses. 2019.
24. Aguinis H, Glavas A. Business operations, stakeholder engagement and social sustainability. 2023.
25. Eweje G, Amaeshi K, Idemudia U. Social development challenges and their effects on business performance. 2022.
26. Riaz Z, Ahmad M, Khan S. Corporate social responsibility as a measure of social sustainability in organisations. 2023.
27. Rehman A, Ali M, Qureshi S. Obligations to social programs and organisational responsibility. 2022.
28. Song H, Park J, Kim M. Corporate obligations to society and social sustainability outcomes. 2023.
29. Creswell JW, Creswell JD. Research design: Qualitative, quantitative, and mixed methods approaches. 5th ed. Thousand Oaks, CA: SAGE Publications; 2018.
30. Henseler J, Ringle CM, Sarstedt M. Using PLS path modeling in new technology research. Ind Manag Data Syst. 2009;109(7):1023–1042.
31. Hair JF, Matthews L, Matthews R, Sarstedt M. Sustainable business research and practices. 2019.
32. Teng X, Wu J, Huang H. Green differentiation and environmental branding effects. 2023.
33. Ahmad S. Green human resource management: Policies and practices. Cogent Business & Management. 2015;2(1):1030817. doi:10.1080/23311975.2015.1030817
34. Atmaca AC, Kiray SA, Pehlivan M. Sustainable development from past to present. In: Shelley M, Kiray SA, editors. Education Research Highlights in Mathematics, Science and Technology. ISRES Publishing; 2018. p. 186–214. ISBN: 978-605-81654-3-4.
35. Pallant J. SPSS Survival Manual. 6th ed. Open University Press; 2017.
36. Field AP. Discovering Statistics Using SPSS. Sage Publications; 2005.
37. Fornell C, Larcker DF. Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research. 1981;18(1):39–50. doi:10.1177/002224378101800104
38. Yadav P, Mathew J. Green learning and development practices for organisational sustainability. 2023.
39. Oyedokun T. Green training and sustainability performance in organisations. 2019.
40. Fapohunda TM, Adeoye O, Salami A. Environmental and social sustainability in HRM practices. 2022.
41. Chen X, Li Y, Zhang W. Rewards and motivation for pro-environmental behaviour in the workplace. 2023.
42. Liaquat S, Hamid F, Malik M. Green compensation strategies and employee sustainability performance. 2023.
43. Olanipekun A. Green rewards as drivers of organisational sustainability. 2020.
44. Colvin M, Carpenter NC, Green JP. Social exchange mechanisms and workplace decision-making. 2020.
45. Awan HR, Ahmed F, Shahzad K. Organisational sustainability and eco-friendly HRM practices. 2021.
46. Granovetter M. Economic action and social structure: the problem of embeddedness. Am J Sociol. 1985;91(3):481–510.
47. Blau PM. Exchange and power in social life. New York: Wiley; 1964.
48. Salas-Vallina A, Pasamar S, Donate MJ. Person–organization fit and organizational citizenship behaviour: The mediating role of job satisfaction and organizational commitment. Pers Rev. 2021;50(2):346–364.
49. Yong JY, Yusliza MY, Ramayah T, Fawehinmi O. Nexus between green intellectual capital and green human resource management practices: A moderated mediation model. J Clean Prod. 2019;215:123–135.

50. Yu W, Chavez R, Feng M, Wong CY. Green human resource management and environmental cooperation: An ability–motivation–opportunity and social exchange theory perspective. Int J Prod Econ. 2019;219:224–235.
51. Cropanzano R, Mitchell MS. Social exchange theory: An interdisciplinary review. J Manage. 2005;31(6):874–900.
52. Rupp DE, Shao R, Thornton MA, Skarlicki DP. Applicants' and employees' reactions to corporate social responsibility: The moderating effects of first-party justice perceptions and moral identity. J Manage. 2013;39(1):91–123.
53. Pham NT, Tučková Z, Jabbour CJC. Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behaviour? Tour Manag. 2019;72:386–399