



## **EFFECT OF GREEN HUMAN RESOURCE MANAGEMENT PRACTICES ON ENVIRONMENTAL PERFORMANCE AMONG MANUFACTURING SMES IN KATSINA STATE, NIGERIA**

**AMINU ASHIRU KOFAR SAURI**

Department of Business Management, Federal University Dutsin-Ma,  
Katsina State, Nigeria

**SADIQ SULEIMAN ABUBAKAR**

Department of Business Management, Federal University Dutsin-Ma,  
Katsina State, Nigeria

**MUNIR SHEHU MASHI**

Department of Business Management, Federal University Dutsin-Ma,  
Katsina State, Nigeria

### **ABSTRACT**

*This study examines the impact of various green HR practices on environmental performance among 141 SMEs in Katsina. Multiple Linear Regression (MLR) in SPSS was used to analyze the data. The regression analysis reveals that Green Training, Green Employee Acquisition, and Green Health and Safety have a significant impact on enhancing environmental performance. This supports the Resource-Based View (RBV) theory, which emphasizes the importance of unique and valuable resources. Conversely, Green Discipline Management did not show a significant impact, indicating the need for tailored approaches to green initiatives. These findings underscore the strategic value of investing in green training and recruitment while highlighting the necessity for robust health and safety measures. The study's limitations, including its cross-sectional design and potential self-reporting biases, suggest avenues for future research further to explore the dynamics of green HR practices in SMEs.*

**Keywords:** Environmental Performance, Green Discipline Management, Green Training, Green HR Practices, Green Health and Safety

### **INTRODUCTION**

Small and medium-sized enterprises (SMEs) are crucial to the global economy, particularly in emerging nations like Nigeria. SMEs, characterized by their comparatively small workforce and turnover, are the backbone of economic activity and play a vital role in creating jobs, generating revenue, and reducing poverty (Raji et al., 2024). Over 80% of industrial jobs and roughly 48% of the country's GDP are held by SMEs in Nigeria (Alarape, 2013). SMEs are crucial drivers of sustainable development, as they promote innovation, entrepreneurship, and regional development, and are important from an economic perspective (Ogbuanu & Okoli, 2020).

SMEs encounter a multitude of obstacles, including environmental sustainability. Due to its rapid industrialization and lax regulatory frameworks, Nigeria, like many other growing economies, struggles with



environmental degradation (Madrid-Guijarro & Duréndez, 2024). Innovative strategies that incorporate environmental considerations into corporate operations are needed to address these issues. In this situation, green human resource management (GHRM) becomes essential. According to Renwick et al. (2013), GHRM entails integrating environmental considerations into HR procedures, including hiring, training, and performance reviews. SMEs in Nigeria can enhance their environmental performance, reduce their ecological footprint, and contribute to sustainable development goals by adopting GHRM practices (Madrid-Guijarro & Duréndez, 2024).

This study looks at how SMEs in Katsina State, Nigeria, could improve their environmental performance by implementing green HRM practices. The northern Nigerian state of Katsina serves as a microcosm of the opportunities and challenges that SMEs face in the nation's diverse economic environment. This study aims to conduct empirical research on how environmental sustainability can be integrated into HR strategies to promote both economic growth and ecological stewardship by examining the adoption and effects of GHRM practices in SMEs (Ekundayo et al., 2020).

### **Problem Statement**

Nigeria has undergone rapid industrialization, leading to significant environmental issues, including pollution, resource depletion, and ecological degradation. Due to their limited adoption of sustainable practices, SMEs, which are essential to the country's economic growth, significantly contribute to these environmental challenges (Omofonmwan & Osa-Edoh, 2008). The environmental performance of small and medium-sized enterprises (SMEs) in Katsina State remains a significant concern, as many of these businesses lack the necessary frameworks to mitigate their ecological impact (Galadanchi, 2022). The circumstances mentioned above highlight the pressing need to investigate GHRM methodologies in order to enhance environmental sustainability in this industry.

GHRM practices such as green training, green rewards, green employee involvement, green employee acquisition, green health and safety, and green discipline management hold significant potential in addressing these environmental challenges. By teaching staff members about sustainable practices, green training helps companies develop an environmentally conscious culture (Khan & Muktar, 2024). Green rewards link employee interests with environmental goals by providing incentives for eco-friendly conduct (Khan & Muktar, 2024). According to Daily et al. (2007), green employee involvement ensures that workers at all levels participate in sustainability activities, thereby increasing their commitment and the overall effectiveness of the programs.

It is imperative to examine how these GHRM practices are being implemented and their impact on SMEs in Katsina State for several reasons. Firstly, it



provides a blueprint for other areas addressing comparable issues by highlighting the benefits and practical challenges of implementing green HR practices in a growing economy (Rana & Arya, 2024). Second, legislators and business executives may create more effective sustainability laws and programs tailored to the specific needs of SMEs by gaining a deeper understanding of the role that GHRM plays in enhancing environmental performance (Rana & Arya, 2024). Ultimately, by highlighting the intersection of environmental sustainability and human resource management as a crucial field for both scholarly and applied research, our work contributes to the broader conversation on sustainable development (Renwick et al., 2013). The study aims to develop a balanced approach to environmental stewardship and economic growth in Nigeria's SME sector by addressing these key aspects. Therefore, this study seeks to examine the extent to which GHRM practices influence environmental performance among SMEs in Katsina State.

## **LITERATURE REVIEW**

### **Environmental Performance**

Despite their small scale, Small and Medium Enterprises (SMEs) collectively contribute significantly to environmental consequences, which has led to an increased focus on the environmental performance of SMEs in recent years. Research indicates that while large businesses can afford and are under legal pressure to implement sustainable practices, SMEs encounter distinct obstacles and opportunities in this domain. For example, SMEs' adoption of environmental management systems (EMS) is frequently hindered by inadequate financial resources, lack of experience, and perceived high costs, according to a study by Adu et al. (2023). SMEs can, however, be flexible and creative in their approach to sustainability; they frequently benefit from stronger linkages with stakeholders and local communities, which can encourage eco-friendly behavior. SMEs are becoming increasingly environmentally conscious and taking proactive steps despite these obstacles. According to a 2015 European Commission poll, a sizable percentage of SMEs are implementing resource efficiency measures in response to market and regulatory pressures.

### **Green Human Resource Management Practices (GHRMPS)**

Green human resource management practices (GHRMPS) are the effective execution of environmental strategies and policies that depend on human resources. Employee orientation in environmental practices and activities is therefore necessary for the successful integration of environmental thinking into a company's operations and goals. Since Jabbour et al. (2010) clarified the significance of human resource practices for efficient environmental management and achieving improved environmental performance in enterprises, GHRM has become a rapidly developing area of study. To achieve the firm's sustainability goals, GHRM incorporates environmental



considerations into its HR policies and procedures, promoting eco-friendliness among personnel.

According to Acquah et al. (2020), GHRMPS refers to the human resource policies and practices that support businesses in implementing their environmental policies and strategies. These policies aim to reduce waste, prevent pollution, and achieve sustainable energy and natural resource use, all of which improve a company's performance and reputation. Several human critical success factors, including green pay, green employee acquisition, green education and training, green teams, green employee involvement, green performance evaluation and rewards, and green discipline management, have been adopted by many manufacturing firms in an effort to improve employees' green performance and help them meet their sustainability goals.

### **Empirical Review**

Numerous empirical studies have examined the impact of green training on the environmental performance of SMEs. According to research by Jabbour and Santos (2008) and Tang et al. (2023), employees' environmental performance improves when they participate in green training programs, as they become more aware of and proficient in environmental issues (Sypniewska, 2023). Such training could be crucial for SMEs in Katsina State, Nigeria, empowering them to adopt sustainable practices and lessen their environmental impact. For example, research conducted by Sypniewska (2023) and Khan and Muktar (2024) demonstrated that companies implementing extensive green training programs reported improved operational efficiencies and better compliance with environmental requirements.

There is also ample evidence to support the link between environmental performance and green awards. Research suggests that providing green awards to employees can encourage them to adopt eco-friendly practices. Sypniewska (2023) discovered that there is typically a noticeable increase in the environmental performance of SMEs that adopt green reward programs. Introducing affordable green rewards could have a significant positive impact in Katsina State, Nigeria, where small and medium-sized enterprises (SMEs) may have limited resources. Studies such as Sypniewska (2023) provide empirical data in favour of the idea that rewarding green actions with both material and intangible rewards fosters a sustainable culture within firms. Acquiring, involving, and evaluating green employees are essential elements in improving environmental performance (Sypniewska, 2023). Hiring staff members with green competencies and incorporating them into decision-making processes results in more creative and successful environmental solutions (Sypniewska, 2023). SMEs in Katsina State that concentrate on recruiting and involving environmentally conscious staff members stand to gain new insights and a stronger dedication to environmental objectives



Frequent performance reviews that incorporate environmental standards ensure staff members remain committed to sustainability goals. Furthermore, it has been demonstrated that green discipline management and health and safety procedures (Acquah et al., 2020; Sypniewska, 2023) make workplaces safer and more environmentally friendly, which directly improves the environmental performance of SMEs.

Despite extensive international studies on GHRM, there is limited empirical evidence from the Nigerian SME context, particularly in Katsina State

### **Theoretical Review**

The Resource-Based View (RBV) of the firm is a pertinent theory that can be applied to theories concerning the relationship between green practices and environmental performance. According to Barney's (1991) research, organizations can achieve a lasting competitive advantage by utilizing distinctive and valued resources or competencies that pose challenges for competitors to replicate or replace. The implementation of green practices, such as employee acquisition, involvement, health and safety, discipline management, and employee appraisal, in the context of SMEs in Katsina State, Nigeria, can be considered a valuable resource that improves their environmental performance.

According to the RBV, because these green practices enhance the firm's internal capabilities and resources, they may lead to improved environmental performance. Green incentives and training, for instance, can improve staff awareness of environmental sustainability and motivation, which may lead to enhanced environmental practices within the SME. Similarly, staff incentives and performance reviews can be aligned with environmental goals through green employee involvement and appraisal, ultimately enhancing environmental performance (Barney, 1991).

### **METHODOLOGY**

The population of this study comprised of all the 320 registered manufacturing SMEs operating in Katsina state, Nigeria obtained from the 2017 survey by SMEDAN and NBS registered in Katsina State. The managers and owners of these SMEs made up the study's respondents. The study employed a simple random sampling technique to ensure that every respondent had an equal chance of being selected. The study used a sample of 178 manufacturing SMEs arrived at using Dillman et al. (2014) method. Out of the 178 questionnaire distributed, 141 were returned and used for the analysis. The sample size is adequate for multiple regression (e.g., rule of thumb: 10-15 cases per predictor).

### **Measures**

Environmental performance is measured using five items adopted from Melnyk et al. (2003). This study adapted the questions from Jabbour et al. (2010) and Shaumya and Arulrajah (2016) to measure the constructs of green



human resource management practices, each with three items. Furthermore, this study used the 5-point Likert Scale (1 = strongly disagree, 5 = strongly agree).

**Table 1: Measurement of Constructs**

<b>Construct</b>	<b>Source(s)</b>	<b>Measurement Scale</b>
Environmental Performance	Melnyk et al. (2003); Daily et al. (2007)	5-point Likert Scale (1 = Strongly Disagree, 5 = Strongly Agree)
Green Human Resource Management Practices	Jabbour et al. (2010); Shaumya & Arulrajah (2016)	5-point Likert Scale (1 = Strongly Disagree, 5 = Strongly Agree)

## **RESULTS AND DISCUSSION**

### **Results**

#### **Demographic Characteristics of the Respondents**

The demographic characteristics of respondents in the study of SMEs in Katsina State, as presented in Table 2, reveal a predominantly male population (92.18%), with the majority of participants aged between 36 and 45 years (42.55%). Most respondents hold either a secondary school certificate (29.07%) or a degree/HND (35.46%), indicating a diverse educational background. The Table shows that the majority are business owners (78.72%), with over 71% of SMEs operating for less than five years, highlighting the prevalence of youthful entrepreneurs. This demographic profile suggests SMEs are largely male-driven and youth-oriented, which may affect sustainability orientation and decision-making styles.



**Table 2: Demographic Characteristics of Respondents (n-141)**

Characteristics	Frequency	Percentage
<b>Gender</b>		
Male	130	92.18
Female	11	7.82
<b>Age</b>		
18-25	5	3.55
26-35	25	17.73
36-45	60	42.55
46-55	51	36.17
<b>Qualification</b>		
SSCE	41	29.07
Diploma/NCE	30	21.27
Degree/HND	50	35.46
Masters	20	14.20
<b>Current Position</b>		
Owner	111	78.72
Manager	30	21.28
<b>Years of Operation</b>		
Below 5 years	101	71.63
5-10 Years	17	12.33
10-20 Years	21	14.90
Over 20 Years	2	1.14

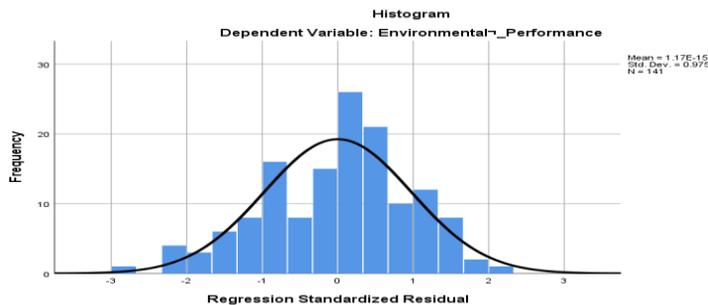


Figure 1: normal curve

The histogram with a superimposed normal curve indicates that the residuals from the regression analysis of Environmental Performance are approximately normally distributed, suggesting that the assumptions of linear regression are reasonably met (Tabachnick & Fidell, 2013). The collinearity statistics in Table 5 indicate acceptable levels of multicollinearity among the predictors, with tolerance values close to 1 and VIF values below 3 (Tabachnick & Fidell, 2013).



In this study, the assumption of homoscedasticity was achieved, as the variance of the residuals remained constant across all levels of the independent variables. Similarly, the assumption of independence of errors was satisfied, indicating that the residuals were not correlated and each observation contributed unique information to the regression model (Tabachnick & Fidell, 2013).

**Descriptive Statistics**

The descriptive statistics indicate that Green Health and Safety has the highest mean score (M = 3.93), suggesting it is the most practiced green HRM activity among the respondents. In contrast, Green Rewards has the lowest mean score (M = 2.49), indicating limited implementation in organizations. Overall, the mean values reflect moderate adoption of green HRM practices and environmental performance, with relatively small standard deviations showing consistency in responses

**Table 3: Descriptive Statistics of the Variables**

<b>Construct</b>	<b>Mean</b>	<b>Std. Deviation</b>
Green Training	3.5160	0.84262
Green rewards	2.4854	0.74197
Green employee involvement	2.7466	0.69783
Green employee acquisition	3.1636	0.98660
Green health and safety	3.9297	0.70035
Environmental Performance	3.1677	1.05734
Green discipline management	3.2021	0.95391
Green employee appraisal	2.9326	0.97290

**Correlation**

Based on the correlation results, Environmental Performance shows a moderate positive correlation with Green Employee Acquisition (r = 0.542) and a weak positive correlation with Green Health and Safety (r = 0.309), suggesting that these practices are associated with better environmental outcomes, though statistical significance (p-values) is not reported here. In contrast, it shows weak negative correlations with Green Training (r = -0.034), Green Employee Involvement (r = -0.111), and Green Discipline Management (r = -0.170), indicating little to no meaningful relationship. Notably, Green Employee Appraisal and Green Discipline Management are strongly correlated (r = 0.747), reflecting a strong positive relationship, but again, without p-values, significance cannot be determined.



**Table 3: Correlation Matrix**

Construct	1	2	3	4	5	6	7	8
Environ Perf								
Green Training	-0.03							
Green Rewards	0.106	-0.39						
Green Empl Invol	-0.11	0.08	-0.05					
Green Empl Acqui	0.54**	-0.25	0.04	-0.14				
Green Health & Safet	0.31*	-0.03	0.04	-0.02	0.22			
Green Discip Mgt	-0.17	0.12	0.10	0.14	-0.26	-0.23		
Green Empl Appr	0.081	0.07	0.11	0.03	-0.01	-0.04	0.747***	

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

The model summary table 4 provides a statistical understanding of the regression analysis where the dependent variable is Environmental Performance, and the predictors are various green HR practices. The R-value of 0.614 indicates a moderate to strong correlation between the predictors and the dependent variable. The R Square value of 0.376 suggests that approximately 37.6% of the variance in Environmental Performance can be explained by the predictors included in the model. The Adjusted R-Square value of 0.344, slightly lower than the R-Square, adjusts for the number of predictors in the model. The F-change value of 11.471, with a significance level (Sig. F-change) of 0.000, indicates that the model is statistically significant. The Durbin-Watson statistic of 2.081 indicates that there is no significant autocorrelation in the model's residuals.

**Table 4: Model Summary<sup>b</sup>**

Model	R	R <sup>2</sup>	Adj R <sup>2</sup>	Std. Error	Sig.	Durbin-Watson
1	.614 <sup>a</sup>	0.376	0.344	0.85661	0.000	2.081

- a. Predictors: (Constant), Green employee appraisal, Green employee acquisition, Green rewards, Green employee involvement, Green health and safety, Green Training, Green discipline management
- b. Dependent Variable: Environmental Performance

The ANOVA table 5 indicates that the regression model, which includes green HR practices as predictors, is statistically significant ( $F(7, 133) = 11.471$ ,  $p < 0.001$ ), explaining a significant portion of the variance in Environmental Performance.

**Table 5: ANOVA<sup>a</sup>**

Model 1	Sum of Squares	Df	Mean Square	F	Sig.
Regression	58.923	7	8.418	11.471	.000 <sup>b</sup>
Residual	97.593	133	0.734		
Total	156.516	140			

- a. Dependent Variable: Environmental Performance



- b. Predictors: (Constant), Green employee appraisal, Green employee acquisition, Green rewards, Green employee involvement, Green health and safety, Green Training, Green discipline management

**Table 6: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		$\beta$	Std. Error			
1	(Constant)	-0.506	0.812		-0.622	0.535
	Green Training	0.195	0.097	0.155	2.002	0.047
	Green rewards	0.193	0.108	0.135	1.793	0.075
	Green employee involvement	-0.043	0.106	-0.029	-0.408	0.684
	Green employee acquisition	0.521	0.082	0.486	6.329	0.000
	Green health and safety	0.250	0.110	0.166	2.282	0.024
	Green discipline management	-0.210	0.129	-0.190	-1.628	0.106
	Green employee appraisal	0.228	0.119	0.210	1.912	0.058

Table 6 provides detailed insights into the regression analysis for predicting environmental performance based on various green HR practices. The unstandardized coefficients indicate the expected change in Environmental Performance for a one-unit change in each predictor, while the standardized coefficients (Beta) show the relative importance of each predictor. "Green employee acquisition" ( $B = 0.521, p < 0.001$ ) has the most substantial positive impact on Environmental Performance, followed by "Green health and safety" ( $B = 0.250, p = 0.024$ ) and "Green Training" ( $B = 0.195, p = 0.047$ ). "Green rewards" ( $B = 0.193, p = 0.075$ ) and "Green employee appraisal" ( $B = 0.228, p = 0.058$ ) also positively influence Environmental Performance, although their effects are not statistically significant at the 0.05 level. Conversely, "Green discipline management" ( $B = -0.210, p = 0.106$ ) and "Green employee involvement" ( $B = -0.043, p = 0.684$ ) have negative but non-significant impacts.

**Discussion**

Hypothesis 1, which postulates a positive link between Green Training and Environmental Performance, exhibits a significant T value (2.002). This finding is consistent with earlier studies that emphasize the importance of training in supporting environmental activities within businesses (Sypniewska, 2023). This research highlights the importance of environmental



capabilities, such as training programs, in generating long-term competitive advantages through enhanced employee proficiency in green practices, as seen from an RBV perspective.

Second, Hypothesis 3 reveals a significant positive relationship between Green Employee Acquisition and Environmental Performance. This result aligns with RBV's emphasis on obtaining and utilizing valuable resources and competencies, including people who care about the environment, to improve business performance (Barney, 1991). Previous research has also emphasized the strategic benefit of employing individuals with a strong commitment to sustainability, as this can have a favorable impact on environmental outcomes, such as creativity and cost-effectiveness. Thirdly, Hypothesis 6 on Green Discipline Management fails to attain statistical significance. Importantly, Hypothesis 5 on Green Health and Safety demonstrates a significant positive link. These contradictory findings suggest that different green efforts may impact environmental outcomes in varying ways, possibly depending on contextual circumstances or specific implementation techniques (Jabbour & Santos, 2008; Khan & Muktar, 2024).

### **Theoretical and Practical Implications**

This research's theoretical implications highlight the crucial role that green training, green hiring practices, and green health and safety play in enhancing environmental performance. These findings are consistent with the Resource-Based View (RBV), which emphasizes the strategic importance of distinct and non-replicable resources and capabilities. In line with RBV, green training represents a firm-specific capability that enhances value and is hard to replicate.

SMEs should prioritize employee acquisition and training in sustainability initiatives. Green training develops firm-specific knowledge that is socially complex and hard to imitate, aligning with RBV's criteria for sustained competitive advantage. his study shows that targeted investment in green hiring and training improves environmental efficiency, reduces compliance risk, and boosts reputation among stakeholders

### **Conclusion**

The study was conducted among SMEs in Katsina and provides insightful information on how various green HR practices impact environmental performance. The results show that green employee acquisition, green training, and green health and safety all significantly improve performance. This is consistent with the resource-based view (RBV), which emphasizes the value of special and valued resources. Green efforts, however, appear to require a customized strategy, as evidenced by the limited impact demonstrated by methods like Green Discipline Management. These findings underscore the importance of making strategic investments in green hiring and training to promote sustainability and gain a competitive advantage.



Notwithstanding certain limitations, including the use of cross-sectional data and potential biases in self-reporting, this study contributes to the growing body of research on green HR practices and their outcomes. Future studies could explore the mediating role of organizational culture or conduct comparative studies across Nigerian states to further validate these findings.

### **Recommendations**

1. Government and SME managers should collaborate to ensure robust health and safety measures that go beyond compliance.
2. Given the significant positive effect of green training on environmental performance, managers should. It is recommended that SME managers allocate resources towards ongoing green training programs to enhance employee skills and knowledge related to sustainability practices. This can improve overall environmental performance.
3. SME managers should focus on hiring individuals with a strong commitment to environmental sustainability. This can drive innovation and efficiency within the organization.
4. SME managers should ensure that health and safety protocols are not only compliant with regulations but also exceed basic requirements to promote a safe and productive Working environment.
5. SME managers should conduct regular assessments of green discipline management practices to determine their effectiveness and make necessary adjustments to better align with environmental goals and capabilities.

### **Limitation**

The study's primary drawback is its reliance on cross-sectional data, which makes it more challenging to determine a causal relationship between green HR practices and environmental success. The study's breadth and sample size may also limit the extent to which the results can be applied to various businesses and geographical areas.

Furthermore, because the study primarily examines direct links, it may overlook moderating or mediating factors that could provide a more comprehensive understanding of how green practices impact performance. Self-reported data may also have biases, as respondents may exaggerate the value of their green activities. Subsequent investigations may address these constraints by employing longitudinal designs, expanding the sample's diversity, and incorporating objective performance indicators and more comprehensive analytical frameworks.

In addition, the study relied on adapted instruments whose psychometric properties, though previously validated, may vary across cultural or regional contexts



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