



GREEN TRAINING AND DEVELOPMENT PRACTICES AND EMPLOYEE PERFORMANCE IN THE AKWA IBOM STATE MINISTRY OF ENVIRONMENT AND PETROLEUM RESOURCES, NIGERIA

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Abstract

The increasing demand for environmentally sustainable practices and the need to improve employee efficiency in public sector organizations have raised concerns about the role of green training and development in enhancing employee performance. Consequently, this study examined the effect of green training and development practices and employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources, Nigeria. Specifically, the study assessed the effects of environmental awareness and green skills development on employee performance. The study was anchored on the Human Capital Theory and adopted a survey research design. A sample size of 160 respondents was drawn from a population of 272 employees using the Krejcie and Morgan Sample Size Determination Table. Data were collected through a structured questionnaire administered to employees of the ministry. The data collected were analyzed using both descriptive and inferential statistics. Descriptive statistics, including frequency counts and simple percentages, were used to summarize and analyze the data, while inferential statistics, specifically simple and multiple regression techniques, were employed to test the formulated hypotheses. The findings revealed that environmental awareness and green skills development, both individually and jointly, had statistically significant positive effects on employee performance, although the magnitude of their effects varied. The study concluded that sustained investment in green training initiatives, environmental awareness programmes, and green skills development is essential for enhancing employee performance and promoting efficiency in environmental management practices within the ministry. Based on these findings, the study recommended that the management of the Akwa Ibom State Ministry of Environment and Petroleum Resources should institutionalize continuous environmental awareness and green skills development programmes through regular training, workshops, seminars, sensitization campaigns, and on-the-job capacity-building initiatives. Furthermore, environmental sustainability practices should be integrated into staff orientation programmes, performance evaluation systems, and daily work activities in order to improve employees' efficiency, productivity, and overall job performance.

Keywords: Green Training and Development, Environmental Awareness, Green Skills Development, Employee Performance

1. Introduction

The increasing global concern over environmental degradation, climate change, and unsustainable resource utilization has significantly influenced organizational practices across both private and public

sectors. Governments and institutions are progressively integrating environmentally responsible policies into their operations, giving rise to the concept of Green Human Resource Management. Within this framework, green training and development has emerged as a

critical strategy for equipping employees with the knowledge, skills, and attitudes necessary to support environmental sustainability initiatives.

Green training and development refers to structured organizational efforts aimed at enhancing employees' environmental consciousness and building competencies that promote eco-friendly practices in the workplace (Azizie *et al.*, 2025). It includes several dimensions, notably environmental awareness and green skills development, both of which play a vital role in shaping employee behavior and improving overall organizational performance.

Environmental awareness involves educating employees about environmental issues, sustainability principles, and the ecological impact of their actions. It fosters a sense of responsibility and encourages pro-environmental behavior among employees (Divinagracia *et al.*, 2024; Zuliana & Widodo, 2025). In the context of the Akwa Ibom State Ministry of Environment and Petroleum Resources, where responsibilities include environmental protection, waste management, and water resource conservation, heightened environmental awareness among employees is essential. Employees who are well-informed about environmental challenges are more likely to align their work practices with sustainability goals, thereby enhancing efficiency and effectiveness in service delivery (Tejasmayee *et al.*, 2025).

Green skills development, on the other hand, focuses on equipping employees with the practical competencies required to implement environmentally sustainable practices (Das & Dash, 2023). These skills may include waste reduction techniques, energy efficiency management, pollution control measures, and sustainable resource utilization. Green skills enable employees not only to understand environmental policies but also to effectively translate them into actionable outcomes (Karachalios & Kotsios, 2023). In public institutions such as the Ministry of Environment and Petroleum Resources, the development of such skills is crucial for achieving policy objectives and ensuring compliance with environmental regulations.

In Akwa Ibom State, environmental challenges such as improper waste disposal, water pollution, and the effects of urbanization underscore the need for a workforce that is both environmentally aware and technically skilled in sustainable practices (Abonyi *et al.*, 2026). While the Ministry of and Environment Petroleum Resources plays a pivotal role in addressing these challenges, the extent to which green training and development contributes to employee performance remains underexplored.

Employee performance, particularly in the public sector, is often evaluated based on efficiency, service quality, compliance with regulations, and the ability to achieve organizational goals (Edem *et al.*, 2025). There is a growing recognition that integrating environmental considerations into employee roles can enhance performance by promoting innovation, reducing operational costs, and improving public trust (Abdelhakim, 2024).

However, despite the recognized importance of green training and development, many public sector organizations in developing countries, including Nigeria, face challenges such as inadequate training programs, limited funding, and low prioritization of environmental capacity building (Dangana *et al.*, 2025). Although there is a growing body of literature on green human resource practices, most existing studies have largely focused on private sector organizations and developed economies, with limited attention given to public sector institutions in developing contexts. In addition, prior studies often treat green training as a unified construct, without clearly distinguishing between environmental awareness and green skills development. This creates a gap in understanding how these specific dimensions individually influence employee performance. This study departs from previous research by focusing on a public sector ministry in Nigeria and by examining environmental awareness and green skills development as distinct components of green training and development in relation to employee performance.

Therefore, this study seeks to examine the effect of green training and development practices on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources, with focus on environmental awareness and green skills development.

The primary objective of this study was to examine the effect of green training and development practices on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources. Specific objectives were to:

- i. assess the effect of environmental awareness on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.
- ii. evaluate the influence of green skills development on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.
- iii. determine the combined effect of environmental awareness and green skills development on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.

1.3 Research Hypotheses

H₀₁: Environmental awareness has no significant effect on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.

H₀₂: Green skills development has no significant effect on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.

H₀₃: Environmental awareness and green skills development have no significant combined effect on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.

2. Literature Review

2.1 Conceptual Review

Green Training and Development

Green training and development is a structured approach that equips employees with the knowledge,

skills, and attitudes needed to support environmental sustainability within an organization. It focuses on educating workers about eco-friendly practices such as energy conservation, waste reduction, recycling, pollution control, and efficient use of natural resources (Das & Dash, 2023; Abdulameer and Ibrahim, 2025). Through workshops, seminars, online courses, and practical activities, employees learn how their actions can reduce environmental impact and improve organizational performance.

This approach also promotes awareness of environmental policies, sustainable technologies, and corporate social responsibility. Green training encourages innovation by motivating employees to develop environmentally friendly solutions and adopt sustainable work habits (Malhotra & Kaur, 2025). In addition, it strengthens employee commitment, improves organizational reputation, and helps companies comply with environmental regulations (Pham *et al.*, 2019).

Green development goes beyond training by fostering continuous growth in sustainable practices and integrating environmental goals into career development and organizational culture. As businesses increasingly prioritize sustainability, green training and development have become essential for improving productivity, reducing operational costs, and ensuring long-term environmental and economic sustainability (Barakat *et al.*, 2023).

Environmental Awareness

Environmental awareness is the understanding of how human activities affect the natural world and the responsibility to protect it for future generations. It encourages individuals and communities to recognize environmental challenges such as pollution, deforestation, climate change, poor waste disposal, and loss of biodiversity (Pareek *et al.*, 2024; Pankaj, 2025). Through environmental awareness, people learn the importance of conserving natural resources like water, forests, and energy. It also promotes sustainable practices such as recycling, tree

planting, proper sanitation, and the use of eco-friendly products (Fayyaz *et al.*, 2023). Governments, schools, organizations, and the media play vital roles in educating the public about environmental protection. Increased awareness inspires positive actions that reduce environmental damage and improve public health (Ariani *et al.*, 2024). Every individual has a role to play by keeping surroundings clean, avoiding waste, and supporting conservation efforts. Creating environmental awareness is essential for building a healthier, safer, and more sustainable planet for present and future generations.

Green Skills Development

Green skills development refers to the process of equipping individuals with the knowledge, practical abilities, and values needed to promote environmental sustainability and support green industries (Wasim *et al.*, 2026). As the world faces challenges such as climate change, pollution, and resource depletion, the demand for workers with green competencies continues to grow (Karachalios & Kotsios, 2023). These skills include renewable energy technology, sustainable agriculture, waste management, energy efficiency, and environmentally responsible business practices. Green skills also encourage innovation, critical thinking, and responsible decision-making in everyday activities and workplaces (Rosenberg, 2025).

Furthermore, green skills development creates employment opportunities and prepares individuals for emerging careers in environmentally friendly sectors (OECD/Cedefop, 2014). Educational institutions, governments, and organizations contribute by integrating sustainability into training and vocational programs. This not only improves productivity and economic growth but also protects natural resources for future generations (Jayaprakash, 2024). Therefore, investing in green skills development is essential for achieving sustainable development, reducing environmental degradation, and building a healthier, more resilient society.

Employee Performance

Employee performance is the degree to which an employee effectively fulfills assigned responsibilities and contributes to organizational goals. It reflects the quality, efficiency, reliability, and consistency of an employee's work, as well as their ability to collaborate with others, solve problems, and adapt to workplace demands (Triansyah *et al.*, 2023). High employee performance demonstrates competence, commitment, and professionalism, enabling organizations to achieve productivity and long-term success.

Organizations assess employee performance through appraisals, feedback, target achievement, and behavioral evaluations (Kiruthiga, 2025). These assessments help identify strengths, improve weaknesses, and support employee development through training and motivation. Factors such as leadership, work environment, compensation, job satisfaction, and access to resources greatly influence performance levels (Murwijaya & Syamsunasir, 2025).

Effective employee performance benefits both employees and organizations. Employees gain opportunities for career growth and recognition, while organizations experience increased productivity, improved customer satisfaction, and stronger workplace morale (Marisakthi & Kayal Vizhi, 2026). Therefore, maintaining high performance standards is essential for continuous improvement, innovation, accountability, and the overall success of any organization.

2.2 Theoretical Framework

This study anchored on Human Capital Theory developed by Gary Becker in 1964. Theory posits that individuals' knowledge, skills, and competencies are forms of capital that enhance productivity and organizational performance (Becker, 1964). It argues that investments in education, training, and development increase workers' value, leading to improved efficiency, innovation, and economic returns (Khalique *et al.*, 2023). Within organizations, this theory provides a foundational lens for understanding

why continuous learning is essential for competitiveness.

In the context of green training and development, Human Capital Theory explains that equipping employees with environmental knowledge, sustainable practices, and eco-friendly skills constitutes a strategic investment in specialized human capital. Such training enhances employees' ability to integrate sustainability into daily operations, reduce waste, improve resource efficiency, and comply with environmental regulations (Beisembina *et al.*, 2023). Consequently, green competencies become valuable assets that contribute to organizational sustainability goals.

Furthermore, the Human Capital developed theory underpins employee performance by linking skill enhancement to improved task execution, motivation, and adaptability. Employees who undergo green training are more likely to demonstrate environmentally responsible behaviors, innovate sustainable solutions, and improve operational outcomes (Yafi *et al.*, 2021). Thus, Human Capital Theory supports the view that investing in green human capital not only advances environmental objectives but also strengthens overall employee performance and organizational effectiveness in competitive sustainability-driven business environments.

2.3 Empirical Review

Abdulameer and Ibrahim (2025) examined the effect of green training on individual environmental performance in the oil and gas industry in Iraq. The study adopted a quantitative method, with data collected through questionnaire administered to 170 employees of the organization and analyzed using structural equation modeling. The findings indicated a strong, positive, and significant relationship between green training (GT) and individual environmental performance (IEP). The study concluded that GT leads to improved IEP in the oil and gas industry. It further recommended that top management and employees in oil and gas companies in Iraq should prioritize green

training to enhance individual environmental performance.

Ekanem *et al.* (2023) examined the effect of green operations on organizational performance in selected manufacturing companies in Akwa Ibom State, Nigeria. The study adopted a descriptive survey research design, and a sample of 179 respondents was drawn from a total population of 295 employees. Data were collected using a structured questionnaire and analyzed using regression techniques. The findings revealed that green manufacturing and green design have a significant positive impact on organizational performance in selected manufacturing enterprises in Akwa Ibom State. The study concluded that green manufacturing and green design are relational variables that influence organizational performance in Nigerian manufacturing companies. Consequently, it was recommended that industrial firms in Akwa Ibom State, Nigeria, should incorporate green design principles that minimize negative environmental impacts, conserve resources, promote human health and wellbeing, and contribute to the development of a more resilient and sustainable future.

Das and Dash (2023) investigated the impact of green training and development on organizational development and environmental sustainability in the Odisha region. The study adopted a quantitative, cross-sectional research design. Purposive sampling was employed to collect data from 235 managers. A well-structured questionnaire was used to guide the data collection process and assess the research objectives. Data analysis was conducted using descriptive statistics, including simple percentages, mean, and standard deviation, while hypotheses were tested using regression techniques. The findings indicated that green training is essential for environmentally conscious organizations in achieving efficient resource utilization while contributing to broader environmental protection goals. The study concluded that green training and development practices significantly enhance long-term sustainability. It was further recommended that forward-thinking manufacturers should establish a consistent green management philosophy in order to

meet the expectations of their global clientele and remain competitive in international markets.

Divinagracia *et al.* (2024) examined the relationship between environmental awareness and sustainability perception and attitudes among Generation Z using a descriptive-correlational research design. The study involved 382 Generation Z students aged 18–25 years enrolled in a higher education institution in Davao City. The findings revealed that the respondents exhibited a high level of environmental awareness and a very high level of sustainability perception and attitude. Furthermore, a significant and strong positive correlation was found between environmental awareness and sustainability perception and attitude. These results suggest that Generation Z students place considerable importance on environmental awareness in guiding their actions and demonstrate highly positive perceptions and attitudes toward sustainable behavior. The study further indicates that the participants' heightened environmental knowledge and awareness are associated with stronger positive perceptions and attitudes toward sustainability across social, economic, and environmental dimensions. Overall, it was concluded that Generation Z students possess a high level of environmental awareness, with a mean score of 3.98, reflecting their strong regard for environmental considerations in their actions. The authors recommended the stronger integration of environmental education within the college curriculum to further enhance students' understanding of environmental issues and to promote the adoption of sustainability-oriented behaviors

Wasim *et al.* (2026) investigated the role of green skills development, employee training on the circular economy, and employee proactive behavior in enhancing circular economy performance in Pakistan's textile sector, supported by the Resource-Based View theory. Using a quantitative, cross-sectional survey design, primary data were collected from 215 middle- to top-level employees working in textile manufacturing organizations across Pakistan through a structured questionnaire. The measurement and

structural models were examined using partial least squares structural equation modeling to assess reliability, validity, and model relationships. The results indicated that green skills development and employee training on the circular economy significantly enhanced circular economy performance, emphasizing the importance of technical skills and structured training. However, employee proactive behavior showed no significant effect, indicating that individual initiative alone is insufficient. The study recommended that formal skill development and systematic circular economy training are critical for improving sustainable performance and advancing United Nations Sustainable Development Goals 8 and 12 in Pakistan's textile industry.

3. Methodology

A survey research design was adopted for this study. The population comprised 272 employees of the Ministry, as obtained from the most recent annual report of the Akwa Ibom State Civil Service Commission. The Ministry was selected due to its strategic role as a key government institution responsible for environmental management, sustainability practices, pollution control, waste management, and water resource administration in the state. This makes it a suitable setting for examining green training and development and employee performance. The Ministry's operations require employees to possess relevant environmental knowledge, technical competencies, and sustainable work practices, thereby making continuous green training essential for effective service delivery and improved job performance. Furthermore, the Ministry is expected to foster environmentally responsible behaviour among its workforce, providing a relevant context for assessing the impact of green training and development on employee effectiveness and productivity. The sample size was determined using the Krejcie and Morgan Sample Size Determination Table. Based on this table, a population of 272 corresponds to a sample size of 160 respondents at a 95% confidence level and a 5% margin of error. Data for the study were obtained from both primary and secondary sources. Primary data were collected through the administration

of a structured questionnaire, while secondary data were sourced from peer reviewed journal articles and credible internet materials. The questionnaire consisted of closed ended items designed on a modified five point Likert scale, ranging from Strongly Agree (5) to Strongly Disagree (1).The reliability of the instrument was assessed using Cronbach’s alpha, which produced a coefficient greater than 0.7, indicating an acceptable level of internal consistency. Data were analysed using descriptive statistics, including mean and standard deviation, while inferential statistics, specifically regression analysis, were employed to test the study hypotheses. All analyses were conducted using SPSS Version 27. The empirical model for the study was specified as follows:

$$EP = f(EA) + \mu_1 \dots\dots\dots(1)$$

$$EP = \beta_0 + \beta_1EA + \mu_1 \dots\dots\dots (2)$$

$$EP = f(GSD) + \mu_1 \dots\dots\dots (3)$$

$$EP = \beta_0 + \beta_2GSD + \mu_1 \dots\dots\dots (4)$$

$$EP = f(EA, GSD) + \mu_1 \dots\dots\dots (5)$$

$$EP = \beta_0 + \beta_1EA + \beta_2GSD + \mu_1 \dots\dots\dots (6)$$

Where:

- EP = Employee Performance
- EA = Environmental Awareness
- GST = Green Skill Development
- β₀ = intercept or regression constant term
- β₁- β₂ = Regression coefficient
- μ₁ is the error term

4. Results and Discussion

A total of 160 questionnaires were administered, out of which 153 were properly completed and returned. This represents approximately 95.6% response rate, forming a strong basis for subsequent statistical analysis.

Table 1: Descriptive Statistics of Environmental Awareness

Items	SA	A	U	D	SD	Total
I am aware of environmental policies guiding the ministry’s operations.	40 (26.1%)	55 (35.9%)	25 (16.3%)	20 (13.1%)	13 (8.5%)	153 (100%)
I understand the importance of environmental protection in my daily work.	45 (29.4%)	60 (39.2%)	20 (13.1%)	18 (11.8%)	10 (6.5%)	153 (100%)
The ministry regularly sensitizes staff on environmental sustainability issues.	38 (24.8%)	52 (34.0%)	28 (18.3%)	22 (14.4%)	13 (8.5%)	153 (100%)
I have adequate knowledge of environmental hazards and their effects.	42 (27.5%)	58 (37.9%)	25 (16.3%)	18 (11.8%)	10 (6.5%)	153 (100%)

Source: Field Survey (2026)

The results in Table 1 indicate a high level of environmental awareness among employees of the Akwa Ibom State Ministry of Environment and Petroleum Resources. The majority of responses fall within the Agree (A) and Strongly Agree (SA) categories across all items. Specifically, 62.0% of respondents affirmed awareness of environmental policies guiding the ministry’s operations, while 68.6% indicated understanding of the importance of environmental protection in their daily work. Similarly, 58.8% agreed that the ministry regularly sensitizes staff on environmental sustainability issues, and 65.4% reported adequate knowledge of environmental hazards

and their effects. However, a proportion of respondents remained neutral (U), ranging from 13.1% to 18.3%, indicating some uncertainty regarding environmental sustainability sensitization and policy awareness. In addition, a smaller share expressed disagreement (D: 11.8%–14.4%) and strong disagreement (SD: 6.5%–8.5%), suggesting that not all employees possess the same level of environmental awareness and understanding. Overall, the findings suggest that environmental awareness is well established among employees in the ministry, although minor gaps in awareness and sensitization still exist.

Table 2: Descriptive Statistics of Green Skills Development

Items	SA	A	U	D	SD	Total
I have received training on green/environmental practices relevant to my job.	37 (24.2%)	58 (37.9%)	24 (15.7%)	20 (13.1%)	14 (9.2%)	153 (100%)
The ministry provides opportunities for employees to develop environmental-related skills.	40 (26.1%)	55 (35.9%)	22 (14.4%)	20 (13.1%)	16 (10.5%)	153 (100%)
I apply environmentally friendly techniques while performing my duties.	38 (24.8%)	57 (37.3%)	25 (16.3%)	20 (13.1%)	13 (8.5%)	153 (100%)
Green skills training improves my efficiency and work quality.	42 (27.5%)	60 (39.2%)	20 (13.1%)	18 (11.8%)	13 (8.5%)	153 (100%)

Source: Field Survey (2026)

The results in Table 2 indicate a generally positive perception of green skills development among employees of the Akwa Ibom State Ministry of Environment and Petroleum Resources. Across all items, most respondents selected Agree (A) and Strongly Agree (SA), showing strong recognition of environmental capacity-building initiatives. Specifically, 62.1% affirmed receiving training on green practices, 62.0% agreed that the ministry provides opportunities for environmental skill development, 62.1% reported applying environmentally friendly techniques, and 66.7% agreed that green skills training

improves efficiency and work quality. However, a proportion of respondents remained neutral (U), ranging from 14.4% to 16.3%, indicating uncertainty about training exposure and institutional support. In addition, a smaller share expressed disagreement (D: 11.8%–13.1%) and strong disagreement (SD: 8.5%–10.5%), suggesting that not all employees experience or perceive equal access to green skills development. Overall, the findings demonstrate a positive outlook on green skills development, though gaps in awareness and implementation are evident.

Table 3 Descriptive Statistics of Employee Performance

Items	SA	A	U	D	SD	Total
I consistently meet my job targets and responsibilities.	41 (26.8%)	63 (41.2%)	22 (14.4%)	17 (11.1%)	10 (6.5%)	153 (100%)
I complete assigned tasks within the required time frame.	38 (24.8%)	60 (39.2%)	25 (16.3%)	20 (13.1%)	10 (6.5%)	153 (100%)
My work output has improved due to environmental-related practices.	40 (26.1%)	55 (35.9%)	25 (16.3%)	18 (11.8%)	15 (9.8%)	153 (100%)
I contribute effectively to achieving the ministry's overall goals.	42 (27.5%)	58 (37.9%)	23 (15.0%)	20 (13.1%)	10 (6.5%)	153 (100%)

Source: Field Survey (2026)

The results in Table 3 indicate that employees of the Akwa Ibom State Ministry of Environment and Petroleum Resources generally report high levels of performance. The majority of responses fall within the Agree (A) and Strongly Agree (SA) categories across all items. Specifically, 68.0% of respondents agreed that they consistently meet job targets and

responsibilities, while 64.0% reported completing assigned tasks within the required time frame. In addition, 62.0% indicated that their work output has improved due to environmental-related practices, and 65.4% affirmed that they contribute effectively to the achievement of the ministry's overall goals. However, a proportion of respondents remained neutral (U),

ranging from 14.4% to 16.3%, indicating some uncertainty regarding work performance and the influence of environmental-related practices. In addition, a smaller share expressed disagreement (D: 11.1%–13.1%) and strong disagreement (SD: 6.5%–9.8%), suggesting that not all employees perceive the same level of performance improvement and effectiveness in achieving organizational goals. Overall, the findings suggest that employee performance is generally high and may be associated with environmental awareness and green skills

development within the ministry, though variations in employee experiences and perceptions remain evident.

Hypotheses Testing

H₀₁: Environmental awareness has no significant effect on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.

$$EP = \beta_0 + \beta_1 EA + \mu_1$$

Table 4: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.830 ^a	.688	.687	.43348	1.755

a. Predictors: (Constant), environmental awareness

b. Dependent Variable: employee performance

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	100.852	1	100.852	536.727	.000 ^b
	Residual	45.660	152	.188		
	Total	146.512	153			

a. Dependent Variable: employee performance

b. Predictors: (Constant), environmental awareness

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	.638	.142		4.492	.000
	environmental awareness	.824	.036	.830	23.167	.000

a. Dependent Variable: employee performance

Table 4 presents the regression analysis examining the influence of environmental awareness on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources. The coefficient of determination ($R^2 = 0.688$) indicates that environmental awareness explains 68.8% of the variance in employee performance, demonstrating a

strong explanatory power. The ANOVA results ($F(1,152) = 536.727$, $p < 0.001$) confirm that the regression model is statistically significant and reliably predicts employee performance. Moreover, the unstandardized regression coefficient ($B = 0.824$, $t = 23.167$, $p < 0.001$) shows that, holding other factors constant, a one-unit increase in environmental

awareness leads to a corresponding 0.824-unit increase in employee performance. The model therefore indicates a strong positive predictive relationship between environmental awareness and employee performance. Given that the p-value is below the 0.05 threshold, the null hypothesis is rejected, leading to the conclusion that environmental awareness has a statistically significant and positive effect on employee

performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.

H₀₂: Green skills development practices has no significant effect on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.

$$EP = \beta_0 + \beta_2 GSD + \mu_1$$

Table 5: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.819 ^a	.671	.670	.44505	1.310

a. Predictors: (Constant), green skills development

b. Dependent Variable: employee performance

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	98.382	1	98.382	496.714	.000 ^b
	Residual	48.130	152	.198	4	
	Total	146.512	153			

a. Dependent Variable: employee performance

b. Predictors: (Constant), green skills development

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.171	.124		9.434	.000
	green skills development	.708	.032	.819	22.287	.000

a. Dependent Variable: employee performance

Table 5 presents the regression analysis examining the influence of green skills development on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources. The coefficient of determination ($R^2 = 0.671$) indicates that green skills development explains 67.1% of the variance in employee performance, demonstrating a strong explanatory power. The ANOVA results ($F(1,152) =$

496.714 , $p < 0.001$) confirm that the regression model is statistically significant and reliably predicts employee performance. Moreover, the unstandardized regression coefficient ($B = 0.708$, $t = 22.29$, $p < 0.001$) shows that, holding other factors constant, a one-unit increase in green skills development leads to a corresponding 0.708-unit increase in employee performance. The model therefore indicates a strong

positive predictive relationship between green skills development and employee performance. Given that the p-value is below the 0.05 threshold, the null hypothesis is rejected, leading to the conclusion that green skills development has a statistically significant and positive effect on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.

H₀₃: Environmental awareness and green skills development have no significant combined effect on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.

$$EP = \beta_0 + \beta_1 EA + \beta_2 GSD + \mu_1$$

Table 6: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.864 ^a	.747	.745	.39141	1.603

a. Predictors: (Constant), green skills development, environmental awareness

b. Dependent Variable: employee performance

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	109.437	2	54.718	357.161	.000 ^b
	Residual	37.075	151	.153		
	Total	146.512	153			

a. Dependent Variable: employee performance

b. Predictors: (Constant), green skills development, environmental awareness

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.598	.128		4.663	.000
	environmental awareness	.366	.049	.424	7.486	.000
	green skills development	.478	.056	.481	8.495	.000

a. Dependent Variable: employee performance

Table 6 presents the multiple regression analysis examining the combined effect of environmental awareness and green skills development on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources. The coefficient of determination ($R^2 = 0.747$) indicates that environmental awareness and green skills development

jointly explain 74.7% of the variation in employee performance, demonstrating a strong explanatory power. The adjusted R-square value (0.745) further confirms the stability and reliability of the model. The ANOVA results show that the overall model is statistically significant ($F = 357.161$, $p < 0.001$), indicating that environmental awareness and green

skills development jointly have a significant effect on employee performance. This confirms that the regression model reliably predicts employee performance. Furthermore, the coefficient estimates reveal that both predictors make significant individual contributions to employee performance. Environmental awareness shows a positive and significant effect ($B = 0.366$, $t = 7.486$, $p < 0.001$), while green skills development also has a positive and significant effect ($B = 0.478$, $t = 8.495$, $p < 0.001$). This implies that, holding other factors constant, a one-unit increase in environmental awareness leads to a 0.366-unit increase in employee performance, while a one-unit increase in green skills development results in a 0.478-unit increase in employee performance. Given that the p-values are below the 0.05 significance threshold, the null hypothesis (H_{03}) is rejected. It is therefore concluded that environmental awareness and green skills development have a statistically significant combined effect on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources.

4.2 Discussion of Findings

The findings of hypothesis one show that green skills development has a strong and positive effect on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources. The model is statistically significant, explaining a large proportion of performance differences among employees. This implies that improving green skills is likely to enhance employee performance in the ministry. This finding is supported by Abdulameer and Ibrahim (2025), who reported a significant positive relationship between green training and individual environmental performance in the oil and gas sector in Iraq, indicating that employees perform better when they acquire relevant environmental skills. Similarly, Wasim *et al.* (2026), in textile manufacturing organizations in Pakistan, found that green skills development significantly enhances circular economy performance, highlighting the importance of structured skill-building in improving employee-related

outcomes. In the same vein, Das and Dash (2023), in the Odisha region of India, observed that green training and development contribute to improved sustainability performance and efficient resource utilization, reinforcing the role of green competencies in enhancing organizational effectiveness. Collectively, these studies reinforce the present finding that green skills development has a strong and positive effect on employee performance.

The findings of hypothesis two indicate that green skills development is a strong and significant predictor of employee performance, explaining a substantial proportion of performance variation. The positive coefficient further shows that improvements in green skills consistently lead to better employee performance within the ministry. This suggests that strengthening green skills development can meaningfully enhance workforce effectiveness in environmental management settings. This finding is consistent with Abdulameer and Ibrahim (2025), who in their study of the oil and gas industry in Iraq found that green training has a strong, positive, and significant effect on individual environmental performance, concluding that employees benefit performance-wise from structured green training. It also aligns with Wasim *et al.* (2026), who, in a study of textile manufacturing organizations in Pakistan, reported that green skills development significantly enhances circular economy performance, emphasizing the importance of structured skill development in improving employee effectiveness. Similarly, Das and Dash (2023), in their study conducted in the Odisha region of India, found that green training and development significantly improve organizational development and environmental sustainability outcomes by promoting efficient resource utilization and environmentally responsible practices.

The findings of hypothesis three indicate that environmental awareness and green skills development jointly have a strong and significant effect on employee performance. This suggests that employees perform better when they are both environmentally conscious and equipped with relevant green skills. The result also

shows that green skills development contributes slightly more to performance than environmental awareness within the model. Overall, the combination of both factors enhances employee effectiveness in the ministry. This finding is supported by Abdulameer and Ibrahim (2025), who in the oil and gas industry in Iraq found that green training has a strong, positive, and significant effect on individual environmental performance, concluding that structured green capacity-building improves employee outcomes. It also aligns with Wasim *et al.* (2026), who, in textile manufacturing organizations in Pakistan, reported that green skills development significantly enhances circular economy performance, emphasizing the importance of formal training and skill development in improving employee effectiveness. In addition, Divinagracia *et al.* (2024), in their study among Generation Z students in Davao City, Philippines, found that environmental awareness is strongly associated with positive sustainability attitudes and behavior, indicating that environmental consciousness meaningfully influences sustainability-related actions.

5. Conclusion and Recommendations

The study demonstrates that Green Training and Development Practices, operationalized as green skills development and environmental awareness, has a strong and positive effect on employee performance in the Akwa Ibom State Ministry of Environment and Petroleum Resources. The findings consistently indicate that the enhancement of employees' green skills significantly improves their performance, while environmental awareness further strengthens this relationship. Specifically, green skills development emerged as a strong predictor of employee performance, and its combined effect with environmental awareness produced even more substantial improvements in outcomes. This suggests that employees are more effective in their duties when they possess both adequate environmental knowledge and relevant practical green competencies. Overall, the

study concludes that sustained investment in green training initiatives, skills development programmes, and environmental awareness is essential for improving employee performance and promoting efficiency in environmental management practices within the ministry.

Based on the following of the study, the following recommendation are made:

- i. The management of the Akwa Ibom State Ministry of Environment and Petroleum Resources should implement continuous environmental awareness programmes through regular training, workshops, seminars, and sensitization campaigns, while integrating environmental awareness into staff orientation, performance evaluation, and daily workplace activities to promote a culture of environmental responsibility and improve employee performance.
- ii. The Ministry of Environment and Petroleum Resources in Akwa Ibom State should strengthen and institutionalize continuous green skills development programs through regular staff training, workshops, and on-the-job environmental capacity-building initiatives, ensuring that employees are consistently equipped with practical, up-to-date environmental knowledge and sustainable work practices that enhance productivity and performance.
- iii. The management of the Akwa Ibom State Ministry of Environment and Petroleum Resources should strengthen both environmental awareness and green skills development by organizing regular training programmes, practical workshops, and continuous staff development activities focused on environmental sustainability. This will improve employees' knowledge, technical skills, and commitment to environmentally responsible practices, thereby enhancing their efficiency, productivity, and overall job performance within the ministry.

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