



HOSPITALITY MANAGERS' PERCEPTIONS OF THE EFFECT OF GREEN HUMAN RESOURCE MANAGEMENT PRACTICES ON PROGRESS TOWARDS ACHIEVEMENT OF THE SUSTAINABLE DEVELOPMENT GOALS IN GHANA

Faisal Musah^{1}, Stephen Afenyo Dehlo¹*

Abstract

This study examined hospitality managers' perceptions of the effect of Green Human Resource Management (GHRM) practices on perceived progress toward SDGs 6, 11, 12, and 14 among hospitality establishments in Accra, Ghana. Specifically, the study assessed the effects of green recruitment and selection, green performance management and appraisal, green training and development, and green reward and compensation on SDGs 6, 11, 12, and 14. A quantitative approach and explanatory research design were adopted. Data were collected from 105 hospitality establishments selected through simple random sampling. All 105 questionnaires administered were returned and used for analysis, representing a 100% response rate. Data were analysed using Smart PLS-SEM 4. The findings revealed that green recruitment and selection, green training and development, and green reward and compensation had statistically insignificant relationships with the SDGs. In contrast, green performance management and appraisal demonstrated a statistically significant positive relationship with the SDGs. The study concludes that while GHRM practices remain important for promoting sustainability, their effectiveness varies across dimensions. Hospitality establishments should strengthen the integration of environmental performance indicators into appraisal systems to enhance employee accountability and support progress toward SDGs 6, 11, 12, and 14. The findings contribute to the growing literature on GHRM and sustainable development in Ghana's hospitality sector.

Keywords: Environmental Sustainability, Green Human Resource Management, Hospitality Industry, Marine Ecosystem, Sustainable Development Goals.

INTRODUCTION

The hospitality industry in Ghana, as highlighted by the Ghana Statistical Service (GSS, 2022), has emerged as a dynamic and essential sector, significantly contributing to the country's economic growth and employment through its diverse offerings, including hotels, resorts, restaurants, and tourism services (Otoo, 2019). The GSS (2023) estimates that the industry contributes approximately 5.5% to Ghana's GDP, underscoring its critical role in the nation's economic landscape. However, despite these positive contributions, Mensah (2019) asserts that the sector faces numerous challenges that threaten its sustainability and environmental impact. For instance, a report by the Environmental Protection Agency (EPA) of Ghana, as noted by Milla-Amekor (2024), reveals

that many hospitality establishments exhibit limited compliance with environmental regulations, resulting in issues such as poor waste management, high energy consumption, and water pollution. The hospitality industry in Ghana, particularly in Accra, faces significant environmental challenges linked to rapid urbanisation, population growth, and inadequate waste management infrastructure (Arthur et al., 2023; Hart, 2022). Inefficient waste collection and disposal practices, such as open dumping and burning, contribute to soil and water contamination, air pollution, and degraded ecosystems, including water bodies like the Sea, Korle Lagoon, and Odaw River (Anokye et al., 2024; Clotey et al., 2022; Ntjal et al., 2022). These issues are exacerbated during rainy seasons when clogged drainage systems lead to flooding,

¹Regional Maritime University, Accra, Ghana.
Doi: 10.47963/ajhtm.v5i2.1661



worsening sanitation conditions, and spreading waterborne diseases like cholera and dysentery (Owusu & Obour, 2021; Yeboah et al., 2024).

This study integrates the resource-based view (RBV) and the theory of planned behaviour (TPB) to address sustainability challenges. The RBV focuses on strategically managing internal resources, such as green-skilled employees, for competitive advantage, while the TPB explains how these resources can be motivated to exhibit behaviours that support organisational sustainability goals (Conner & Armitage, 1998; Madhani, 2010). This integration highlights how Green Human Resource Management (GHRM) practices can foster pro-environmental behaviours and align human capital with Sustainable Development Goals (SDGs). As underscored by Sakshi et al. (2020) and Legrand et al. (2022), the hospitality industry plays a critical role in addressing sustainability challenges due to its significant environmental impact. GHRM has emerged as a key strategy to integrate sustainability into workforce management, including practices like green recruitment, training, performance management, and reward systems (Joshi et al., 2023; Roscoe et al., 2019).

Green recruitment and selection are key elements of GHRM, focusing on hiring individuals with relevant skills who share a commitment to environmental sustainability (Jamil et al., 2023; Pham & Paillé, 2020). Green performance management and appraisal systems assess employee contributions to sustainability using indicators such as waste reduction and energy efficiency (Ardiza et al., 2021; Fernandez & Ganesan, 2023). Green training and development equip employees with eco-friendly skills and behaviours (He & Zaman, 2024; Yusoff, 2015), while green reward and compensation systems motivate sustainability performance through incentives (Ahmed et al., 2021; Pham et al., 2019).

Despite growing scholarly attention to GHRM and sustainability (e.g., Chams & García-Blandón, 2019; Zubair & Khan, 2019; Roscoe et al., 2019), empirical evidence remains fragmented regarding how specific GHRM practices translate into progress toward SDGs within the hospitality sector, particularly in developing country contexts such as Ghana. This indicates a contextual and sector-specific gap in understanding the behavioural and managerial mechanisms through which GHRM contributes to sustainability outcomes. Empirical observations further suggest weak adoption of sustainability-oriented practices in the Ghanaian hospitality sector, where only 30% of establishments have adopted sustainable practices (GTA, 2022), limiting their contribution to environmental sustainability. In addition, over 60% of hospitality establishments fail to comply with waste disposal regulations (EPA, 2022), raising concerns about environmental degradation and regulatory enforcement. (GTA, 2022; EPA, 2022).

Moreover, existing studies have largely focused on macro-level sustainability issues, with limited attention to how employee-level behaviours and HRM systems jointly influence SDG implementation in hospitality organisations. This creates a clear gap in linking GHRM practices to specific SDGs, particularly SDG 6 (Clean Water and Sanitation), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 14 (Life Below Water) within coastal hospitality settings in Accra. Consequently, this study examines hospitality managers' perceptions of the effect of Green Human Resource Management practices on progress toward the achievement of Sustainable Development Goals in Ghana's hospitality industry. Specifically, it evaluates how green recruitment and selection, green training and development, green performance management and appraisal, and green reward and



compensation influence SDG outcomes in coastal hospitality establishments in Accra. The study also identifies key challenges and barriers affecting the effective implementation of GHRM practices in the sector.

LITERATURE REVIEW

Theoretical Review

The resource-based view (RBV) Theory, introduced by Jay Barney in 1991, highlights that an organisation's competitive advantage stems from internal resources that are valuable, rare, inimitable, and non-substitutable (VRIN) (Chacha, 2010). These resources, including technology, infrastructure, skills, and organisational culture, significantly influence organisational performance and success (Rantanen, 2021). In Green Human Resource Management (GHRM), RBV underscores human resources as critical assets for driving sustainability initiatives (Jamil et al., 2023). Practices like green recruitment, training, and performance management align workforces with environmental sustainability, enabling organisations to achieve sustainability goals. However, RBV faces criticism for focusing primarily on internal resources while overlooking external factors such as market dynamics and competition.

Despite this, RBV is pivotal in linking GHRM to Sustainable Development Goals (SDGs) by leveraging human capital for sustainable development. Furthermore, the theory of planned behaviour (TPB), developed by Icek Ajzen in 1985, explains individual actions through three components: attitude toward behaviour, subjective norms, and perceived behavioural control (Hagger, 2019). These elements shape behavioural intention, which predicts actual behaviour (Ajzen, 2011). Within GHRM, TPB demonstrates how green initiatives, such as training and performance

management, influence employee attitudes and behaviours toward sustainability. These practices foster pro-environmental behaviours and enhance employees' perceptions of their ability to support environmental goals. Although TPB has been criticised for emphasising intention over unconscious behaviours or external constraints, it remains a valuable tool for structuring GHRM practices to influence employee behaviours toward achieving sustainability objectives.

The RBV and TPB theories complement each other by integrating internal resource management with employee behavioural perspectives (Madhani, 2010). RBV focuses on leveraging green-skilled employees for a competitive advantage, while TPB explains how these employees can be motivated to exhibit behaviours supporting sustainability goals (Conner & Armitage, 1998). This integration is particularly relevant in Ghana's hospitality industry, where GHRM practices (RBV) and pro-environmental behaviours (TPB) can collectively advance SDGs. Together, these theories provide a strategic and behavioural framework for examining the impact of GHRM on sustainable development.

Conceptual Review

The role of green HRM in sustainable development goals

The study of sustainability within HRM emerged to address the growing demand for sustainable development. Roorda (2020) emphasises sustainable development as meeting current needs without hindering future generations' ability to meet theirs. Achieving sustainability requires a deep cultural and societal transformation that fosters new collective values and beliefs (Hammond, 2021). According to Wijaya and Mursitama (2023),



Elkington's concept of the Triple Bottom Line emphasises a balanced approach to sustainable development, urging businesses to consider social, environmental, and economic impacts. This approach reflects a paradigm shift that prioritises social and environmental performance alongside economic growth. Green HRM evolved as a response to traditional HRM practices to focus on addressing environmental challenges.

In line with the transformative 2030 Agenda for Sustainable Development, the United Nations established 17 Sustainable Development Goals (SDGs) and 169 associated targets, providing a framework for actionable and collaborative solutions to global sustainability challenges. Six out of the seventeen SDGs are directly crafted to achieve environmental sustainability. These six SDGs (SDGs 6, 7, 11, 12, 13, and 14) focused on clean water and sanitation, affordable and clean energy, sustainable cities and communities, responsible consumption and production, climate action, and finally, life below water. Companies play a crucial role in achieving these goals, particularly SDG 6, 11, 12, and 14, which call for responsible consumption and production. This includes adopting sustainable practices and integrating sustainability into GHRM practices. Research highlights the critical role of HRM in tackling sustainability challenges, emphasising the importance of employees as key agents of change (Podgorodnichenko et al., 2020; Podgorodnichenko et al., 2022). Unlike traditional HRM, Green HRM incorporates environmental management into all HRM functions and practices. By aligning HRM strategies with environmental objectives, employees can drive more sustainable production processes and product development, significantly contributing to achieving sustainable consumption and production patterns as outlined in SDGs 6, 11, 12, and 14.

Empirical Review

Extant literature highlights the growing relevance of Green Human Resource Management (GHRM) in advancing environmental sustainability and Sustainable Development Goals (SDGs). Studies such as Ali et al. (2021) and Baffoe et al. (2021) emphasise broader sustainability frameworks in Ghana, including green economy transitions and SDG interlinkages, but they do not directly focus on HRM mechanisms within specific sectors. Similarly, Chams and García-Blandón (2019) and Zubair and Khan (2019) conceptualise sustainable HRM as a key driver of organisational sustainability and environmental responsibility, highlighting its potential to embed eco-friendly values in organisational systems.

Empirical studies further demonstrate the positive influence of GHRM practices on employee behaviour and sustainability outcomes. Mishra (2017) and Genty (2021) show that green HR practices such as training, recruitment, and rewards enhance pro-environmental behaviour and organisational sustainability. In the African context, Kissi et al. (2024) confirm a significant relationship between GHRM practices and environmental sustainability among Ghanaian workers, while Liu et al. (2022) provide evidence that GHRM positively affects employee attitudes and sustainable consumption behaviours, particularly through mediating mechanisms such as skills and values. Likewise, Ghani et al. (2024) and Roscoe et al. (2019) establish that GHRM significantly influences proactive employee environmental behaviour in emerging economies. Overall, the literature consistently indicates that GHRM is a key enabler of sustainability, particularly through employee behaviour change, organisational identification, and managerial support systems.



Research Gaps

Despite increasing scholarly attention to GHRM and sustainability, several critical gaps remain. First, most studies (e.g., Ali et al., 2021; Baffoe et al., 2021) focus on macro-level sustainability issues such as green economy policies and SDG interlinkages, with limited attention to sector-specific applications of GHRM. Second, although empirical evidence exists on GHRM and environmental sustainability (e.g., Kissi et al., 2024; Liu et al., 2022), these studies are largely multi-sectoral or manufacturing-based, with minimal focus on the hospitality industry, which has distinct environmental challenges and sustainability pressures. Furthermore, existing research has not sufficiently examined how specific GHRM practices translate into SDG achievement within developing-country hospitality contexts, particularly through employee behaviour and managerial perceptions. Methodologically, while studies such as Mishra (2017) and Ghani et al. (2024) employ robust quantitative techniques, there remains limited context-specific empirical work integrating GHRM and SDGs in Ghana's hospitality sector using explanatory models. Therefore, a clear gap exists in understanding how Green HRM practices influence progress toward SDGs within the Ghanaian hospitality industry, particularly from the perspective of employee behaviour, managerial perception, and sector-specific sustainability challenges.

Hypotheses Development

Based on the theoretical arguments and empirical evidence that GHRM practices enhance employee environmental behaviour and sustainability outcomes (Mishra, 2017; Kissi et al., 2024; Liu et al., 2022), this study posits that the key

dimensions of GHRM are positively associated with progress towards Sustainable Development Goals (SDGs) performance in the hospitality industry. Accordingly, the following hypotheses are derived:

H1: Green recruitment and selection is positively related to perceived progress towards Sustainable Development Goals in the hospitality industry.

H2: Green performance management and appraisal is positively related to perceived progress towards Sustainable Development Goals in the hospitality industry.

H3: Green training and development is positively related to perceived progress towards Sustainable Development Goals in the hospitality industry.

H4: Green reward and compensation is positively related to perceived progress towards Sustainable Development Goals in the hospitality industry.

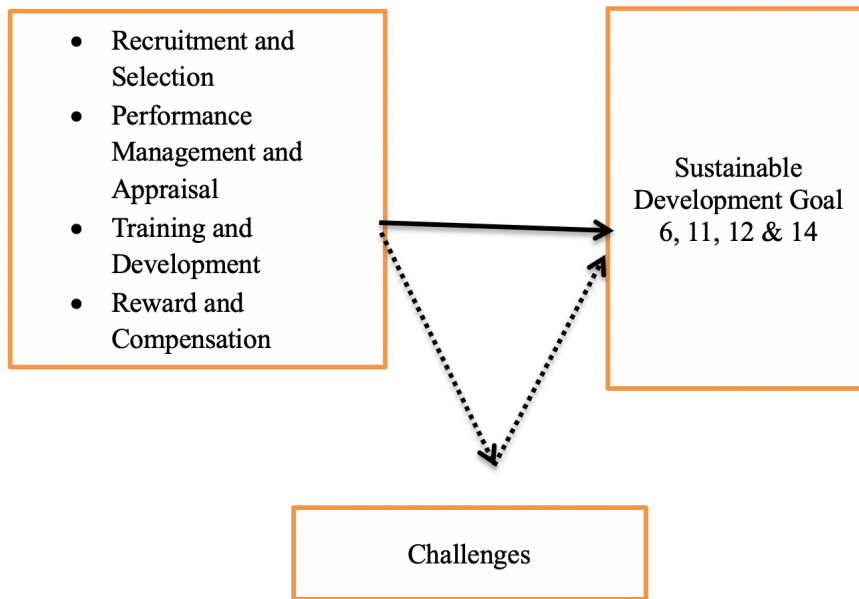
In addition, the study seeks to explore challenges faced by hospitality organisations in implementing GHRM practices in Ghana's hospitality sector.

Conceptual Framework

Figure 1 illustrates the relationship between Green Human Resource Management practices and Sustainable Development Goals in the hospitality industry of Ghana. The figure below illustrates the relationship between Green Human Resource Management practices and Sustainable Development Goals in the hospitality industry of Ghana.



GHRM Practices

**Figure 1: Conceptual Framework**

Source: Authors (2024)

METHODS**Research Approach and Design**

The research approach and design are fundamental for aligning the research paradigm with appropriate data collection and analysis methods. Strijker et al. (2020) identify three primary research approaches: qualitative, quantitative, and mixed methods. Given the study's focus on examining hospitality managers' perceptions of the effect of Green HRM practices on progress toward the achievement of the Sustainable Development Goals (SDGs) within Ghana's hospitality industry, a quantitative approach was deemed appropriate because it allows for the empirical testing of relationships between variables using statistical techniques. This study prioritised a quantitative approach to generate measurable data and provide empirical evidence regarding the relationship between Green HRM practices and perceived progress toward SDGs 6, 11, 12, and 14. In terms of research design, Bell et al. (2022) describe research

design as the overall framework for conducting a study. An explanatory research design was adopted to examine how Green HRM practices influence managers' perceptions of organisational progress toward SDGs 6 (Clean Water and Sanitation), 11 (Sustainable Cities and Communities), 12 (Responsible Consumption and Production), and 14 (Life Below Water). The design was considered suitable because it facilitates the examination of relationships among variables and the identification of factors associated with sustainability-related outcomes.

Population and Sampling Procedure

The population for this study comprised licensed hospitality establishments located within the coastal communities of Accra, including hotels, resorts, and recreational centres. According to the Ghana Tourism Authority (GTA, 2023), more than 150 licensed hospitality establishments operate within the study area. However, following an initial screening based on accessibility, operational status,



willingness to participate, and the presence of managerial personnel knowledgeable about environmental and HRM practices, 105 establishments met the inclusion criteria and constituted the accessible study population. The unit of analysis for this study was the hospitality establishment, represented by one managerial respondent from each establishment. Consequently, data were collected from 105 managers representing 105 hospitality establishments. The findings should therefore be interpreted as organisational-level perceptions reported by key informants rather than individual employee perceptions. Given the absence of a comprehensive sampling frame of managers and the practical challenges associated with obtaining access to all establishments, a purposive sampling technique was employed. Managers occupying positions such as General Manager, Human Resource Manager, Operations Manager, and Sustainability Officer were selected because of their knowledge of organisational HRM and environmental management practices. A total of 105 questionnaires were distributed, and all were returned and deemed usable, resulting in a response rate of 100%.

Instrument for Data Collection

Data were collected using a structured questionnaire consisting of closed-ended items measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire items were adapted from previously validated Green HRM and sustainability studies, including Roscoe et al. (2019), Liu et al. (2022), and Kissi et al. (2024), and were modified to reflect the Ghanaian hospitality context. The Green HRM construct was measured using four dimensions: green recruitment and selection, green performance management and appraisal, green training and development, and green reward and compensation.

The dependent variable was measured as managers' perceived progress toward SDGs 6, 11, 12, and 14 rather than actual SDG achievement. Respondents were asked to assess the extent to which their organisations had made progress toward these SDGs using perceptual indicators related to environmental sustainability practices.

Data Collection Procedure

The researchers presented introductory letters to the managers of participating establishments. These letters explained the purpose of the study and sought permission for participation. Respondents were assured of anonymity, confidentiality, and the voluntary nature of participation. The questionnaires were self-administered with the assistance of designated representatives within each establishment. The respondents completed the questionnaires in their respective offices, and the researchers provided clarification whenever necessary. This approach enhanced response quality and facilitated the retrieval of completed questionnaires.

Data Processing and Analysis

The data collected from respondents were analysed using both descriptive and inferential statistical techniques. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were generated using SPSS to summarise respondents' demographic characteristics and key study variables. Given that one respondent represented each hospitality establishment, the analysis reflects organisational-level perceptions regarding Green HRM practices and perceived progress toward SDGs. Smart PLS-SEM was employed to test the hypothesised relationships between Green HRM practices and



perceived progress toward SDGs. The technique was considered appropriate because it effectively handles complex models involving multiple latent constructs and simultaneously assesses measurement and structural models.

RESULTS

Table 1 presents the demographic characteristics of the respondents. The sample was relatively balanced in terms of gender, with 52.4% males and 47.6% females. Most respondents held a first degree (43.8%), while a considerable proportion possessed professional certificates (23.8%) and postgraduate qualifications (14.3%), indicating that the majority had adequate educational backgrounds to provide informed responses. In terms of work experience, over half of the respondents (56.2%) had more than 10 years of experience, indicating that their perceptions were

grounded in substantial industry knowledge. Furthermore, the majority (61.9%) occupied managerial positions, followed by senior staff (30.5%) and owners (7.6%). The demographic profile indicates that the respondents were sufficiently qualified, experienced, and held relevant positions, making them suitable participants for examining the impact of Green Human Resource Management practices on progress toward achieving the Sustainable Development Goals in Ghana.

Figure 2 presents the distribution of the hospitality establishment types included in the study. The results show that hotels and resorts constituted the largest category (60%), followed by restaurants and food service establishments (29%). Recreation and leisure centres accounted for 8%, while other hospitality establishments represented 4% of the sample. This distribution indicates that the study covered a range of hospitality establishment types in Accra.

Table 1: Demographic Information of Respondents

Variables	Options	Frequency	Percentage (%)
Gender	Male	55	52.4
	Female	50	47.6
	Total	105	100.0
Highest qualification	Postgraduate	15	14.3
	First degree	46	43.8
	HND/ Diploma	16	15.2
	Professional certificate	25	23.8
	Others	3	2.9
	Total	105	100.0
Working experience	Less than 5 years	13	12.4
	5 - 10 years	33	31.4
	Over 10 years	59	56.2
	Total	105	100.0
Position	Owner	8	7.6
	Manager	65	61.9
	Senior staff	32	30.5
	Total	105	100.0



Source: Authors (2024)

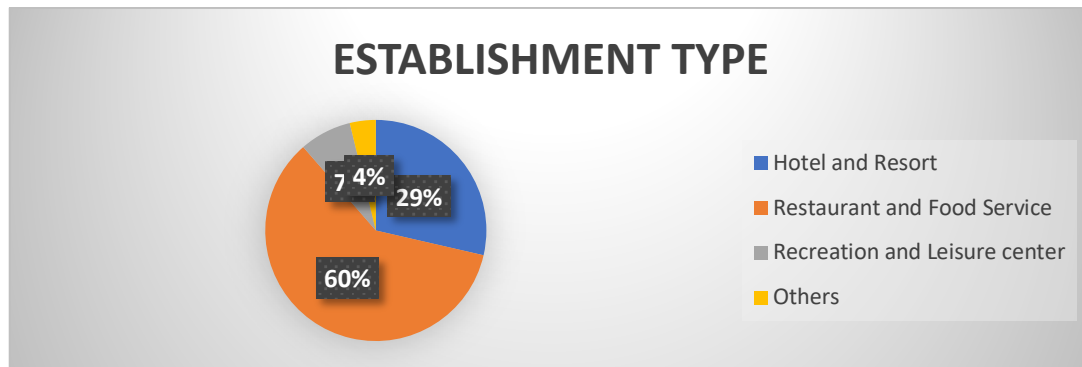


Figure 2: Hospitality Establishment Type

Source: Authors (2024)

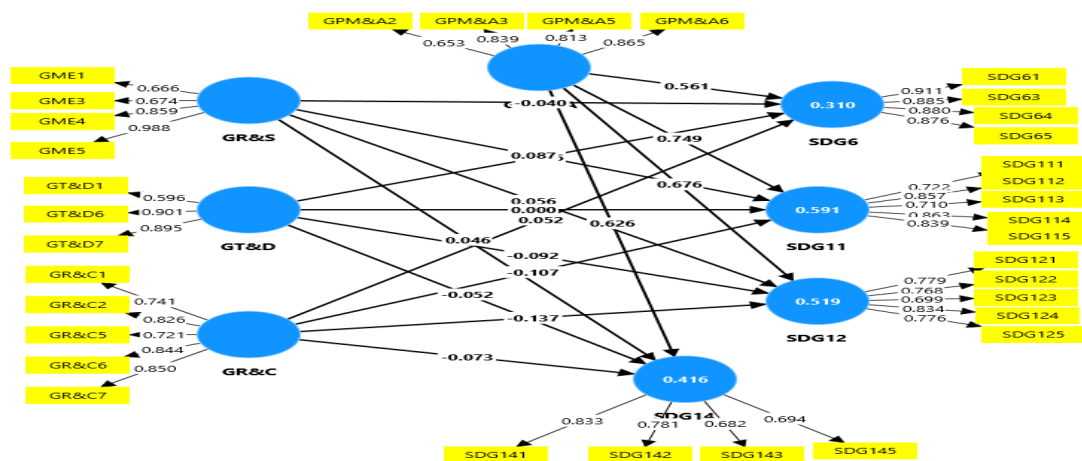


Figure 3: The Measurement Model

Source: Authors (2024)

Figure 3 presents the measurement model, illustrating the relationships between the study constructs and their respective indicators. The model indicates that the measurement items adequately represent the latent constructs, demonstrating acceptable reliability and validity. Therefore, the measurement model is suitable for assessing the structural relationships

Measurement Model Assessment

The measurement model was assessed using indicators of reliability, convergent validity and discriminant validity. Convergent validity was evaluated using Cronbach's alpha, composite reliability, and Average Variance Extracted (AVE). Discriminant validity was evaluated using the HTMT ratio. As shown in Tables 2 and 3 below.

**Table 2: Construct Reliability and Validity**

	Cronbach's alpha	Composite reliability (rho a)	Composite reliability (rho c)	Average variance extracted (AVE)
GPM&A	0.808	0.837	0.873	0.635
GR&C	0.860	0.884	0.897	0.637
GR&S	0.885	0.801	0.880	0.653
GT&D	0.726	0.798	0.847	0.656
SDG11	0.860	0.878	0.899	0.642
SDG12	0.830	0.837	0.880	0.596
SDG14	0.742	0.768	0.836	0.563
SDG6	0.911	0.923	0.937	0.789

Source: Authors (2024)

Table 3: HTMT Ratio Result: Discriminant Validity

	GPM&A	GR&C	GR&S	GT&D	SDG11	SDG12	SDG14	SDG6
GPM&A								
GR&C	0.120							
GR&S	0.084	0.712						
GT&D	0.128	0.824	0.730					
SDG11	0.866	0.151	0.081	0.104				
SDG12	0.836	0.265	0.078	0.256	0.804			
SDG14	0.804	0.204	0.117	0.170	0.843	0.835		
SDG6	0.635	0.072	0.046	0.081	0.503	0.331	0.527	

Source: Authors (2024)

The results of the study in Table 2 demonstrate that the constructs used have high internal consistency and reliability, as indicated by Cronbach's Alpha values exceeding 0.7 and good composite reliability. The AVE values are also relatively high (>0.5), indicating good validity. The results in Table 2 indicate acceptable internal consistency reliability and convergent validity, as all Cronbach's alpha, composite reliability, and AVE values exceeded recommended thresholds. However, the HTMT results in Table 3 reveal that some values slightly exceed the recommended threshold of 0.85, suggesting potential concerns

regarding discriminant validity between certain constructs.

Structural Model Assessment

Following the assessment of the measurement model, the structural model was evaluated using collinearity diagnostics and path analysis. Variance Inflation Factor (VIF) values were examined to assess multicollinearity before testing the hypothesised relationships among the constructs. The structural model is presented in Table 5.

**Table 4: Inner VIF Values**

	VIF
GPM&A -> SDG11	1.025
GPM&A -> SDG12	1.025
GPM&A -> SDG14	1.025
GPM&A -> SDG6	1.025
GR&C -> SDG11	1.937
GR&C -> SDG12	1.937
GR&C -> SDG14	1.937
GR&C -> SDG6	1.937
GR&S -> SDG11	1.561
GR&S -> SDG12	1.561
GR&S -> SDG14	1.561
GR&S -> SDG6	1.561
GT&D -> SDG11	1.758
GT&D -> SDG12	1.758
GT&D -> SDG14	1.758
GT&D -> SDG6	1.758

Source: Authors (2024)

The VIF scores observed in Table 4 indicate that there is no prevalent method bias across all the

constructs, as none of the VIF scores for the inner model exceeded 5, as reported by Oke et al. (2019).

Hypothesis Testing

Table 5: Hypothesis Testing

Path	Original sample (O)	Sample mean (M)	STDEV	T statistics	P values	Hypothesis testing
GPM&A -> SDG11	0.749	0.748	0.081	9.208	0.000	Supported
GPM&A -> SDG12	0.676	0.669	0.071	9.470	0.000	Supported
GPM&A -> SDG14	0.626	0.627	0.073	8.569	0.000	Supported
GPM&A -> SDG6	0.561	0.563	0.086	6.556	0.000	Supported
GR&C -> SDG11	-0.107	-0.104	0.083	1.289	0.197	Not supported
GR&C -> SDG12	-0.137	-0.169	0.080	1.711	0.087	Not supported
GR&C -> SDG14	-0.073	-0.085	0.097	0.746	0.456	Not supported
GR&C -> SDG6	0.052	0.054	0.099	0.519	0.604	Not supported



GR&S -> SDG11	0.087	0.080	0.077	1.137	0.256	Not supported
GR&S -> SDG12	0.056	0.116	0.094	0.592	0.554	Not supported
GR&S -> SDG14	0.046	0.073	0.106	0.437	0.662	Not supported
GR&S -> SDG6	-0.040	-0.052	0.119	0.334	0.738	Not supported
GT&D -> SDG11	0.000	-0.009	0.065	0.001	0.999	Not supported
GT&D -> SDG12	-0.092	-0.120	0.086	1.079	0.281	Not supported
GT&D -> SDG14	-0.052	-0.074	0.103	0.510	0.610	Not supported
GT&D -> SDG6	0.056	0.059	0.088	0.634	0.526	Not supported

Source: Authors (2024)

The results in Table 5 provide insights into hypothesis testing for the relationships between the constructs: green performance management and appraisal (GPM&A), green recruitment and selection (GR&S), green rewards and compensation (GR&C), and green training and development (GT&D) and their contributions to SDGs 6, 11, 12, and 14. It evaluates the hypotheses using path coefficients, sample means, standard deviations, t-statistics, and p-values. The findings reveal that GPM&A has a significant and strong positive relationship with all four SDGs. The path coefficients range from 0.561 to 0.749, with high t-statistics (above the threshold of 1.96) and p-values of 0.000, indicating strong support for all four hypotheses. These results emphasise the critical role of effective green performance management and appraisal practices in driving progress toward sustainable cities (SDG11), responsible consumption (SDG12), life below water (SDG14), and clean water and sanitation (SDG6). The consistency between the original sample and the sample mean further reinforces the reliability of these relationships.

Conversely, GR&C demonstrates negative or negligible relationships with the SDGs, with path coefficients such as -0.107 for SDG11, -0.137 for SDG12, -0.073 for SDG14, and a minor positive

value of 0.052 for SDG6. None of these relationships is statistically significant, as reflected by t-statistics below the critical value and p-values exceeding 0.05. These findings indicate that green reward and compensation practices, as currently implemented in Ghana's hospitality industry, do not have a statistically significant relationship with perceived progress toward SDGs 6, 11, 12, and 14. Similarly, GR&S exhibits weak and statistically insignificant relationships with the SDGs. Although the path coefficients are slightly positive for SDG11 (0.087), SDG12 (0.056), and SDG14 (0.046), and negative for SDG6 (-0.040), their t-statistics and high p-values indicate a lack of support for these hypotheses. The findings indicate that green recruitment and selection do not have a statistically significant relationship with perceived progress toward the SDGs. GT&D, on the other hand, shows no significant relationships with the SDGs, with path coefficients close to zero or slightly negative for SDG11, SDG12, and SDG14, and a small positive coefficient of 0.056 for SDG6. The t-statistics and p-values reinforce the lack of statistical significance, indicating that current green training and development practices are not effective drivers of sustainability outcomes. The findings indicate that green training and development do not have a statistically significant relationship with perceived



progress toward the SDGs. Overall, the findings suggest that, with the exception of green performance management and appraisal, Green HRM practices as currently implemented in Ghana's

hospitality industry do not exhibit statistically significant relationships with perceived progress toward SDGs 6, 11, 12, and 14.

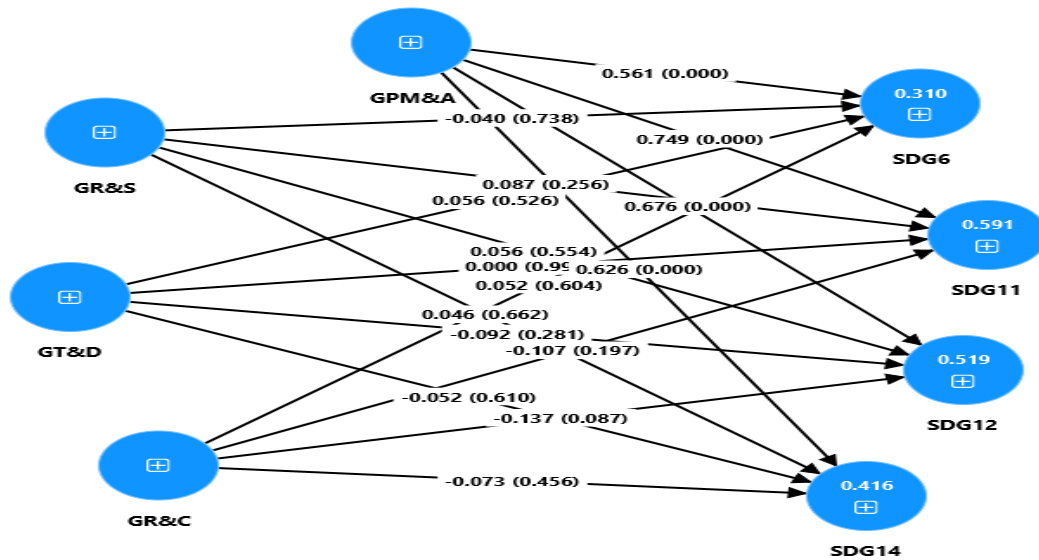


Figure 4: Structural Model Showing the Effect Of GHRM Practices on Progress Towards SDG by the Hospitality Industry.

Challenges and barriers faced by hospitality organizations in implementing GHRM practices and SDGs in Ghana's hospitality sector

Table 6: Challenges and Barriers

Statements	N	Mean	Std. Deviation
Knowledge Gaps			
Management does not prioritize training on green practices and environmental sustainability.	105	3.43	1.307
Staff lacks sufficient knowledge of sustainable practices in this organization.	105	3.41	.948
This establishment does not have access to adequate information on Green Human Resource Management.	105	3.30	1.153
This organization offers workshops or forums for staff to improve environmental behaviour.	105	3.46	1.118
The importance of environmental sustainability is not well communicated within our organization.	105	3.44	1.117



Policy Barrier

Government regulations on waste management are not effectively enforced in the hospitality sector.	105	3.61	1.061
This establishment does not receive incentives or tax benefits for adopting environmentally friendly practices.	105	3.77	1.040
There is a lack of clear government policies promoting sustainable practices in the hospitality industry.	105	3.78	.930
There is insufficient support from local authorities to promote sustainable tourism practices in this area.	105	3.76	.872
Inadequate regulatory support makes it difficult for this organization to implement green practices.	105	3.86	.848

Cultural Barrier

There is resistance from staff to adopt new environmentally friendly methods due to long-standing habits.	105	3.64	1.048
There is a lack of cultural emphasis on environmental conservation within the local community.	105	3.86	.882
Traditional practices in our organization often conflict with the adoption of modern sustainable practices.	105	3.89	.954
Guests are not receptive to changes that promote sustainability, such as reducing water or energy usage during their stay.	105	3.77	.963
The belief that sustainability practices are foreign concepts creates resistance to their implementation in this establishment.	105	3.84	.878

Source: Authors (2024)

The findings in Table 6 highlight several challenges and barriers that hospitality organisations in Ghana face in implementing GHRM practices and achieving SDGs. These challenges are categorised into knowledge gaps, policy barriers, and cultural barriers, with mean scores indicating the perceived severity of each issue and standard deviations reflecting variations in responses. Under knowledge gaps, it is evident that a lack of adequate training and awareness impedes the adoption of green practices. The statement "Management does not prioritise training on green practices and environmental sustainability" has a mean of 3.43, indicating that many organisations do not view training as a critical

priority. Similarly, staff members' insufficient knowledge of sustainable practices, with a mean of 3.41, suggests that the workforce is not adequately equipped to contribute to environmental sustainability. The relatively high mean of 3.46 for workshops or forums intended to improve environmental behaviour indicates a moderate presence of such initiatives, but this is likely insufficient given the broader context of limited organisational knowledge. Furthermore, the insufficient communication of environmental sustainability's importance within organisations (mean of 3.44) suggests a gap in leadership and strategic vision for sustainability.



Policy barriers present the most pronounced challenges, as evidenced by the moderate means across this category. The lack of clear government policies promoting sustainable practices in the hospitality industry (mean of 3.78) and inadequate regulatory support for implementing green practices (mean of 3.86) highlight systemic issues that hinder progress. Additionally, the absence of government incentives, such as tax benefits (mean of 3.77), and weak enforcement of waste management regulations (mean of 3.61) exacerbate the difficulty of adopting environmentally friendly practices. These findings indicate that the hospitality sector operates in a regulatory environment that does not sufficiently encourage or facilitate sustainable development. Cultural barriers also pose significant challenges, as seen in the resistance to change from both staff and guests. The mean score of 3.89 for the conflict between traditional practices and modern sustainable practices highlights how deeply rooted organisational habits and norms can act as obstacles. Similarly, resistance from guests to adopt sustainability-promoting changes, such as reducing water or energy use during their stay (mean of 3.77), underscores the difficulty of aligning customer expectations with environmental goals. The perception that sustainability is a foreign concept (mean of 3.84) and the lack of a cultural emphasis on environmental conservation within the local community (mean of 3.86) further complicate efforts to embed sustainable practices.

DISCUSSION

The study examined hospitality managers' perceptions of the effect of Green Human Resource Management (GHRM) practices on perceived progress toward Sustainable Development Goals (SDGs) 6, 11, 12, and 14 among hospitality establishments located in the coastal communities of Accra. The findings reveal that green performance

management and appraisal (GPM&A) was the only GHRM practice that demonstrated a statistically significant positive relationship with perceived progress toward all four SDGs. In contrast, green recruitment and selection (GR&S), green rewards and compensation (GR&C), and green training and development (GT&D) did not exhibit statistically significant relationships with perceived progress toward the SDGs. The significance of GPM&A suggests that managers perceive performance appraisal systems that incorporate environmental targets and sustainability indicators as important mechanisms for advancing organisational sustainability objectives. This finding is consistent with the Resource-Based View (RBV), which emphasises the strategic value of organisational capabilities, and the Theory of Planned Behaviour (TPB), which suggests that employees are more likely to engage in environmentally responsible behaviours when performance expectations and accountability mechanisms are clearly communicated. The findings also align with Hameed et al. (2020) and Ren et al. (2021), who found that integrating environmental metrics into performance appraisal systems enhances employee commitment to sustainability initiatives.

The absence of statistically significant relationships between GR&S, GR&C, GT&D and perceived progress toward the SDGs requires careful interpretation. Rather than indicating implementation gaps alone, the findings suggest that these practices, as currently measured and implemented within the sampled hospitality establishments, are not significantly associated with managers' perceptions of progress toward SDGs 6, 11, 12, and 14. Several explanations may account for these null findings. First, Green HRM practices in Ghana's hospitality industry may still be at an early stage of development, limiting their effectiveness.



Second, the measures relied on managerial perceptions rather than objective sustainability indicators, which may affect the observed relationships. Third, organisational and cultural factors may weaken the translation of recruitment, training, and reward systems into observable sustainability outcomes. The findings differ from several previous studies that reported significant positive effects of green recruitment, green training, and green reward systems on environmental sustainability and sustainable development outcomes (Mishra, 2017; Liu et al., 2022; Kissi et al., 2024; Ghani et al., 2024). One possible explanation for this divergence is contextual variation. Much of the existing evidence originates from manufacturing, multi-sectoral, or non-Ghanaian contexts, whereas this study focused exclusively on hospitality establishments in Accra. Differences in organisational priorities, resource availability, regulatory pressures, and the maturity of sustainability practices may explain why only GPM&A emerged as significant in the present study.

These findings should be interpreted within the limitations of the study. The analysis was based on responses from 105 hospitality establishments located in Accra and therefore cannot be generalised to the entire hospitality industry in Ghana. In addition, the dependent variable measured managers' perceptions of organisational progress toward SDGs rather than actual SDG achievement. Consequently, the findings reflect managerial assessments of sustainability progress and may not necessarily represent objective sustainability performance. Furthermore, because the data were collected from a single respondent within each establishment using a self-reported questionnaire, the possibility of common method bias cannot be completely ruled out. Despite these limitations, the study provides important implications for research and practice. The findings suggest that hospitality

organisations seeking to enhance perceived progress toward environmental sustainability goals may benefit from strengthening green performance management and appraisal systems.

CONCLUSIONS

This study examined hospitality managers' perceptions of the effect of Green Human Resource Management (GHRM) practices on perceived progress toward SDGs 6, 11, 12, and 14 among hospitality establishments in Accra, Ghana. The findings indicate that green performance management and appraisal was the only GHRM practice that demonstrated a statistically significant positive relationship with perceived progress toward all four SDGs. This suggests that the integration of environmental objectives into employee performance evaluation systems is perceived by managers as an important mechanism for advancing organisational sustainability efforts. In contrast, green recruitment and selection, green rewards and compensation, and green training and development did not exhibit statistically significant relationships with perceived progress toward the SDGs. Therefore, based on the findings of this study, there is insufficient empirical evidence to conclude that these practices are associated with perceived progress toward SDGs 6, 11, 12, and 14 within the sampled hospitality establishments.

Practical Implications

The findings suggest that hospitality establishments seeking to enhance progress toward environmental sustainability goals should pay particular attention to green performance management and appraisal systems. Embedding environmental indicators within performance evaluation processes may strengthen accountability and encourage behaviours that support sustainability objectives. However, given that green recruitment and selection, green rewards and compensation, and



green training and development were not found to be statistically significant predictors of perceived SDG progress, caution should be exercised in assuming their effectiveness within the current context. Additional research is needed before definitive practical recommendations can be made regarding these practices.

Limitations and Suggestions for Further Research

This study was limited to 105 hospitality establishments located within the coastal communities of Accra and relied on managers' perceptions of organisational progress toward SDGs 6, 11, 12, and 14 rather than objective measures of SDG achievement. Consequently, the findings should not be generalised beyond the study context. Future research should investigate why green recruitment and selection, green rewards and compensation, and green training and development did not exhibit significant relationships with perceived progress toward the SDGs. Such studies may explore whether contextual factors, measurement issues, organisational culture, implementation challenges, or industry-specific conditions influence the effectiveness of these practices. Additionally, future studies may examine other Green HRM practices such as employee participation, employee engagement, and green talent management. Researchers are also encouraged to employ mixed-methods approaches, incorporate objective sustainability indicators, and undertake longitudinal studies to provide a deeper understanding of how Green HRM practices influence progress toward the Sustainable Development Goals within Ghana's hospitality industry.

References

- Adjei-Bamfo, P., Bempong, B., Osei, J., & Kusi-Sarpong, S. (2020). Green candidate selection for organisational environmental management. *International Journal of Manpower*, 41(7), 1081–1096.
- Ahmed, M., Guo, Q., Qureshi, M. A., Raza, S. A., Khan, K. A., & Salam, J. (2021). Do green HR practices enhance green motivation and proactive environmental management maturity in the hotel industry? *International Journal of Hospitality Management*, 94, 102852.
- Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology & Health*, 26(9), 1113–1127.
- Ali, E. B., Anufriev, V. P., & Amfo, B. (2021). Green economy implementation in Ghana as a road map for a sustainable development drive: A review. *Scientific African*, 12, e00756.
- Aliyu, U. L. (2021). The impact of the recruitment and selection process in an organisation. *International Journal of Innovations in Engineering Research and Technology*, 8(09), 175–185.
- Amjad, F., Abbas, W., Zia-Ur-Rehman, M., Baig, S. A., Hashim, M., Khan, A., & Rehman, H. U. (2021). Effect of green human resource management practices on organisational sustainability: The mediating role of environmental and employee performance. *Environmental Science and Pollution Research*, 28, 28191–28206.
- Aning-Agyei, M. A. (2020). *Assessing the sustainability of public-private partnership in solid waste management in Ghana* [Doctoral dissertation, University of Cape Coast].



- Anlesinya, A., & Susomrith, P. (2020). Sustainable human resource management: A systematic review of a developing field. *Journal of Global Responsibility, 11*(3), 295–324.
- Anokye, K., Mohammed, A. S., Agyemang, P., Agya, A. B., Amuah, E. E. Y., & Sodoke, S. (2024). A systematic review of the impacts of open burning and open dumping of waste in Ghana: A way forward for sustainable waste management. *Cleaner Waste Systems, 100152*.
- Ardiza, F., Nawangsari, L. C., & Sutawidjaya, A. H. (2021). The influence of green performance appraisal and green compensation to improve employee performance through OCBE. *International Review of Management and Marketing, 11*(4), 13.
- Arthur, I. K., Nikoi, E., Crentsil, A. O., Owusu, A. B., Wrigley-Asante, C. N., & Baffoe, V. (2023). Urban resilience in Africa: A study of land-use stresses on the urban environment in the Greater Accra Metropolitan Area, Ghana. *African Journal of Housing and Sustainable Development, 4*(2).
- Baffoe, G., Zhou, X., Moinuddin, M., Somanje, A. N., Kuriyama, A., Mohan, G., & Takeuchi, K. (2021). Urban–rural linkages: Effective solutions for achieving sustainable development in Ghana from an SDG interlinkage perspective. *Sustainability Science, 16*, 1341–1362.
- Bayo-Moriones, A., Galdon-Sanchez, J. E., & Martinez-de-Morentin, S. (2020). Performance appraisal: Dimensions and determinants. *The International Journal of Human Resource Management, 31*(15), 1984–2015.
- Bell, E., Bryman, A., & Harley, B. (2022). *Business research methods*. Oxford University Press.
- Chacha, E. L. (2010). *Resource-based view strategy at Safaricom Limited* [Doctoral dissertation, University of Nairobi].
- Clottey, C. A., Nukpezah, D., Koranteng, S. S., & Darko, D. A. (2022). Assessment of physicochemical parameters and heavy metals contamination in Korle and Kpeshie Lagoons, Ghana. *Indo Pacific Journal of Ocean Life, 6*(1).
- Conner, M., & Armitage, C. J. (1998). Extending the theory of planned behaviour: A review and avenues for further research. *Journal of Applied Social Psychology, 28*(15), 1429–1464.
- Das, P. K., Chhetri, M., & Tamang, M. R. (2021). *Compensation management*. Ashok Yakkaldevi.
- Debrah, J. K., Teye, G. K., & Dinis, M. A. P. (2022). Barriers and challenges to waste management hindering the circular economy in Sub-Saharan Africa. *Urban Science, 6*(3), 57.
- Deku, P. S. (2020). *An assessment of sustainable solid waste management in Accra, Ghana*. Southern Illinois University at Carbondale.
- Environmental Protection Agency Ghana. (2022). *Unpublished compliance monitoring report on waste management in the hospitality sector*.
- Fernandez, D. C., & Ganesan, J. (2023). Job pursuit intentions of undergraduates towards green job positions and descriptions, green performance management, green employee relations with employers'



- prestige as the mediator. *Journal of Applied Research in Higher Education*, 15(4), 1167–1184.
- Ghana Statistical Service. (2022). *2021 population and housing census: General report, Volume 3A*. Ghana Statistical Service.
- Ghana Statistical Service. (2023). *Annual gross domestic product report 2023*. Ghana Statistical Service.
- Ghana Tourism Authority. (2022). *Unpublished internal report on sustainable practices in hospitality establishments in Ghana*.
- Ghana Tourism Authority. (2023). *Licensed tourism establishments register 2023*. Ghana Tourism Authority.
- Ghani, B., Mubarik, M. S., & Memon, K. R. (2024). The impact of green HR practices on employee proactive behaviour. *The International Journal of Human Resource Management*, 35(8), 1403–1448.
- Gull, S., & Idrees, H. (2022). Green training and organisational efficiency: Mediating role of green competencies. *European Journal of Training and Development*, 46(1/2), 105–119.
- Hagger, M. S. (2019). The reasoned action approach and the theories of reasoned action and planned behaviour. *Journal of Science, Technology, Innovation and Development*, 13(6), 735–746.
- Hameed, Z., Khan, I. U., Islam, T., Sheikh, Z., & Naeem, R. M. (2020). Do green HRM practices influence employees' environmental performance? *International Journal of Manpower*, 41(7), 1061–1079.
- Hammond, M. (2021). Sustainability as a cultural transformation: The role of deliberative democracy. In *The political prospects of a sustainability transformation* (pp. 173–192). Routledge.
- Hart, J. (2022, March). "Fruity" smells, city streets, and the politics of sanitation in colonial Accra. *Urban Forum*, 33(1), 107–127.
- Hart, P. (2022). Reinventing character education: The potential for participatory character education using MacIntyre's ethics. *Journal of Curriculum Studies*, 54(4), 486–500.
- He, J., & Zaman, U. (2024). Sustainable sojourns: Fostering sustainable hospitality practices to meet UN-SDGs. *PLOS ONE*, 19(7), e0307469.
- Jamil, S., Zaman, S. I., Kayikci, Y., & Khan, S. A. (2023). The role of green recruitment on organisational sustainability performance: A study within the context of green human resource management. *Sustainability*, 15(21), 15567.
- Joshi, A., Kataria, A., Rastogi, M., Beutell, N. J., Ahmad, S., & Yusoff, Y. M. (2023). Green human resource management in the context of organisational sustainability: A systematic review and research agenda. *Journal of Cleaner Production*, 139713.
- Kissi, E. A., Segbenya, M., & Amoah, J. O. (2024). Environmental sustainability among workers in Ghana: The role of green human resource management. *Heliyon*, 10(13).
- Lartey, E., Ahenkan, A., Yeboah-Assiamah, E., & Adjei-Bamfo, P. (2023). Urban sanitation: Optimising private sector involvement. In *Global encyclopedia of public administration, public policy, and governance* (pp. 13161–13174). Springer International Publishing.



- Legrand, W., Chen, J. S., & Laeis, G. C. (2022). *Sustainability in the hospitality industry: Principles of sustainable operations*. Routledge.
- Madhani, P. M. (2010). Resource-based view (RBV) of competitive advantage: An overview. In P. M. Madhani (Ed.), *Resource-based view: Concepts and practices* (pp. 3–22).
- Mahapatro, B. (2021). *Human resource management*. New Age International.
- Martins, J. M., Aftab, H., Mata, M. N., Majeed, M. U., Aslam, S., Correia, A. B., & Mata, P. N. (2021). Assessing the impact of green hiring on sustainable performance: Mediating role of green performance management and compensation. *International Journal of Environmental Research and Public Health*, 18(11), 5654.
- Mensah, I. (2019). *Environmental management concepts and practices for the hospitality industry*. Cambridge Scholars Publishing.
- Mensah, J. (2019). Improving environmental sanitation in the catchment area of Benya Lagoon, Ghana: The non-household stakeholder role and participation dimension. *Journal of Water, Sanitation and Hygiene for Development*, 9(4), 714–730.
- Milla-Amekor, E. E. (2024). Green packaging and environmental safety in Ghana's hospitality industry: A systematic review. *International Journal of Environment and Climate Change*, 14(8), 99–108.
- Mishra, P. (2017). Green human resource management: A framework for sustainable organisational development in an emerging economy. *International Journal of Organisational Analysis*, 25(5), 762–788.
- Molina-Azorin, J. F., López-Gamero, M. D., Tarí, J. J., Pereira-Moliner, J., & Pertusa-Ortega, E. M. (2021). Environmental management, human resource management and green human resource management: A literature review. *Administrative Sciences*, 11(2), 48.
- Ntajal, J., Höllermann, B., Falkenberg, T., Kistemann, T., & Evers, M. (2022). Water and health nexus—land use dynamics, flooding, and water-borne diseases in the Odaw River basin, Ghana. *Water*, 14(3), 461.
- Oke, J., Akinkunmi, W. B., & Etebefia, S. O. (2019). Use of correlation, tolerance and variance inflation factor for multicollinearity test. *GSI*, 7(5).
- Otoo, F. N. K. (2019). Human resource management (HRM) practices and organisational performance: The mediating role of employee competencies. *Employee Relations: The International Journal*, 41(5), 949–970.
- Owusu, K., & Obour, P. B. (2021). Urban flooding, adaptation strategies, and resilience: Case study of Accra, Ghana. In *African handbook of climate change adaptation* (pp. 2387–2403). Springer International Publishing.
- Pham, D. D. T., & Paillé, P. (2020). Green recruitment and selection: An insight into green patterns. *International Journal of Manpower*, 41(3), 258–272.
- Pham, N. T., Tučková, Z., & Viet, H. V. (2019, March). Green human resource management in enhancing employee environmental commitment in the hotel industry. In *Proceedings of the 2nd International Conference on Tourism Research* (p. 396).



- Podgorodnichenko, N., Akmal, A., Edgar, F., & Everett, A. M. (2022). Sustainable HRM: Toward addressing diverse employee roles. *Employee Relations: The International Journal*, 44(3), 576–608.
- Podgorodnichenko, N., Edgar, F., & McAndrew, I. (2020). The role of HRM in developing sustainable organisations: Contemporary challenges and contradictions. *Human Resource Management Review*, 30(3), 100685.
- Rantanen, I. (2021). *Sustainable supply management as a source of competitive advantage in Finnish SMEs: A resource-based view* [Unpublished master's thesis].
- Ren, S., Tang, G., & Jackson, S. E. (2021). Effects of green HRM and CEO ethical leadership on organisations' environmental performance. *International Journal of Manpower*, 42(6), 961–983.
- Roorda, N. (2020). *Fundamentals of sustainable development*. Routledge.
- Roscoe, S., Subramanian, N., Jabbour, C. J., & Chong, T. (2019). Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development. *Business Strategy and the Environment*, 28(5), 737–749.
- Sakshi, Shashi, Cerchione, R., & Bansal, H. (2020). Measuring the impact of sustainability policy and practices in the tourism and hospitality industry. *Business Strategy and the Environment*, 29(3), 1109–1126.
- Schroeder, P., Anggraeni, K., & Weber, U. (2019). The relevance of circular economy practices to the Sustainable Development Goals. *Journal of Industrial Ecology*, 23(1), 77–95.
- Seah, S., & Addo-Fordwuor, D. (2021). Roles and strategies of the local government in municipal solid waste management in Ghana: Implications for environmental sustainability. *World Environment*, 11(1), 26–39.
- Strijker, D., Bosworth, G., & Bouter, G. (2020). Research methods in rural studies: Qualitative, quantitative and mixed methods. *Journal of Rural Studies*, 78, 262–270.
- Suleman, A. R., Amponsah-Tawiah, K., Adu, I. N., & Boakye, K. O. (2022). The curious case of green human resource management practices in the Ghanaian manufacturing industry: A reality or a mirage? *Management of Environmental Quality: An International Journal*, 33(3), 739–755.
- Wijaya, S. A., & Mursitama, T. N. (2023). The implementation of triple bottom line on CSR effort toward sustainable development: Case study, Starbucks Greener Nusantara. In *E3S Web of Conferences* (Vol. 388, p. 03018). EDP Sciences.
- Yeboah, S. I. I. K., Antwi-Agyei, P., Kabo-Bah, A. T., & Ackerson, N. O. B. (2024). Water, environment, and health nexus: Understanding the risk factors for waterborne diseases in communities along the Tano River Basin, Ghana. *Journal of Water and Health*, 22(8), 1556–1577.
- Yusoff, Y. M. (2015). Green training and development: A strategic approach for organisational sustainability. *CGHRM*, 108.
- Zhou, P., Ofori, M. A., Jamshidi, A. H., Oduro, C., Sarfo, I., & Dai, Z. (2021). Review on connecting the complex dots of



environmental problems in the Greater
Accra Metropolitan Area (GAMA) of
Ghana. *Journal of Geography*,

*Environment and Earth Science
International*, 25(7), 47–64.