

# The Relationship between Green Human Resource Management Practices and Environmental Performance in Sarawak

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DOI: <https://doi.org/10.30880/rmtb.2025.06.02.008>

## Article Info

Received: 30 September 2025  
Accepted: 01 November 2025  
Available online: 01 December 2025

## Keywords

Green human resource management practices, environmental performance, manufacturing companies

## Abstract

Green human resource management (GHRM) can be defined as an approach that enables an organisation to increase its environmental performance. Green human resource management is here to encourage employees to become more alert about the environment. Besides, GHRM motivates the employees' responsibility toward the environment and team spirit. Human resource management as a strategic tool by engaging talented individuals with special green skills and knowledge can achieve green environment goals. The purpose of the study is to examine the level of green human resource management practices, to understand the level of environmental performance, and to identify the relationship between green human resource management practices and environmental performance. The target respondents were selected and covered mainly by the employees in manufacturing companies, which is 384 respondents based on a population of 137,700, calculated from Krejcie and Morgan. The research applied a quantitative research method. The data will be analysed by using the Statistical Package for Social Science (SPSS) version 25. The results of this study are expected to help understand the relationship between GHRM practices and environmental performance in manufacturing companies in Sarawak.

## 1. Introduction

Recently, the human resource management department has started to seek the perspective of green human resource management on how to align its function with organisational environment goals (Yong *et al.*, 2019). Human resource management in a business increases organisational performance by accommodating activities in an organisation (Aguilera *et al.*, 2021). As human resource management is important for the organisation's growth, Yin (2023) claimed that it plays an important role in applying green human resource management practices in organisations. Since going green affects the entire supply chain, green human resource management practices are considered a predictor of environmental performance.

Policymakers and governments are concerned with protecting the ecosystem and its resources for future generations (Oláh *et al.*, 2020). As a result, organisations offer Green Human Resource Management Practices (GHRMP) and procedures for development. According to (Ögmundarson *et al.*, 2020), GHRMP and procedures

have existed since the 1990s. Besides operations, finance, and marketing departments involved in sustainable environmental practices, human resource management has also been included in green management practices (Chen *et al.*, 2020).

Human Resource Management (HRM) can bring benefits to an organisation's vision and goals. According to Su *et al.* (2021), human resources typically act as a leader's strategic vision to generate and understand the employees. Hamid *et al.* (2022) declared that the success of a company's strategic vision and the efficiency of its operations are influenced by HRM. Numerous research projects have been carried out that show environmentally friendly employees hired are reflected in employee performance in the company's environment (Li *et al.*, 2021; Karatepe *et al.*, 2022). Since HRM is important to reach environmental goals, green human resource management has been organised in environmental management (Mohammad *et al.*, 2020; Muisyo *et al.*, 2022). Green Human Resource Management (GHRM) can be defined as an approach that helps an organisation increase its environmental performance (Yong *et al.*, 2019). For example, production, waste management, culture, values, strategies, and employee behaviors (Xie & Lau, 2023). GHRM is a new concept that increases employees' attitudes and commitment toward a sustainable environment by advancing environmental performance (Umrani *et al.*, 2022). If the organization promotes GRHM practices, the employees will score well on work engagement. As human resource management is one of the most important departments in an organisation, the activities can generate positive performance if they are integrated with Green Human Resource Management Practices (GHRMP) (Hamadamin & Atan, 2019). Green human resource management is here to encourage employees to become more alert about the environment (Amrutha & Geetha, 2020). Besides, GHRM motivates the employees' responsibility toward the environment and team spirit (Pham *et al.*, 2019). Anwar *et al.* (2020) have declared that human resource management as a strategic tool by engaging talented individuals with special green skills and knowledge can achieve green environment goals.

Over the last 50 years, global industrialisation has caused significant environmental difficulties in several sectors of organisational management. Furthermore, taking preventative measures connected to chemicals might help reduce difficulties such as the emission of various poisons that contaminate the atmosphere and seas, together with the production of auditory and visual pollution and maybe even the extinction of species, which are all contributing factors to climate change and environmental degradation (Billig *et al.*, 2022; Darvishmotevali *et al.*, 2022). Greening aims to use energy efficiently, save expenses, and minimise waste (Al Mamun, 2019). Recent environmental issues indicate increased attention to environmental initiatives, mentoring, and staff training to improve green performance (Johar *et al.*, 2020; Ecer *et al.*, 2021). Manufacturing applications pose a danger to the global ecology, as well as economic and social well-being, due to their detrimental environmental effect. This urgent scenario necessitates increasing public knowledge of environmental or green issues, such as emissions reduction, composting, and renewable energy sources, such as sunshine, wind, and hydroelectricity. Malaysia is recognised for its natural beauty, but pollution and climate change are becoming a major part of the country's narrative (Koons, 2024). While this is partly due to the global effects of climate change, the country's activities have an important influence. The manufacturing company makes an impact on the global economy. However, environmental degradation poses a threat to the manufacturing company's operational activities (Aftab & Veneziani, 2023). According to Koons (2024), environmental degradation is one of the major impacts on public health, and it also affects environmental performance. Due to the use of resources from manufacturing companies, it produces leftovers, contaminating land, water, and air with toxins (Farrukh *et al.*, 2022).

Malaysian manufacturing factories are one of the fastest-developing sectors that will bring many benefits to economic growth if they focus on sustainability. According to Kraus *et al.* (2020), the consideration of protecting the environment becomes necessary as environmental problems are occurring from manufacturing companies. The manufacturing company has brought a high risk that destroys the environment and society (Rehman *et al.*, 2021). Wang *et al.* (2021) noted that the products and processes will become efficient if sustainable manufacturing practices. This can help the economy to reduce waste and decrease costs, and the use of materials will be cut down, as suggested by Wang *et al.* (2021). According to Country Economy (2022), Carbon Dioxide (CO<sub>2</sub>) emissions in 2022 increased by 47.04 megatons, which is 272.90 megatons compared to 2021, which was 225.86 megatons (International Energy Agency, 2021). This has made Malaysia the most polluted in the ranking 10 regions recorded by the International Energy Agency (2021). The issue of deforestation has been particularly concerning, mainly in part due to the profitable palm oil sector. Malaysia is the world's second-largest producer of palm oil, and it is involved in substantial land clearance for plantations. Palm oil plantations occupy 18% of the country's area, with 27,000 square kilometres of forest removed between 2002 and 2020 for palm oil extraction (Koons, 2024). This will cause habitat loss for species. Besides, it advances soil and air pollution, erosion, and water contamination. According to Global Forest Watch (2023), Malaysia lost 2.93Mha of humid primary forest between 2002 and 2023, accounting for 33% of total tree cover loss during that period. The total area of Malaysia's humid primary forest dropped by 18% over this period.

According to Bosse (2023), Malaysia ranks 59th in the current Climate Change Performance Index (CCPI), which is down three spots from the previous year. The nation is rated as having extremely low greenhouse gas emissions, low climate policy, and medium renewable energy. It also earns very low scores in all other areas. As

Malaysia announced its 2050 net-zero emissions target in 2021, it launched Malaysia's National Energy Transition Roadmap (NETR), which creates a low-carbon pathway for the energy sector. The experts emphasise the need to improve the NETR by including more information to encourage more investment in strengthening the national grid to meet goals such as the inclusion of renewable energy. The NETR also highlights biomass as a component of the energy transition. Palm oil, whose output is predicted to increase dramatically over the next decade, is a major component of this. Despite these advancements, Malaysia remains strongly reliant on the oil and gas industry. Oil and gas consumption is also substantially subsidised at several levels, including blanket subsidies for transportation fuel.

The geographical distribution of Sarawak's population, with a significant portion living in rural areas, makes it difficult to access and integrate talent into centralised industries. Sarawak faces a gap in skilled labour, with many industries requiring specialised knowledge and expertise that is often unavailable locally. This results in reliance on external talent or the need for significant investment in training. This is worrying as the manufacturing company is the main cause of environmental degradation, which will have an impact on human daily lives. Besides that, energy, forestry, and transportation in terms of annual CO<sub>2</sub> emissions have a significant impact towards manufacturing companies in Malaysia. So, the environmental performance needs to be discussed to protect our environment with green human resource management practices because human resources are central and can reduce environmental problems.

Therefore, to achieve the research objectives, the level of green human resource management practices is determined. Furthermore, the level of environmental performance is determined. Consequently, the relationship between green human resource management practices and environmental performance is identified.

## 2. Literature Review

### 2.1 Environmental Performance

A previous research project has been carried out to find out how environmentally friendly human resource management practices improve a company's environmental performance (Tsai *et al.*, 2019). According to Anwar *et al.* (2020), green human resource management practices may improve the environmental performance of Malaysian institutions by boosting competence, motivation, and employee participation. According to Mousa & Othman's (2020) research in Palestine Healthcare, green human resource management practices such as green recruiting, training, and performance management have a substantial impact on environmental sustainability.

Successful environmental performance is determined by a company's ability to decrease pollution, standardize waste disposal, control recycling, rekindle processes, and build ecological management systems, among other things (Alomar *et al.*, 2021). Starr Glass (2020) suggests that environmental management and human resources must collaborate to establish an effective environmental management system. Shafaei *et al.* (2020) found that green human resource management is a crucial mechanism for implementing green strategies and managing environmental practices, which may significantly improve an organisation's environmental sustainability.

### 2.2 Green Human Resource Management Practices (GHRMP)

Green human resource management (GRHM) is defined as the environmental dimension of management, which aims to improve environmental performance and contribute to the environmental sustainability of organisations (Bahuguna *et al.*, 2022). It includes all actions that help a firm remain sustainable as far as its operations, the environment, and society (Xie & Lau, 2023). Green human resource management involves implementing structures that align with the organisation's environmental purposes, such as compensation, training, and recruitment (Singh *et al.*, 2019). Adopting these rules may enhance an organisation's reputation with present and prospective consumers, as well as serve future generations.

The primary advantages of green human resource management include enhancing employee productivity, improving operational efficiency, minimising expenses, increasing competitiveness and sustainability, improving the image of the business, and making a company more desirable to investors (Haldorai *et al.*, 2022). Implementing green human resource management may assist the business in staying in compliance with these requirements and avoiding potential fines and penalties because labour and environmental laws are always changing and getting stricter (Yong *et al.*, 2019). Businesses may enter new markets and take advantage of economic possibilities relating to environmentally friendly goods and services by integrating sustainability into their human resource processes (Xie & Lau, 2023). According to Sobaih *et al.* (2020), organisations improve their economic, social, and environmental performance by designing, implementing, and maintaining effective environmental management systems.

### 2.2.1 Green Recruitment and Selection

In order to help the company create environmentally friendly processes that eventually improve business performance, one of the fundamental actions is green recruitment and selection (Imran *et al.*, 2021). Green recruitment is employing employees with the required skills, knowledge, approach, and attitudes to identify environmental management systems (Yong *et al.*, 2019). When assessing, characterising, and specifying positions, organisations should highlight environmental issues and directly communicate requirements for applicants to achieve green objectives (Molina-Azorin *et al.*, 2021). According to Usman and Mat (2021), pro-environment organisations will recruit employees who are interested in the activities of environmental management.

Many organisations now recognise the importance of green hiring, which helps to develop their reputations. Green hiring is recognised as one of the critical components in green human resource management practices, allowing the organisation to attract a pool of environmentally responsible potential workers by emphasising environmental experience and motivation. Green selection focuses on selecting green employees who attempt to follow green goals (Yusoh *et al.*, 2023). The perspective of employees' concerns and interest in the company's sustainable environment can be used by organisations as a major selection criterion (Yusliza *et al.*, 2019). Nonetheless, the organisations should be clear about the job description of GHRM practices (Saeed *et al.*, 2018). They must educate the new employees about green goals, values, and the policies of environmental protection. While interviewing the applicants, the organisation needs to decide whether the applicant is suitable to work with the green plan or not.

### 2.2.2 Green Training and Development

Green human resource management practices include green training and development, which motivates employees to adopt green practices. According to Gill *et al.* (2021), training is the process of building people with different abilities to enhance instruction and encourage creativity. Green training involves educating staff on essential abilities, such as garbage collection, to improve efficiency and environmental awareness. Training is defined as the process of developing individuals to become better (Gill *et al.*, 2021). Besides, Yafi *et al.* (2021) highlighted that environmental performance will become effective in terms of applying green training.

Green training gives knowledge management that benefits ecological knowledge and the capacity to solve environmental problems (Usman & Mat, 2021). By providing green training and development, employees may minimise their use of natural resources, save energy, and maximise their production (Anwar *et al.*, 2020). Therefore, seminars and workshops that help staff members get the information and abilities necessary to manage the environment well should be a part of green training and development practices. This will allow them to demonstrate pro-environmental behaviours and become sustainable. In addition, when a company implements and maintains green training and development through the hiring process, it increases the employees' commitment to environmental protection because the induction program's content would have been sufficiently in-depth to help new employees learn the company's policies and green management.

### 2.2.3 Green Reward and Compensation

A green reward will persuade employees to connect their performance with environmental management (Amjad *et al.*, 2021). According to Meng, Liu, Li, & Wu (2021), green reward and compensation give motivation to employees to make them know the importance of protecting the environment. Saputro & Nawangsari (2021) claimed that an organisation must regulate green reward and compensation with green human resource management (GHRM) practices.

According to Islam *et al.* (2019), green rewards and compensation encourage employees to achieve the company's environmental goals through both financial and non-financial incentives. Recognising, appreciating, and praising coworkers brings about increased motivation and inspiration. Green compensation has an important role in supporting and empowering eco-friendliness in an organisation (Islam *et al.*, 2019). The employees will take responsibility for protecting the environment that is impacted by the usage of environmental awards and awareness (Yong *et al.*, 2019).

Some research has stated that organisations can use different practices of reward to encourage employees to achieve green skills (Jamal *et al.*, 2021; Molina-Azorin *et al.*, 2021). Green rewards can be monetary or non-monetary methods. According to Yusliza *et al.* (2019), financial rewards have budgetary prizes, incentives, and commissions, while non-financial benefits include awareness. Previous studies have documented that organisations can increase environmental performance by rewarding employees financially and non-financially (Yafi *et al.*, 2021; Molina-Azorin *et al.*, 2021).

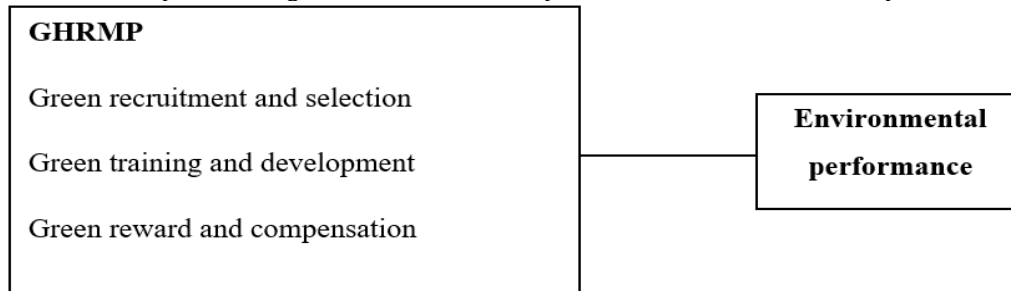
## 2.3 Conceptual Framework

The conceptual framework is shown in Fig. 1. There are three research hypotheses in this research:

H1: There is a relationship between green recruitment and selection and environmental performance.

H2: There is a relationship between green training and development and environmental performance.

H3: There is a relationship between green reward and compensation and environmental performance



**Fig. 1** Research framework

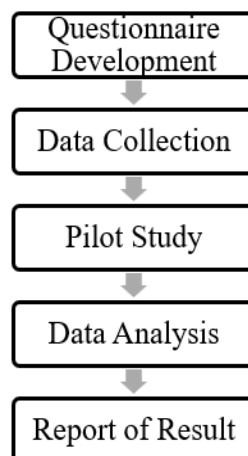
### 3. Research Methodology

#### 3.1 Research Design

In this study, a quantitative methodology is used to examine the green human resource management practices with the employees who work in the manufacturing companies in Sarawak. The questions will be presented in the questionnaire via Google Forms and are divided into three sections. Section A focuses on the demographics of the respondents. Section B focuses on the level of environmental performance of each employee. Section C focuses on the level of green human resource management practices.

This study focuses on the manufacturing company in the human resource management department in Sarawak. This is because manufacturing companies involve the operation of resource consumption and emissions. This makes the green human resource management practices relevant as they involve the company's core activities. Manufacturing companies are subject to various environmental regulations. Other than that, by having good practices in manufacturing companies, the collaboration towards sustainability goals between each other will be promoted. Unit of analysis is defined as the person or item used during the process of data collection in the study (Great, 2017). In this research, the unit of analysis is the employees who work at manufacturing companies in Sarawak. The department will involve human resource management, as this department is crucial to operating the company.

The research design is illustrated in Fig. 2. This flow chart is significant because it depicts the actions that inspired the research process, which provided results that were beneficial according to the research design. The questionnaire is designed with past research in mind, and it includes both green human resource management practices and environmental performance measures.



**Fig. 2** Research design

#### 3.2 Population

According to Shukla (2020), the word population refers to the collection or selection of individual units to which the findings of the research will be applied. This study focuses on the demographics of employees currently employed in the manufacturing companies. The total enrolment of employees in manufacturing companies is 137,700, which is taken from the Official Portal Department of Labour, Sarawak.

### 3.2.1 Sample Size

This study relies on reference data from Krejcie and Morgan in 1970. The sample utilized in this study is more thorough and accurate than the study samples used in some previous research. This sampling method is one of several used to determine the appropriate sample size for the population under study. As the sample size for this research, there are a total of 384 respondents surveyed based on a population of 137,700, calculated from Krejcie and Morgan table.

### 3.3 Research Instruments

The questionnaire contains four sections. Section A is about demographic information, and Section B is about environmental performance. Section C is about green human resource management practices and environmental performance. Section A consists of six questions regarding the respondent's profile. Section B consists of 5 questions for each statement. Section C has 15 questions for each variable.

### 3.4 Data Collection Procedure

Primary sources comprised observation, interviews, and a questionnaire. This is first-hand information from respondents. Primary data that has not been published, updated, or edited by humans is considered more credible and valid (Ajayi, 2023). The researcher collected primary data from respondents using a questionnaire.

For this study, the researchers used a questionnaire, and it is first-hand information. The researcher then distributed the Google Form via email. Simple random sampling was used to ensure each employee in the population had an equal chance of being selected, enhancing the generalizability of the findings. The researcher distributed surveys using the Google Form approach. The employees were contacted based on LinkedIn and the contact email from the companies to collect the data.

#### 3.4.1 Descriptive Analysis

There are two types of descriptive analyses, which are measures of central tendency and measures of variability. This study employed the measure of central tendency to determine the mean or average of the data. Table 3.4 shows the agreeableness level based on Samsudin's mean interpretation. Mean values ranging from 1.00 to 2.33 are considered weak, 2.34 to 3.67 moderate, and 3.68 to 5.00 high. This study implemented descriptive analysis to define respondent profiles, including status, age, gender, education level, and career position.

**Table 1** Table of agreeableness level according to mean interpretation

Mean	Central Tendency Level
1.00 – 2.33	Weak
2.34 – 3.67	Moderate
3.68 – 5.00	High

#### 3.4.2 Reliability Test

The measurement instrument with the lowest reliability value is less effective. Reliability is critical for the validity and validity of test results. Indeed, great reliability is one of the essentials for a test to be regarded true. In this sense, validity refers to a test's ability to properly assess its main concept.

**Table 2** Table for internal consistency of Cronbach's Alpha

The Cronbach's Alpha	Interpretation
$\alpha < 0.9$	Very good
$0.7 \leq \alpha < 0.9$	Good
$0.6 \leq \alpha < 0.7$	Acceptable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha > 0.5$	Unacceptable

#### 3.4.3 Normality Test

According to Ghasemi and Zahediasl (2012), normality tests are used with graphs to determine if the data is normal. It refers to the measure to which the conclusions generated from the assessment findings are appropriate, clear, and useful regarding the assessment's objective. Normality tests are crucial for determining if a population or data set follows a normal distribution. The researcher used the one-sample Kolmogorov-Smirnov test to assess for regularity, using a large sample size (N) of over 50 respondents.

### 3.4.4 Correlation Analysis

Correlation analysis assesses the relationship between two sets of items, such as a primary result and an independent variable, or even two independent variables (Mishra *et al.*, 2019). The degree and direction of a relationship between variables could be determined using correlation coefficients (Schober & Schwarte, 2018). The Pearson correlation measures the linear connection between two random variables with normal distributions. A Spearman rank correlation indicates a consistent link between two variables.

**Table 3** Table of a conventional approach to interpreting a correlation coefficient

Absolute Magnitude of the Observed Correlation Coefficient, r	Interpretation
0.00 – 0.10	Negligible Correlation
0.11 – 0.39	Weak Correlation
0.40 – 0.69	Moderate Correlation
0.70 – 0.89	Strong Correlation
0.90 – 1.00	Very Strong Correlation

## 4. Results and Discussion

### 4.1 Response Rate

The respondents of this study are focused on the employees working in manufacturing companies in Sarawak. The population of employees in Sarawak is 137,700, and the sample size is 384, which is calculated from Krejcie and Morgan. The response rate is 49.22% and all the questionnaires collected were usable as the sample size is not enough due to the fact that there are not many manufacturing companies that implement green human resource management practices in Sarawak. Table 4 shows the responses rate from the questionnaires collected.

**Table 4** Response Rate

Population	Sample Size	Questionnaire Distribute	Questionnaire Returned	Percentage
137,700	384	384	189	49.22%

### 4.2 Reliability Test

#### 4.2.1 Pilot Study

A total of 30 questionnaires were used, which were randomly distributed from the sample size of the research to conduct this pilot test. This result is analysed by using SPSS software. Table 5 shows the Cronbach's Alpha value for the pilot study carried out for this research. The Cronbach's Alpha of environmental performance is 0.858, which indicates in good level. While the independent variables, each of them requires 0.801, 0.812 and 0.808 in green recruitment and selection, green training and development, and green reward and compensation, respectively. These results mean that they can be used for the actual data collection.

**Table 5** Reliability test for pilot study

Variables	Number of items	Cronbach's Alpha ( $\alpha$ )
Environmental Performance	5	0.858
Green Recruitment and Selection	5	0.801
Green Training and Development	5	0.812
Green Reward and Compensation	5	0.808

#### 4.2.2 Reliability Test for the Actual Study

Table 6 shows the results of the reliability analysis calculated by SPSS. Reliability analysis indicates that the multi-item scales used to measure green recruitment and selection ( $\alpha = 0.678$ ), green training and development ( $\alpha = 0.684$ ), and green reward and compensation ( $\alpha = 0.658$ ) demonstrated strong internal consistency. After further scrutiny of the internal consistency test, and by checking the inter-item correlation between all variables, the decision was made to use a five-item each dimension to measure the relationship between green human resource management practices and environmental performance in Sarawak. The Cronbach's Alpha of the dependent variable is 0.669 for the environmental performance. This result shows that the reliability level of the questionnaire is acceptable. The research instrument that is being used is reliable, with a value sufficient, as according to the Cronbach's Alpha value, it must be more than 0.70.

**Table 6** Reliability test for the actual study

Variables	Number of items	Cronbach's Alpha ( $\alpha$ )
Environmental Performance	5	0.669
Green Recruitment and Selection	5	0.678
Green Training and Development	5	0.684
Green Reward and Compensation	5	0.658

### 4.3 Demographic Analysis

Table 7 shows that questions designed in Section A are related to the demographics of the respondent. All the data from the questionnaire answered has been analysed and the results were summarised in the table and pie chart as well, which contains frequency and percentage.

**Table 7** Demographic analysis

Demographic	Classification	Frequency (N)	Percentage (%)
Gender	Male	89	47.10
	Female	100	52.90
	Total	189	100
Ethnicity	Malay	61	32.30
	Chinese	77	40.70
	Iban	38	20.10
	Others	13	6.90
	Total	189	100
	Age	Under 20	14
20 - 30		61	32.30
30 - 40		86	45.50
Over 40		28	14.80
Total		189	100
Education level	SPM	22	11.60
	STPM	29	15.30
	Diploma	47	24.90
	Bachelor's Degree	65	34.40
	Master	18	9.50
	PhD	8	4.30
	Total	189	100
Position	Operational level employee	47	24.90
	Basic level leader	45	23.80
	Middle level manager	65	34.40
	Senior manager	24	12.70
	CEO	8	4.20
	Total	189	100
Marital Status	Single	117	61.90
	Married	72	38.10
	Total	189	100

### 4.4 Descriptive Analysis

#### 4.4.1 Descriptive Analysis for Green Recruitment and Selection

According to Table 8, the statement “Job description specification includes environmental concerns” is the highest mean in the green recruitment and selection dimension, which is 4.25. The second highest mean in this dimension is the statement “Jobs positions are designed to focus on the environmental management aspects of our company” which is 4.01. Third comes to the statement “Recruitment messages include environmental behaviour” which is 3.89, then the next statement is “The environmental performance of our company attracts highly qualified employees” which has a mean of 3.84. Lastly, the lowest mean is 3.77, which is the statement “Applicants’ awareness about green practices is an essential criterion in selection”.

**Table 8** Analysis of green recruitment and selection

Item	Mean	Standard Deviation
Job description specification includes environmental concerns.	4.25	1.23
The environmental performance of our company attracts highly qualified employees.	3.84	0.95
Applicants’ awareness about green practices is an essential criterion in selection.	3.77	0.97
Recruitment messages include environmental behaviour.	3.89	1.03
Jobs positions are designed to focus on the environmental management aspects of our company.	4.01	1.26

#### 4.4.2 Descriptive Analysis for Green Training and Development

According to Table 9, the statement “Our company provides environmental management training for the employees” is the highest mean in the green training and development dimension which is 3.93. The second-highest mean in this dimension is the statement “Environmental training is a priority for our company”, which is 3.90. Third comes to the statement “All training materials are available online for employees to reduce paper costs” which is 3.89, then the next statement is “Our company provides induction training on environmental issues for the new employees” which has a mean of 3.76. Lastly, the lowest mean is 3.74, which is the statement “Our company considers environmental issues when analysing the training requirements”.

**Table 9** Analysis of green training and development

Item	Mean	Standard Deviation
Our company provides environmental management training for the employees.	3.93	1.41
Our company considers environmental issues when analyzing the training requirements.	3.74	1.02
Our company provides induction training on environmental issues for the new employees.	3.76	0.88
All training materials are available online for employees to reduce paper costs.	3.89	1.01
Environmental training is a priority for our company.	3.90	1.25

#### 4.4.3 Descriptive Analysis for Green Reward and Compensation

According to Table 10, the statement “Employees’ suggestions for innovative environmental initiatives are rewarded in our company” is the highest mean in the green reward and compensation dimension, which is 4.04. The second-highest mean in this dimension is the statement “Our company introduces rewards for innovative environmental performance”, which is 3.81. Third comes to the statement “Environmental performance is recognised publicly through awards, dinners, or publicity” which is 3.75, then the next statement is “Any improvement on individual environmental performance will be rewarded” which means 3.74. Lastly, the lowest mean is 3.70, which is the statement “Employees are offered non-monetary and monetary rewards based on environmental achievements”.

**Table 10** Analysis of Green Reward and Compensation

Item	Mean	Standard Deviation
Employees' suggestions for innovative environmental initiative are rewarded in our company.	4.04	1.29
Employees are offered non-monetary and monetary rewards based on environmental achievements.	3.70	0.98
Environmental performance is recognized publicly through awards, dinner, or publicity.	3.75	0.97
Any improvement on individual environmental performance will be rewarded.	3.74	1.02
Our company introduces rewards for innovative environmental performance.	3.81	1.34

#### 4.4.4 Descriptive Analysis for Environmental Performance

According to Table 11, the statement “Environmental management efforts have significantly improved product quality” is the highest mean in the environmental performance dimension, which is 4.35. The second-highest mean in this dimension is the statement “My organisation has reduced the purchases of non-renewable materials, chemicals, and components”, which is 4.03. Third comes to the statement “The environmental efforts have caused us to investigate alternate technologies and procedures”, which is 3.98, then the next statement is “Environmental management efforts have significantly reduced waste within the production process”, with a mean of 3.85. Lastly, the lowest mean is 3.77, which is the statement “The benefits of environmental efforts have outweighed the costs”.

**Table 11** Analysis for Environmental Performance

Item	Mean	Standard Deviation
Environmental management efforts have significantly improved product quality.	4.35	1.18
Environmental management efforts have significantly reduced waste within the production process.	3.85	0.86
The benefits of environmental efforts have outweighed the costs.	3.77	0.91
The environmental efforts have caused us to investigate alternate technologies and procedures.	3.98	0.99
My organization has reduced the purchases of non-renewable materials, chemicals, and components.	4.03	1.20

#### 4.5 Normality Test

The significance level of both independent variables and dependent variables by Kolmogorov-Smirnov is  $p < 0.05$ , which is not a normal distribution, where the value in the range is 0.001. The significance level of the independent variables by Shapiro-Wilk is not normal, with values of 0.001. The research will proceed with parametric analysis, which is the Spearman correlation analysis. Table 12 below shows the result of the normality test.

**Table 12** Result of normality test

Tests of Normality						
Variable	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Green recruitment and selection	0.178	189	<0.001	0.920	189	<0.001
Green training and development	0.169	189	<0.001	0.927	189	<0.001
Green reward and compensation	0.164	189	<0.001	0.929	189	<0.001
Environmental performance	0.179	189	<0.001	0.926	189	<0.001

#### 4.6 Correlation Analysis

Table 13 shows the results of the Spearman correlation coefficient,  $r$  is 0.707, which is a strong relationship between green recruitment and selection and environmental performance. This shows that the correlation

analysis supports a significant positive correlation between them. Therefore, H1 is supported. Next, the result of the Spearman correlation coefficient,  $r$ , is 0.599, showing a moderate relationship between green training and development and environmental performance. This shows that the correlation analysis supports a significant positive relationship between each other. Therefore, H2 is supported. Lastly, the Spearman correlation coefficient of green reward and compensation shows that  $r$  is 0.569, which is a moderate correlation relationship between environmental performance. This shows that the correlation analysis supports a significant positive relationship between each other. Therefore, H3 is supported.

**Table 13** Result of Spearman correlation

Spearman	Environmental performance	Green recruitment and selection	Green training and development	Green reward and compensation
Environmental performance	1.000			
Green recruitment and selection	0.707**	1.000		
Green training and development	0.599**	0.694**	1.000	
Green reward and compensation	0.569**	0.534**	0.534**	1.000

Based on the correlation analysis results, the hypothesis testing results for H1 to H3 are show in Table 14 below.

**Table 14** Hypothesis summary

Hypothesis	Result
H1: There is a relationship between green recruitment and selection and environmental performance.	Supported
H2: There is a relationship between green training and development and environmental performance.	Supported
H3: There is a relationship between green reward and compensation and environmental performance.	Supported

## 5. Conclusion

The human resource management department plays a crucial role in reducing environmental degradation by managing the sustainable use of natural resources. The study demonstrates how green human resource management practices positively influence environmental performance, thereby contributing to sustainability. Based on the research, the objectives are reached as to examine the level of green human resource management practices, understand the level of environmental performance, and identify the relationship between green human resource management practices and environmental performance. Besides, the hypotheses are accepted which there are three hypotheses: H1: There is a relationship between green recruitment and selection and environmental performance. H2: There is a relationship between green training and development and environmental performance. H3: There is a relationship between green reward and compensation and environmental performance.

This study demonstrates that GHRM practices significantly enhance environmental performance in Sarawak's manufacturing sector. By adopting green recruitment, training, and reward systems, organizations can contribute to sustainability while improving employee engagement. These findings provide a valuable framework for policymakers and business leaders aiming to promote green practices in the region. These results show that green human resource management practices can help to decrease environmental problem. This study helps to explore the relationship between green human resource management practices and environmental performance in manufacturing companies in Sarawak.

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## Acknowledgement

The authors would like to thank the Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia for its support.

### Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

### Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Bonnie Kiew, Norasmiha Mohd Nor and Hilyati Sabtu; **data collection:** Bonnie Kiew; **analysis and interpretation of results:** Bonnie Kiew and Norasmiha Mohd Nor; **draft manuscript preparation:** Bonnie Kiew. All authors reviewed the results and approved the final version of the manuscript.

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