

# GREEN HUMAN RESOURCE MANAGEMENT AND SUSTAINABLE EMPLOYEE PERFORMANCE: THE MEDIATING ROLE OF EMPLOYEE GREEN BEHAVIOR

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## ABSTRACT

This research investigates the impact of Green Human Resource Management (GHRM) on Sustainable employee performance (SEP) with mediating effect of Employee Green Behavior (EGB) in Universities of South Punjab, Pakistan. Grounded in the Social Cognitive Theory (SCT) its purposes that GHRM enhance employee's belief in their ability to accomplish tasks (i.e. self-efficacy) and promote observational learning from others that facilitate environmental behaviour, both with respect to task engagement and proactive behaviour toward green challenges.

Through purposive sampling, data was collected from 200 university faculty and administrative staff based on faculties of administrators from four top UI Green Metric Universities in South Punjab. The data were analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM). GHRM demonstrate a significant effect on both kinds of green behavior. But, SEP is only positively affected by task-related green behavior. It is also partially accounts (mediates) for the relationship between GHRM and performance while no significant relationships were found for proactive green behavior.

Our contribution to the existing literature is that we provide some evidence on the developing region and demonstrate that behavior-based sustainability strategies can work within the framework of a university. These findings also provide the organization a practical direction for designing more effective GHRM for the sustainable performance in universities leading to sustainable development in the long run.

**Keywords:** Green HRM, Employee Green Behavior, Sustainable Employee Performance, Social Cognitive Theory, UI Green Metric, South Punjab

## INTRODUCTION

South Punjab is a diverse but economically weaker region of Pakistan, and the number of students in higher education is increasing quickly. However, universities in this region still face many challenges. These include limited institutional support, low awareness about environmental issues among staff and increasing pressure to follow global sustainability standards

(Government of Pakistan, 2024). Because of these problems, it is difficult for universities to properly implement GHRM (Zahoor.,2026).

To deal with these challenges sustainability ranking systems like the UI Green Metric World University Rankings have become important. This ranking was introduced by universities in Indonesia in 2010 and evaluates universities based

on factors such as energy use, waste management, water usage, transportation and environmental education (UI Green Metric, 2023).

In Pakistan, 58 universities are now included in this ranking, which shows that universities are becoming more serious about sustainability (UI Green Metric, 2023). This study focuses on four universities in South Punjab: Bahauddin Zakariya University Multan, Ghazi University Dera Ghazi Khan, The Women University Multan, and Muhammad Nawaz Sharif University of Agriculture Multan because they are actively working on sustainability. These universities provide a suitable setting to study how organizational influence employees environmental behavior (Zahoor, 2026).

## 2. Literature Review

An environmentally sustainable approach to human resource management is one of the main strategic frameworks of strategic management, which embrace an environmentally friendly approach to recruiting employees, organizing the orientation process, and further development. It is also important in performance appraisal, as well as in the creation of reward systems that strengthen environmentally responsible behaviour (Abbas, 2021; Habib et al., 2026). All these practices are the basis of GHRM which is the initiative to align the organisational goals with the sustainability goals.

Theoretically, this relationship may be explained by the SCT that was developed by Albert Bandura. SCT postulates that the organisational policies and practices are environmental factors that affect the cognitive processes and behaviour of individuals. When applied to GHRM, they increase the level of confidence in employees (self-efficacy) and facilitate learning through the process of observation, which subsequently promotes environmentally friendly behaviour (Bandura, 1986; Akram et al., 2024).

Employee green behaviour (EGB) may be classified into two. The first one is an internal or task-oriented green behaviour which means that one carries out the daily job activities in a manner that is environmentally responsible. The second is the external or proactive green behaviour, which consists of voluntary activities, including the

encouragement of sustainability projects and the encouragement of others in the organisation (Usman et al., 2024). These behaviours are practical manifestations of the GHRM practices and denote the way, in which organisational initiatives are converted into the real actions of employees.

Such positive behaviour at an ideal level are a contributor of SEP, which is beneficial to both the individuals and organisations since it minimizes the effects on the environment and maximises long-term sustainability of the organisations (Habib et al., 2026). Nevertheless, the questions of how GHRM affects performance outcomes have not been fully addressed even though the topic receives more attention today. More specifically, it has not been clearly specified in the literature on the role that the underlying mechanisms like SCR and PAS play in the development of this relationship.

In addition, most of the past researches have concentrated more on the corporate world, with minimal consideration on schools. This disparity is especially apparent in the developing world like in South Punjab where institutional barriers and sustainability issues are very different compared to those in developed situations. Also, the mediation of the employee green behaviour as a connector between GHRM and sustainable performance has not been investigated thoroughly in this context (Zahoor, 2026; Imtiaz, 2025).

To fill in on these gaps, the current research focuses on direct and indirect impact of GHRM on employee green behaviour (internal and external) as well as sustainable employee performance in the universities in South Punjab in the UI Green Metric ranking. The target area of the research facilitates offering real-world insights and suggestions on how higher education institutions can adopt sustainability-based strategies and enhance performance results, as it is relevant to one of the developing regions.

### 2.1 Green Human Resources Management and Employee Green Behavior

GHRM incorporates environmental sustainability in the main HR of recruitment, training, performance appraisal and reward systems (Jabbour & de Sousa Jabbour, 2016). The purpose of GHRM is to add sustainability to the

organisational culture by increasing the level of environmental knowledge, skills, and motivation of employees (Tang et al., 2018). As an example, Masri and Jaaron (2017) stress that the green performance appraisal and reward schemes strengthen the environmentally responsible behavior by harmonizing individual performance with the sustainability objectives.

EGB is the behaviour of employees that leads to environmental sustainability in the work place and the behaviour is usually divided into two dimensions, internal and external (Ones & Dilchert, 2012). Internal green behaviour encompasses the undertaking of routine job duties in an environmentally friendly way such as conserving energy and reducing wastes as opposed to external green behaviour which involves voluntary activities that go beyond formal work expectations such as in supporting environmental activities and influencing fellow workers to go green (Boiral & Paillé, 2012). Bissing-Olson et al. (2013) also imply that the proactive green behaviour indicates the intrinsic motivation among employees in terms of being sustainably-oriented.

Empirical evidence shows that the GHRM have a strong impact on the green behaviour of employees through the establishment of a conducive organisational environment (Dumont et al., 2017). Organisational support is even more vital in the formation of employee behaviour in the developing regions where the institutional resources are limited, like in South Punjab (Zaid et al., 2018). Aboramadan (2020) emphasizes the fact that GHRM create a culture of environmental responsibility, which contributes to the task-related and proactive green behaviours of employees. Nevertheless, in the environment of the Pakistani higher education sector, institutional, financial, and structural limitations tend to restrict the application of GHRM, which could restrict their effectiveness (Zahoor, 2026). As such, it is imperative to investigate the connection between GHRM and the two facets of the EGB.

**H1a:** There is a relation between GHRM and green behaviour among internal employees.

**H1b:** There is a relation between GHRM and green behaviour among external employee green behavior.

### 2.3 Employee Green Behavior and Sustainable Employee Performance.

The Employee Green Behaviour is critical towards the translation of the organisational sustainability strategies into tangible results. Norton et al. (2015), argue that employees who behave in an environmentally responsible manner can help in enhancing the organisational efficiency and environmental performance. In the same way, Boiral et al. (2015) posit that green actions at the employee level are necessary in those that are aimed at broader sustainability goals of organisations.

SEP is also an approach that goes beyond conventional performance indicators by including the environmental and social aspects of the performance results (Al Mamun et al., 2020). When employees are able to incorporate sustainability in their work routines, they do not only work towards productivity but also towards long term environmental objectives. Dumont et al. (2017) imply that internal green behaviour can make the operations efficient, whereas Bissing-Olson et al. (2013) mention that external green behaviour can facilitate innovation and green actions in organisations.

Though, it can be said that the connection between employee green behaviour and the performance outcomes can be different according to organisational context. Structural barriers and scarcity of resources might influence the level to which green behaviour can produce performance in institutions of higher learning, especially in developing countries like South Punjab (Zaid et al., 2018). Kim et al. (2019) also posit that the organisational support and institutional culture is vital in enhancing this relationship.

H2a: sustainable employee performance is associated with internal employee green behaviour.

H2b: External employee green behaviour (EGB\_EX) has a significant effect on sustainable employee performance (EESP).

### 2.4 Employee Green Behavior as a Mediator

Green Behaviour among employees is becoming a major concept that is identified to be a major way in which organisational practices determine performance outcomes. SCT further postulates that behavioural outcome relies on cognitive processes due to environmental factors like GHRM, which further has an impact on performance (Bandura, 1986). Pham et al. (2020) claim that GHRM increase the environmental awareness and self-efficacy of employees, which success the adoption of green behaviour.

These behaviors serve as a channel where the organisational practices are converted to quantifiable performance outcomes. Ren et al. (2018) point out that employee behaviour is an intermediate process that connects the HR practices and the organisational performance. Equally, Yong et al. (2020) give empirical support that employee green behaviour mediates the association between GHRM and organisational performance.

Working on sustainability initiatives, the case with the South Punjab universities is still developing, thus, the employee behaviour is especially crucial in terms of institutional restrictions. According to Aboramadan (2020), internal and external green behaviors can play different roles as mediators, which is why it is necessary to consider them individually. Kim et al. (2019) also stress that the knowledge of those behavioral pathways can assist organisations to develop more successful sustainability strategies.

**H3a:** Green behaviour by internal employees is a mediating variable in the relationship between GHRM and sustainable employee work.

**H3b:** External employee green behaviour is the one that mediates between GHRM and sustainable employee performance.

### 3. Materials and Methods

#### 3.1 Research Approach and Design

In this paper, the deductive research design is applied in the context of the study because

hypotheses are formulated based on the theoretical background and then are validated by means of empirical evidence. This study warrants the deductive approach since it is also based on Social Cognitive Theory (SCT), which offers an organized approach to the study of the interaction of environmental factors, Behavioural responses and performance outcomes (Bandura, 1986). The study will be theory based, which will help to confirm the relationships that are proposed between GHRM, EGB, and Sustainable Employee Performance.

The research design utilized was a quantitative one to aid in objective measurement and statistical analysis of the variables used. The popularity of the quantitative methodologies in the conduct of sustainability and organisational behaviour studies is explained by the capability to produce systematic and reproducible relations between constructs (Creswell, 2014). A cross-sectional survey design will enable the data to be collected at only one point in time and will allow the analysis of the relationship between variables without the necessity to pursue them over time (Sekaran & Bougie, 2016). The design is specifically appropriate when the researcher wants to test theoretical models through structural equation modelling analysis.

#### 3.2 Research Framework

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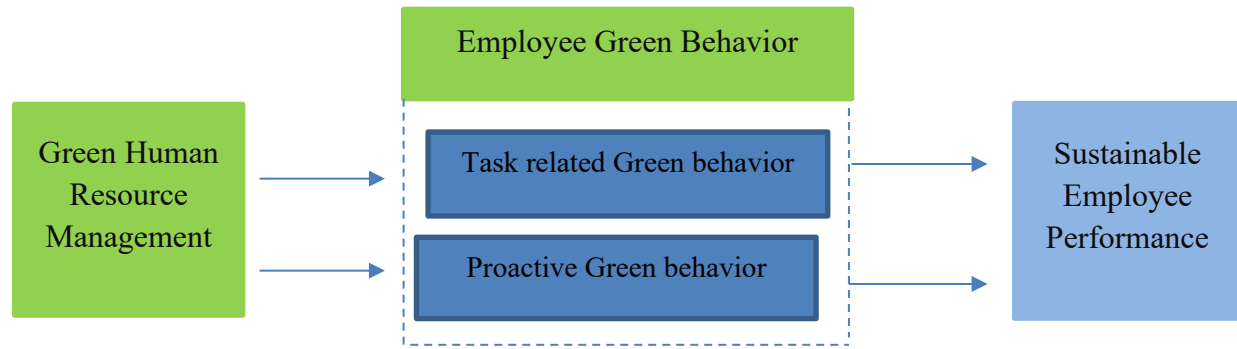


Figure 1. Research Framework

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The study is premised on a conceptual framework of analysing the links between GHRM, EGB (internal and external), and SEP. The independent variable was GHRM, the mediating variable was Employee Green Behavior and the dependent variable was SEP. The study sample included faculty members and administrative staffs of four universities in South Punjab, Pakistan that have been ranked on UI Green Metrics. The purposive sampling method was used because of the limited accessibility, and only the employees with over one year of organisational experience were selected as they were likely to be able to give informed answers. The last sample was 200 valid responses, which is regarded as sufficient to Structural Equation Modelling (SEM) (Barrett, 2007).

A structured online questionnaire was utilized as a means of collecting primary data on the GHRM, EGB and SEP as well as demographic data. The

tool was created according to the SCT, in order to measure behavioural mechanisms. The analysis of data was conducted through Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS software because it is appropriate to analyse complex models and mediation relationships (Hair et al., 2017). The analysis was conducted in two steps, which involved measurement model testing and structural model testing. The ethical standards were ensured through the voluntary participation, anonymity, and confidentiality of the data and the study did not violate the academic purpose of the data.

#### 4. Data Analysis and Results Measurement Model.

In the measurement model, we have evaluated factor loadings, average variance extracted (AVE) and the composite reliability (CR). Based on the suggested thresholds, factor loadings would be 0.50 or higher, AVE would be 0.50 or higher, and CR would be 0.70 or higher. Table X presents the results of the research on AVE and CR, all of which were above 0.50 and 0.70 respectively, which means that the convergent validity and internal consistency reliability presence are sufficient. The factor loadings were also reasonable, and the majority of the values were above 0.70, with one or two slightly lower loading items being left because the total AVE and CR values were not too high (Hair et al., 2022).

The research involved four constructs, which were, GHRM, EGB\_IN, EGB\_EX, and SEP. The constructs fit into the suggested criteria of reliability and validity.

Moreover, the HeterotraitMonotrait ratio (HTMT) was employed to test the discriminant validity according to Henseler et al. (2015) and revised by Franke and Sarstedt (2019). The values of the HTMT are not supposed to exceed 0.85 and 0.90 according to the more stringent and less stringent criterion respectively. Table 1

demonstrates that the constructs are empirically different as all values of HTMT were less than the stricter threshold of 0.85. Combined, these findings prove that the measurement model has a satisfactory level of reliability, convergent validity as well as discriminant validity.

**Table 1: Measurement Model**

Construct	Item	Loading.	AVE	CR
EGB_EX	EGB_EX1	0.831	0.636	0.840
	EGB_EX2	0.772		
	EGB_EX3	0.788		
EGB_IN	EGB_IN1	0.888	0.757	0.903
	EGB_IN2	0.877		
	EGB_IN3	0.846		
ESP	ESP1	0.799	0.635	0.945
	ESP2	0.809		
	ESP3	0.843		
	ESP4	0.823		
	ESP5	0.859		
	ESP6	0.852		
	ESP7	0.820		
	ESP8	0.811		
	ESP9	0.717		
	ESP10	0.600		
GHRP	GHRP1	0.699	0.640	0.898
	GHRP2	0.779		
	GHRP3	0.861		
	GHRP4	0.832		
	GHRP5	0.819		

The indicators in the Table 1 show that there are acceptable values in the outer loading with most of the values being over the recommended cutoff of 0.70 and this indicates that there is a high level of the indicator reliability. Even though the loading of one item (ESP10) is slightly lower, it was not excluded because the overall construct reliability and validity were satisfied (Hair et al., 2022). This proves that the measurement items properly represent their respective latent constructs.

All the composite reliability (CR) values of the construct, the GHRP was 0.898, EGB: EX (0.840), EGB: IN (0.903), and EESP (0.945) are greater than the recommended value of 0.70, which is the high level of internal consistency among indicators. In addition, the values of the Average

Variance Extracted (AVE) of all constructs (0.640, 0.636, 0.757 and 0.635, respectively) show values that are above the required level of 0.50, which affirms convergent validity. These findings imply that all constructs describe over half of the variance in the indicators.

In general, the measurement model meets the necessary criteria of reliability and validity, which means that the constructs are statistically healthy and can be analyzed using the structural model further.

Next, the second step was to measure discriminant validity based on the HeterotraitMonotrait (HTMT) ratio as suggested by Jorg Henseler et al. (2015) and narrowed down by Marco Sarstedt and Franke (2019). As per the suggested values, it is

recommended that HTMT values be not more than 0.85 (strict) or 0.90 (lenient). All the HTMT values were less than the more rigid value of 0.85 as shown in Table 2 suggesting that there was a successful establishment of the discriminant validity. This implies that the respondents could

easily distinguish the constructs of the study. In general, these findings prove that the measurement model has sufficient validity and reliability.

**Table 2: Discriminant Validity (HTMT)**

Constructs	EGB_EX	EGB_IN	ESP	GHRP
EGB_EX				
EGB_IN	0.309			
EESP	0.185	0.462		
GHRP	0.261	0.607	0.511	

Table 2 shows the results of discriminant validity based on the HTMT criterion of all the constructs used in the study. The value of the HTMT lie between 0.185 to 0.607 all under the tight threshold of 0.85. This shows that there is a distinct differentiation among all the constructs and this therefore proves that the discriminant validity has been achieved.

In particular, the HTMT value between EGB EX and EGB IN is 0.309 that exhibits a low to moderate relationship and yet it is discrete. In the same way, EGB\_EX demonstrates low values of HTMT with EESP (0.185) and GHRP (0.261) implying the fact that external green behaviour is obviously unlike the other constructs. Moreover, the correlation between EGB in and GHRP (0.607) and EESP and GHRP (0.511) are relatively high but lower than the threshold, which proves that the constructs under consideration are not similar but are empirically different.

The results, on the whole, demonstrate that all constructs of the model could be distinguished by the respondents, and there is no problem of discriminant validity.

#### 4.2 Structural Model Assessment

The hypothesis testing was done on the structural model using the bootstrapping process of

SmartPLS to determine the significance of the theorised relationships. Based on the recommendation of Hair et al. (2022) and Ramayah et al. (2018), the strength and significance of relationships between constructs were assessed through path coefficients ( $\beta$ ) and t-values as well as p-values. PLS-SEM does not presuppose data normality, so the use of a bootstrapping method with 5,000 resamples was used to obtain strong and dependable estimates.

Moreover, both direct and indirect relationships were evaluated with the help of bootstrapped confidence intervals (BCI) when relationship is defined as significant, when the confidence interval does not contain the zero (Hahn and Ang, 2017). This method presents a more strict analysis than the use of p-values only. Furthermore, the coefficient of determination ( $R^2$ ) was also analysed to determine the ability of the model to explain endogenous constructs.

The findings of the structural model are given in Table X with the path coefficients, the level of significance and the confidence interval of all the hypothesized relationships.

**Table 3: Hypothesis Testing**

Hhypothesis	Relationship	( $\beta$ )	Std Error	t	p	BCI LL	BCI UL
H1	GHRP $\rightarrow$ EGB_IN	0.526	0.061	8.637	0.000	0.386	0.628
H2	GHRP $\rightarrow$ EGB_EX	0.214	0.095	2.255	0.024	-0.120	0.362
H3	EGB_IN $\rightarrow$ EESP	0.399	0.079	5.042	0.000	0.219	0.535
H4	EGB_EX $\rightarrow$ EESP	0.063	0.099	0.640	0.522	-0.188	0.223

H5	GHRP → EGB_IN → EESP	0.210	0.056	3.732	0.000	0.100	0.320
H6	GHRP → EGB_EX → EESP	0.014	0.026	0.517	0.605	-0.030	0.070

The findings of the hypothesis testing with bootstrapping and 5000 resamples and 95 percent of confidence interval are given in Table 3. The results show that there is different support of the suggested relationships.

First, it can be stated that the GHRP has a positive impact on the internal employee green behaviour (EGB\_IN) that is strong and statistically significant (0.526,  $t = 8.637$ ,  $p < 0.001$ ). As such, H1 is justified. This implies that green HRM is a good way of motivating employees to work in an ecologically responsible way in their daily tasks.

Secondly, GHRP also shows a positive and statistically significant impact on external employee green behaviour (EGB\_EX) ( $\beta = 0.214$ ,  $t = 2.255$ ,  $p = 0.024$ ) hence affirming H2. Nonetheless, the effect is smaller than that of internal behaviour and it implies that the GHRM practices are less efficient in encouraging voluntary and proactive green behaviour of the employees.

Thirdly, H3 is fulfilled with the positive significant influence of internal green behaviour (EGB\_IN) on employee sustainable performance (EESP) ( $\beta = 0.399$ ,  $t = 5.042$ ,  $p = 0.001$ ). This observation means that integrating environmental friendly practices in their day to day activities by the employees would directly increase their performance sustainability.

Conversely, external green behaviour (EGB\_EX) is not strongly related to EESP ( $\beta = 0.063$ ,  $t = 0.640$ ,  $p = 0.522$ ), which is the reason to reject H4. This means that voluntary green behaviour, though desirable, do not lead to any considerable performance results in this respect.

In terms of the effects of mediation, the indirect relationship between GHRP and EESP via internal green behaviour (EGB\_IN) is positive and statistically significant ( $\beta = 0.210$ ,  $t = 3.732$ ,  $p < 0.001$ ), which is in favor of H5. This validates that internal green behaviour is one of the important mechanisms that GHRM practices can use to improve sustainable employee performance.

Nonetheless, the indirect impact of GHRP on EESP via external green behaviour (EGB\_EX) does not have significant values ( $\beta = 0.014$ ,  $t = 0.517$ ,  $p = 0.605$ ), leading to the rejection of H6. This implies that proactive green behaviour does not mediate this relationship.

On the whole, the results indicate that task-related (internal) green behaviour is a more pressing line of influence between GHRM practices and sustainable performance, and proactive (external) green behaviour plays a limited role in this framework.

## 5. Conclusion

The paper focused on the effects of the application of GHRM on SEP with special reference to the mediating role of EGB in higher education institutions in South Punjab, Pakistan. Based on the Social Cognitive Theory, the results gave empirical evidence that organisational environmental play a significant role in determining the behaviour of employees and subsequently affect the performance outcomes.

The findings indicate that GHRM have positive effects on the green behavior of employees (both internal and external); nevertheless, the internal (task-related) green behavior alone has significant effects on the sustainable employee performance. This brings out the point that sustainability that is integrated into regular work duties is more effective compared to voluntary and extra-role activities relating to the environment. Moreover, the mediation analysis supports the fact that the internal employee green behavior works as a key process to mediate GHRM into better performance outcomes, but external green behavior does not have a significant mediating role.

On the whole, the research can add value to the current body of literature as it presents context-specific evidence in the developing region and underlines the significance of sustainability strategies that are behaviour-based. The results

indicate that organisations, especially higher education institutions ought to focus on instilling the consideration of GHRM into the employees as their fundamental job roles in order to attain significant and EGB.

### **6. Recommendation**

This study has come up with the following recommendations that can be made towards organisations and policymakers. Organisations must make efforts to consolidate GHRM especially the incorporation of environmental sustainability in recruitment, training and performance management. The management can establish organized green training initiatives that can make employees more environmentally conscious and how they can use sustainability in their day to day job activities.

Also the systems and internal organisational structures must be put in place that promotes green behavior amongst internal employees since this was identified to be the biggest force towards sustainable employee performance. Companies may integrate sustainability in job descriptions, standard operating procedures, and performance appraisal systems to introduce and maintain that environmentally responsible behavior as a normal work, as opposed to voluntary work.

Moreover, organisations ought to establish an enabling organisational culture, whereby environmental responsibility is emphasized by prompting trust, open up and constant learning. The management could implement employee recognition and reward systems to those workers who always portray green behaviours in their job descriptions. EGB, though not significant, can be done to promote voluntary environmental initiatives by organisations to reinforce the culture of long-term sustainability.

Enhancing GHRM performance and aligning the two to behavioural performance are a way of assisting organisations to improve sustainable employee activity and be part of pls long-term institutional development.

### **7. Implications**

The results of this paper offer valuable theoretical and practical consequences to organisations and policymakers who want to improve the

performance based on sustainability. Theoretically, the current study builds on the use of the SCT by establishing the role of GHRM on employee behaviour and performance outcomes through behavioural processes. It points out how the organisational environmental practices are not enough but the extent to which it influences the internal behaviours of the employees.

In a practical sense, the research highlights the need to instil sustainability in the normal job descriptions. The results indicate that internal employee green behavior is more important as a sustainable employee performance improvement behavior as compared to external or voluntary behaviors. This means that the organisational attention should be on the implementation of sustainability in the formal HR systems such as job design, performance appraisal, and training schemes.

Moreover, the research recommends that organisations should balance their HR practices with the sustainability objectives so that they can create a conducive environment that promotes sustainable green behaviour. In so doing, the institutions, especially those in the higher education sector, are able to improve on employee performance coupled with promoting long term environmental sustainability and institutional effectiveness.

### **8.Future Research Directions**

The research presents a number of possibilities in future studies. To gain a better understanding of the nature of the influence of green behaviour in organisations, future research can involve the inclusion of more organisational and behavioural variables like organisation culture, employee involvement, leadership endorsement as well as organisational policies. These aspects can give more valuable understandings of how GHRM impact on the results of performance.

Second, it is possible to adopt longitudinal research designs to understand the dynamics of the relationship between GHRM, green behavior of employees, and sustainable performance. This would give a more vibrant insight into the behavioural change and sustainability implementation in organisations.

Third, future studies may be conducted to understand these relationships in various industries and geographical conditions in order to increase the external validity of the data. Comparison of the developed and developing economies could also help to get a valuable insight in the contextual differences in sustainability. Lastly, the research will be able to conduct studies in the future to determine how various leadership approaches, including ethical or servant leadership, can influence employee green behavior and sustainability performance. This research would add to the existing knowledge in the field of sustainable organisational and behavioural management.

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