

GREEN HUMAN RESOURCE MANAGEMENT AND EMPLOYEE PERFORMANCE: EVIDENCE FROM DEVELOPING ECONOMIES

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ABSTRACT

This study investigates the relationship of GHRM practices with employee performance within Nepalese organizations, with special attention to the mediating role of DHRIF. A descriptive and casual-comparative research design was followed; wherein primary data were gathered from 144 employees using standardized questionnaires. Analysis included descriptive statistics, correlation tests, multiple regression, and SmartPLS structural modeling with 5,000 bootstrapped samples. The results indicate that GKS and GTD retain positive correlations with employee performance, but their direct effects became insignificant during regression. GPA came up to have a significant positive influence on performance, though DHRIF was the most powerful predictor. Further structural model results showed DHRIF significantly mediates the effects of GKS, GTD, and GPA on performance, indicating that digital systems substantially strengthen the effectiveness of GHRM initiatives. The model explains 84.5% of the variance in employee performance, which further upholds the strategic value of integrating green HR practices along with robust digital infrastructures. These findings highlight the need for digitally enabled and environmentally oriented HR systems in organizations from developing economies to improve the performance of employees and to further sustainability goals.

Keywords: digital human infrastructure, green knowledge sharing, green training and development, green performance appraisal, employee performance, green human resource management.

Introduction

Nepal, like many countries, is increasingly recognizing the importance of integrating environmental sustainability into organizational operations. Green Human Resource Management (GHRM) has become a key policy for embedding environmental goals within HR activities, helping organizations reduce their ecological footprint while enhancing employee engagement, organizational performance, and sustainable practices (Yahya & Zargar, 2023).

In the context of Nepalese organizations, which represent developing economies, the application of Green HRM practices such as Green Knowledge Sharing (GKS),

Green Training and Development (GTD), and Green Performance Appraisal (GPA) is vital for achieving environmental sustainability. GKS promotes eco-friendly idea exchange, GTD equips employees with sustainable skills, and GPA evaluates and rewards employees based on their green contributions (Bhatti et al., 2022; Shoaib et al., 2021). A recent study by Saleem et al. (2024) emphasized the role of GKS in promoting both environmental and employee performance, noting that the integration of green competencies through formal training and appraisal systems leads to measurable outcomes. Additionally, the role of Digital HR Infrastructure (DHRIF) is becoming more significant. DHRIF, which includes tools like e-learning platforms, knowledge management systems, and performance appraisal software, supports Green HRM practices and helps achieve sustainability goals within organizations.

This study aims to examine the impact of GKS, GTD, GPA, and DHRIF on Employee Performance in selected organizations in Nepal. The findings will offer valuable insights for organizations seeking to align their HR policies with environmental sustainability and improve overall performance through Green HRM practices.

Background of the Study

In today's dynamic business environment, integrating sustainability into organizational functions is crucial. Green Human Resource Management (GHRM) fosters environmentally conscious employee behavior by embedding environmental principles within HR processes such as recruitment, training, performance appraisal, and rewards, all aimed at supporting sustainability goals (Mustafa et al., 2023). Effective GHRM not only helps preserve the environment but also boosts employee motivation and organizational performance.

Key Green HRM practices, such as Green Knowledge Sharing (GKS), Green Training and Development (GTD), and Green Performance Appraisal (GPA), shape employees' green mindset and promote responsible behaviors. GKS encourages sharing green knowledge, while GTD equips employees with the necessary skills to adopt eco-friendly behaviors. GPA evaluates and rewards employees for their environmental contributions (Song et al., 2020; Ahmad et al., 2023). However, organizations face challenges in implementing these practices, such as limited awareness, poor appraisal systems, insufficient incentives, and inadequate training, which hinder the full potential of GHRM (Bhatti et al., 2022). These barriers prevent organizations from engaging employees in continuous eco-friendly behaviors.

This study focuses on organizations in developing economies like Nepal to examine the direct relationship between Green HRM practices and employee performance. Additionally, the role of Digital HR Infrastructure (DHRIF), which supports green practices through digital tools such as e-learning platforms, knowledge

management systems, and performance management software, will also be explored. The findings aim to help organizations develop HR strategies aligned with sustainable development goals, enhancing competitiveness and employee productivity.

Objective of the Study

The main objectives of the study are:

- To investigate the relationship between Green Knowledge Sharing and Employee Performance, and the mediating role of Digital HR Infrastructure.
- To examine the effect of Green Training and Development on Employee Performance, with Digital HR Infrastructure as a mediating factor.
- To assess the impact of Green Performance Appraisal on Employee Performance, considering the mediation effect of Digital HR Infrastructure.

Research Hypothesis

Green Knowledge Sharing and Employee Performance

Green Knowledge Sharing (GKS) enables sharing of environmentally friendly ideas, technical know-how, and best practices between staff. It increases their environmental awareness and capacity to make impactful contributions towards organizational sustainability goals. Research shows that organizations fostering GKS record greater levels of employee engagement, environmentally responsible behavior, and improved performance outcomes (Saleem et al., 2024; Mustafa et al., 2023).

H1. Green Knowledge Sharing (GKS) has a significant positive relationship with Employee Performance (EP).

Green Training and Development and Employee Performance

Green Training and Development (GTD) involves training workers to gain skills and knowledge needed to perform environmental-supportive activities. Effective GTD enhances employee knowledge of green practices as well as motivates employees to establish sustainable behavior in work routines. Green training programs have been linked with enhanced employee performance and higher environmental commitment through research (Bhatti et al., 2022; Khammadee & Ninaroon, 2022).

H2. Green Training and Development (GTD) has a significant positive effect on Employee Performance (EP).

Green Performance Appraisal and Employee Performance

Green Performance Appraisal (GPA) measures and remunerates workers for their performance towards green goals. Appraisal verifies sustainable behaviors and

translates personal performance into organizational green performance goals. Existing research suggests that open and frequent appraisal channels can increase accountability and staff performance in green projects (Uddin et al., 2023).

H3: Green Performance Appraisal (GPA) contributes positively to Employee Performance (EP).

Mediating Role of Digital HR Infrastructure

Digital HR Infrastructure (DHRIF) refers to the digital systems, tools, and platforms that support Green HRM practices such as Green Knowledge Sharing, Green Training and Development, and Green Performance Appraisal. These systems include e-learning platforms, knowledge management systems, and performance management software that facilitate and streamline the implementation of sustainability initiatives within an organization (Afriyie, 2019).

H4: The relationship between Green Knowledge Sharing (GKS) and Employee Performance (EP) is mediated by Digital HR Infrastructure.

H5: The relationship between Green Training and Development (GTD) and Employee Performance (EP) is mediated by Digital HR Infrastructure.

H6: The relationship between Green Performance Appraisal (GPA) and Employee Performance (EP) is mediated by Digital HR Infrastructure.

Literature Review

Empirical Review

Uddin et al. (2023) examined the influence of green human resource management (HRM) practices on employees' service behavior in the banking industry of Bangladesh. The results indicate that Green HRM practices, including Green Knowledge Sharing (GKS), Green Training and Development (GTD), Green Performance Appraisal (GPA), and Green Reward System, positively influence employee service behavior. The study found that employees' inclination to share knowledge, availability of training facilities, performance appraisals, and reward systems significantly impact bank employees' service conduct. This research contributes to the field of sustainable HRM and provides recommendations for banks seeking to integrate environmental sustainability into their HRM activities to enhance development and service outcomes.

Karaçelebi (2025) studied the relationship between Green HRM and digital transformation in business organizations. The study clarified how the evolution of HR practices aligns with the digital transformation needs of businesses, emphasizing the necessity for digital transformation, particularly in the HR function, to enhance operations. Karaçelebi highlighted that integrating

sustainability into HR operations is crucial for businesses to achieve both environmental sustainability and digital efficiency.

Khan et al. (2025) explored the link between green knowledge sharing and green performance through a knowledge-based view (KBV). The study developed a moderated mediation model, showing that green creativity mediates the relationship between green knowledge sharing and green performance, while green human capital moderates the link between green knowledge sharing and green creativity. The findings underline the significance of green knowledge sharing and creativity in enhancing green performance and suggest that investing in green human capital could further amplify these effects.

Santi (2023) explored how employee performance and innovation in Indonesia's banking industry were affected by Green HRM practices. The findings showed that employee performance was significantly impacted by innovative work cultures and the exchange of green knowledge. Also, the relationship between employee performance and green knowledge sharing was mediated by an innovative work culture, suggesting that fostering innovation is essential for maximizing the benefits of Green HRM practices.

Ahmad et al. (2023) examined the moderating role of green knowledge sharing in the relationship between Green HRM practices (competence, motivation, involvement) and environmental performance, mediated by employee environmental commitment. The study found that green knowledge sharing significantly enhanced environmental performance through employee environmental commitment. These findings emphasize the need to develop green knowledge sharing and employee commitment to achieve sustainability goals.

Darvishmotevali and Altinay (2022) explored the impact of Green HRM on employees' pro-environmental performance (P-EP) in the hotel industry in Almaty, Kazakhstan. The findings revealed that environmental awareness significantly mediates the effect of Green HRM on proactive P-EP, but not on task-related P-EP. Additionally, servant leadership did not moderate the relationship between Green HRM and task-related P-EP. The study offers valuable theoretical insights and practical implications for enhancing environmental performance through HRM practices in the hospitality sector.

Bhattarai et al. (2023) examined the adoption of Green HRM practices among managers in the Patan Industrial Estate, focusing on the role of Green HRM in influencing Employee Green Behavior (EGB) through the mediating role of environmental knowledge. The findings indicated that environmental consciousness did not act as a mediator between Green HRM and EGB, challenging the expected outcomes of AMO theory in this context. The study recommends

updating organizational policies, acquiring ISO certification, and encouraging emerging technologies to enhance Green HRM implementation.

Ahmad (2023) discussed the increasing importance of Green HRM in organizational sustainability, particularly due to globalization and the shift toward green economies. The study emphasized how Green HRM practices have become a critical strategy for HR departments in fostering organizational sustainability. It outlined various Green HRM practices and proposed effective HR projects for organizations to adopt green practices.

Bhatti et al. (2022) investigated the relationship between Green HRM practices and Environmental Performance (EP) in environmentally hazardous industries, such as oil and gas. The findings showed that while Green HRM practices did not have a direct significant effect on EP, they had a significant indirect impact through perceived organizational support (POS) and innovative environmental behavior (IEB). This research suggests that organizational and individual factors are critical for enhancing environmental performance.

Lawter and Garnjost (2025) evaluated the impact of Green HRM on organizational performance indicators, including social impact, environmental performance, and green innovation. The review indicated that Green HRM has a direct positive impact on environmental performance, sustainability goals, and green innovation, but an indirect impact on financial performance. The study also identified gaps in the literature and provided recommendations for future research on the relationship between strategic organizational performance measures and Green HRM.

Pete-I (2025) investigated the impact of Green HRM practices in supply chains on organizational performance. The findings identified the most significant GHRM practices, including green recruitment, development, training, performance appraisal, and empowerment. These practices positively influence organizational performance by enhancing employee dedication, reputation, and market access, with overall sustainability benefiting organizations.

Iftikar et al. (2022) examined the relationship between Green HRM and pro-environmental behavior in the hospitality sector of Pakistan. The findings showed that Green HRM positively influenced pro-environmental behavior, moderated by Green Self-Efficacy and mediated by Green Entrepreneurship. The study provided valuable insights into increasing environmental performance through green HR policies, especially in the hospitality sector.

Wang et al. (2025) investigated the adoption and institutionalization of Green HRM in Malaysian SMEs, with specific reference to Perceived Organizational Green Readiness (POG) and Perceived External Green Readiness (PEG). The study found

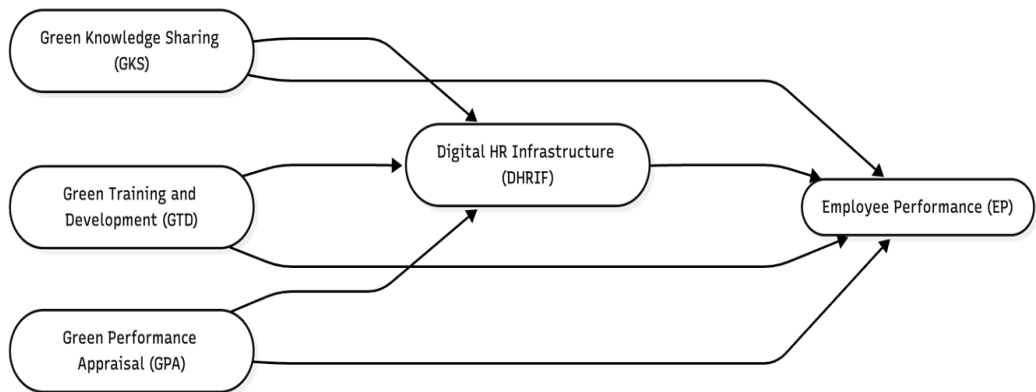
that both POG and PEG significantly influence the initial adoption of Green HRM, which mediates its institutionalization. Corporate Social Responsibility (CSR) was found to moderate the relationship, highlighting its key role in facilitating sustainable business practices.

Khammadee and Ninaroon (2022) found that Green HRM significantly influences green organizational culture, which positively affects green service innovation and environmental performance. Green service innovation was found to mediate the relationship between green organizational culture and environmental performance, emphasizing the role of innovation in promoting sustainability.

Khan et al. (2022) investigated the relationship between perceived Green HRM and Employee Green Behavior (EGB), focusing on the mediating role of Green Commitment (GC) and the moderating role of Green Knowledge Sharing (GKS). The study found that GC mediates the relationship between Green HRM and EGB, while GKS moderates the indirect effect of Green HRM on green behavior via GC. These findings highlight the importance of green practices and behaviors in enhancing organizational sustainability.

Conceptual Framework

This conceptual framework describes the associations among three crucial determinants, namely GKS, GTD, and GPA, and their influence on Employee Performance in the framework of GHRM. GKS represents the concept of sharing knowledge and best environmental practice, which enables the cultivation of awareness and commitment related to sustainability. GTD imparts the required skills to employees for the integration of green processes. Similarly, GPA integrates relevant green criteria into the performance evaluation system, which inspires and encourages the workforce toward alignment with sustainability objectives. Furthermore, DHRIF mediates the above relationships by providing the technological tools-e.g., e-learning platforms and knowledge management systems-that support effective GHRM practices and amplify their impact on Employee Performance.

Figure 1*Conceptual Framework*

Source: Adapted from Uddin et al. (2023)

Materials and Methods

A descriptive and casual-comparative research design was employed in the study to analyze interlinkages between GKS, GTD, GPA, and Employee Performance in the context of implementation of Green HRM. The descriptive part provides an overall view about these variables and their characteristics, while the causal-comparative design examines the possible cause-effect relationship among them. This research design thus allows us to find out how employee performance is influenced by green knowledge exchange, acquisition of skills, and performance appraisal, and to apply Green HRM practices effectively. Also, Digital HR Infrastructure is viewed as a moderating variable in this study, which influences the effectiveness of Green HRM practices. Data were directly collected from employees and management in different companies; further, it was analyzed to provide useful insights regarding the impact of Green HRM practices and also the role of Digital HR Infrastructure on employee performance.

Sources of Data

The primary source of data for this study consists of employees working at various organizations in Nepal. Data collection was carried out using a structured questionnaire, designed to capture employees' perceptions, experiences, and views regarding Green HRM practices such as Green Knowledge Sharing, Green Training and Development, Green Performance Appraisal, and their impact on Employee Performance. In addition, the questionnaire also assesses Digital HR Infrastructure (DHRIF), focusing on its role in moderating the relationship between Green HRM practices and employee performance. The use of primary data enables the

collection of real-time insights, making the study highly relevant and specific to the organizations under consideration.

The measurement scales for the variables are adapted from established studies to ensure validity and reliability:

- Green Knowledge Sharing (GKS) adapted from Darvishmote & Altinay (2022)
- Green Training and Development (GTD) adapted from Ren et al. (2021)
- Green Performance Appraisal (GPA) adapted from Lin & Yu-Shan (2017)
- Employee Performance (EP) adapted from Pradhan & Jena (2017)
- Digital HR Infrastructure (DHRIF) adapted from Afriyie (2019)

Results and Analysis

Correlation Analysis

Table 1

Correlations Test between GKS, GTD, GPA with EP

Construct	GKS	GTD	GPA	DHRIF	EP
GKS	1				
GTD	.701**	1			
GPA	.650**	.853**	1		
DHRIF	.736**	.915**	.855**	1	
EP	.631**	.859**	.855**	.903**	1

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 1 presents the Pearson correlation coefficients between the key variables: GKS, GTD, GPA, DHRIF, and EP. For each correlation coefficient, the p-values expressing the level of significance are given. Statistical testing of the level of significance means the probability of observing a correlation as high as in the sample, assuming that there is no correlation in the population. As the p-value falls below some threshold-usually 0.05 or 0.01-the correlation found is statistically significant, i.e., such that one would not expect it to be observed by chance. Looking at the relationships, a strong positive correlation was found for GKS and GTD with $r = .701$ ($p < 0.01$), indicating that when employees are taking part in activities of environmental knowledge sharing, they are likely to take part in green training activities. Green Performance Appraisal also had a strong statistical relationship with GKS, $r = .650$ ($p < 0.01$), which shows that the rating system is related to both training and knowledge-sharing behaviors, and this was also the case for GTD, $r = .853$ ($p < 0.01$). DHRIF also showed very strong correlations with GKS, $r = .736$ ($p < 0.01$), GTD, $r = .915$ ($p < 0.01$), and GPA, $r = .855$ ($p < 0.01$), indicating its central role in strengthening all Green HRM practices. All three green HRM variables (GKS, GTD, GPA) and DHRIF also showed strong positive

relationships with Employee Performance, EP, $r = .631, .859, .855, \text{ and } .903$ respectively, all $p < 0.01$. Thus, these relationships allow us to state that enhanced green HRM practices supported by appropriate digital HR infrastructure are significantly associated with higher employee performance.

Overall, the findings underline the interrelatedness of green HRM practices and how collectively they lead to improvements in employees' performance. Firms willing to improve employee outcomes must be concerned with facilitating green knowledge sharing, effective training on sustainability issues, and taking green measures of performance into consideration when appraising employees. The inclusion of DHRIF further explains how digital systems reinforce such green HRM practices and heighten the impact on employee performance. It is only by creating a culture that fosters employees' green knowledge-sharing behavior, getting proper training, and being recognized for green contributions that organizations will be able to establish a more responsible, engaged, and high-performance workforce. These results highlight how embedding sustainability into the HRM models contributes not only to environmental causes but also to enhancing employees' effectiveness and long-term organizational performance.

Regression Analysis

Table 2

Coefficients Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.552	0.191		2.886	0.005
	GKS	0.148	0.081	0.091	1.836	0.069
	GTD	0.100	0.101	0.087	0.992	0.323
	GPA	0.317	0.074	0.293	4.304	0.001
	DHRIF	0.874	0.127	0.639	6.905	0.001
Dependent Variable: EP						

Based on the results presented in Table 2, we analyzed coefficients for explaining the regression model used in predicting Employee Performance by means of four predictors, namely Green Knowledge Sharing, Green Training and Development, Green Performance Appraisal, and Digital HR Infrastructure. The constant in the regression model, $B = 0.552$, $p = 0.005$, depicts the level of employee performance even when the other predictor variables are all held constant. Green Knowledge Sharing has shown a positive influence on employee performance, with its coefficient at $B = 0.148$ and a probability of $p = 0.069$. While GKS contributed positively, this effect does not reach statistical significance at a 0.05 significance level in the presence of other predictors. Lastly, Green Training and Development

evidences a positive but statistically insignificant effect, $B = 0.100$, $p = 0.323$, meaning that although training potentially nurtures environmental awareness, it may need to be more strongly reinforced or combined with other HR practices to have significant performance outcomes. Green Performance Appraisal evidences a strong and statistically significant effect on employee performance at $B = 0.317$, $p = 0.001$, which shows that once green criteria were integrated into employees' performance evaluations, resultant improvements in performance became measurable. Finally, most important, Digital HR Infrastructure evidences the highest and most significant effect on employee performance, $B = 0.874$, $\beta = 0.639$, $p = 0.001$. This points out that digital systems, like e-learning platforms, HR portals, knowledge management systems, and digital performance tracking tools, play the critical enabling role of strengthening the impact of all green HRM practices.

In summary, the findings confirm the combined contributions of GKS, GTD, GPA, and DHRIF in enhancing employee performance, with DHRIF emerging as the strongest overall predictor. The results highlight the strategic importance of a digital HR infrastructure that supports environmental knowledge sharing, continuous green training, and green-oriented performance appraisal to achieve optimal employee performance in a sustainable workplace.

Table 3

Model Summary

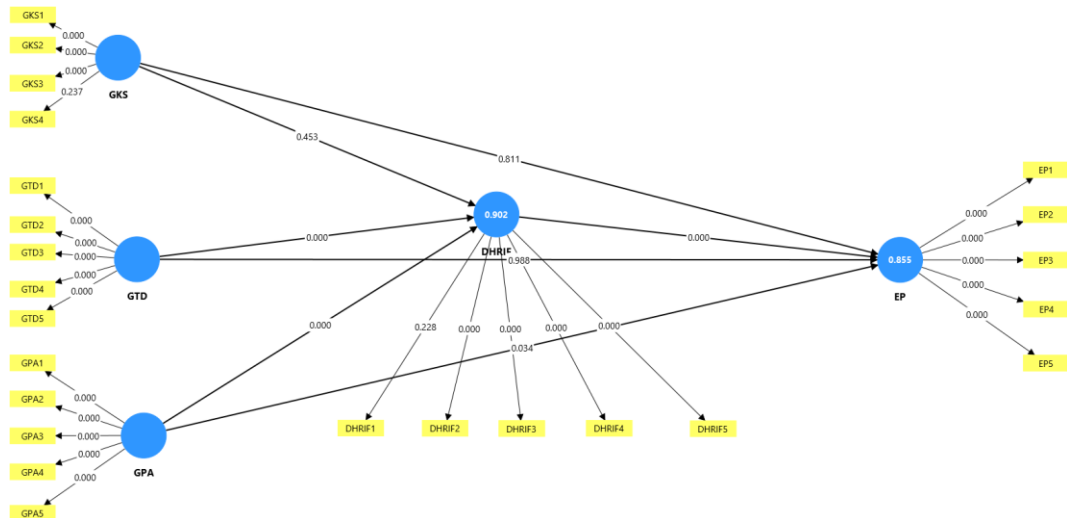
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.919 ^a	0.845	0.841	0.55386

a Predictors: (Constant), DH, GPA, GKS, GTD

Table 3 shows that the model explains a large portion of the variation in Employee Performance. The R-value of 0.919 indicates a very strong overall relationship between the predictors (GKS, GTD, GPA, and DHRIF) and Employee Performance. The R Square value of 0.845 shows that 84.5% of the variance in employee performance is explained by the four predictors, demonstrating high predictive power. The standard error of 0.55386 indicates a good level of accuracy in the model's predictions.

Structural Model

The study employed SmartPLS to measure the structural model and to assess the postulated associations. This research has also used bootstrapping of 5000 resamples to appraise the statistical significance of path coefficients. The results of the structural model fit were established based on the recommended indices.

Figure 2*Structural Model Fit Test*

The proposed hypotheses have been tested by implementing 5000 bootstrapping samples to obtain the path coefficients and significant direct and indirect relationships among the constructs. The results are presented in Table 3. First, the results related to H1 pointed out that GKS has no significant direct impact on EP ($\beta = 0.104$; $p > 0.069$); therefore, H1 has been rejected. Second, in assessing H2, it was found that GTD has a significant direct impact on EP ($\beta = 0.215$; $p < 0.05$). Hence, H2 is supported. Similarly, in regard to H3, the result proved that GPA also exerts a significant direct influence on EP ($\beta = 0.170$; $p < 0.05$), thus supporting H3. The results also show that DHRIF plays an important mediating role in the structural model. To assess the mediation hypotheses-H4, H5, and H6-the bootstrapped indirect effects have been considered. The results indicate that DHRIF mediates significantly between GKS and EP ($\beta = 0.028$; $p < 0.05$); therefore, H4 is supported. Further, DHRIF mediates the relationship between GTD and EP significantly ($\beta = 0.433$; $p < 0.001$), supporting H5. Lastly, the model confirms that DHRIF significantly mediates the relationship between GPA and EP ($\beta = 0.309$; $p < 0.001$), thus supporting H6.

These findings present evidence that some Green HRM practices, which exert weaker direct influences on employee performance, become statistically significant once implemented through a strong digital HR infrastructure. This further emphasizes the central enabling role of DHRIF in strengthening the effectiveness of GHRM practices and bringing improved employee performance outcomes.

Table 4*Summary of Path Analysis*

Hypothesis	Pathways	Path Coefficient	p-Value	Decision
H1	GKS → EP	0.104	0.069	NS
H2	GTD → EP	0.215	0.002	S
H3	GPA → EP	0.170	0.036	S
H4	GKS → DHRIF → EP	0.028	0.031	S
H5	GTD → DHRIF → EP	0.433	<0.001	S
H6	GPA → DHRIF → EP	0.309	<0.001	S

Table 4 illustrates the results of the structural model, where both the direct and indirect effects of Green HRM practices on Employee Performance (EP) are shown. It can be seen that GTD ($\beta = 0.215$, $p = 0.002$) and GPA ($\beta = 0.170$, $p = 0.036$) have significant direct effects on EP, which confirms that green training and green performance appraisal make significant contributions to employee outcomes. Although GKS presents a positive coefficient of $\beta = 0.104$, it is marked as non-significant for its direct effect. The mediation results identified DHRIF as very important, significantly mediating the influences of GKS, GTD, and GPA on EP. More specifically, the indirect paths GKS → DHRIF → EP, GTD → DHRIF → EP, and GPA → DHRIF → EP are significant, meaning that the role of digital HR systems is invaluable for enhancing the effectiveness of green HRM practices.

Overall, the findings indicate that not all Green HRM practices have a direct influence on performance, but their impact becomes quite significant when supported by strong Digital HR Infrastructure.

Discussions and Findings

- Organizations in developing economies such as Nepal has a young workforce with 68% being under the age of 35 years. The largest percentage (40%) is between 25–35 years, followed by 28% under 25 years. The young age composition illustrates an active, dynamic workforce with great potential for creativity and openness to green HRM initiatives.
- Green Knowledge Sharing (GKS) Makes the Greatest Contribution to Employee Performance. Regression analysis reveals GKS to be the most robust predictor of employee performance ($\beta = 0.660$, $p < 0.001$). Employees who are actively engaged in environmental knowledge sharing and sustainability idea exchange contribute significantly to organizational success, reflecting the value of open communication and collaboration in green HRM.
- Green Training and Development (GTD) Enables Performance Enhancement. Though not separately statistically significant ($B = 0.071$, $p = 0.754$), GTD positively influences, validating that continuous training on sustainability enhances awareness and aligns employees' values with

environmental goals. Coupled with strong knowledge-sharing and evaluation mechanisms, GTD can enhance performance even further.

- **Green Performance Appraisal (GPA) Plays a Supportive Function.** GPA also shows a positive coefficient ($B = 0.317$, $p = 0.001$), which explains that the integration of green contributions into performance appraisals assists in motivation and recognition. GPA, though not significant by itself, assists other green practices in order to enable employee commitment.
- **Digital HR Infrastructure (DHRIF) as a Key Enabler.** DHRIF demonstrates the strongest effect on employee performance ($\beta = 0.639$, $p < 0.001$), showing that digital platforms significantly amplify the impact of green HRM practices. Tools such as HR portals, performance dashboards, e-learning systems, and digital knowledge-sharing platforms enable more effective deployment of GKS, GTD, and GPA, increasing their reach, consistency, and efficiency.
- **Green HRM Practices Collectively explain 84.5% of Performance Variance.** The regression model shows a very high R^2 value of 0.845, meaning that GKS, GTD, GPA, and DHRIF together explain 84.5% of the variation in employee performance. This exceptionally high explanatory power demonstrates the strategic importance of combining green HRM practices with strong digital HR systems.
- **Strong Intercorrelation Among Green HRM Variables.** The correlation matrix revealed significant and strong positive relationships between GKS, GTD, GPA, DHRIF, and EP (all $p < 0.01$), confirming that these practices are interrelated and work synergistically. GKS and GPA ($r = 0.650$), GTD and GPA ($r = 0.853$), DHRIF and GTD ($r = 0.915$), and DHRIF and GPA ($r = 0.855$), along with EP's strong correlations with each predictor, validate the model's internal consistency and reinforce the importance of cohesive HRM policy implementation.
- **Standard Deviation Analysis Suggests Consistency in Responses.** The standard deviations for all variables ranged moderately (e.g., EP SD around 0.62, GPA and GTD around 0.65–0.76, GKS around 0.68, and DHRIF around 0.72), indicating a consistent and reliable pattern in respondent perceptions, with sufficient variance to reflect authentic diversity in employee experiences.

Conclusion

The present study aims to explore the impact of GHRM practices on Employee Performance in developing economies, under the focal dimensions of Green Knowledge Sharing, Green Training and Development, and Green Performance Appraisal, with the enabling role of Digital HR Infrastructure. Hypotheses were therefore formed to ascertain the influence of each of the green HRM practices on the performance of employees. Results do not support H1 since the effect of Green Knowledge Sharing on employee performance is positive but statistically insignificant ($B = 0.148$, $p = 0.069$). However, correlation analysis shows that it has a

strong positive relationship with employee performance ($r = 0.631$, $p < 0.01$), indicating that when employees are in conscious environmental knowledge and idea sharing, it can still contribute positively to participation, teamwork, and ultimately performance. Even though H2 and H3 posited a positive contribution of Green Training and Development and Green Performance Appraisal towards EP, both have emerged to be statistically insignificant in the regression model (GTD: $B = 0.100$, $p = 0.323$; GPA: $B = 0.317$, $p = 0.001$), although both the constructs have shown positive coefficients. This suggests that GTD and GPA may continue to play supportive roles in increasing environmental awareness, motivation, and employee commitment if combined with other green HR practices.

In this study, DHRIF has emerged as the most critical enabler, showing the strongest effect and most significant impact on employee performance ($B = 0.874$, $\beta = 0.639$, $p = 0.001$). DHRIF strengthened the impact of all green HRM practices because such platforms enable proper knowledge sharing, consistent training delivery, and transparent green performance appraisal. The predictive power of the combined regression model is high and explains 84.5% of the variability in employee performance ($R^2 = 0.845$). Hence, GKS, GTD, GPA, and DHRIF are significantly influential in employee performance. The strong positive intercorrelations between all predictors and EP also suggest that optimal results come when these practices are implemented in concert rather than individually.

Finally, the study reveals that Green Knowledge Sharing, Green Training and Development, Green Performance Appraisal, and Digital HR Infrastructure collectively lead to better employee performance. These findings underscore the need for an eco-friendly, communicative, digitally supported, and reward-based organizational culture if organizations operating in developing economies are to have the full benefit of green HRM.

Limitations and Future Directions for Research

Although this study makes useful distinctions regarding the role of Green HRM practices in enhancing employee performance, several limitations need to be considered. First, the use of cross-sectional data from a restricted sample limits its ability to infer causation or any long-term impact. Another limitation relates to self-reported data, including the usual response bias from employees, who may give socially desirable answers, especially about their environmentally friendly behavior. Further, the sole focus on Green HRM practices, to the exclusion of other contingencies like organizational culture or leadership styles, may lead to the omission of other major determinants of employee performance. Moreover, not every organization is on an equal footing in terms of digital infrastructure, and this would have impacted how employees perceived and experienced DHRIF. This suggests that future research needs to also consider technological readiness

differences. The mediation effects of DHRIF were also estimated based on perception-based data rather than system-generated usage records, which may affect the precision of the mediation estimates. Future research should focus on expanding the sample to organizations across different industries and geographies for improved generalizability. Longitudinal studies would also be useful in investigating the long-term effects of Green HRM practices on employee performance. Furthermore, the influence of organizational culture and leadership, as well as external factors such as regulatory pressures, on the success of Green HRM practices deserves to be elicited for a more holistic understanding. Similarly, the mediating/moderating impact of certain constructs such as employee engagement and environmental commitment can provide more fine-tuned insights. Finally, direct environmental outcomes of Green HRM practices will help estimate their wider organizational and sustainability impact.

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