

# Sustainable Development through Green Human Resources Management: Perceptions from MSMEs in Northern India

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**Abstract:** Given the escalating threat of pollution, it is evident that Micro Small and Medium-sized Enterprises (MSMEs) offer a formidable engine for long-term growth, especially in new countries like India. This paper examines the adoption and influence of Green Human Resource Management (Green HRM) practices within MSMEs of the Delhi-NCR Region, explicitly aimed at their green sustainable concept. Using the structural equation modeling methodology as the primary analytic technique, a total of 289 responses from companies operating in Northern India were collected. The scholarly article delves deeply into the key facets of Green HRM, as well as the ecological implications of these approaches within an organizational setting. It explores dimensions such as eco-friendly recruitment tactics, environmental training programs, performance reviews with a focus on sustainability, collaborative efforts between employees, and involving workers in green initiatives. The results notably illustrate a significant linkage between Green HRM practices and boosting sustainable functioning in small to medium manufacturing and service enterprises. These conclusions underscore the strategic importance of incorporating environmentally conscious HRM strategies to achieve long-term terrestrial and financial goals. The innovative research provides beneficial insights for policymakers, HR specialists, and small business leaders seeking to harmonize their human capital policies with aims of environmental preservation. Overall, the findings highlight both the opportunities and difficulties related to adopting Green HRM in modest companies operating in an emerging economy.

**Keywords:** Green HRM, Sustainability, MSME, Smart-PLS, Green Performance Appraisal

## 1. Introduction

The concept of sustainability has become a pivotal worldwide motivation, as the pressing necessity to shield our habitat, mitigate climatic transformation, safeguard dwindling all-natural assets, and advance the customs of conscientious business has gained heightened exigency. In this intercontinental milieu, corporations have been summoned to encompass sustainability in all their functions, which involves the administration of anthropic capital. Green Human Resource Administration (Green HRM) is progressively considered a strategic tactic to making certain that anthropic capital is dedicated to ecological sustainability priorities. While firms must prioritize ecological sustainability, it is also important they consider the

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well-being of human resources and create policies that promote a balanced approach. Sustainable practices should not come at the cost of overworking employees or failing to adapt to societal changes. A holistic perspective is ideal, taking into account environmental, economic and social impacts equally. Although major corporate houses have visibly progressed towards green practices, the contribution of Micro, Small, and Medium Enterprises (MSMEs) to environmental sustainability has assumed significant proportions, especially in the context of emerging markets like India. MSMEs are the backbone of the Indian economy and play a critical role in employment generation, industrial production, and export earnings (Shelly et al., 2020). According to the most recent government estimates, MSMEs contribute over 30% to the country's GDP and employ more than 110 million people. Despite their economic significance, MSMEs have been criticized for polluting the environment due to their limited financial capacity, ignorance, and lax regulation. However, as pressures from both customers and policymakers, as well as domestic and global supply chains, intensify, even these MSMEs are becoming increasingly convinced of the necessity of being sustainable to stay competitive and responsible as businesses. The many roles of firm, HRM exerts a special role in promoting cultural and behavioural change. Green HRM is more than a mere trend, as it is transforming the incorporation of environmental management into HR activities, such as recruitment, training, performance appraisal, and employee participation (Kuo et al., 2022). This way, the environmental influence on HR procedures is reduced, employees are more motivated, and the company's reputation is strengthened. In an environment of resource constraints, as commonly applied to MSMEs, Green HRM can provide a cost-effective and potent tool as a vehicle for sustainable development. The objective of this study is:

1. To identify aspects of Green HRM practices implemented by MSMEs, including eco-friendly recruitment techniques, environmental education initiatives, and performance reviews incorporating sustainability targets.
2. To examine how staff participation in green projects impacts sustainable performance.
3. To assess the association between Green HRM strategies and ecological sustainability across small and medium enterprises.

To achieve these objectives, the present study employs Structural Equation Modeling (SEM) as its primary analytical method. It is also suitable for exploring multifaceted models of Green HRM practices implementation, with different dimensions of Green HRM initiatives and sustainability-related performance, to test the interaction effect. A total of 289 respondents from MSMEs in the Delhi-NCR region, representing a diverse range of industries, ownership structures, and organizational sizes, were targeted for data collection.

### **1.1 Importance of Green HRM for MSMEs in global sustainability**

Green Human Resource Management (Green HRM) is becoming increasingly significant for Micro, Small, and Medium Enterprises (MSMEs) as they strive to integrate sustainability practices into their operations (Anshima et al., 2025). In the face of global environmental challenges, MSMEs are under growing pressure to adopt eco-friendly practices, not only to comply with regulatory requirements but also to remain competitive in an evolving market. Green HRM, as a concept, refers to the practices that organizations adopt to promote sustainability through their workforce, such as recruiting, training, and retaining employees who contribute to green initiatives, creating a culture of environmental awareness, and ensuring that HR practices support ecological objectives (Faeni et al., 2025). For MSMEs, Green HRM

plays a crucial role in fostering a sustainability-driven workforce. By embedding sustainability into human resource policies, MSMEs can encourage employees to engage in green practices like reducing waste, saving energy, and adopting sustainable methods in production processes. Green HRM practices like eco-friendly recruitment strategies, offering environmental training programs, and providing incentives for employees to adopt green practices can significantly influence the overall environmental performance of the company (Gyensare et al., 2024). Additionally, Green HRM practices can help MSMEs improve their reputation in the marketplace, particularly as consumers and clients are becoming more conscious of sustainability. One of the challenges that MSMEs face is the limited resources available for large-scale environmental initiatives. However, Green HRM allows these businesses to leverage human capital, creating cost-effective solutions for sustainability. For example, through training and development programs, MSMEs can equip their employees with the knowledge and skills to implement energy-efficient practices, waste management systems, and sustainable supply chain solutions without the need for substantial financial investments. This can lead to long-term cost savings, which are particularly critical for small businesses operating with tight margins. Furthermore, MSMEs that embrace Green HRM are better positioned to access global markets. Many international buyers and partners are now prioritizing environmental sustainability in their sourcing decisions, and MSMEs that incorporate green practices into their operations may gain a competitive advantage when bidding for contracts or entering new markets. Green HRM can help these businesses meet the growing demand for eco-conscious products and services, enhancing their global competitiveness (Mathew & Varaprasad, 2025). In addition to its environmental and market benefits, Green HRM contributes to employee satisfaction and retention. As sustainability becomes a key value for many workers, especially the younger generations, having a workforce that is aligned with environmental goals can boost morale and create a sense of purpose. Employees are more likely to stay with a company that reflects their personal values, including a commitment to sustainability. By fostering an organizational culture that emphasizes environmental responsibility, MSMEs can create a loyal and motivated workforce, reducing turnover and associated recruitment costs (Maheshwari et al., 2020). Overall, Green HRM provides MSMEs with a strategic tool to integrate sustainability into their operations in a cost-effective and people-centered manner. By focusing on environmentally responsible human resource practices, MSMEs not only contribute to global sustainability efforts but also enhance their long-term viability and growth in a competitive business environment.

## **2. Literature Review**

The increasing importance of environmental issues has made sustainability a primary concern for businesses worldwide. The integration of HR performance measures to deliver pro-environmental conduct is referred to as Green Human Resource Management (Green HRM). Big multinationals, such as Unilever and HSBC, have adopted Green HRM, and small and medium-sized companies in developing countries, including India, have begun to acknowledge the importance of incorporating environmental considerations into their operations (Montalvo-Falcón et al., 2023). The small and medium enterprise (SME) sector in India plays a significant role, both economically and proximately, through its contributions to output, exports, and employment generation (Kumar & Shobana, 2024). However, they have often been associated

with environmental degradation because there has not been enough money or knowledge to do things differently. Yet despite these challenges, the importance of responsible practices for SMEs has arguably become more pronounced as exogenous pressures from customers, policy-makers, and global supply chains intensify. The adoption of Green HRM by SMEs is perceived as a more effective approach in mitigating environmental impacts, thereby maintaining their competitive advantage and ensuring the organisation's existence (Vadithe et al., 2025). At this strategic level of SHRM, environmentally sustainable activities are integrated with HR functions such as recruitment, training, performance assessment, and involvement of workers in the company's affairs (Ahmad et al., 2025). The concept of Green HRM can be described in summary as a general framework within which traditional HR roles have been adapted to the message of sustainability. Green hiring practices are designed to attract applicants who have a sustainable mindset, and industrial ecology training programs teach staff members environmental goals and attitudes (Gomes et al., 2024). Sustainability indicators in performance evaluations: Putting environmental indicators into performance evaluations serves to further institutionalise the corporate commitment to ecological objectives (Mura et al., 2024). Moreover, engaging employees in green projects promotes an environmental culture throughout the organization and raises corporate environmental targets. Recent research has seen an increasing interest in the process of adoptions Green HRM, particularly for MSMEs working within the confines of Indian territory. Within contemporary research writings, we identify Green HRM playing a role in sustainable development, especially for organisations with limited resources. But Green HRM is not simply one way to improve environmental performance; it is also a tool for boosting employee motivation and morale, company reputation long-term profitability. MSMEs can employ these approaches as a way of cutting costs, maintain their competitive edge. An important part of Green HRM is bringing in workers who care about environmental preservation, and studies show that the more these kinds you staff your company with, less impact on environment will be its overall work (Din et al., 2025). Such activities help turn a group of employees into a unified advantage in which every member shares the same goals and values concerning how an organisation can remain fit for its environment.

Another essential element of Green HRM is training. Some curricular emphasis Board-level executives to the importance of environmental issues; staff become aware sustainability objectives is paired with their own contributions and imbues them with corporate mission energy (Fawehinmi et al., 2020). It was found in literature review as well that-Apart from increasing employees' environmental awareness, the training had also benefitted in terms of job satisfaction and the employees' commitment to the company. Successful performance evaluation systems with green indicators will further consolidate the relationship between HRM and eco-efficiency, so that managers are encouraged to think in terms of sustainability. As emphasized in Greening Reviews with Targets, sustainability is integrated from the strategic intent down to every level of an organization. They give employees a clear idea of what they should be doing to help meet environmental targets and thus improve their environmental performance. For Line Managers contracting out a share of routine operational work (Ahmad et al., 2025), it's also a large problem. Engaging employees in green activities opens the door for a culture of environmental responsibility within the company. And according to literature support granted by staff makes all the difference. When employees have established approaches

to environmentally supportive activities, they will also be more inclined toward organisationally sustainable conduct. In various studies, such practices have been found beneficial for after-sales environmental performance in MSMEs (Kamboj & Anthonysamy, 2024).

In addition, green HRM practices help reduce the carbon footprint of these enterprises. They also support the attainment of principal sustainability goals. Green HRM in Micro and Small Enterprises (MSMEs) combines human resource strategies with environmental sustainability to create an organization that works toward corporate, customer and government approval and admiration (Zihan & Makhbul, 2024). This study indicates the importance of Green HRM in augmenting Indian MSMEs' sustainability practices. It reveals the role of various Green HRM practices, including green recruitment, environmental training, appraisals and employee involvement in promoting sustainable business operations (Gupta & Jangra, 2024). The findings suggest that these practices are essential should MSMEs wish not only to be competitive but also environmentally sustainable. However, there is still more room for development in this regard, and a closer look at specific challenges faced by MSMEs due to the application of Green HRM practices is in order so that informed strategies can be developed to enhance their overall environmental performance. Given its central role in driving our economy, providing jobs and increasing income for the people, the move for MSMEs to apply Green HRM may be seen as a measure on their part towards long-term ecological and economic development.

### **2.1 Hypothesis of the study**

**H1:** Green recruitment has a positive and significant effect on the sustainable performance of MSMEs.

**H2:** There is a positive relationship between green training and development practices and environmental sustainability in MSMEs.

**H3:** Green performance appraisal systems have a positive impact on the sustainable development of MSMEs

**H4:** Employee participation in green endeavour contributes positively towards sustainable performance improvement in MSMEs.

**H5:** Environmental sustainability will positively affect the sustainable performance in MSMEs.

### **3. Methodology**

The responses to the survey questions were gathered using a five-point Likert scale, ranging from "Strongly Disagree" (coded as 1) to "Strongly Agree" (coded as 5). The components include independent variables such as green recruiting practices (GRP), green training and development (GTD), green performance appraisal (GPA), employee involvement in green initiatives (EGI), environmental sustainability (EST), and the dependent variable, sustainable performance in MSMEs (SPM).

We used a convenience sample method to obtain survey answers because it provides flexibility. Convenience sampling is widely utilized in management, social sciences, and market research in the sustainability sector. The use of convenience sampling is consistent with earlier research on human behavior in developing nations (Jum'a & Bushnaq, 2024; Varshney & Rajwanshi, 2019)

#### 4. Data analysis, results, and discussion

We utilized SmartPLS 4.0 entirely for partial least squares (PLS) data analysis. This paper begins with two fundamental steps in data analysis. First, examine the measurement model to ensure that the constructs demonstrate sufficient reliability and validity. Finally, the formulated hypotheses were tested by appraisal of the structural model. Additionally, a bootstrap resampling technique was employed to estimate the coefficients in the analysis. Specifically, the replicates of the sample data set are generated from an estimated sampling distribution and used for statistical testing.

##### 4.1 Measurement model analysis

Then, the measures were examined repeatedly on three criteria: construct reliability, indicator convergent validity, and discriminant validity (Sarstedt et al., 2019). In testing the measurement model, we initially assessed internal consistency estimates, including Cronbach's alpha and composite reliability, for these decoupling dimensions, as these criteria allowed us to measure the validity of the assigned indicators. All the  $\alpha$ s and composite reliabilities were greater than 0.7, showing that internal consistency and reliability were satisfied (Table 1). The convergent validity was also tested via outer loadings and average variance extracted (AVE). A test of internal consistency was conducted with Cronbach's alpha. Thereafter, the composite reliability was also checked; consequently, it indicated that all outer loadings were larger than 0.708, as shown in Table 2. Service quality has a significant impact on consumer satisfaction and loyalty (Sarstedt et al., 2019). It may also predict customer satisfaction and behavioral intentions, and is associated with increased lifestyle or life quality. Thus, these Propositions of the proposed Research Model (Figure 1) are also a subset of one of the three groups of propositions presented earlier. All the HTMT (Fornell & Larcker, 1981) estimates were below the threshold of 0.85, and the Fornell–Larcker test results are appropriate, indicating that discriminant validity for the construct is established.

We applied Harman's single-factor test to assess for common method bias, and the results reveal that the first factor accounts exactly for 50% of the variance; thus, there is no severe issue of common method bias in our data. A significant Chi-square test was also conducted for the single-factor model, indicating that it was not a good-fitting model. For structural model testing, we provide related detailed path coefficients and associated significance tests.

**Table 1.** Result of the measurement model

|            | $\alpha$ | CR (A) | CR (C) | (AVE) |
|------------|----------|--------|--------|-------|
| <b>EGI</b> | 0.795    | 0.813  | 0.867  | 0.623 |
| <b>EST</b> | 0.797    | 0.814  | 0.867  | 0.620 |
| <b>GPA</b> | 0.913    | 0.971  | 0.939  | 0.793 |
| <b>GRP</b> | 0.871    | 0.880  | 0.913  | 0.724 |
| <b>GTD</b> | 0.818    | 0.851  | 0.879  | 0.647 |
| <b>SPM</b> | 0.870    | 0.876  | 0.911  | 0.719 |

**Table 2.** Outer loading

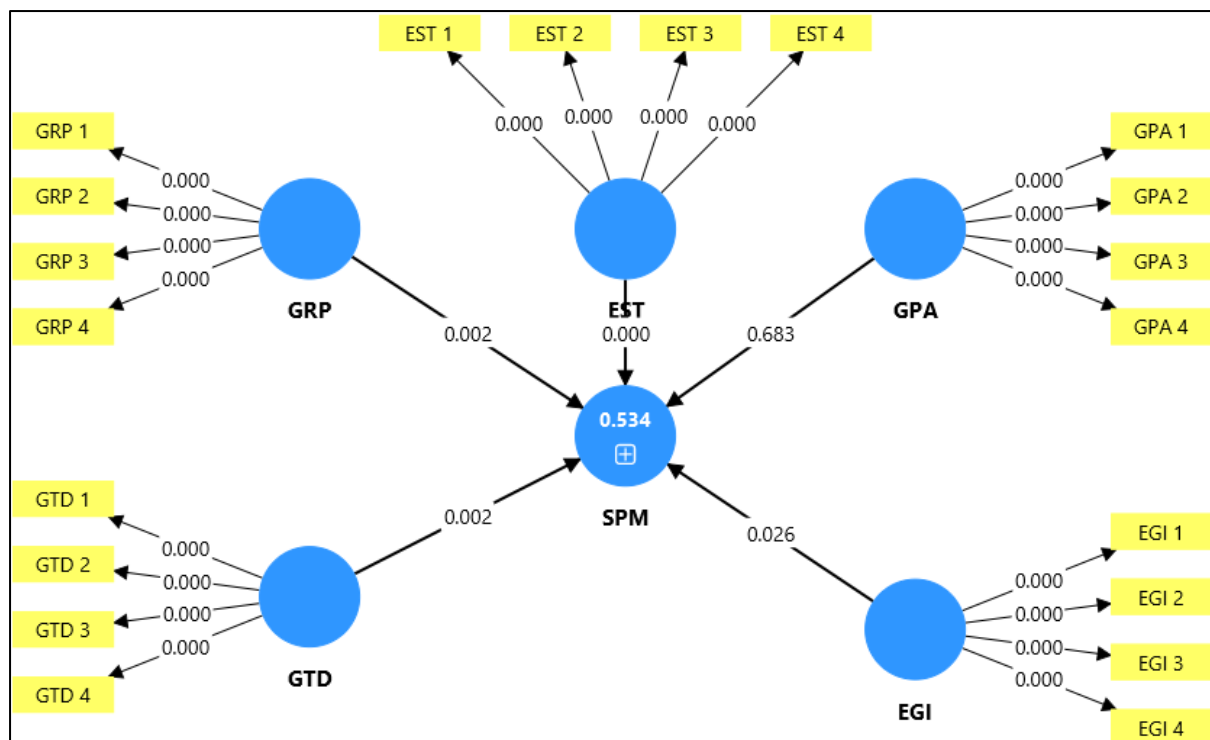
|              | <b>EGI</b> | <b>EST</b> | <b>GPA</b> | <b>GRP</b> | <b>GTD</b> | <b>SPM</b> |
|--------------|------------|------------|------------|------------|------------|------------|
| <b>EGI 1</b> | 0.700      |            |            |            |            |            |
| <b>EGI 2</b> | 0.873      |            |            |            |            |            |
| <b>EGI 3</b> | 0.715      |            |            |            |            |            |
| <b>EGI 4</b> | 0.853      |            |            |            |            |            |
| <b>EST 1</b> |            | 0.809      |            |            |            |            |
| <b>EST 2</b> |            | 0.835      |            |            |            |            |
| <b>EST 3</b> |            | 0.755      |            |            |            |            |
| <b>EST 4</b> |            | 0.747      |            |            |            |            |
| <b>GPA 1</b> |            |            | 0.890      |            |            |            |
| <b>GPA 2</b> |            |            | 0.848      |            |            |            |
| <b>GPA 3</b> |            |            | 0.866      |            |            |            |
| <b>GPA 4</b> |            |            | 0.954      |            |            |            |
| <b>GRP 1</b> |            |            |            | 0.864      |            |            |
| <b>GRP 2</b> |            |            |            | 0.885      |            |            |
| <b>GRP 3</b> |            |            |            | 0.737      |            |            |
| <b>GRP 4</b> |            |            |            | 0.908      |            |            |
| <b>GTD 1</b> |            |            |            |            | 0.856      |            |
| <b>GTD 2</b> |            |            |            |            | 0.889      |            |
| <b>GTD 3</b> |            |            |            |            | 0.729      |            |
| <b>GTD 4</b> |            |            |            |            | 0.730      |            |
| <b>SPM 1</b> |            |            |            |            |            | 0.801      |
| <b>SPM 2</b> |            |            |            |            |            | 0.867      |
| <b>SPM 3</b> |            |            |            |            |            | 0.847      |
| <b>SPM 4</b> |            |            |            |            |            | 0.876      |

**Table 3.** Discriminant validity of constructs

|                        | <b>EGI</b> | <b>EST</b> | <b>GPA</b> | <b>GRP</b> | <b>GTD</b> | <b>SPM</b> |
|------------------------|------------|------------|------------|------------|------------|------------|
| <b>EGI</b>             |            |            |            |            |            |            |
| <b>EST</b>             | 0.572      |            |            |            |            |            |
| <b>GPA</b>             | 0.506      | 0.357      |            |            |            |            |
| <b>GRP</b>             | 0.743      | 0.626      | 0.490      |            |            |            |
| <b>GTD</b>             | 0.721      | 0.625      | 0.320      | 0.672      |            |            |
| <b>SPM</b>             | 0.748      | 0.705      | 0.380      | 0.712      | 0.678      |            |
| <b>Fornell–Larcker</b> |            |            |            |            |            |            |
|                        | <b>EGI</b> | <b>EST</b> | <b>GPA</b> | <b>GRP</b> | <b>GTD</b> | <b>SPM</b> |
| <b>EGI</b>             | 0.789      |            |            |            |            |            |
| <b>EST</b>             | 0.760      | 0.787      |            |            |            |            |
| <b>GPA</b>             | 0.442      | 0.336      | 0.890      |            |            |            |
| <b>GRP</b>             | 0.621      | 0.531      | 0.445      | 0.851      |            |            |
| <b>GTD</b>             | 0.613      | 0.543      | 0.302      | 0.583      | 0.804      |            |
| <b>SPM</b>             | 0.634      | 0.604      | 0.353      | 0.624      | 0.586      | 0.848      |

## 4.2 Structural model analysis

To estimate the parameters of the conceptual model, partial least squares structural equation modeling (PLS-SEM) was employed using SmartPLS version 4.0. Using a variance-based approach, PLS-SEM generates parameter estimates and coefficients that can be used to evaluate the proposed hypotheses. To assess predictive validity, the path coefficients and  $R^2$  values were examined according to the recommendations of (Hair et al., 2013). Additionally, a bootstrapping procedure with 5,000 samples was conducted to determine the significance of the relationships between the latent variables. The coefficient of determination ( $R^2$ ) represents the amount of variance in the dependent construct that is explained by its antecedents. In this research model, there is one endogenous construct. Specifically, the results indicate that approximately 53.3% of the variance in intentions is explained by the independent variables, based on an  $R$ -squared value of 0.533, as shown in Figure 1. Values of 0.75, 0.50, and 0.25 represent substantial, moderate, and weak levels of explanatory power, respectively. Hence, the  $R^2$  falls within an acceptable range, which can be considered moderate to high predictive relevance.



**Figure 1:** Structural model

The study resulted in four supported and one rejected hypothesis (Table 4). The findings of the Smart PLS analysis reveal that a few Green HRM practices have a direct positive effect on SPM of MSMEs, as suggested by the hypothesis test. The first path from EGI to SPM exhibits a positive direct relationship (0.164) and has a significant T-statistic of 2.230 (p-value = 0.026), indicating a significant impact. The relationship between EST and SPM is also substantial and positive, with a path coefficient of 0.214 (T-statistic = 3.720, p-value = 0.000), which strongly supports the notion that the sustainable dimension has a positive effect on performance. The relationship between GPA and SPM turned out to be insignificant, with a T-statistic of 0.408 and a p-value of 0.683, indicating that GPA has no significant effect on sustainable



performance in the same context. On the other hand, GRP and GTD are both highly positively correlated with SPM. The path coefficients of GRP and GTD are 0.282 (T-statistic = 3.048,  $p < 0.002$ ) and 0.198 (T-statistic = 3.151,  $p < 0.002$ ), respectively, and are statistically significant, suggesting that both recruitment practice and training contribute to the sustainable performance of MSMEs.

**Table 4.** Hypothesis testing result

| <b>Construct</b>     | <b>(O)</b> | <b>(M)</b> | <b>(STDEV)</b> | <b>T statistics</b> | <b>P</b> |
|----------------------|------------|------------|----------------|---------------------|----------|
| <b>EGI -&gt; SPM</b> | 0.164      | 0.165      | 0.074          | 2.230               | 0.026    |
| <b>EST -&gt; SPM</b> | 0.214      | 0.208      | 0.057          | 3.720               | 0.000    |
| <b>GPA -&gt; SPM</b> | 0.023      | 0.026      | 0.057          | 0.408               | 0.683    |
| <b>GRP -&gt; SPM</b> | 0.282      | 0.281      | 0.093          | 3.048               | 0.002    |
| <b>GTD -&gt; SPM</b> | 0.198      | 0.196      | 0.063          | 3.151               | 0.002    |

## 5. Discussion

The study of the adoption and influence of Green Human Resource Management (Green HRM) practices in Micro, Small, Medium Enterprises' (MSMEs) in the North India also reveals strong relationship between the Green HRM practices of the firms and their sustainable performance. Green HRM is a strategic component that is critical for MSMEs, especially in developing countries such as India where, firms are increasingly faced with the demands to satisfy the sustainability expectations of customers, governments and global supply chains (Dutta et al., 2025). We highlight several key findings from the study. First, it reveals that EGI can positively affect sustainable performance in the MSMEs. This is consistent with the expectation that staff who are engaged in their own sustainability only achieve good environmental outcomes, playing a mediating role in the relationship between Environmental Sustainability and Performance. Also, a positive relationship between environmental sustainability (EST) and sustainable performance signals that if firms concentrate on ecological responsibility they perform better.

Nevertheless, the results also suggest that some Green HRM practices, specifically Green Performance Appraisals (GPA), have not played a significant role in the development of sustainable performance. Prasanna et al. (2019) indicate that performance reviews that involve sustainability yardsticks are perhaps well-intentioned, but they may not in themselves have sufficient force to bring about change, at least for the MSMEs in India. In contrast, Green Recruitment Practices (GRP) and Green Training and Development (GTD) were highly significant as determinants of sustainability performance. This implies that policies to recruitment with emphasis to environmental values and to trainings on sustainability are strong enablers for MSMEs aspiring to enhance their ecological and economic performances. This is not only helping the staff develop an appreciation and dedication to environmental goals and policies the business follows, it serves to also market the company as a responsible and next generation player in the marketplace.

## 6. Conclusion

The research concludes that Green HRM will contribute significantly not just to meeting MSMEs 'sustainability goals but also provide a competitive advantage. MSMEs in developing countries such as India need to incorporate green practices into their human resource

management. Through these practices, MSMEs can not only maintain their competitive advantage but also meet the growing environmental demands of customers and global supply chains. Green Human Resource Management practices can significantly boost environmental sustainability within Micro, Small, and Medium Enterprises located in Northern India. The study reveals that green HRM practices, including green recruitment practices, Green Training and Development, and employee engagement in green initiatives, have a positive influence on MSME performance. Aligning an organization's human capital strategy with sustainability goals helps reduce costs associated with both environmental protection and business operations. Previous studies also indicate that involving staff in green projects, along with promoting sustainability, has beneficial impacts on the outcomes of MSMEs. However, it is worth noting that Green Performance Appraisals, intended to facilitate enhanced sustainable performance, were found to be ineffective. This implies that while sustainability-focused evaluations are valuable, they may not be as effective as recruitment and training activities in cultivating environmentally conscious employees. Going forward, additional investigation can provide deeper insight into the challenges and opportunities surrounding the implementation of Green HRM across various MSME contexts and industries.

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