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Green HRM practices, organizational green performance and employee satisfaction: A comparative study of Indian organizations

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ABSTRACT

Green Human Resource Management (Green HRM) has become an important way for organizations to bring their environmental goals into everyday workplace activities. This study examines Green HRM practices across Indian organizations and their association with organizational Green Performance and employee satisfaction. Primary data were collected from 110 respondents drawn from manufacturing, service, retail/trading, food-processing, and agriculture-based organizations using a structured questionnaire. Four objectives guided the study: (1) to examine the impact of Green HRM practices on organizational Green Performance, tested through Simple Linear Regression; (2) to identify the major challenges faced by organizations in implementing Green HRM, analysed through frequency and percentage analysis; (3) to identify the most commonly implemented Green HRM practices; and (4) to identify differences in employee satisfaction between green and non-green organizations, tested using the Mann-Whitney *U* test. Results show a strong, statistically significant, positive relationship between the Green HR Practices Index and Green Performance ($R = 0.723$, $R^2 = 52.3\%$, $p = 0.001$). A shortage of trained HR professionals (31.8%) was the most frequently reported implementation barrier, and Green Recruitment (67.3%) was the most widely adopted practice, while Green Rewards and Recognition (47.3%) remained the least adopted. Employee satisfaction differed significantly between green and non-green organizations on one measure ($p = 0.017$) but not on another ($p = 0.922$), indicating that Green HRM's influence on employee experience is selective rather than uniform. The study concludes that Green HRM functions as a meaningful organizational capability that supports environmental performance, but that its people-level benefits require deliberate reinforcement through structured rewards, formal appraisal, and active employee involvement.

Keywords: Green HRM, Green human resource management, Organizational green performance, Employee satisfaction, Green recruitment, Indian organizations

Introduction

In recent years, organizations have started to pay much greater attention to their relationship with the natural environment. Environmental responsibility was once viewed mainly as a social or philanthropic activity. Today, it has become an important part of organizational planning, decision-making, and daily operations. Rising global temperatures, resource depletion, industrial pollution, and the visible consequences of climate change have compelled governments, regulators, consumers, and investors to demand greater environmental accountability from business organizations.

In this changing environment, Human Resource Management (HRM) has an important role to play, because employees are the people who put organizational policies into practice. Environmental technologies, green certifications, and sustainability policies achieve little unless the people who operate within an organization genuinely understand, accept, and enact them. This understanding has led to the development of Green Human Resource Management (Green HRM), which means aligning HR policies and practices with an organization's environmental goals. Green HRM proposes that every core HR function recruitment and selection, training and development, performance appraisal, compensation and rewards, and employee engagement can be redesigned to embed ecological values, transforming the workforce itself into an agent of environmental change.

Despite growing academic and managerial interest, the extent to which Green HRM practices are actually embedded in Indian organizations, the barriers organizations face in implementing them, and their consequences for both organizational and employee-level outcomes remain insufficiently understood, particularly across a comparative, multi-sector sample. The present study addresses this gap by examining Green HRM practices with specific attention to their association with organizational Green Performance and employee satisfaction, while also undertaking a comparative appraisal of green and non-green organizations.

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Review of Literature

Research on Green HRM has grown considerably in recent years. Studies have examined the subject across different industries and countries, using both conceptual and empirical approaches. This section synthesises the empirical evidence organised around the four objectives pursued in this study.

Green HRM and organizational/environmental performance

Rupa *et al.* (2024) [1] examined the relationship between Green HRM practices and environmental performance in Bangladesh, emphasising the mediating role of sustainability-oriented employee behaviour. Using PLS-SEM on 310 employees, they found that green recruitment and selection and green compensation and rewards were positively associated with environmental performance, whereas green training and performance appraisal showed no significant direct or indirect relationships indicating that the presence of a Green HRM practice alone does not guarantee performance gains. Aftab *et al.* (2023) [2], studying a developing-country manufacturing context using Structural Equation Modelling, found that Green HRM supports environmental performance both directly and indirectly, with green innovation and a clearly articulated environmental strategy strengthening this relationship. Obeidat *et al.* (2020) [3], examining 144 managers in the Qatari oil and gas sector using Partial Least Squares analysis, found that top- management support and internal environmental orientation positively influenced Green HRM adoption, which in turn improved environmental and organizational performance. Miah *et al.* (2024) [4], using PLS-SEM on 288 university employees in Bangladesh, found that Green HRM practices positively predicted employee green behaviour, an effect strengthened by environmental knowledge and green self-efficacy.

Challenges in implementing Green HRM

Chowdhury *et al.* (2026) [5] used the Fuzzy DEMATEL method in the garment manufacturing sector to show that implementation barriers weak enforcement of environmental laws, limited awareness, insufficient buyer pressure, and lack of top-management support are interconnected rather than independent, requiring a systemic response. Islam *et al.* (2019) [6], through qualitative interviews with 12 managers in the Bangladesh ready-made garment industry, identified limited environmental knowledge, absence of formal rules, weak managerial interest, high implementation cost, and high employee turnover as key barriers, recommending stronger regulation, training, and monetary incentives. Hossain *et al.* (2026) [7], using key informant interviews in the Bangladesh leather sector, found that bureaucratic procedures, budget limitations, and the absence of formal environmental knowledge-management systems continued to constrain adoption despite firm-level effort.

Adoption patterns and employee green behaviour

Karmoker *et al.* (2021) [8], studying 270 garment-sector employees using moderated regression, found that Green HRM practices significantly predicted both on-the-job and off-the-job green behaviour, an effect strengthened among employees with greater environmental knowledge. Cui *et al.* (2026) [9] positioned job satisfaction as a mechanism linking Green HRM, viewed across the employee lifecycle, to employee green behaviour. Hossain *et al.* (2023) [10], using PLS-SEM on 242 employees in Bangladeshi commercial banking, found that organizational commitment fully mediated the relationship between Green HRM and eco-friendly behaviour, suggesting that adopting Green HRM practices alone is insufficient without a parallel strengthening of employee commitment.

Green HRM and employee satisfaction

Ahmad *et al.* (2019) [11], studying 177 employees in Pakistan's public healthcare sector, found that ethical leadership was positively associated with job satisfaction partly through perceived Green HRM and psychological safety, suggesting employees interpret Green HRM as a signal of ethical, employee-oriented leadership. Xie *et al.* (2023) [12],

surveying employees in the Pakistani pharmaceutical sector, found that job satisfaction significantly mediated the relationship between Green HRM and pro-environmental employee behaviour, supporting the treatment of employee satisfaction as a distinct outcome rather than one that automatically tracks environmental performance.

Research gap

The reviewed literature consistently finds a positive relationship between Green HRM practices and environmental/green performance outcomes, and generally identifies HR capability, management support, and policy clarity as leading implementation barriers. However, three gaps remain. First, most reviewed studies are situated within a single industry or country (Bangladeshi garments, Qatari oil and gas, Pakistani healthcare or pharmaceuticals), whereas the present study draws respondents from five organization types manufacturing, service, retail/trading, food processing, and agriculture within a single comparative survey. Second, few studies directly compare employee satisfaction between green and non-green organizations using a non-parametric group-comparison test; this study addresses that gap through the Mann-Whitney *U* test. Third, most reviewed studies rely on structural equation modelling with latent, multi-item constructs, whereas this study uses simpler, transparent regression and frequency-based tools that are more directly interpretable for practitioner audiences such as HR managers evaluating their own organization's Green HRM programme.

Objectives and hypotheses

The study is guided by four objectives:

1. To examine the impact of Green HRM practices on organizational Green Performance.
2. To identify the major challenges faced by organizations in implementing Green HRM practices.
3. To identify the most commonly implemented Green HRM practices across organizations.
4. To identify differences in employee satisfaction levels between green and non-green organizations. Corresponding to Objectives 1 and 4, two hypotheses were formulated and tested at the 5% level of

significance:

H₀₁: Green HRM practices have no significant impact on organizational Green Performance. H₁₁: Green HRM practices have a significant impact on organizational Green Performance.

H₀₂: There is no significant difference in employee satisfaction levels between green and non-green organizations.

H₁₂: There is a significant difference in employee satisfaction levels between green and non-green organizations.

Research Methodology

The study follows a quantitative, descriptive-cum-analytical research design and is based entirely on primary data. Data were collected through a structured 16-item questionnaire covering Green HRM practice perceptions, implementation challenges, practice adoption, and satisfaction outcomes, administered to 110 respondents including HR professionals, managers, executives, supervisors, and senior managers drawn from organizations in manufacturing, service, retail/trading, food processing, and agriculture/agri-business. Respondents were selected using a purposive approach targeting individuals with direct exposure to HR, sustainability, or environmental initiatives within their organizations. No secondary organizational records were used; all measures reflect respondents' own perceptions and self-reports, which is acknowledged as a limitation of the study. Respondent anonymity was maintained throughout, and participation was entirely voluntary.

Three statistical tools were applied in line with the study's four objectives: Simple Linear Regression, with a composite Green HR Practices Index (combining HR-policy integration, selection criteria, training, and employee-participation items) as the independent vari

able and organizational Green Performance as the dependent variable, to test Objective 1; Frequency and Percentage Analysis to address Objectives 2 and 3; and the Mann-Whitney *U* Test, a non-parametric test suited to comparing an ordinal/Likert-scale outcome (employee satisfaction) between two independent groups (green vs. non-green organizations, $n = 55$ each) without assuming a normal distribution, to address Objective 4. All tests were evaluated at a 5% level of significance ($\alpha = 0.05$).

Results and Discussion

Sample profile

Of the 110 respondents, the largest designation group was Executive/Officer (29.1%), followed by HR Professionals (21.8%), Managers (20.0%), Supervisors (17.3%), and Senior Managers (11.8%). The relatively strong representation of HR Professionals is a useful feature of the sample, since this group is closest to the day-to-

day administration of Green HRM and can be expected to give informed responses on

practice adoption. By organization type, Manufacturing formed the largest share (32.7%), followed by Service (22.7%), with Retail/Trading, Food Processing, and Agriculture/Agri-business each contributing a further 11-13%, and a residual "Other" category (8.2%).

Impact of Green HRM practices on green performance (Objective 1)

Mean scores for the six Green HRM practice items ranged narrowly from 3.28 to 3.44 on a 5-point scale, indicating that these practices are present but only moderately embedded across the surveyed organizations, with no single item standing out as clearly strong or weak. Simple Linear Regression of the Green HR Practices Index on organizational Green Performance produced a strong, positive, and statistically significant relationship ($R = 0.723$, $R^2 = 52.3\%$, Adjusted $R^2 = 51.8\%$, $F(1, 108) = 118.36$, $p = 0.001$).

Table 1. Sample Profile of Respondents ($N = 110$)

Designation	%	Organization Type	%
Executive/Officer	29.1	Manufacturing	32.7
HR Professional	21.8	Service	22.7
Manager	20.0	Retail/Trading	12.7
Supervisor	17.3	Food Processing	11.8
Senior Manager	11.8	Agriculture/Agri-business	11.8
-	-	Other	8.2

Source: Field survey data ($N = 110$).

The regression coefficient ($B = 0.368$, $p = 0.001$) indicates that a one-unit increase in the Green HR Practices Index is associated with a 0.368-unit increase in the Green Performance score, holding other factors constant. The non-significant intercept ($p = 0.692$) suggests that Green Performance gains are attributable to the HR practices themselves rather than to an unrelated baseline effect. Since $p = 0.001 < 0.05$, the null hypothesis (H_{01}) is rejected and the alternative hypothesis (H_{11}) is accepted: Green HRM practices have a statistically significant, positive impact on organizational Green Performance, ex-

plaining just over half (52.3%) of the variance a substantial effect for survey-based research. This finding is consistent with Aftab *et al.* (2023) [2] and Obeidat *et al.* (2020) [3], both of whom report a positive association between Green HRM adoption and environmental/organizational performance, though it contrasts with Rupa *et al.* (2024) [1], who found that not all individual practices (notably training and appraisal) independently predicted environmental performance. The present study's use of a composite index rather than practice-

Table 2. Regression Results — Green HR Practices Index and Green Performance

Statistic / Predictor	Value
Multiple R	0.723
R^2	52.3%
Adjusted R^2	51.8%
$F(1, 108)$	118.36
Regression coefficient (B) - Green HR Practices Index	0.368 ($p = 0.001$)
Intercept	0.136 ($p = 0.692$, n.s.)

Source: Field survey data ($N = 110$).

by-practice modelling may account for this difference, and future research disaggregating the index could clarify which specific practices drive the observed effect.

Major challenges in implementing Green HRM practices (Objective 2)

A lack of trained HR professionals was the most frequently reported implementation challenge (31.8%), followed by a lack of management support (27.3%), a lack of clear organizational policies (25.5%), and a lack of employee participation (15.5%). As this objective is descriptive in nature, no formal hypothesis test was applied.

The prominence of HR-capability and management-support gaps echoes Islam *et al.* (2019) [6] and Hossain *et al.* (2026) [7], who similarly found that formal organizational systems and managerial commitment rather than employee attitudes alone are the binding con-

straints on Green HRM implementation. This also aligns with Chowdhury *et al.* (2026) [5]'s finding that such barriers tend to be interconnected: a shortage of trained HR staff plausibly limits an organization's capacity to secure management buy-in or to formalise clear green HR policies, compounding the implementation gap rather than acting as an isolated bottleneck.

Most commonly implemented Green HRM practices (Objective 3)

Green Recruitment was the most commonly implemented practice (67.3%), closely followed by Green Training (66.4%). Green Performance Appraisal (56.4%) and Green Rewards & Recognition (47.3%) were implemented less often. Respondents could select more than one practice, so percentages do not sum to 100%.

Table 3. Challenges in Implementing Green HRM Practices ($N = 110$)

Challenge	Frequency	Percent	Rank
Lack of Trained HR Professionals	35	31.8	1
Lack of Management Support	30	27.3	2
Lack of Clear Organizational Policies	28	25.5	3
Lack of Employee Participation	17	15.5	4

Source: Field survey data ($N = 110$).

Table 4. Green HRM Practices Adopted by Organizations ($N = 110$)

Practice	Frequency	Percent	Rank
Green Recruitment	74	67.3	1
Green Training	73	66.4	2
Green Performance Appraisal	62	56.4	3
Green Rewards & Recognition	52	47.3	4

Source: Field survey data ($N = 110$).

The comparatively lower adoption of Green Rewards & Recognition suggests that organizations find it easier to embed sustainability into hiring and training activities that can often be layered onto existing induction and recruitment processes at relatively low incremental cost than into reward systems, which require formally redesigning compensation structures. This pattern is broadly consistent with the conceptual literature (e.g., Rupa *et al.*, 2024) [1], which similarly finds recruitment and reward-linked practices to be more consequential for outcomes than training alone, even though training shows higher adoption rates in the present sample.

Employee satisfaction: Green vs. non-green organizations (Objective 4)

Employee satisfaction was compared between green ($n = 55$) and non-green ($n = 55$) organizations using the Mann-Whitney U test on two satisfaction measures. For the first measure, mean ranks were nearly identical (55.22 vs. 55.78; $U = 1497.000$, $Z = -0.098$, $p = 0.922$), showing no statistically significant difference. For the second measure, the green-organization group recorded a markedly higher mean rank (62.43 vs. 48.57; $U = 1131.500$, $Z = -2.380$, $p = 0.017$), a statistically significant difference.

Table 5. Mann-Whitney U Test Results Employee Satisfaction by Organization Group

Satisfaction Measure	Mean Rank (Green)	Mean Rank (Non-Green)	U	p-value	Result
Measure 1	55.22	55.78	1497.000	0.922	Not significant
Measure 2	62.43	48.57	1131.500	0.017	Significant

Source: Field survey data ($N = 110$).

Since $p = 0.017 < 0.05$ for the second measure, H_{02} is rejected and H_{12} is accepted for that dimension: employees in green organizations reported significantly higher satisfaction on this measure. However, since $p = 0.922 > 0.05$ for the first measure, H_{02} is not rejected on that dimension. Taken together, the results indicate that Green HRM's effect on employee satisfaction is selective rather than uniform it appears to shape employees' specific perceptions of the organization's environmental effectiveness more strongly than it shapes broader dimensions of workplace satisfaction, which are also influenced by working conditions, leadership, compensation, and career opportunities. This mixed finding is consistent with Xie *et al.* (2023) [12] and Ahmad *et al.* (2019) [11], both of whom position job satisfaction as a partial, conditional outcome of Green HRM rather than one that moves in lockstep with environmental performance.

5.6 Integrative discussion

Taken together, the four sets of findings provide a clear picture of the current state of Green HRM in the organizations covered by the study. Green HRM practices are present in the surveyed organizations but only moderately embedded, consistent with item means clustering just above the scale midpoint (3.28–3.44 of 5). Despite this moderate embeddedness, the practices in place show a strong, statistically significant relationship with Green Performance ($R^2 = 52.3\%$), suggesting meaningful returns to further investment rather than diminishing returns at current adoption levels. The leading implementation barrier a shortage of trained HR professionals (31.8%) offers a plausible explanation for why adoption remains moderate: without sufficient HR capacity, organizations may adopt the practices that are easiest to implement (recruitment criteria, training content) while leaving practices requiring more structural change (reward systems, consistent ap-

praisal criteria) comparatively underdeveloped a pattern directly visible in the adoption gap between Green Recruitment/Training (66–67%) and Green Rewards & Recognition (47.3%). Finally, the mixed employee-satisfaction findings suggest that even where Green HRM yields measurable performance benefits, its effect on how employees feel about the organization's efforts is more selective, a nuance organizations should bear in mind when evaluating Green HRM purely by its performance impact rather than also its people impact.

Conclusion

This study examined Green HRM practices across different types of Indian organizations and looked at their relationship with organizational Green Performance and employee satisfaction. The findings show that Green HRM practices, though only moderately embedded, are strongly and significantly associated with organizational Green Performance ($R^2 = 52.3\%$), supporting their treatment as a meaningful internal organizational capability rather than a peripheral HR activity. A shortage of trained HR professionals and insufficient management support remain the principal obstacles to fuller implementation. Green Recruitment and Green Training are comparatively well adopted, reflecting organizations' emphasis on building employee capability, while Green Rewards & Recognition remains underdeveloped, indicating comparatively less attention to motivating and recognizing green contributions. Employee satisfaction responds to Green HRM selectively rather than uniformly: organizations should not assume that introducing Green HRM automatically improves every dimension of employee experience.

Practically, organizations seeking to strengthen their Green HRM programmes should prioritise investment in trained HR capability and

visible senior-management sponsorship, extend green criteria into reward and recognition systems to reinforce the motivational dimension alongside existing capability-building efforts, formalise green performance appraisal as a consistent rather than occasional practice, and actively involve employees in green decision-making rather than relying on top-down communication. Given the study's cross-sectional design, reliance on self-reported perceptions, and a sample drawn from organizations accessible to the researcher, the findings should not be generalised as representative of all Indian organizations or interpreted as evidence of long-term causal change. Future research extending this comparative approach across wider geographies, longer time horizons, and disaggregated practice-level models would further clarify which specific Green HRM practices most reliably drive environmental and employee outcomes.

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