SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 5 | May 2026 - Peer Reviewed Journal

A STUDY ON THE IMPLEMENTATION OF GREEN HUMAN RESOURCE MANAGEMENT IN MANUFACTURING ORGANIZATIONS OF ODISHA

Rishita Mohanty[1], Dr. Jayashree Jethy[2]
[1]*Research Scholar, Rama Devi Women's University*
[2]*Assistant Professor, Rama Devi Women's University*

Article DOI: https://doi.org/10.36713/epra27679
DOI No: 10.36713/epra27679

ABSTRACT

Purpose: *This study examines the implementation level of Green Human Resource Management (GHRM) practices within the manufacturing sector, focusing on employee awareness, perceptions, and participation. It specifically investigates the "Practice-Policy Gap"—the discrepancy between functional green activities and formal organizational communication.* ***Methodology:*** *Adopting a quantitative descriptive research design, data was collected via structured questionnaires from 318 employees and HR professionals in manufacturing firms. Analysis was conducted using descriptive statistics (frequency, percentage, mean) and inferential tools (Independent Samples t-test) via SPSS and Microsoft Excel.* ***Findings****: Results reveal a significant awareness gap, with 78.6% of employees unaware of formal GHRM policies. Conversely, 84.4% of respondents believe green practices are actively implemented, indicating high visibility of operational measures like waste reduction and energy saving. Furthermore, the study identifies a statistically significant difference in participation levels based on gender (p = 0.027), suggesting a need for more inclusive strategies.* ***Conclusion:*** *While GHRM is effectively integrated into manufacturing operations, internal communication remains insufficient. Strengthening policy dissemination is critical to transforming passive employee observation into structured organizational engagement.*

KEYWORDS: *Green Human Resource Management (GHRM), Manufacturing Sector , Employee Awareness, Employee Participation*

I. INTRODUCTION

1. 1 What is Green Human Resource Management (GHRM) ?

Green Human Resource Management (GHRM) integrates environmental sustainability into HR practices, gaining scholarly focus as greening requires dedicated human strategies. It offers competitive edges and boosts environmental performance in IT and manufacturing sectors. Through eco-friendly policies like e-filing, carpooling, teleconferencing, and recycling, GHRM enhances productivity, cuts costs, engages employees, and reduces carbon emissions. It promotes awareness, enforces laws, builds reputation via audits, and fosters sustainable resource use and products. (Shwetha et al., 2023)

It also transforms traditional HR functions to support sustainability goals by embedding eco-friendly practices into recruitment, training, performance evaluation, and rewards. Recent studies emphasize its role in enhancing organizational sustainable performance, particularly through fostering employee green behaviors that align with environmental objectives like reduced waste and energy conservation. By cultivating a green workforce, GHRM not only improves ecological outcomes but also drives innovation and long-term competitiveness in resource-constrained environments. Green Human Resource Management (GHRM) practices significantly boost work engagement by directly influencing employee motivation toward sustainability and indirectly through green psychological climates. Empirical investigations reveal that green training, involvement, and performance management enhance engagement levels, leading to better environmental and organizational outcomes. This underscores GHRM's value in creating committed, eco-conscious workforces amid rising sustainability demands. (Gupta and Jangra, 2024)

1.2 What is the manufacturing sector?

The manufacturing sector transforms raw materials into finished goods through processes like assembly, machining, and chemical synthesis, serving as a backbone of global economies by contributing around 16% to world GDP. It drives innovation via R&D, fosters infrastructure growth, and enables international trade, though it grapples with challenges like automation displacing jobs, supply chain disruptions, and sustainability demands amid climate change. In developing nations like India, it accounts for 15-17% of GDP, fueled by policies such as PLI schemes attracting $165 billion in FDI, yet faces hurdles in MSME tech adoption and export competitiveness. Advances in AI, smart factories, and green practices signal a resilient evolution toward Industry 4.0 resilience.

In today's dynamic global landscape, the manufacturing sector embodies the fusion of technology and human ingenuity, evolving from labor-intensive factories to smart, interconnected ecosystems powered by Industry 4.0 innovations like IoT, robotics, and AI-driven predictive analytics. This shift enhances efficiency, reduces waste, and customizes production at scale, yet intensifies competition from automation and reshoring trends post-pandemic, with U.S. output projected to grow 2.5% annually through 2030.

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 5 | May 2026 - Peer Reviewed Journal

Emerging markets, including India, leverage government initiatives like Make in India to boost capacity utilization to 80%, addressing skill gaps and raw material volatility while prioritizing sustainable practices to meet net-zero goals by 2050.

1.3 Relation between GHRM and Manufacturing sector

Green Human Resource Management (GHRM) integrates environmental sustainability into HR practices within the manufacturing sector, promoting eco-friendly behaviors through recruitment, training, and performance evaluations. In factories facing high energy use and waste, GHRM fosters green skills like waste reduction and energy-efficient operations, aligning workforce efforts with corporate sustainability goals amid Industry 4.0 pressures. Studies show it boosts operational efficiency by 15-20% via motivated employees adopting low-carbon processes, while cutting turnover through purpose-driven cultures. Overall, GHRM bridges human capital and green manufacturing, enhancing compliance with regulations like net-zero targets.

Strategically, GHRM elevates manufacturing competitiveness by embedding sustainability in talent management, from green hiring to reward systems tied to emission reductions. Research highlights its role in Ghanaian and Indian firms, where GHRM practices improve environmental performance, corporate image, and resilience against supply chain disruptions. It addresses skill gaps for automation and renewables, with training yielding 10-25% productivity gains and lower absenteeism. By supporting SDGs 8 and 9, GHRM positions manufacturers for resilient growth, though challenges like initial costs persist. This human-centric approach ensures long-term viability in a low-carbon global economy.

2.1 REVIEW OF LITERATURE

(Widowati et al., 2026) aims to examine the role of Green Human Resource Management (GHRM) practices in improving environmental, sustainable, and operational performance in the manufacturing sector and to identify the psychological and behavioral mechanisms through which these practices influence organizational outcomes. The research adopted a PRISMA-based Systematic Literature Review (SLR) methodology by analyzing 15 empirical studies related to GHRM and manufacturing organizations, using thematic synthesis to identify major themes such as green identity, environmental values, psychological climate, work engagement, and pro-environmental behaviors, including Organizational Citizenship Behavior for the Environment (OCBE). The findings reveal that GHRM positively affects organizational performance mainly through indirect pathways by enhancing employee engagement, environmental commitment, and green behaviors, while factors such as green leadership, environmental strategy, innovation culture, and environmental knowledge strengthen these relationships. The study concludes that GHRM is a strategic tool for manufacturing firms to achieve sustainability and competitive advantage by integrating environmental goals into HR practices, while also emphasizing the need for future research using longitudinal, multi-level, and objective performance-based approaches. (Naqvi et al., 2025) examined the impact of Green Human Resource Management (GHRM) practices such as green recruitment, green performance management, and green rewards on Green Environmental Performance (GEP) in Pakistani manufacturing firms, while analyzing the mediating role of employee commitment and employee attitude. The research adopted a positivist, deductive, and cross-sectional survey methodology using stratified random sampling of 400 manufacturing employees in Karachi, with data analyzed through PLS-SEM using SmartPLS 4. The findings indicate that green rewards have a strong positive direct effect on environmental performance, while green recruitment and green performance management influence performance mainly through employee commitment and attitude. The study concludes that organizations should strengthen green HR practices and foster positive employee attitudes and commitment to achieve sustainable environmental performance. (Ibrahim and Eitah, 2025) examine the relationship between Green Human Resource Management (GHRM), Lean Human Resource Management (LHRM), and Agile Human Resource Management (AHRM) with sustainable manufacturing in the Malaysian manufacturing industry. The research adopted a quantitative methodology using data collected from 562 respondents from the Malaysian manufacturing sector, with analysis conducted through SPSS for descriptive analysis and SEM-AMOS for hypothesis testing. The findings reveal that GHRM, LHRM, and AHRM all have a significant positive impact on sustainable manufacturing, with GHRM showing the strongest influence and serving as the foundation for implementing lean and agile HR practices. The study concludes that GHRM plays a critical role in promoting sustainable manufacturing and improving sustainability practices in Malaysian manufacturing firms. (Kusumastuti and Herachwati, 2024) Identify the organizational and individual factors that determine environmental performance and contribute to reducing ecological impacts while improving organizational effectiveness. The research adopted a systematic literature review methodology using the Scopus database, where 40 relevant articles were selected and analyzed based on predefined criteria using the keyword “environmental performance.” The findings reveal that environmental performance determinants exist at both individual and organizational levels, including factors such as green innovation, pro-environmental behavior, green transformational leadership, employee engagement, Green Human Resource Management (GHRM), environmental strategy, green supply chain management, corporate social responsibility, and environmental commitment. The study concludes that both employee-related and organizational practices play a significant role in enhancing environmental performance and provides useful insights for managers and practitioners to strengthen sustainability initiatives. (Ichdan and Maryani, 2024) investigate the adoption of Green Human Resource Management (GHRM) practices in the manufacturing sector by examining the influence of employees’ environmental consciousness, environmental regulations, and companies’ environmental performance on green HR practices. The research adopted a quantitative survey-based methodology involving employees and managers from manufacturing companies, with data collected and analyzed statistically. The findings reveal that employees’ environmental awareness significantly influences the adoption of green HR practices, environmental regulations have a moderately positive effect,

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 5 | May 2026 - Peer Reviewed Journal

and environmental performance is positively associated with green HRM implementation. The study concludes that promoting environmental awareness and strengthening green HR strategies can help manufacturing companies achieve improved environmental sustainability, while also suggesting the need for further qualitative research on organizational culture and employee motivation. (Gelagay and Werke, 2024) examine the impact of Green Human Resource Management (GHRM) and Internal Green Supply Chain Management (IGSCM) on operational performance in the Ethiopian manufacturing sector. The research adopted a quantitative survey methodology using data collected from 219 large and medium-sized manufacturing companies in the leather, textile, agro-processing, and cement industries, with analysis conducted through Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings reveal that IGSCM practices such as eco-design and internal environmental management positively influence operational performance, while GHRM supports the development of a culture that promotes these practices. The study concludes that GHRM indirectly improves operational performance through IGSCM practices and highlights the importance of integrating environmental considerations into HR and supply chain strategies to achieve sustainable business outcomes.

(Gupta and Jangra, 2024) explore how Green Human Resource Management (GHRM) practices directly and indirectly influence work engagement in North Indian manufacturing industries across Haryana, Delhi, and Rajasthan, integrating conservation of resources and attribution theories to address literature gaps. Using cluster and purposive sampling, data from 362 employees and HR managers was analyzed via structural equation modeling, revealing a significant GHRM-work engagement link mediated by managerial support and HRM performance attributions. Findings highlight GHRM's strategic role in boosting employee engagement and HRM attributions, offering organizations actionable insights for sustainability-driven performance enhancement through eco-integrated HR practices. . (Ogiemwonyi et al., 2023) investigates how Green Human Resource Management (GHRM) enhances Environmental Performance (EP) in Malaysian manufacturing firms by exploring mediating roles of green innovation and workplace green behavior, alongside the moderating effect of environmental policy. Data from 384 employees was analyzed via Smart PLS, revealing significant mediation and moderation effects, with GHRM directly boosting EP through innovation promotion and green behavioral encouragement. Findings confirm GHRM's pivotal role in driving sustainability efforts, yielding measurable social and environmental gains. The study concludes that GHRM practices are indispensable for managers and researchers pursuing sustainable development in manufacturing, offering strategic insights for policy compliance and competitive eco-performance. (Alemu , 2022) aims to examine the role of Green Human Resource Management (GHRM) practices in promoting pro-environmental behaviors in the manufacturing sector of Ethiopia. The research adopted an explanatory research design with a deductive and quantitative approach under the positivism paradigm, using self-administered questionnaires collected from 351 employees of large-scale manufacturing companies in the Amhara Regional State, and data were analyzed through Structural Equation Modeling (SEM) using AMOS 23.0. The findings reveal that GHRM practices significantly and positively influence pro-environmental behaviors, while green recruitment and selection, performance management appraisal, training and development, reward and compensation, and green empowerment all have a positive impact on employees' environmental behaviors. The study concludes that green empowerment is a particularly strong factor in encouraging pro-environmental behavior and contributes a new dimension to designing sustainable HRM practices for environmental conservation and organizational sustainability. According to (Mashri and Jaaron, 2017) Green Human Resource Management (GHRM) integrates environmental sustainability into HRM practices to enhance employee commitment and organizational Environmental Performance (EP) by reducing carbon footprints in manufacturing firms. An empirical study in Palestine's food, chemical, and pharmaceutical sectors identified six key GHRM practices green recruitment, training, performance appraisal, rewards, empowerment, and culture management. HR manager interviews and surveys from 110 organizations, revealing moderate implementation with significant positive correlations to EP. Statistical analysis confirmed all six practices positively impact EP, leading to a proposed model linking them for strategic HR integration to achieve competitive advantage through maximized sustainability. This context-specific validation in a developing economy highlights GHRM's practical efficacy, offering replicable insights for manufacturing despite moderate adoption levels

2.2 Research Gap

1. Limited understanding of the level of GHRM implementation in manufacturing organizations

Most previous studies have focused on the impact of Green Human Resource Management (GHRM) on environmental and organizational performance, but very few studies have descriptively examined the actual level of implementation of green HR practices in manufacturing organizations. There is insufficient evidence regarding how extensively practices such as green recruitment, green training, green rewards, and green performance management are adopted in day-to-day organizational activities.

2. Lack of employee-centered analysis of GHRM practices

Existing studies mainly emphasize organizational outcomes and management perspectives, while limited attention has been given to employees' awareness, perceptions, and participation regarding green HR practices. Employees play a crucial role in the success of GHRM initiatives, yet there is inadequate understanding of how employees perceive and engage with environmental sustainability practices within manufacturing organizations.

3. Insufficient descriptive studies in the manufacturing sector of developing economies

Most research on GHRM has been conducted using analytical and causal models in selected countries, with limited descriptive studies focusing on developing economies and manufacturing industries. This creates a gap in understanding the current status, awareness levels, and practical implementation challenges of green HR practices among employees in manufacturing organizations.

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 5 | May 2026 - Peer Reviewed Journal

2.3 Research Objectives

1. To describe the awareness and level of implementation of Green Human Resource Management (GHRM) practices in manufacturing organizations.
2. To examine employees' participation in green HR practices in the manufacturing sector.

3. RESEARCH METHODOLOGY

This study adopts a quantitative research approach with a descriptive research design to examine the implementation of Green Human Resource Management (GHRM) practices and employees' awareness, perceptions, and participation toward green HR practices in manufacturing organizations. The descriptive design is considered appropriate because the study focuses on understanding and describing the current status of GHRM practices within manufacturing firms rather than testing causal relationships. The study primarily relies on primary data collected through a structured questionnaire distributed to employees working in manufacturing organizations. The questionnaire is designed using a Likert scale method to measure respondents' opinions, awareness levels, perceptions, and participation related to green HR practices such as green recruitment, green training and development, green rewards, employee involvement, and environmental sustainability initiatives. Secondary data may also be collected from journals, research articles, reports, and company documents to support the theoretical background of the study. The target population of the study consists of employees and HR professionals working in manufacturing companies. Respondents will be selected using convenience sampling or simple random sampling techniques, depending on accessibility and availability of participants. The collected data will be coded, classified, and analyzed using IBM SPSS Statistics and Microsoft Excel. Descriptive statistical tools such as frequency distribution, percentage analysis, mean, and standard deviation will be used to interpret the data and understand the level of GHRM implementation and employee perceptions toward green practices. The results will be presented through tables, charts, and graphical representations for better understanding and interpretation of findings.

4. DATA ANALYSIS

For the first objective, to check the awareness and adoption level of green HR practices, descriptive analysis has been used.

Table 4.1: Awareness of Green HRM practices

Are you aware of the Green HRM practices followed in your organization?					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	No	250	78.6	78.6	78.6
	Yes	68	21.3	21.3	100.0
	Total	318	100.0	100.0	

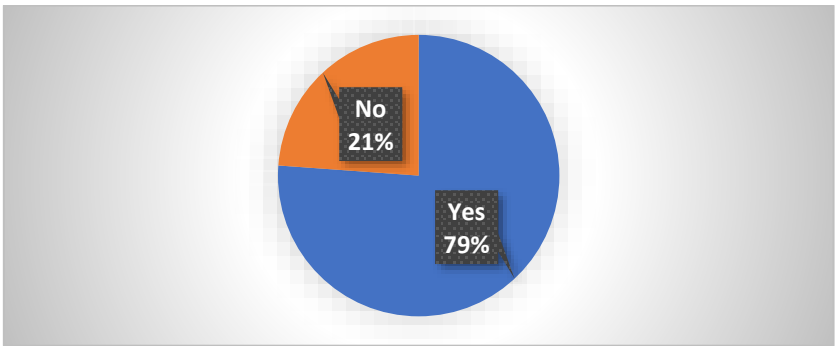


Chart 4.1: Awareness of Green HRM practices

The data analysis reveals that employee awareness of Green Human Resource Management (GHRM) practices within the manufacturing sector is significantly low, with a vast majority of respondents (78.6%) stating they are unaware of existing policies. This critical awareness gap, where only 21.3% of the workforce acknowledges the presence of green initiatives, suggests a fundamental breakdown in the organization's internal communication strategy. While the study identifies that institutional methods like emails and meetings are used, their current effectiveness in disseminating GHRM information appears insufficient to reach the broader employee base. This lack of foundational knowledge serves as a primary barrier to employee participation, as personal sustainability philosophies and interest in green training cannot be fully leveraged if the workforce remains uninformed about the organization's formal environmental goals.

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 5 | May 2026 - Peer Reviewed Journal

Table 4.2: Adoption of Green HRM practices

Do you believe Green HRM practices are actively implemented in your organization?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	39	15.6	15.6	15.6
	Agree	56	22.4	22.4	38.0
	Strongly Agree	155	62.0	62.0	100.0
	Total	250	100.0	100.0	

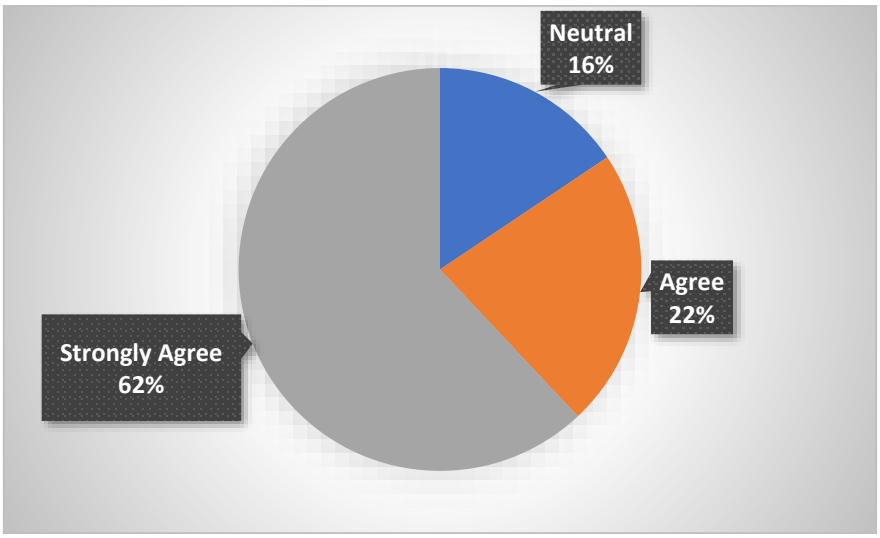


Chart 4.2: Adoption of Green HRM practices

The statistical analysis of the implementation of Green Human Resource Management (GHRM) reveals a profound and somewhat paradoxical consensus among the surveyed workforce. While initial data indicated a significant deficiency in formal policy awareness, the assessment of active implementation within the manufacturing units tells a much more encouraging story. Out of the 250 respondents who evaluated this dimension, a staggering **62% (155 individuals)** reported that they "Strongly Agree" that GHRM practices are actively implemented in their organization, with an additional **22.4% (56 individuals)** selecting the "Agree" category. This results in a combined positive perception rate of **84.4%**, a powerful "Top-Two Box" score that suggests the physical and operational realities of green initiatives—such as recycling, energy-saving measures, and waste reduction—are highly visible and tangible on the manufacturing floor.

Interestingly, the data shows an absolute absence of negative sentiment; not a single respondent selected "Disagree" or "Strongly Disagree," leaving only a small **15.6%** in the "Neutral" category. From a data analysis perspective, this high concentration of positive conviction indicates that the organization's green efforts have successfully transitioned from abstract goals to concrete actions. This finding highlights a "Practice-Policy Gap," where the functional application of green HR is significantly ahead of the internal communication of its formal policies. For the study's first objective, these findings confirm a robust level of implementation, providing a solid foundation for the organization to now bridge the communication gap, thereby converting general employee perception into formalized, documented organizational knowledge.

H_{02}: There is no significant difference in the level of employee participation toward Green HRM practices based on gender.

Independent Samples Test								
		t-test for Equality of Means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
4. Are you sufficiently involved in or encouraged	Equal variances assumed	2.226	316	.027	.157	.071	.018	.296

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 5 | May 2026 - Peer Reviewed Journal

to participate in Green HRM initiatives?	Equal variances not assumed	2.226	315.968	.027	.157	.071	.018	.296

An Independent Samples t-test was conducted to examine whether there was a significant difference between male and female respondents regarding their involvement or encouragement to participate in Green Human Resource Management (Green HRM) initiatives within their organisations. The analysis aimed to identify whether gender influences employee participation in environmentally sustainable organisational practices and activities. The results of the test indicated a t-value of 2.226 with 316 degrees of freedom and a significance value (p-value) of 0.027. Since the obtained significance value is less than the accepted threshold level of 0.05, the null hypothesis stating that there is no significant difference between male and female employees was rejected. This finding confirms that gender has a statistically significant impact on employees' involvement or encouragement in Green HRM initiatives. The mean difference between the two groups was found to be 0.157, indicating that one gender group reported slightly higher participation or encouragement levels compared to the other group. Furthermore, the standard error difference was 0.071, reflecting relatively low variability in the responses. The 95% confidence interval ranged from 0.018 to 0.296, and since the interval does not include zero, the statistical significance of the difference is further supported. These findings suggest that organisations should consider adopting inclusive and gender-sensitive Green HRM practices to ensure equal opportunities, motivation, and participation among employees in environmental sustainability initiatives and organisational green practices.

5. FINDINGS AND CONCLUSION

The study concludes that Green Human Resource Management practices are being effectively implemented within the organisation, particularly in operational and manufacturing activities, where employees clearly recognize and experience environmentally sustainable practices. The strong positive perception among employees reflects the organisation's commitment toward environmental sustainability and green workplace practices. At the same time, the statistically significant gender difference suggests that organisations should adopt more inclusive and gender-sensitive strategies to encourage equal participation in Green HRM initiatives. Furthermore, the existence of a Practice–Policy Gap indicates that while green initiatives are functionally successful, greater emphasis is required on communication, employee awareness, and policy dissemination. Strengthening internal communication regarding Green HRM policies can help transform employee perceptions into structured organisational understanding and improve overall employee engagement in sustainability initiatives.

REFERENCES

1. *Gelagay, D. A., & Werke, S. Z. (2024). Impact of green human resource management and internal green supply chain management practices on operational performance: An empirical investigation of manufacturing sector. Business Strategy and Development, 7, e399. https://doi.org/10.1002/bsd2.399*
2. *Gupta, A., & Jangra, S. (2024). Green human resource management and work engagement: Linking HRM performance attributions. Sustainable Futures, 7, 100174. https://doi.org/10.1016/j.sftr.2024.100174*
3. *Ibrahim, I., & Abu Eitah, R. (2025). Measuring the influence of green HRM, lean HRM, and agile HRM on sustainable manufacturing. Heritage and Sustainable Development, 7(1), 371–384. https://doi.org/10.37868/hsd.v7i1.1079*
4. *Ichdan, D. A., & Maryani, M. (2024). Green human resource management practices in the manufacturing industry: A sustainable approach. Annals of Human Resource Management Research, 4(1), 29–42. https://doi.org/10.35912/ahrmr.v4i1.2140*
5. *Khaskhely MK, Qazi SW, Khan NR, Hashmi T and Chang AAR (2022) Understanding the Impact of Green Human Resource Management Practices and Dynamic Sustainable Capabilities on Corporate Sustainable Performance: Evidence From the Manufacturing Sector. Front. Psychol. 13:844488. doi:10.3389/fpsyg.2022.844488*
6. *Kusumastuti, A. D., & Herachwati, N. (2024). Determinant analysis of environmental performance in manufacturing sector. Jurnal Bisnis dan Manajemen, 11(1), 31–40*
7. *Masri, H. A., & Jaaron, A. A. M. (2017). Assessing green human resources management practices in Palestinian manufacturing context: An empirical study. Journal of Cleaner Production, 143, 474–489. https://doi.org/10.1016/j.jclepro.2016.12.087*
8. *Ogiemwonyi, O., Alam, M. N., & Alotaibi, H. S. (2023). Pathways toward environmental performance: Link between green human resource management, green innovation, and green behavior at work in manufacturing companies. Journal of Cleaner Production, 414, 138949. https://doi.org/10.1016/j.jclepro.2023.138949*
9. *Widowati, D., Zarkasi, I. A., & Pamuji, D. D. (2026). Psychological mechanisms in the influence of Green Human Resource Management (GHRM) on performance in manufacturing companies: Systematic literature review. Journal of Economics, Management and Finance System, 9(3), 1224–1231. https://doi.org/10.47191/jefms/v9-i3-07*