

Green human resource management practices in the manufacturing industry: A sustainable approach

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Abstract

Purpose: This study investigates the adoption of environmentally friendly Human Resource Management (HRM) practices as a sustainable strategy in the manufacturing sector. It focuses on how employees' environmental consciousness, environmental regulations, and companies' environmental performance impact the implementation of green HRM practices.

Research Methodology: The study involved surveying employees and managers in manufacturing companies, with data gathered and analyzed quantitatively.

Results: The findings indicate that Employees' environmental awareness significantly influences the adoption of green HR practices, whereas the effect of environmental regulations is relatively positive. Furthermore, a company's environmental performance was found to be positively correlated with its green HR practices.

Limitations: This was a survey-based study. Further qualitative studies should be conducted to improve the quality of results.

Contribution: Suggestions for future research include conducting further studies to comprehend the internal and external factors influencing the adoption of green HR practices and considering the role of organizational culture and individual motivation in promoting such practices. This will provide a more comprehensive understanding of green HR strategies, which can assist manufacturing companies in achieving enhanced environmental sustainability.

Keywords: *GHRM, Employees' Environmental Consciousness, Environmental Regulations, Company Environmental Performance*

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1. Introduction

Green Human Resource Management (GHRM) initiatives, which aim to embed environmental sustainability principles within human resource protocols, have become increasingly pivotal for manufacturing organizations (Huo, Li, Zheng, Liu, & Yan, 2020). These initiatives are motivated by various factors, including heightened environmental consciousness among employees, the impact of environmental regulations, and corporations' environmental performance. Additionally, the adoption of sustainable methodologies within the manufacturing sector is imperative to sustain viability and minimize environmental harm (Jam & Jamal, 2020). Through the incorporation of GHRM strategies, manufacturing entities can stimulate employee environmental consciousness, adhere to environmental legislation, and enhance corporate environmental performance (Zaid, Jaaron, & Bon, 2018). Consequently, such organizations can play a vital role in fostering a more sustainable future by curbing their carbon emissions and advocating responsible practices across their supply chains (B. Zhang, 2019). The integration of GHRM approaches within the manufacturing sector is indispensable for

organizations to embrace sustainability objectives and mitigate their environmental footprint (Gill, Ahmad, & Kazmi, 2021).

Through the effective integration of green HRM strategies into their operations, manufacturing organizations have the opportunity to not only enhance their environmental performance, but also bolster their overall sustainability. This objective can be realized by fostering employees' environmental awareness, adhering to environmental regulations, and emphasizing corporate environmental stewardship (Tang, Chen, Jiang, Paillé, & Jia, 2018). In the manufacturing sector, green HRM practices transcend mere compliance with environmental mandates and possess the potential to profoundly influence organizational ethos and strategic directions (Masri & Jaaron, 2017). By embedding environmental sustainability principles in human resource policies, companies can cultivate a workplace culture that prioritizes ecological consciousness and fosters innovation. Employees actively involved in green HRM initiatives often derive a sense of purpose and pride from contributing to a sustainable future, consequently enhancing their morale and productivity levels (Yong et al., 2020).

Adopting sustainable methodologies within the manufacturing sector can improve cost efficiency and operational streamlining. For instance, the implementation of energy-saving measures or waste reduction strategies in production processes benefits the environment and positively impacts financial performance (Masri & Jaaron, 2017). This transition towards sustainability can also bolster an organization's reputation and attract environmentally conscious clientele and collaborators. It is imperative for manufacturing entities to acknowledge that integrating green HRM practices aligns with broader corporate social responsibility endeavors and can serve as a competitive advantage in the market (Ghouri, Mani, Khan, Khan, & Srivastava, 2020). By investing in sustainable human resource management, organizations can generate enduring value, mitigate risks, and contribute to a cleaner and healthier environment for future generations (Muisyo & Qin, 2021).

2. Literature review

2.1 Company Environmental Performance

A company's environmental performance refers to how well a company can reduce its harmful effects on the environment. Achieving this involves using tools such as environmental management systems (EMSs) and corporate environmental reporting (CER) to manage and measure the environmental impact (Annandale et al., 2004). The ISO 14001:2015 standard provides guidance for implementing environmental management systems, helping companies reduce their environmental footprint and enhance their environmental performance (Resen and AbdulRazzaq, 2022). Moreover, strategies such as Green Lean (Lean and Green), which merges lean methodology with environmental management, can help companies reduce their environmental impact and enhance overall sustainability (Haddach & BENFSSAHI, 2019; Szymańska-Brałkowska & Malinowska, 2018).

Environmental Management System assist companies in identifying, managing, and diminishing their environmental impact by adopting measures that minimize waste, energy usage, and pollution (Radzi, Darus, Yusoff, & Hermawan, 2020). Companies exhibiting robust environmental performance are often perceived more favorably by clientele, investors, and the general public, thereby bolstering their reputation and brand image (Bukit, Haryanto, & Ginting, 2018). Environmental management systems facilitate compliance with environmental regulations, mitigating the risk of fines and penalties (Radzi et al., 2020). They also foster stakeholder engagement, including that of employees, customers, and the local community, by integrating them into environmental decision-making processes (Byrnes & Dunn, 2020). Moreover, the Environmental Management System contributes to cost reduction through enhanced resource efficiency, waste reduction, and the prevention of environmental incidents (Omran & Yahya, 2020).

2.2 Green Human Resources Management

Green Human Resource Management (GHRM) involves integrating environmental considerations into HR policies and practices (Rao, 2022). This means aligning HR strategies with an organization's environmental goals (Irani and Kilic, 2022). GHRM encompasses various HR functions like recruitment, training, performance management, and employee engagement, all aimed at promoting environmental

sustainability within the organization (Muntari, Ho, Teo, Rizal, & Hee, 2021). The objective is to ensure that employees are aware of and committed to environmental objectives (Molina-Azorin, López-Gamero, Tarí, Pereira-Moliner, & Pertusa-Ortega, 2021), while HR practices encourage and support environmentally responsible behaviors and practices throughout the organization (Priyadarshini, 2020). Green Human Resources Management (GHRM) involves HR practices that promote sustainability within an organization (Benevene & Buonomo, 2020). This includes policies to reduce environmental impact, like encouraging eco-friendly behaviors (Pham, Hoang, & Phan, 2020), incorporating sustainability into training, and aligning recruitment with environmental values (Sinaga & Riyanto, 2021). GHRM emphasizes employee involvement such as participating in green initiatives and setting environmental targets (Citta & Fattah, 2020). Integrating environmental considerations into performance management ensures that sustainability remains a priority (El Dessouky and Alquaiti, 2020). GHRM recognizes employees as key drivers of environmental sustainability, using HR strategies to empower them towards a greener future (Javed, Yingjun, Kumar, & Meghwar, 2024; Ojo, Tan, & Alias, 2022).

2.3 Employees' Environmental Consciousness

To encourage sustainable practices and minimize the environmental footprint of organizations, it is crucial to understand the factors shaping employees' environmental awareness (Wang, 2022). These factors encompass environmental education, consciousness, and the organization's eco-friendly policies and actions (Osolase, Rasdi, & Dato, 2022). By investing in environmental education and awareness initiatives, companies can instill an environmental consciousness in their workforce (Tadena & Salic-Hairulla, 2021), which may translate into greener decisions both at work and in personal life (Jamal et al., 2021; Osolase et al., 2022). Moreover, when employees have a good understanding of the negative impacts of climate change and possess skills to promote environmental sustainability, they are more likely to embrace eco-friendly practices and enhance their environmental performance (Gill et al., 2021).

Companies should integrate environmental awareness into all aspects of their HR operations (Gill et al., 2021). This entails infusing green principles and procedures into recruitment procedures, offering training opportunities linked to environmental sustainability (Anwar et al., 2020) and assessing employee performance based on their dedication to environmental responsibility (Zhang, 2019). Implementing these strategies not only enhances organizations' environmental performance but also helps them attract and retain employees who value and prioritize environmental conservation (Novita, Hidayatulloh, Renwarin, Santoso, & Mardikaningsih, 2022). By cultivating an environmental awareness among employees, organizations can encourage sustainable practices and reduce their environmental impact (Al-Minhas, Ndubisi, & Barrane, 2020; Suganthi, 2019).

2.4 Environmental Regulation

Environmental regulation encompasses laws and rules established by governments and regulatory bodies to protect the environment and public health (Alola et al., 2022). These regulations are designed to curb pollution, preserve natural resources, and promote sustainable practices across various industries and communities (Yu, Tian, & Xing, 2020). They encompass a broad spectrum of domains, including air and water quality, waste management, land usage, wildlife preservation, and efforts to mitigate climate change (Gerba and Brusseau 2019). They have set standards for emissions, waste disposal, resource extraction, and other activities that could harm the environment. Compliance with environmental regulations is mandatory for individuals, businesses, and industries, and noncompliance can result in fines, penalties, or legal action (Fan et al., 2021). The overarching objective of environmental regulation is to strike a balance between economic growth and environmental protection, ensuring that the present and future generations can enjoy a clean and sustainable environment (Du et al., 2021).

Environmental regulation is crucial for monitoring human activities that affect the environment (Pang 2020). These science-based rules aim to solve environmental problems and achieve goals. These include limits on pollutants, guidelines for practice, and project impact assessments (Piskorskaya & Malanina, 2019). Regulations are enforced through monitoring and inspection, and following them is vital for protecting the environment and public health (Olohiomeru, 2019). Effective regulation requires

collaboration between governments, businesses, and communities (Lin and Xia, 2021). Overall, environmental regulation is vital for sustainable development and ensuring environmentally friendly human activities (Xing, Zhang, & Guo, 2023).

2.5 Hypotheses Development

2.5.1 Employees' Environmental Consciousness and GHRM

Comprehending the relationship between employees' environmental consciousness and Green Human Resources Management (GHRM) is crucial in understanding how personal values related to sustainable behaviors influence the effectiveness of GHRM practices (Gomes, Sabino, & Antunes, 2023). Research indicates that employees' environmental awareness, particularly their biospheric values, plays a significant role in the connection between GHRM practices and organizational outcomes such as affective commitment, work engagement, job satisfaction, and green work engagement (Alreahi et al., 2022).

Specifically, when employees prioritize the biosphere and demonstrate heightened environmental awareness, the impact of GHRM practices on organizational outcomes like affective commitment and work engagement becomes more pronounced (AlNaqbi, Mohd-Shamsudin, & Alshurideh, 2024). This suggests that employees who prioritize environmental sustainability are more likely to respond positively to GHRM initiatives, leading to enhanced organizational performance and stronger commitment to green practices in the workplace (Mittal & Kaur, 2023; Setyaningrum & Muafi, 2023).

Hence, nurturing and utilizing employees' environmental awareness via GHRM can be a strategic method for organizations to boost their environmental performance, enhance employee satisfaction, and promote sustainable business practices (Susanto, 2023). The proposed hypothesis is as follows:

H1: Employees' Environmental Consciousness positively and significant contribute to GHRM

2.5.2 Environmental Regulations and GHRM

The link between environmental regulations and green human resource management is growing in significance within the academic and industrial spheres (Molina-Azorin et al., 2021). The increasing adoption of management systems by corporations highlights the importance of incorporating environmental practices into organizational processes (Priyadarshini, 2020). This study explores how human resource management practices can support the enforcement of environmental regulations (Zhang, Huang, & Long, 2023). It investigates the role of green human resource management in ensuring adherence to regulations and promoting sustainability within organizations (Jabbour & Renwick, 2018).

By harmonizing human resource policies with environmental regulations, organizations can efficiently encourage environmental stewardship (Ren, Tang, & Jackson, 2020). The adoption of green human resource management practices guarantees that employees receive education and training on environmental regulations and optimal approaches, fostering an ethos of environmental responsibility (Kumar, Bhaskar, Nadeem, Tyagi, & Garza-Reyes, 2020; B. Zhang, 2019). Furthermore, incorporating these practices can amplify employee engagement and contentment, as employees tend to be more inspired when they perceive their organization as being dedicated to environmental sustainability (Martins et al., 2021). The proposed hypothesis is as follows:

H2: Environmental Regulation makes a significant positive contribution to GHRM.

2.5.3 Employees' Environmental Consciousness and Company Environmental Performance

The relationship between employees' environmental awareness and a company's environmental performance is a subject of considerable interest. The environmental consciousness and attitudes of employees can affect their actions and choices within the organization, influencing resource utilization, waste management, and the adoption of sustainable practices (Doluca, Wagner, & Block, 2018). When employees are environmentally aware, they are more likely to support and participate in eco-friendly initiatives within the company, leading to enhanced environmental performance, including decreased resource consumption, reduced emissions, and improved waste management (Khaleeli, Pradeep, & Krishnadas, 2021).

Furthermore, employees with environmental awareness may propose innovative ideas to improve their environmental performance and foster innovation and efficiency. Their attitudes and behaviors can positively influence their colleagues, encouraging a sustainability-focused culture within the organization (Zhang, 2019). Conversely, a lack of environmental consciousness among employees can hinder efforts to improve environmental performance, leading to resistance to change or lack of motivation to adopt sustainable practices (Ture & Ganesh, 2018). The relationship between employees' environmental awareness and company environmental performance is complex and varied (Naz, Jamshed, Nisar, & Nasir, 2023). Nevertheless, promoting a culture of environmental awareness among employees can be a valuable approach to enhancing environmental performance and achieving sustainability goals (Raza, Farrukh, Iqbal, Farhan, & Wu, 2021). The proposed hypothesis is as follows: H3: Employees' environmental positively and significantly impacts their environmental performance.

2.5.4 Environmental Regulations and Company Environmental Performance

Environmental regulations establish a legal framework for companies, specifying the requirements for pollution control, waste management, and resource conservation (Pang, 2020). Compliance with these regulations is mandatory, with penalties and fines for noncompliance. However, the impact of environmental regulations on a company's environmental performance goes beyond mere compliance (Hafezi & Zolfagharinia, 2018). These regulations can also act as catalysts for enhancing the environmental performance. Companies often discover that investing in technologies and practices to meet regulatory standards can simultaneously improve their overall environmental performance (Wu, Yang, & Zhou, 2020). For instance, adopting energy-efficient technologies to reduce greenhouse gas emissions can result in cost savings for companies.

Furthermore, environmental regulations can drive innovation within a firm. The need to comply with regulations can inspire companies to create new technologies, products, and processes that are environmentally sustainable (Chai, Huang, Chang, & Hu, 2020). This not only enhances the company's environmental performance, but also boosts its competitiveness in the market (Robertson, 2021). In summary, while environmental regulations impose constraints on companies, they also present opportunities to enhance environmental performance, encourage innovation, and improve overall sustainability (Lee, 2020; Wang, 2021). The proposed hypothesis is as follows:

H4: Environmental Regulations affect environmental performance positively and significantly.

2.5.5 GHRM and Company environmental Performance

Green Human Resource Management (GHRM) integrates environmental considerations into HR practices, including educating employees on environmental matters, promoting eco-friendly behaviors, and incorporating environmental objectives into performance evaluations (Ashraful et al., 2021). Studies suggest that successful GHRM implementation can improve a company's environmental performance (Khammadee & Ninaroon, 2022). When employees are environmentally aware and involved, they are more inclined to endorse sustainability efforts such as recycling or reducing energy consumption, resulting in reduced waste and emissions (Ojo et al., 2022).

Moreover, GHRM fosters a sustainable culture in which environmental factors are part of decision making at all levels (Hutomo et al., 2020). This can yield lasting benefits such as reduced resource costs and improved reputation. Despite the complexity of the relationship between GHRM and company environmental performance, evidence suggests that embedding environmental aspects into HR practices can positively impact environmental outcomes (Ghoury et al., 2020).

H5: GHRM has a positive and significant effect on environmental performance.

2.6 Framework Model

The role of green human resource management (GHRM) in companies is very important and multifunctional. GHRM is a human resource management practice that focuses on using resources in a sustainable and environment-friendly manner. The description of the Green HRM strategy with the implementation of the Company Environmental Performance strategy is different from previous studies (Byrnes & Dunn, 2020; Haddach & BENFSSAHI, 2019; Radzi et al., 2020; Resen & AbdulRazzaq, 2022; Szymańska-Brałkowska & Malinowska, 2018), while some argue with the factor of employees'

environmental consciousness (Jamal et al., 2021; Osolase et al., 2022; Tadena & Salic-Hairulla, 2021; M. Wang, 2022), and different studies on Environmental Regulation (Alola et al., 2022; Fan et al., 2021; Gerba & Brusseau, 2019; Yu et al., 2020) Du et al., 2021).

The authors suggest a new structural framework for implementing Green Human Resource Management (GHRM) to enhance company environmental performance, employees' environmental consciousness, and adherence to environmental regulations. This framework offers companies flexibility to adopt different GHRM strategies based on sustainable business challenges. Figure 1 illustrates the application of the framework in this study.

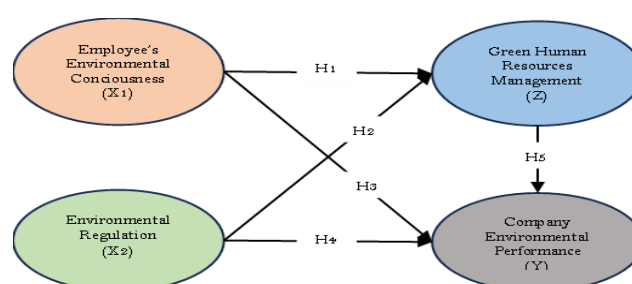


Figure 1: Conceptual Framework

3. Methodology

This study utilizes a quantitative research design to explore the adoption of Green Human Resource Management (GHRM) practices in the manufacturing sector. A cross-sectional survey was conducted to gather data from employees and managers across various manufacturing companies. To ensure diverse representation, a stratified random sampling technique is employed, encompassing employees from different hierarchical levels (e.g., operational staff, supervisors, and managers) within different manufacturing firms. The sample size was determined by using an appropriate method to ensure statistical robustness.

Data will be collected via a structured questionnaire designed to assess variables such as employee environmental awareness, the perceived impact of environmental regulations, corporate environmental performance, and GHRM practice implementation. The questionnaire will be distributed electronically, with participants allotted a specific timeframe for their response. Ethical guidelines will be strictly adhered to, guaranteeing the voluntary participation, confidentiality, and anonymity of the respondents. Informed consent was obtained from all the participants before data collection.

The research data will be analyzed using the Structural Equation Model (SEM) method, meeting all the necessary criteria. This study aims to explore the relationships between employees' environmental awareness, environmental regulations, green human resources management, and company environmental performance.

The measurement model includes the measurement of the variables and their indicators, as listed in Table 1.

Table 1. CFA results for the measurement model

Variable and Indicators	Loading Factors	P-Value
Employees' Environmental Consciousness (EEC)		
- Participation in the Company's Environmental Program	0.636	0.000
- Knowledge of Environmental Issues	0.796	0.000
- Environmentally Friendly Consumption Behavior	0.642	0.000
- Participation in Environmental Initiatives Outside the Workplace		
- Support for Company Environmental Policy		
- Perception of Corporate Environmental Responsibility		

	0.686	0.000
	0.669	0.000
	0.747	0.000
Environmental Regulations (ER)		
- <i>Compliance with Environmental Regulations</i>	0.657	0.000
- <i>Environmental Performance Report</i>	0.685	0.000
- <i>Investment in Clean Technology</i>	0.756	0.000
- <i>Availability of Policies and Procedures</i>	0.713	0.000
Green Human Resources Management (GHRM)		
- <i>Environmental Training Program</i>	0.796	0.000
- <i>Waste Management</i>	0.637	0.000
- <i>Environmental Health and Safety</i>	0.672	0.000
- <i>Environmental Performance Measurement</i>	0.764	0.000
- <i>Energy Efficiency</i>	0.747	0.000
- <i>Participation in Environmental Initiatives</i>	0.684	0.000
Company Environmental Performance (CEP)		
- <i>Energy Usage</i>	0.774	0.000
- <i>Compliance with Environmental Regulations</i>	0.789	0.000
- <i>Environmental Innovation</i>	0.776	0.000
- <i>Material Efficiency</i>	0.706	0.000
- <i>Reduction of Hazardous Chemical Usage</i>	0.734	0.000

Table 1 indicates that all indicators exhibit a loading factor value exceeding 0.6 and a p-value below 0.05, confirming their validity. Table 2 demonstrates the reliability of all tested variables, with each indicator showing internal consistency (Hair 2010). The results of the reliability test revealed a CR value exceeding 0.6 and a Variance Extracted (VE) exceeding 0.5. Employees' environmental awareness, environmental regulations, green human resource management, and company environmental performance variables exhibit a CR value exceeding 0.7 and the AVE exceeds 0.5, indicating their reliability.

Table 2 Construct Reliabilities, AVE and Correlationsi

Variable	1	2	3	4
Employees' Environmental Consciousness (EEC)	0.833			
Environmental Regulations (ER)	0.954	0.928		
Green Human Resources Management (GHRM)	0.444	0.412	0.860	
Company Environmental Performance (CEP)	0.454	0.435	0.411	0.864

Average Variance Extracted (AVE)	0.894	0.750	0.875	0.710
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4. Results and discussions

Conducting hypothesis testing via Structural Equation Modeling (SEM) entails assessing the connections among variables according to the proposed model. SEM software was used to estimate the model's parameters, which entails determining the path coefficients (effect sizes) linking variables and evaluating the model's fit to the data. Subsequently, we interpreted the outcomes and reached conclusions regarding the relationships between variables based on the statistical significance of the path coefficients and the overall fit of the model. The constructed model was appropriate for investigating the relationship between the research variables, as shown in Table 3.

Table 3 Hypothesis Testing

Relationship among variables	Std β	Unstd β	SE	CR	Result
EEC \rightarrow GHRM	0.247	0.228	0.069	3,283*	H1 is accepted
ER \rightarrow GHRM	0.390	0.267	0.071	3,771*	H2 is accepted
EEC \rightarrow CEP	0.230	0.283	0.081	3,199*	H3 is accepted
ER \rightarrow CEP	0.214	0.256	0.082	2,756*	H4 is accepted
GHRM \rightarrow CEP	0.200	0.254	0.087	2,699*	H5 is accepted

Note: *p < 0.01

Table 3 indicates that all relationships between variables were positive and significant, with p-values < 0.01. All hypotheses in the study are accepted, indicating that environmental performance is positively and significantly impacted by green human resource management as a moderating variable. Green human resource management (GHRM) is significantly influenced by employees' environmental consciousness (EEC) and Environmental Regulations (ER). Similarly, the hypothesis testing revealed that the Company Environmental Performance (CEP) variable is directly influenced by employees' environmental consciousness (EEC) and Environmental Regulations (ER).

4.1 Discussion

The above measurements indicate that all relationships between variables are positively and significantly correlated, with p-values < 0.01. This finding implies strong support for the hypothesized relationships in this study. The findings suggest that environmental performance is positively and significantly influenced by green human resource management (GHRM) as a moderating variable. This finding indicates the importance of implementing effective GHRM practices to enhance environmental performance. Moreover, the analysis revealed that GHRM is significantly influenced by both employees' environmental consciousness (EEC) and Environmental Regulations (ER), highlighting the role of employee awareness and regulatory compliance in shaping GHRM practices. Additionally, the direct impact of employees' environmental consciousness (EEC) and Environmental Regulations (ER) on Company Environmental Performance (CEP) underscores the significance of these factors in driving environmental sustainability within organizations. Overall, the results suggest that a holistic approach that integrates employee awareness, regulatory compliance, and effective GHRM practices is crucial for enhancing companies' environmental performance.

The impact of employees' environmental awareness on Green Human Resources Management (GHRM) suggests that the level of environmental awareness among employees can affect how companies handle their human resources within the framework of environmental sustainability (Gomes et al., 2023). Employees with heightened environmental consciousness tend to prioritize eco-friendly behaviors not only in their personal lives, but also within the workplace (AlNaqbi et al., 2024). This influence prompts

companies to introduce policies and initiatives that promote environmental sustainability, including training on environmental issues, waste-reduction strategies, and energy-saving measures. Mittal and Kaur (2023) emphasize that employees' environmental awareness serves as a catalyst for companies to integrate environmental considerations into various aspects of human resource management, such as utilizing eco-friendly materials in employee training programs and fostering environmentally conscious practices in employee welfare initiatives. Consequently, employees' environmental awareness emerges as a pivotal factor in fostering the adoption of sustainable and environmentally conscious practices within GHRM (Susanto, 2023).

The impact of environmental regulations on green human resource management (GHRM) in manufacturing companies suggests that these regulations can shape how companies manage their employees to promote environmental sustainability. Stringent regulations can prompt companies to adopt eco-friendly HR practices (Martins et al., 2021). To adhere to these regulations, companies must incorporate environmental policies, including recruitment, training, and evaluation, into their HR practices. Environmental regulations can also influence companies' investments in environmentally friendly technologies and production processes, which, in turn, can impact how they engage with and manage their employees (Priyadarshini, 2020). Companies operating under strict environmental regulations often require employees with knowledge and skills for environmental sustainability (Jabbour & Renwick, 2018). This can drive companies to enhance employee training and development in environmental sustainability and consider environmental factors in employee recruitment and promotion. The impact of environmental regulations on GHRM in manufacturing companies underscores the importance of integrating environmental policies and HR management to advance environmental sustainability. Companies that effectively manage this relationship are likely to achieve a harmonious blend of environmental sustainability and business goals (Kumar et al. 2020; Zhang 2019).

The influence of employee environmental awareness on Corporate Environmental Performance in manufacturing companies highlights how employees' environmental consciousness can impact a company's environmental efforts (Doluca et al., 2018). Employees with high environmental awareness tend to embrace eco-friendly practices both at work and in their personal lives. This influence prompts companies to adopt policies and initiatives that promote environmental sustainability, such as providing environmental training, reducing waste, and improving energy efficiency (Khaleeli et al., 2021). Employee environmental awareness can also prompt companies to integrate environmental considerations, including human resource management, into their operations (Ture & Ganesh, 2018). Companies can respond by enhancing employee environmental training and awareness and by encouraging employee involvement in environmental initiatives. Thus, Employee Environmental Awareness plays a crucial role in motivating manufacturing companies to enhance environmental performance.

The impact of environmental regulations on corporate environmental performance in manufacturing firms indicates that these regulations can affect how companies strive to enhance environmental performance (Wu et al., 2020). Stringent regulations can motivate companies to embrace greener production practices and consider environmental factors during their operations (Chai et al. 2020). Adhering to these regulations can lead to improved waste management, reduced emissions, and enhanced energy efficiency (Pang 2020). Consequently, this adherence can assist companies to attain higher environmental standards and enhance their reputation for sustainability (Lee, 2020; Wang, 2021).

The impact of green human resource management (GHRM) on a company's environmental performance in manufacturing firms illustrates that managing human resources from an environmental perspective can influence the overall environmental performance of a company (Khammadee & Ninaron, 2022). Introducing GHRM initiatives, such as eco-friendly training, enhancing environmental awareness among employees, and integrating environmental factors into HR policies, can enhance environmental performance (Ashraful et al., 2021). This may involve waste reduction, resource conservation, and adoption of sustainable practices across organizations. Companies that emphasize GHRM are expected to experience favorable outcomes in their environmental performance, as they align their HR practices with environmental sustainability objectives (Ojo et al., 2022).

5. Conclusion

5.1 Conclusion

In conclusion, the implementation of Green Human Resource Management (GHRM) practices in the manufacturing industry represents a significant step towards achieving sustainability objectives. This study demonstrated that employee environmental awareness, the influence of environmental regulations, and corporate environmental performance play crucial roles in supporting the adoption and effectiveness of GHRM practices.

The findings underscore the importance of fostering environmental consciousness among employees and complying with environmental regulations in driving the integration of sustainability principles into HRM policies. Moreover, corporate environmental performance has been shown to positively influence the implementation of GHRM practices, highlighting the importance of organizational commitment to environmental stewardship.

By embracing GHRM practices, manufacturing organizations can not only enhance their environmental performance but also improve their overall sustainability and competitiveness. The integration of environmental considerations into HRM practices fosters a culture of ecological responsibility and innovation, which ultimately contributes to long-term value creation and risk mitigation. It is essential for manufacturing companies to continue investing in GHRM initiatives and align them with broader corporate social responsibility objectives. By doing so, organizations can contribute to a cleaner and healthier environment while securing their future prosperity in an increasingly sustainability-focused business landscape.

5.2 Suggestion

Businesses must prioritize the provision of training and development programs aimed at enhancing employees' awareness of environmental issues and involving them in sustainability efforts. These programs may encompass workshops, seminars, and campaigns geared towards raising awareness about environmental concerns and the significance of sustainable behaviors. It is imperative for organizations to uphold strict compliance with environmental regulations and norms, which entails regularly revising policies and procedures to ensure conformity with evolving regulations and fostering a culture of adherence across the organization. Continuous monitoring and enhancement of environmental performance should be emphasized by companies, which can be accomplished through routine audits, establishment of environmental performance objectives, and implementation of initiatives to diminish resource consumption and waste production. Furthermore, human resource management policies should be harmonized with sustainability objectives, potentially incorporating environmental sustainability benchmarks into recruitment processes, performance evaluations, and incentive systems to motivate employees to embrace sustainable practices.

Organizations should interact with stakeholders, such as employees, suppliers, customers, and the community, to advance environmental sustainability. This engagement may entail partnering with stakeholders to create and execute sustainability projects and to maintain open communication regarding environmental performance. Businesses should consistently assess and enhance green Human Resource management (GHRM) practices. This may encompass seeking input from employees and stakeholders, comparing it against industry standards, and embracing a culture of ongoing enhancement.

5.3 Recommendation

Green HRM is crucial for today's businesses, especially manufacturing, where environmental concerns are high. This strategy helps companies improve their environmental performance and raise environmental awareness. By integrating eco-friendly policies into HRM, firms can reduce their ecological footprint and make their employees more environmentally conscious. This means aligning HRM with environmental goals and integrating green practices into recruitment, training, performance reviews, and compensation. These steps not only improve environmental performance, but also increase employee engagement and loyalty. It is also important to involve employees in sustainable practices through training, awareness campaigns, and decision making. Compliance with environmental regulations is key, not just for legality but also to show commitment to the environment. By following

regulations, companies can innovate and implement eco-friendly policies to boost their competitiveness. In short, Green HRM is essential for manufacturing companies to achieve sustainable environmental performance, promoting a greener future, and stronger business.

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