

# Green Human Resource Management and Firm Performance: The Role of Green Innovation in Indonesian SMEs

The Role of Green  
Human Resource  
Management

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## ABSTRACT

SMEs play a crucial role in economic development but face challenges in integrating environmental sustainability into business operations. Green Human Resource Management (GHRM) has been proposed as a mechanism to foster green innovation and enhance sustainable performance. However, evidence from SMEs, particularly in emerging economies, remains limited and predominantly quantitative. This study investigates how GHRM contributes to multidimensional firm performance through green innovation in Indonesian SMEs. Using a qualitative multiple case study design, data were collected from 12 SMEs across manufacturing and service sectors via semi-structured interviews, non-participant observations, and document analysis. Thematic analysis identified four key patterns: emergent, values-based adoption of GHRM, selective deployment of core GHRM practices, green innovation as a linking mechanism between GHRM and performance, and capability and institutional barriers influencing outcomes. Findings indicate that informal, owner-driven GHRM fosters employee engagement in green process, product, and organizational innovations, generating environmental, operational, market, and social benefits. The study highlights the role of contextual factors such as regulatory enforcement and supply-chain pressures. Implications include guidance for SME managers on embedding environmental values in HR practices and for policymakers on designing integrated support programs to promote sustainable, innovation-driven SMEs.

**Keywords:** Green Human Resource Management, Green Innovation, Small and Medium-Sized Enterprises, Sustainable Performance.

## INTRODUCTION

In the past decade, sustainability has evolved from a peripheral issue into a core strategic priority for firms of all sizes. This shift is particularly important for Small and Medium-Sized Enterprises (SMEs), which contribute significantly to employment and economic value in developing countries, including Indonesia, while also generating notable environmental impacts through energy use, waste, and resource consumption. However, SMEs often face resource limitations, constrained managerial capacity, and weaker institutional support compared to large corporations, making the transition to greener business models more challenging (Saubke et al., 2025). In Indonesia, the green economy agenda and the vision of "Golden Indonesia 2045" emphasize sustainability and innovation, recognizing SMEs as key drivers of inclusive and environmentally responsible growth. Nevertheless, many SMEs still struggle to integrate environmental considerations into management practices, where Human Resource Management (HRM) could play a crucial but underutilized role (Rachman et al., 2025).

Green Human Resource Management (GHRM) is defined as the set of HR policies, practices, and processes that explicitly incorporate environmental objectives, embed pro-environmental values, and foster green behaviors among employees. Typical GHRM

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practices include green recruitment and selection, green training and development, environmentally oriented performance appraisal, green rewards, and employee involvement in eco-initiatives. A growing body of quantitative research links GHRM to green innovation, environmental performance, and broader sustainable business outcomes across various contexts. However, the majority of this evidence stems from large firms or public sector organizations and employs survey-based designs that capture relationships between variables but not the underlying processes and micro-level dynamics (Habibullah & Kamal, 2024; Zaman et al., 2025).

Recent studies in South and Southeast Asia indicate that GHRM can play a crucial role in SMEs, where informal structures, owner–manager values, and small workforces shape organizational change (Subramanian & Suresh, 2022). Evidence from manufacturing SMEs in Pakistan and Bangladesh shows that GHRM practices, such as green recruitment and training, positively influence green innovation, which subsequently enhances sustainable business performance (Azam & Jamil, 2024). In Indonesia, quantitative studies on SMEs and start-ups also demonstrate that GHRM and green transformational leadership improve environmental performance, with green innovation acting as a mediating mechanism (Yuliza & Musa, 2025). However, GHRM alone may have mixed or even negative direct effects on sustainable performance if not supported by complementary capabilities, such as green supply chain management and pro-environmental behaviors.

Despite these insights, several research gaps remain. First, there is a limited qualitative understanding of how GHRM is interpreted and implemented in SMEs, particularly in emerging economies where formal HRM systems are often informal or underdeveloped. Many SMEs lack dedicated HR departments, formal policies, or structured performance systems, raising questions about how GHRM can be effectively operationalized. Second, while prior studies confirm that green innovation mediates the relationship between GHRM and sustainable performance, innovation is typically measured as a latent survey construct rather than examining specific forms such as process, product, organizational, or business model innovation. Research on Indonesian SMEs remains fragmented and largely quantitative, underscoring the need for deeper contextual insights into how sustainability practices, innovation, and organizational capabilities interact within these firms (Mutalib, 2025).

Firm performance in the sustainability context is inherently multidimensional, encompassing not only financial outcomes but also environmental improvements, operational efficiencies, market and reputational gains, and social outcomes such as employee well-being and community relations (Nagiah & Suki, 2024). However, many quantitative studies combine these outcomes into composite indices, which may obscure how different dimensions of performance respond to specific configurations of GHRM and innovation. A qualitative approach can provide deeper insights into which practices and innovations contribute most to performance outcomes.

Against this background, this study investigates how GHRM contributes to sustainable firm performance in Indonesian SMEs and examines the role of innovation in this relationship. The research adopts a qualitative multiple-case study design involving 12 SMEs from environmentally relevant sectors, including food processing, furniture, hospitality, and the creative industries. This study contributes by offering a process-oriented understanding of GHRM implementation in SMEs, highlighting the influence of owner–manager environmental values, informal HR practices, and experiential learning. It also clarifies the mediating role of green innovation and explains why GHRM may not always produce immediate performance benefits without adequate institutional and organizational support.

## **LITERATURE REVIEW**

### **Green Human Resource Management in SMEs**

GHRM extends conventional HRM by explicitly integrating environmental considerations into the management of human resources. Core practices include

incorporating environmental criteria into job descriptions and recruitment processes, providing training on eco-efficient operations, embedding environmental objectives into performance appraisal systems, and offering incentives for pro-environmental behaviors. Prior studies by Zaman et al. (2025) and Rachman et al. (2025) demonstrate that such practices contribute to improved environmental performance and green innovation outcomes. Although early GHRM literature predominantly focused on large organizations in developed economies, more recent research highlights its growing relevance in SMEs and emerging markets, where regulatory pressures and market expectations for sustainability are increasing despite uneven institutional support (Saubke et al., 2025).

In the SME context, HRM systems tend to be informal, owner-driven, and constrained by limited resources, making standardized and formalized GHRM approaches difficult to implement. Qualitative evidence suggests that GHRM in SMEs is often manifested through values-based leadership, informal environmental socialization, and ad hoc initiatives rather than formal policies (Mi et al., 2024; Giraldo-Giraldo et al., 2025). For instance, SMEs may prioritize hiring individuals who demonstrate concern for cleanliness and waste management, encourage material reuse, or involve employees in small-scale environmental projects. Previous research by Shah and Soomro (2023) and Zhang and Guo (2024) indicates that such informal practices can still shape pro-environmental behaviors and support the development of green innovation over time. Therefore, even in the absence of formal structures, GHRM in SMEs plays a strategic role in advancing sustainability.

### **GHRM, Green Innovation, and Environmental Performance**

A consistent finding across quantitative studies is that GHRM is positively associated with environmental performance, often through the mediating roles of green innovation and employee engagement. Empirical evidence by Afzal et al. (2023) from Indian and Indonesian contexts indicates that GHRM fosters green work engagement and green innovation, which subsequently enhance environmental performance through improved pollution control, energy efficiency, and waste reduction. Similarly, studies by Jamil et al. (2023) show that GHRM practices, including green recruitment, training, and reward systems, significantly influence both green innovation and sustainable environmental performance.

Green innovation refers to new or modified products, processes, practices, or business models that reduce environmental impacts or improve resource efficiency. In SMEs, such innovation is typically incremental, involving changes such as adopting eco-friendly raw materials, optimizing production layouts to minimize waste, or redesigning packaging, rather than pursuing radical technological breakthroughs. Empirical studies by Entekhabi (2024) suggest that GHRM establishes the cognitive, motivational, and capability-related conditions necessary for employees to identify environmental challenges, experiment with greener alternatives, and share eco-efficient knowledge. Recruitment attracts environmentally oriented individuals, training enhances green competencies, performance management and reward systems signal the strategic importance of environmental objectives, and participatory mechanisms enable employees to contribute ideas and feedback (Muafi et al., 2025).

Theoretical explanations commonly drawn on the Resource-Based View (RBV) and the dynamic capabilities perspective. GHRM is argued to cultivate unique environmental capabilities that are valuable, rare, and difficult to imitate by embedding green knowledge, skills, and norms within the workforce, thereby supporting sustained environmental and competitive performance (Sarmad et al., 2023; Bindeeba et al., 2025). From a dynamic capabilities perspective, GHRM enhances a firm's ability to sense and seize environmental opportunities and to reconfigure its operations accordingly, particularly when complemented by external networks and green supply chain capabilities.

### **GHRM and Sustainability Firm Performance**

Sustainable firm performance encompasses environmental, economic, and social dimensions. Empirical studies on SMEs across South and Southeast Asia consistently report a positive relationship between GHRM and multidimensional performance, often mediated by green innovation and pro-environmental behavior. Evidence from Bangladeshi and Indian SMEs shows that green HR practices and dynamic capabilities significantly shape sustainable performance, with external dynamic capabilities exerting particularly strong effects (Zaman et al., 2025). In the Indonesian context, GHRM has been found to enhance green innovation and sustainable performance, especially when aligned with local resource constraints and evolving regulatory frameworks (Rachman et al., 2025). These findings are further supported by studies indicating that GHRM strengthens employee engagement and environmental commitment, which in turn contribute to improved operational efficiency and environmental outcomes (Saubke et al., 2025).

However, emerging evidence suggests a more complex relationship. A recent study on Indonesian SMEs indicates that GHRM may have a negative direct effect on sustainable performance but a positive indirect effect when combined with green supply chain management and pro-environmental behavior. This implies that GHRM alone may be insufficient to drive performance improvements and must be embedded within a broader system of complementary capabilities (Gautam & Mishra, 2025). Moreover, qualitative research by Jiang et al. (2024) and Al-Alawneh et al. (2024) highlights persistent barriers to GHRM adoption, including limited financial resources, lack of environmental knowledge, and resistance to change among owners and employees, which may weaken its short-term impact. Additional studies by Ahmed et al. (2023) and Azam and Jamil (2024) also emphasize that institutional support and managerial commitment are critical in determining whether GHRM can effectively translate into sustained performance gains.

### **GHRM in Indonesian SMEs: Challenges and Opportunities**

Indonesia's SMEs operate across diverse sectors and institutional contexts, ranging from export-oriented manufacturing clusters to local service and creative industries. A recent literature review on GHRM implementation in Indonesian SMEs concludes that GHRM can significantly enhance environmental performance and business sustainability, particularly through practices such as green recruitment, training, performance appraisal, and reward systems (Ulkhay, 2025). These practices are associated with cost efficiencies, including reduced energy and material consumption, improved compliance with environmental regulations, and enhanced competitive positioning through green differentiation. Prior empirical studies by Khaskheli et al. (2025) and Sánchez et al. (2025) further demonstrate that GHRM contributes to green innovation and operational efficiency, which subsequently strengthens long-term firm performance.

Qualitative and case-based research highlights both challenges and opportunities in implementing GHRM within Indonesian SMEs. Key barriers include limited managerial awareness of GHRM concepts, the absence of formal HR departments, competing short-term business priorities, and weak external incentives for environmental compliance. However, increasing customer and supply chain pressures for sustainable practices, along with expanding governmental and institutional support for green MSME initiatives, present significant opportunities (Saubke et al., 2025; Naseer et al., 2025). Moreover, GHRM can enhance the attraction and retention of younger employees who prioritize purpose-driven work and sustainability values. Existing literature suggests that context-sensitive approaches such as low-cost practices, peer learning, and the integration of environmental values into existing HR routines are more effective than comprehensive system overhauls in SME contexts (Taghizadeh et al., 2024).

## **RESEARCH METHODS**

This study employs a qualitative, multiple-case study design. This design was selected because the research aims to address “how” and “why” questions related to the implementation of GHRM, green innovation, and firm performance within the context of SMEs. A case study approach allows an in-depth exploration of complex organizational phenomena in their real-life settings, particularly when the boundaries between the phenomenon and its context are not clearly defined. Furthermore, the use of multiple cases enables a more comprehensive understanding through both within-case and cross-case analysis, thereby strengthening the robustness of the findings. The unit of analysis in this study is the firm, while the units of observation include owners, managers, and employees involved in human resource, operational, and innovation-related activities.

The population of this study consists of SMEs in Indonesia operating in sectors where environmental issues are particularly salient, including food and beverage processing, furniture and craft manufacturing, hospitality and tourism, and creative industries. A purposive sampling strategy was employed to select cases based on several criteria, namely that firms are classified as small or medium-sized enterprises according to Indonesian regulations based on asset and turnover thresholds, are located in urban or peri-urban areas of Java and Sumatra, have undertaken at least one environmental or “green” initiative such as waste reduction, energy conservation, or the use of eco-friendly materials, and demonstrate willingness from owners or managers to participate in interviews and provide access to relevant organizational documents. Through networks of local chambers of commerce, SME associations, and green business initiatives, a total of 18 potential firms were initially identified, of which 12 SMEs (Cases A–L) met all selection criteria and agreed to participate.

Data were collected using three primary techniques: semi-structured interviews, non-participant observations, and document analysis. Semi-structured interviews were conducted with owners or senior managers as well as employees in each SME to explore organizational history, sustainability motivations, GHRM practices, green innovation activities, and perceived performance outcomes. In total, 36 interviews were conducted, each lasting between 45 and 90 minutes. In addition, non-participant observations were carried out during site visits to observe workplace conditions, visible environmental practices, and employee interactions related to green initiatives. Document analysis was also conducted on available internal documents, such as HR policies, job descriptions, training materials, and performance appraisal forms, as well as external sources, including company websites and reports related to sustainability initiatives.

Data analysis employed a thematic approach using an iterative process that integrated inductive and deductive strategies. Interview transcripts, field notes, and documents were reviewed repeatedly to obtain a comprehensive understanding of each case. An initial coding framework, derived from the literature on GHRM practices, green innovation, and firm performance, was refined through open coding. The data were then systematically coded to identify key themes and patterns. The analysis was conducted in two stages: within-case analysis, involving detailed case narratives, and cross-case analysis, comparing similarities and differences across SMEs. Through constant comparison, broader themes and conceptual relationships were developed to explain the linkage between GHRM, green innovation, and firm performance.

## **RESULTS**

### **Environmental Awareness, HRM Formalization, and Sustainability Orientation**

This section presents the main findings of the study, organized into four overarching themes that emerged across the 12 SMEs. Emergent, values-based adoption of GHRM, selective deployment of core GHRM practices, green innovation as the linking mechanism between GHRM and performance, and capability and institutional barriers that condition these relationships. To illustrate these findings, qualitative data are summarized in tables and complemented by detailed narrative descriptions.

**Table 1.** Profile of Participating in SMEs (Qualitative Overview)

Case	Sector	Size (approx.)	Environmental salience (as perceived)	HRM formalization	Sustainability Orientation
A	Organic Food Processing	Small	High – Waste, Packaging, Energy	Low–Medium	Strong Owner Green Values are Informal but Consistent
B	Furniture & Wood Crafts	Medium	High – Wood Sourcing, Chemical Use	Medium	Compliance-Driven, Recent Shift to Eco-Certification
C	Boutique Hotel	Small	Medium – Water, Energy, Waste	Medium	Customer-Driven Eco-Initiatives
D	Printing & Packaging	Medium	High – Paper, Ink, Waste	Low	Cost and Regulation-Driven
E	Batik & Textile Crafts	Small	High – Dyes, Water Use	Low	Tradition-Based, Incremental Greening
F	Bakery & Café	Small	Medium – Food Waste, Energy	Low–Medium	Owner’s Ethical Branding Emphasis
G	Creative Design Studio	Small	Low–Medium – Mainly Office-Based	Low	Emerging Green Branding Strategy
H	Metal Workshop	Medium	High – Scrap, Energy, Noise	Low	External Buyer Pressure
I	Tourism Operator	Small	High – Natural Resource Use	Low	Community and Conservation-Focused
J	Processed Snacks Manufacturer	Medium	Medium – Packaging Waste, Energy	Medium	Efficiency and Market Differentiation
K	Herbal Cosmetics	Small	High – Ingredients, Packaging	Low–Medium	Health and Eco-Conscious Positioning
L	Co-Working & Event Space	Small	Low–Medium – Energy, Waste	Medium	Urban Sustainability Branding

Table 1 provides a qualitative overview of SMEs across various sectors, highlighting firm size, environmental awareness, HRM formalization, and sustainability orientation. The SMEs range from small enterprises, such as organic food processors, boutique hotels, bakeries, and creative studios, to medium-sized firms in furniture, printing, metal workshops, and processed food manufacturing. Environmental salience, defined as the extent to which environmental concerns are recognized, is higher in resource-intensive sectors, including food processing, furniture, printing, textiles, and metal workshops, due to factors such as waste generation, energy consumption, and material use (Chaturvedi et al., 2023). In contrast, service- or office-based SMEs, such as design studios and co-working spaces, exhibit low to moderate levels of environmental salience.

The level of HRM formalization across these SMEs is generally low to moderate, reflecting predominantly informal or semi-formal human resource practices, with slightly higher levels observed in customer-facing or more regulated sectors, such as boutique hotels, furniture firms, and co-working spaces (Wahyuni & Waskito, 2024). Sustainability orientation varies depending on owner values, market pressures, and operational priorities. Smaller SMEs tend to rely on strong owner-driven ethical practices and green branding strategies, whereas medium-sized enterprises are more compliance-driven or influenced by external pressures, including eco-certifications and customer expectations (Rasyid, 2025). The table indicates that environmental awareness is closely associated with sectoral resource intensity, HRM practices remain largely informal, and sustainability approaches range from informal ethical practices to more structured, market-oriented strategies.

## The Role of GHRM in Enhancing Sustainable Firm Performance

Across the cases, GHRM practices did not emerge as formalized or systematically planned systems but rather as a gradual extension of owner–manager environmental values and broader business aspirations. In most SMEs, sustainability initiatives were initially driven by personal beliefs and ethical considerations rather than structured HR policies. This finding is consistent with prior research indicating that, in SMEs, organizational practices are strongly influenced by the values and orientations of owners, particularly in contexts where formal HRM systems remain underdeveloped (Saubke et al., 2025). Consequently, environmental considerations became implicitly embedded in everyday managerial decisions, including recruitment, communication, and employee guidance, reflecting an emergent form of GHRM.

Owners with strong pro-environmental values tended to introduce informal practices that gradually acquired HRM-like characteristics. These practices included prioritizing environmentally conscious candidates during recruitment, mentoring employees on waste reduction, and integrating eco-friendly principles into internal communication and daily routines. This pattern illustrates how GHRM can evolve organically without formal documentation or explicit labeling, while still shaping employee attitudes and behaviors. Previous studies support this observation, demonstrating that informal HR practices in SMEs can effectively foster pro-environmental behavior and organizational learning, even in the absence of formalized systems (Rachman et al., 2025).

For example, in Case A (organic food processing), the owner emphasized recruiting “individuals who are already accustomed to sorting waste at home” and reinforcing environmental norms through everyday interactions. In Case I (tourism operator), the founder highlighted the importance of hiring local guides who “care about nature” and actively involving them in the design of eco-tourism activities. These examples illustrate a values-based logic in which environmental considerations shape personnel-related decisions and practices, even though they are not codified in formal HR documents. This finding aligns with prior research by Zaman et al. (2025), suggesting that SMEs often rely on experiential learning and values-driven leadership in implementing sustainability practices.

Even in more compliance-oriented firms, such as Case B (furniture manufacturing), GHRM-like practices emerged primarily in response to external pressures rather than internal formalization. Owners reported that exposure to certification programs and buyer requirements gradually shifted their attention toward employee-related environmental practices, including workplace safety, responsible material handling, and training initiatives. Although these practices were not explicitly framed as GHRM, they functionally aligned HR activities with environmental objectives. This suggests that GHRM in SMEs is also shaped by institutional and market pressures, reinforcing the view that sustainability practices evolve through the interaction of internal values and external demands (Saubke et al., 2025).

**Table 2.** Core GHRM Practices Observed Across Cases

GHRM practice	Illustrative SME examples (qualitative)
Green Recruitment & Selection	Informal preference for candidates with prior eco-volunteering, questions on waste habits during interviews (Cases A, I, K).
Green Training & Socialization	On-the-job demonstrations of energy-saving steps, briefings on safe chemical handling, and sharing stories about environmental accidents and regulations (Cases B, D, E, H).
Environmental Performance Expectations & Feedback	Inclusion of cleanliness, waste segregation, and adherence to eco-procedures in verbal performance feedback, periodic reminders in staff meetings (Cases A, C, F, J, L).
Green Rewards & Recognition	Public praise for employees who propose waste reduction ideas, small incentives (e.g., vouchers, extra leave) for achieving eco-goals (Cases C, F, J).

Based on Table 2, green recruitment and selection practices in SMEs are largely informal yet intentional, aiming to align employee values with organizational

environmental objectives. Owners and managers prioritize individuals who demonstrate environmental awareness, such as being careful with waste or adopting eco-friendly lifestyles, to ensure value congruence and minimize resistance to sustainability initiatives. Training is primarily embedded in daily work activities through hands-on practices, including waste reduction and efficient resource use, supporting findings that practice-based learning and value-driven recruitment enhance GHRM effectiveness in SMEs (Rachman et al., 2025). Environmental performance expectations are communicated informally through verbal instructions and routine discussions, emphasizing simple operational norms. Modest green rewards and recognition play a symbolic role in reinforcing environmental commitment and norms, consistent with prior research indicating that even simple reward systems can strengthen the relationship between GHRM and organizational performance (Zaman et al., 2025).

### Green Innovation as a Linking Mechanism and Performance Outcomes

A central theme across cases was the role of green innovation as a bridge between GHRM and firm performance. SMEs that actively engaged employees in environmental problem solving and empowered them to propose changes reported a range of process and product innovations with tangible performance implications.

**Table 3.** Examples of Green Innovation Linked to GHRM Practices

Innovation type	Description of innovation (qualitative)	Linked GHRM elements	Perceived performance effects
Process Innovation	Redesign of production layout to minimize material handling and waste (Case B).	Training in waste hotspots, suggestion mechanisms.	Reduced material loss, lower disposal costs.
Process Innovation	Introduction of strict equipment shutdown routines (Case C, L).	Socialization, feedback on energy-saving behaviors.	Lower electricity bills, improved cost margins.
Product Innovation	Development of eco-packaging and refill systems (Case F, K).	Recruitment of eco-conscious staff, cross-functional green teams.	Enhanced brand image, access to new eco-conscious customer segments.
Product Innovation	Use of low-impact dyes and natural ingredients (Case E, K).	On-the-job learning, involvement in supplier discussions.	Compliance with eco-label criteria; reduced complaints.
Organizational Innovation	Establishment of "green committee" involving employees from multiple functions (Case A, J).	Employee participation, symbolic rewards.	Increased flow of improvement ideas, better coordination.
Service Innovation	Design of eco-tour packages and educational activities (Case I).	Hiring of nature-oriented guides, empowerment.	Higher customer satisfaction, partnerships with NGOs.

Table 3 indicates that green innovation in SMEs often emerges from employees' everyday problem-solving activities, supported by formal or informal encouragement to identify inefficiencies and experiment with new practices. For example, in Case J, employees proposed reorganizing packaging lines and reusing cartons, resulting in reduced waste and cost savings, while in Case F, product innovations such as reusable containers and refill options arose from team discussions and a sustainability-oriented work climate. These findings highlight how GHRM fosters employee participation and environmental awareness, thereby enabling green innovation through practical, bottom-up processes within SMEs (Yuningsih et al., 2025).

SMEs reported multiple performance benefits from GHRM and green innovation across environmental, operational, market, and social dimensions, although these were mostly assessed qualitatively. Firms experienced reduced waste, improved disposal practices, and greater efficiency in water and energy use, while operationally, innovations led to smoother workflows, lower material loss, and improved productivity, as seen in

Case H. These findings support existing evidence that environmental practices can simultaneously enhance operational performance (Kara & Edinsel, 2023; Yuningsih et al., 2025).

From a market perspective, SMEs adopting visible green initiatives, such as eco-packaging, eco-tourism, and sustainability branding, reported higher customer interest, improved perceived quality, and better access to niche markets, as seen in Cases A, F, K, and I. These efforts fostered employee pride, reduced turnover, and strengthened organizational cohesion, especially among younger workers who value environmentally responsible workplaces (Lu et al., 2023). However, GHRM implementation in SMEs remains constrained by limited financial resources, knowledge gaps, and institutional challenges, where low investment capacity and insufficient technical expertise restrict innovation, underscoring the need for external support from NGOs, universities, and government programs (Chowdhury et al., 2023; Miah et al., 2024).

Weak enforcement of environmental regulations, inconsistent government incentives, and limited access to green financing reduced perceived urgency for environmental improvement and constrained the business case for GHRM. Some SMEs reported that competitors who ignored environmental regulations could offer lower prices, creating competitive disincentives for adopting green practices. These contextual factors help explain why, in some quantitative studies, GHRM by itself does not strongly or directly translate into better sustainable performance for SMEs unless combined with broader capabilities and supportive environments. The results depict a nuanced picture: GHRM in Indonesian SMEs is emergent, partial, and contextually constrained, yet it plays a crucial role in cultivating employee-driven green innovation and generating multidimensional performance benefits (Suleman et al., 2024).

## **DISCUSSION**

The study demonstrates that GHRM practices in SMEs often emerge informally and are strongly influenced by owner–manager values rather than explicit or formal HR strategies. This finding aligns with prior qualitative research emphasizing the role of leadership and organizational culture in shaping environmentally responsible behavior, particularly in smaller firms that lack formal HR structures (Shaikh et al., 2025). Informal GHRM practices were observed through recruitment preferences, daily socialization, role modelling, and ad hoc recognition of green initiatives. Despite the absence of formal documentation, these practices can shape employees' environmental attitudes and stimulate participation in green innovation, suggesting that in SMEs, GHRM may be better conceptualized as a continuum ranging from value-driven informal practices to more formalized HR–environment integration.

The findings further reveal that GHRM functions as a micro-foundation for green innovation in SMEs. Green recruitment attracts individuals whose personal values align with environmental objectives, reducing resistance to change and enhancing the generation of innovative ideas. Training and socialization equip employees with knowledge and practical skills to address environmental issues, thereby increasing their perceived efficacy. Environmental performance expectations and feedback clarify behavioral standards, while rewards and recognition sustain motivation and knowledge sharing. These mechanisms support the development of green dynamic capabilities, understood as the firm's capacity to detect environmental problems and opportunities, respond creatively, and reconfigure operations or offerings. In SMEs, where formal R&D departments are uncommon, such capabilities rely heavily on frontline employees' insights and improvisation, corroborating research that positions GHRM as a micro-foundational mechanism enabling green dynamic capabilities (Trivedi & Bhatt, 2025).

The study also highlights the multidimensional nature of performance outcomes associated with GHRM and green innovation. Environmental improvements were observed in waste reduction and energy savings, operational efficiencies in reduced material loss and smoother workflows, and market and reputational gains, including customer loyalty and access to environmentally sensitive segments. Social outcomes, such

as enhanced employee pride and cohesion, were also evident, consistent with literature demonstrating that GHRM contributes to social sustainability through improved employee engagement and well-being (Uko et al., 2025). The findings emphasize a temporal dimension, with some benefits realized rapidly, such as cost savings, while others, including brand image and community trust, develop more slowly. This temporal aspect may explain why cross-sectional quantitative studies sometimes report weak or negative direct effects of GHRM on sustainable performance.

Contextual factors were found to influence the effectiveness of GHRM and green innovation. In institutional environments with weak enforcement or inconsistent incentives, SMEs may face higher relative costs compared to non-compliant competitors. Conversely, supply-chain pressures and external support from buyers, NGOs, or government programs were critical drivers, providing access to markets, certifications, and resources that reinforce GHRM practices (Dukhaykh & Alangri, 2025). These findings align with prior research highlighting the importance of dynamic capabilities and external linkages in achieving sustainable outcomes in SMEs.

This study confirms that although GHRM in SMEs is often informal, such practices can stimulate green innovation, enhance multidimensional performance, and are influenced by institutional and market contexts. The practical implication for SME managers is that integrating environmental values into existing HR processes, involving employees in problem identification and solution design, and managing expectations regarding the timing of benefits can foster a sustainable environmental culture. External partnerships further strengthen outcomes, while policymakers should target both firm-level interventions and broader ecosystem conditions that reward environmental responsibility.

## **CONCLUSION**

This study demonstrates that GHRM in Indonesian SMEs often emerges informally and is strongly shaped by owner–manager values. Selective practices, such as environmentally oriented recruitment, on-the-job green training, performance expectations, and symbolic rewards, foster employee capabilities and an organizational culture conducive to green innovation in processes, products, and organizational routines. These innovations generate multidimensional performance outcomes, including operational efficiency, environmental improvements, market reputation, and social benefits for employees. Although financial impacts may materialize gradually, informal GHRM serves as a micro-foundation for developing green dynamic capabilities. The findings also highlight the moderating role of external contextual factors, such as regulatory enforcement and supply-chain pressures, which can either reinforce or constrain the effectiveness of GHRM and associated green innovations.

From a practical perspective, SME managers can cultivate a sustainable organizational culture by embedding environmental values into daily HR practices, engaging employees in problem-solving and solution design, and managing expectations regarding the timing of performance benefits. Policymakers should complement technology adoption and green finance initiatives with programs that build human resource capacities and facilitate low-cost, high-impact GHRM practices. Study limitations include the focus on a limited number of SMEs in specific Indonesian regions and reliance on self-reported performance data. Future research should adopt longitudinal and mixed-method designs across diverse sectors and countries to examine the dynamic interplay between GHRM, green innovation, and sustainable performance, while quantitatively assessing outcomes over time to provide more robust insights into SME sustainability transitions.

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