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GREEN HUMAN RESOURCES MANAGEMENT AS A DETERMINANT OF ENVIRONMENTAL PERFORMANCE AND COMPANY PERFORMANCE

GREEN HUMAN RESOURCES MANAGEMENT SEBAGAI DETERMINAN KINERJA LINGKUNGAN DAN KINERJA PERUSAHAAN

Ashabul Yamin
STIS Harsyi Lombok Tengah, NTB
yaminasha9@gmail.com

ABSTRACT
The escalation of global sustainability issues compels organizations to transform the human resource function into a driver of green strategy. This study aims to analyze the role of Green Human Resource Management (GHRM) as a determinant of environmental performance and firm performance. Using a systematic narrative review of internationally reputable literature (Scopus), this study synthesizes findings based on the Ability Motivation Opportunity (AMO) framework and the Resource-Based View (RBV). The results indicate that the bundle of GHRM practices encompassing green recruitment, training, and performance management significantly enhances employees' pro environmental behavior and operational efficiency. These mechanisms are strengthened by green organizational culture and ethical leadership as moderating variables. Although the relationship between GHRM and financial performance is indirect and often mediated by green innovation, these practices are shown to build long-term competitive advantage through enhanced organizational reputation and legitimacy. In conclusion, integrating environmental values into HR systems is critical for developing a sustainable business ecosystem. Practical implications for managers include the need to design reward systems aligned with environmental performance.
Keywords: Green Human Resource Management, Environmental Performance, Firm Performance, Pro-Environmental Behavior, Organizational Sustainability.

ABSTRAK
Eskalasi isu keberlanjutan global menuntut organisasi untuk mentransformasikan fungsi SDM menjadi penggerak strategi hijau. Penelitian ini bertujuan untuk menganalisis peran Green Human Resource Management (GHRM) sebagai determinan kinerja lingkungan dan kinerja perusahaan. Melalui metode tinjauan naratif sistematis terhadap literatur bereputasi internasional (Scopus Q1/Q2), studi ini mensintesis temuan berdasarkan kerangka Ability Motivation Opportunity (AMO) dan Resource-Based View (RBV). Hasil analisis menunjukkan bahwa bundel praktik GHRM mencakup rekrutmen, pelatihan, dan manajemen kinerja hijau secara signifikan meningkatkan perilaku pro lingkungan karyawan dan efisiensi operasional. Mekanisme ini diperkuat oleh budaya organisasi hijau dan kepemimpinan etis sebagai variabel moderasi. Meskipun hubungan GHRM dengan kinerja finansial bersifat tidak langsung dan sering dimediasi oleh inovasi hijau, praktik ini terbukti membangun keunggulan kompetitif jangka panjang melalui penguatan reputasi dan legitimasi organisasi. Kesimpulannya, integrasi nilai lingkungan ke dalam sistem SDM sangat penting untuk menciptakan ekosistem bisnis yang berkelanjutan. Implikasi praktis bagi manajer mencakup perlunya desain sistem penghargaan berbasis kinerja lingkungan.
Kata Kunci: Green Human Resource Management, Kinerja Lingkungan, Kinerja Perusahaan, Perilaku Pro-Lingkungan, Keberlanjutan Organisasi.

1. INTRODUCTION

In recent decades, global pressure on environmental sustainability issues has escalated significantly, marked by rising global carbon emissions, which will reach 36.8 billion tons by 2023, and the limited number of companies on a net-zero emissions path, amounting to only around 20% globally (International Energy Agency, 2024; UNEP, 2023). This situation indicates that organizational efforts to manage environmental impacts are still suboptimal, despite the

widespread adoption of various sustainability initiatives. At the same time, organizational transformation towards sustainable business models increasingly demands cross-functional integration, including human resources functions, which no longer focus solely on administrative efficiency but also act as strategic enablers in achieving sustainability-based legitimacy (Liu et al., 2023; Molina-Azorín et al., 2021).

In this context, Green Human Resource Management (GHRM) has emerged as a strategic approach that integrates environmental objectives into HR practices, such as green recruitment and selection, training and development, performance management, and compensation and reward systems (Molina-Azorín et al., 2021; Liu et al., 2023; Zaid & Jaaron, 2022). Theoretically, GHRM is rooted in the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT), which emphasize the importance of an organization's internal capabilities in creating sustainable competitive advantage. It is also reinforced by the Ability–Motivation–Opportunity (AMO) framework in explaining the formation of employee pro-environmental behavior (Nson, 2023; Morsy & Dar, 2022; Zhou et al., 2023; Lin et al., 2024; Wang & Makhbul, 2024). However, although the GHRM conceptual framework has matured, its implementation at the organizational level still faces various limitations.

Empirically, there is a gap between the adoption of sustainability strategies and their implementation at the HR operational level. Globally, only around 37% of companies systematically integrate sustainability practices into their HR functions, and less than 25% directly link ESG strategies to HRM policies (World Economic Forum, 2023; OECD, 2022). In Indonesia, this situation is even more limited, with only around 28% of companies implementing ESG practices concretely, even though around 60% of large companies have adopted ESG principles (Ministry of Environment and Forestry, 2023; OJK, 2024). This phenomenon indicates a structural dysfunction in sustainability transformation, where the HR function has not fully played a key role as a driver of organizational change.

Furthermore, the literature shows that while GHRM has a relatively consistent relationship with improved environmental performance, this relationship is not always directly proportional to a company's financial performance. Globally, approximately 70% of companies report improved environmental performance, but only 38% experience significant increases in profitability (World Bank, 2023; IMF, 2022). In Indonesia, more than 65% of manufacturing companies experience improvements in environmental efficiency, but only around 30% experience direct increases in profits (BPS, 2023; IDX, 2024). These findings indicate a gap between environmental performance and financial performance, suggesting that the economic benefits of sustainability practices have not been fully internalized in organizations' business models.

This gap is further exacerbated by the low internalization of pro-environmental behavior at the individual level. Although approximately 70% of global companies have sustainability policies, only 33% of employees are actively engaged in environmentally friendly practices in the workplace (UN Global Compact, 2023). In Indonesia, this figure is even lower, at around 25%, with over 55% of companies stating that sustainability programs have not been able to significantly change employee behavior (KLHK, 2023; PwC Indonesia, 2024). This suggests that the success of a sustainability strategy depends heavily on the effectiveness of internalization mechanisms for values and behaviors, a key domain of GHRM.

On the other hand, challenges are also evident in the low capability of green innovation as a key mechanism for improving sustainable performance. Globally, only around 30% of companies are actively developing green innovation, while in Indonesia this figure remains around 18% (OECD, 2023; Bappenas, 2023). This limitation indicates a lack of integration between human resource management and innovation strategy, which should be an integral part of the GHRM approach to building sustainability-based competitive advantage.

Based on these various phenomena, it appears that the relationship between GHRM, environmental performance, and company performance is not linear and simple, but rather

influenced by various mediating and moderating factors. The literature shows that variables such as green innovation, pro-environmental behavior, transformational leadership, organizational culture, and pressure from external stakeholders play a significant role in strengthening or weakening this relationship (García et al., 2021; Wang & Makhbul, 2024; Pham et al., 2025; Hameed et al., 2023; Gupta et al., 2025). Thus, an integrative approach that considers context, intermediary mechanisms, and configurations of practices is crucial in understanding how GHRM can optimally contribute to organizational performance.

Therefore, this study is important to examine in more depth the role of Green Human Resource Management as a determinant of environmental performance and company performance, by considering the complexity of the relationship involving mediators and moderators within a theoretical framework based on RBV, DCT, and AMO. This approach is expected to provide theoretical contributions in enriching the GHRM literature, while providing practical implications for organizations in designing HR strategies that align with the sustainability agenda.

2. METHODS

The methodology of this article is based on a systematic narrative review aimed at synthesizing contemporary literature on Green Human Resource Management (GHRM). The literature search strategy was conducted extensively through reputable international bibliometric databases, including Scopus, Web of Science (WoS), and ScienceDirect. The use of these databases ensures that the articles analyzed come from journals with a rigorous peer-review process. The keywords used in the search included combinations of Boolean operators, such as: "Green HRM" AND "Firm Performance", "Green Organizational Culture", "Ethical Leadership", and "Environmental Performance".

Inclusion criteria were strictly defined to maintain the relevance and novelty of the material. The primary focus was on empirical and theoretical research articles published within the last 5 to 10 years. This temporal restriction aimed to capture the rapidly evolving concept of GHRM, in line with recent global climate agreements and the digital transformation of HR management. Only English-language articles published in Q1 and Q2 journals were included in the analysis, to ensure that the resulting synthesis was based on scientific evidence with high validity and reliability at the relevant level.global cat.

A narrative synthesis approach was used to analyze key themes emerging from the collected literature. Unlike meta-analyses that focus on statistics, narrative synthesis in this study emphasizes qualitative interpretation of relationships between variables. This process involves identifying patterns, classifying moderating mechanisms based on Ability-Motivation-Opportunity (AMO) theory, and mapping research gaps in previous studies. By synthesizing findings from different industrial and geographic contexts, this method allows for the development of a new conceptual framework that explains the crucial role of organizational culture and ethical leadership in strengthening the impact of GHRM on company performance.

3. RESULT AND DISCUSSION

3.1. GHRM Dimensional Analysis: Green Recruitment, Training, and Performance Management

The results of the literature synthesis indicate that Green Human Resource Management (GHRM) cannot be understood as a set of stand-alone practices, but rather as an integrative, interacting bundle. Specifically, Green Recruitment and Selection (GRS), Green Training and Development (GTD), and Green Performance Management (GPM) are core components that align with the Ability–Motivation–Opportunity (AMO) and Resource-Based View (RBV) frameworks in building sustainable organizational performance. The AMO framework explains that HR practices influence organizational performance by increasing

employee ability, motivation, and opportunity to contribute to organizational goals, including environmental goals (Renwick et al., 2012; Khan, 2020; Al-Alawneh et al., 2023; Yu et al., 2020; Singh et al., 2020; Gomes et al., 2024; Valle et al., 2024; Buller & McEvoy, 2016; Aldaas et al., 2022; Malik et al., 2021). Meanwhile, RBV emphasizes that unique, valuable, and difficult-to-imitate green capabilities can be a source of sustainable competitive advantage when developed through appropriate HR interventions (Renwick et al., 2012; Le & Tham, 2024; Muisyo et al., 2021; Dahinine et al., 2024; Singh et al., 2020; Aldaas et al., 2022; ALSHEHRI et al., 2024). Thus, the integration of GRS, GTD, and GPM is key to generating sustainable performance, despite varying empirical findings regarding the effectiveness of each practice.

Green Recruitment and Selection (GRS) serves as the initial foundation for building an organization's green capabilities. Green recruitment emphasizes not only technical suitability but also the selection of candidates based on their environmental values and orientation, thus generating intangible assets that are difficult for competitors to imitate, in line with the logic of the RBV (Renwick et al., 2012; Khan, 2020; Muisyo et al., 2021; Singh et al., 2020; Aldaas et al., 2022; ALSHEHRI et al., 2024). From an AMO perspective, GRS enhances the capability dimension by selecting candidates with relevant environmental competencies, while strengthening motivation through signaling environmentally oriented organizational values and opening opportunities for early engagement in green activities (Renwick et al., 2012; Khan, 2020; Al-Alawneh et al., 2023; Yu et al., 2020). However, the literature also shows that the effectiveness of GRS is highly dependent on the sustainability of subsequent practices. Without GTD and GPM support, the environmental value alignment obtained from the recruitment process is not always able to be translated into real environmental performance (Sarfo et al., 2024; Al-Alawneh et al., 2023; Muisyo et al., 2021; Yu et al., 2020; Gomes et al., 2024; Aldaas et al., 2022).

Furthermore, Green Training and Development (GTD) serves as a key mechanism in developing employees' green capabilities. GTD enables organizations to build technical and cognitive capabilities related to environmental management, such as energy literacy, waste reduction, and eco-based innovation (Renwick et al., 2012; Khan, 2020; Sarfo et al., 2024; Rizvi & Garg, 2020; Al-Alawneh et al., 2023; Muisyo et al., 2021; Dahinine et al., 2024; Yu et al., 2020; Singh et al., 2020; Valle et al., 2024; Asad et al., 2022). Within the AMO framework, GTD directly enhances employee capabilities by enhancing knowledge and skills relevant to sustainability practices (Renwick et al., 2012; Khan, 2020; Al-Alawneh et al., 2023; Yu et al., 2020; Singh et al., 2020). From an RBV perspective, these capabilities become valuable and difficult-to-imitate strategic resources when internalized within organizational routines and culture (Sarfo et al., 2024; Muisyo et al., 2021; Singh et al., 2020; Aldaas et al., 2022). Furthermore, GTD often acts as an antecedent to employee green behavior and environmental performance through mediating mechanisms such as environmental knowledge, green organizational climate, and organizational culture (Sarfo et al., 2024; Muisyo et al., 2021; Fawehinmi et al., 2020; Malik et al., 2021). However, the impact of GTD on environmental performance is not always direct, but rather depends on organizational support, culture, and its integration with performance appraisal and reward systems (Al-Alawneh et al., 2023; Singh et al., 2020; Gomes et al., 2024; Aldaas et al., 2022; Malik et al., 2021).

On the other hand, Green Performance Management (GPM) serves as a control and reinforcement mechanism that ensures that recruitment and training practices can produce the desired strategic outcomes. The integration of environmental indicators into the performance assessment system, including the use of green Key Performance Indicators (KPIs), is a crucial element in ensuring accountability and consistency in GHRM implementation (Sarfo et al., 2024; Al-Alawneh et al., 2023; Muisyo et al., 2021; Yu et al., 2020; Gomes et al., 2024; Aldaas et al., 2022). From an AMO perspective, GPM plays a role in increasing motivation through an environmental performance-based reward system, as well as providing opportunities through feedback mechanisms and ongoing engagement (Renwick et al., 2012;

Khan, 2020; Al-Alawneh et al., 2023; Yu et al., 2020; Singh et al., 2020; Gomes et al., 2024). Meanwhile, within the RBV framework, a performance management system integrated with environmental objectives contributes to the formation of organizational routines that are difficult for competitors to imitate (Renwick et al., 2012; Le & Tham, 2024; Muisyo et al., 2021; Singh et al., 2020; Aldaas et al., 2022). However, the effectiveness of GPM is also contingent, with its success highly dependent on management support, a green organizational culture, and employee empowerment (Sarfo et al., 2024; Al-Alawneh et al., 2023; Xin et al., 2025; Valle et al., 2024; ALSHEHRI et al., 2024). Without strong integration with GTD and GRS, a performance appraisal system has the potential to become merely an administrative formality.

Overall, the research findings point to the importance of the AMO RBV integrative framework in explaining how GHRM drives organizational sustainable performance. The GHRM bundle consisting of GRS, GTD, and GPM has been shown to build unique green capabilities, motivate employees, and provide opportunities for engagement in sustainability activities, ultimately contributing to environmental performance and firm performance (Renwick et al., 2012; Khan, 2020; Le & Tham, 2024; Rizvi & Garg, 2020; Muisyo et al., 2021; Dahinine et al., 2024; Singh et al., 2020; Valle et al., 2024; Aldaas et al., 2022; ALSHEHRI et al., 2024). Furthermore, various studies have shown that the relationship between GHRM and performance is not direct, but rather mediated and moderated by variables such as pro-environmental behavior, green commitment, organizational climate, and organizational learning capabilities (Sarfo et al., 2024; Rizvi & Garg, 2020; Abredu et al., 2025; Xin et al., 2025; Chin et al., 2023; Gomes et al., 2024; Aldaas et al., 2022; ALSHEHRI et al., 2024). This confirms that the effectiveness of GHRM is highly dependent on the organizational context and external environment.

Furthermore, variations in industry and country contexts influence the strength and significance of the relationships between variables. In sectors such as higher education and hospitality, the interaction between GTD and GPM is often heavily influenced by management support, organizational culture, and innovation capabilities, unlike in manufacturing sectors that are more structured along value chains (Al-Alawneh et al., 2023; Muisyo et al., 2021; ALSHEHRI et al., 2024; Asad et al., 2022). Therefore, a contextual approach is crucial in understanding the dynamics of GHRM implementation, while also opening up opportunities for further research to test optimal GHRM configurations in various organizational settings.

3.2. Formation of Pro-Environmental Employee Behavior (Employee Green Behavior)

The results and discussion in the literature indicate that the relationship between Green Human Resource Management (GHRM) and employee pro-environmental behavior (PEB) can be robustly explained through the Ability–Motivation–Opportunity (AMO) theoretical framework. The AMO model provides a conceptual basis that HR practices serve as a key mechanism in transforming organizational policies into individual behavior by enhancing employees' abilities, motivations, and opportunities to act in accordance with organizational goals, including environmental goals (Altassan, 2024; Palupiningtyas, 2024; Waqas et al., 2021; Li et al., 2023). In this context, GHRM is positioned as a strategic antecedent that shapes environmental awareness, environmentally friendly behavior, and opportunities for engagement in sustainability activities. Various empirical studies have shown that increasing green competency, motivation, and employee engagement significantly contributes to improving pro-environmental behavior and organizational environmental performance (Waqas et al., 2021; Sahan et al., 2024). Operationally, GHRM is implemented through a bundle of practices such as green recruitment, training, employee engagement, reward systems, and performance management, which collectively shape employees' ecocentric attitudes and behaviors (Hameed et al., 2022; Obeng et al., 2024; Hameed et al., 2023; Agmapisarn, 2025). Consistent findings indicate that GHRM has a positive influence on PEB through various mediating mechanisms such as psychological ownership, green commitment, and

pro-environmental climate (Waqas et al., 2021; Li et al., 2023; Agmapisarn, 2025; Sarfo et al., 2024).

Furthermore, the mechanisms linking GHRM and PEB demonstrate complexity involving psychological and contextual factors. Psychological ownership is a key mediator, where GHRM practices enhance employees' sense of ownership of the organization's environmental goals, thereby encouraging proactive actions and environmental citizenship behaviors (Waqas et al., 2021). This finding is consistent across various sectors, including the fertilizer, hospitality, and healthcare industries, suggesting that AMO elements operate through psychological mechanisms in shaping green behavior (Waqas et al., 2021; Sarfo et al., 2024). Furthermore, a green psychological climate, or pro-environmental climate, serves as an important mediator bridging GHRM practices with employees' daily behaviors. A psychological environment that supports sustainability values has been shown to strengthen the relationship between GHRM and PEB, especially when supported by individual values aligned with organizational goals (Li et al., 2023; Agmapisarn, 2025; Abredu et al., 2025). In this perspective, individual environmental values and personal norms act as moderating variables that determine the strength of the relationship, where value congruence strengthens the adoption of pro-environmental behavior (Li et al., 2023; Nguyen et al., 2024; Shaikh, 2025; Yang et al., 2023).

In addition to being a direct outcome, PEB also acts as a mediator between GHRM and environmental performance (EP). Various studies have shown that pro-environmental behaviors, such as energy conservation and resource management, are the primary mechanisms that transform GHRM practices into measurable environmental outcomes (Sahan et al., 2024; Agmapisarn, 2025; Sarfo et al., 2024; Yang et al., 2023). This confirms that the effectiveness of GHRM lies not only in policy design, but also in the extent to which the policy is able to significantly change individual behavior in daily operational activities.

Within the behavioral dimension, the literature distinguishes between in-role and extra-role pro-environmental behavior. In-role behavior refers to environmentally friendly actions that are part of formal job descriptions, such as energy efficiency or waste management in routine tasks. GHRM practices that integrate environmental goals into job design and performance evaluation systems have been shown to be effective in encouraging these behaviors (Obeng et al., 2024; Yang et al., 2023; Matejun et al., 2024). In contrast, extra-role or green citizenship behavior encompasses voluntary actions outside the formal demands of the job, such as green innovation initiatives or participation in organizational sustainability programs. The literature consistently shows that GHRM has a strong influence on these behaviors through the mechanisms of AMO and organizational climate mediation (Obeng et al., 2024; Sarfo et al., 2024; Yang et al., 2023; Abredu et al., 2025).

However, the effectiveness of the relationship between GHRM and PEB is not universal, but rather is strongly influenced by contextual factors. Individual environmental values have been shown to be an important moderator, with employees with high environmental values demonstrating a stronger response to GHRM practices (Li et al., 2023; Agmapisarn, 2025; Nguyen et al., 2024; Shaikh, 2025). Furthermore, organizational factors such as green leadership and information technology capabilities also play a role in strengthening the relationship through the provision of monitoring systems, feedback, and behavioral reinforcement (Hameed et al., 2022; Agmapisarn, 2025; Abredu et al., 2025). Sector and geographic variations also influence the strength of the relationship, although in general the positive relationship between GHRM and PEB remains consistent across industry and country contexts (Li et al., 2023; Obeng et al., 2024; Agmapisarn, 2025; Sarfo et al., 2024; Shaikh, 2025; Yang et al., 2023; Abredu et al., 2025; Matejun et al., 2024).

Integratively, the literature confirms that GHRM is a key determinant of employee pro-environmental behavior, both in the form of task-related and voluntary behavior. The transformation from GHRM implementation to improved environmental performance relies on

psychological mediating mechanisms such as green organizational climate, psychological ownership, and environmental values, as well as social exchange processes that foster ecological engagement (Li et al., 2023; Waqas et al., 2021; Agmapisarn, 2025; Sarfo et al., 2024; Abredu et al., 2025; Matejun et al., 2024). Furthermore, transparency of green policies and practices has been shown to increase employees' emotional engagement with environmental issues, which then encourages reciprocal behavior in the form of pro-environmental actions (Altassan, 2024; Li et al., 2023; Agmapisarn, 2025; Hossain et al., 2024; Yang et al., 2023). Thus, an organization's environmental performance does not only depend on technology or systems, but is largely determined by the collective behavior of employees formed through GHRM practices (Altassan, 2024; Li et al., 2023; Agmapisarn, 2025; Hossain et al., 2024; Yang et al., 2023; Matejun et al., 2024).

Practical implications suggest that organizations need to design an integrated GHRM based on the AMO pillars, encompassing recruitment targeting candidates with an environmental orientation, relevant training, employee engagement in green initiatives, and evaluation and reward systems aligned with environmental goals (Waqas et al., 2021; Hameed et al., 2022; Agmapisarn, 2025; Sarfo et al., 2024; Yang et al., 2023). Furthermore, strengthening a green psychological climate and internalizing environmental values are important factors in enhancing GHRM effectiveness (Li et al., 2023; Agmapisarn, 2025; Nguyen et al., 2024; Shaikh, 2025; Abredu et al., 2025). Organizations also need to pay attention to the role of mediators and moderators such as psychological ownership and individual values, as well as integrate technological and leadership support to strengthen the relationship between GHRM and pro-environmental behavior (Waqas et al., 2021; Li et al., 2023; Agmapisarn, 2025; Sarfo et al., 2024; Shaikh, 2025; Abredu et al., 2025; Matejun et al., 2024; Hameed et al., 2022).

3.3. Moderation Mechanisms: The Role of Green Organizational Culture and Ethical Leadership

The results and discussion of the literature indicate that the relationship between Green Human Resource Management (GHRM) and employee pro-environmental behavior (PEB) has a strong theoretical basis within the Ability–Motivation–Opportunity (AMO) framework. The AMO model explains that HR practices function as a transformational mechanism that links organizational policies with individual behavioral outcomes by enhancing employees' abilities, motivations, and opportunities to contribute to organizational goals, including environmental goals (Altassan, 2024; Palupiningtyas, 2024; Waqas et al., 2021; Li et al., 2023). In this context, GHRM is positioned as a strategic antecedent that fosters environmental awareness, environmentally friendly behavior, and opportunities for participation in green initiatives. Empirical findings indicate that green competency, motivation, and employee engagement significantly enhance pro-environmental behavior and environmental performance (EP) (Waqas et al., 2021; Sahan et al., 2024). GHRM practices are operationalized as an integrated bundle encompassing green recruitment, training, engagement, rewards, and performance management, which systematically internalize environmental goals into HR processes and shape employees' ecocentric attitudes and behaviors (Hameed et al., 2022; Obeng et al., 2024; Hameed et al., 2023; Agmapisarn, 2025). Consistently, the literature shows that GHRM positively influences PEB through various mediating mechanisms such as psychological ownership, green commitment, and pro-environmental climate (Waqas et al., 2021; Li et al., 2023; Agmapisarn, 2025; Sarfo et al., 2024).

The mechanisms linking GHRM and PEB are multidimensional and involve psychological and contextual processes. Psychological ownership emerges as a key mediator explaining how GHRM practices enhance employees' sense of ownership of the organization's environmental goals, thereby encouraging proactive behavior and green citizenship behavior

(Waqas et al., 2021). These findings are consistent across various sectors, including manufacturing, hospitality, and healthcare, suggesting that AMO elements operate through psychological internalization in shaping green behavior (Waqas et al., 2021; Sarfo et al., 2024). Furthermore, a green psychological climate, or pro-environmental climate, serves as a mediating mechanism that bridges GHRM practices with daily operational behavior. An organizational climate that supports sustainability values strengthens the relationship between GHRM and PEB, especially when reinforced by individual values aligned with organizational goals (Li et al., 2023; Agmapisarn, 2025; Abredu et al., 2025). Within the ABC (Attitude–Behavior–Context) framework, individual environmental values and personal norms act as moderators that strengthen or weaken the effectiveness of GHRM, where value congruence significantly increases the adoption of pro-environmental behaviors (Li et al., 2023; Nguyen et al., 2024; Shaikh, 2025; Yang et al., 2023).

In addition to being a direct outcome, PEB also serves as a key mediator linking GHRM to environmental performance. Various studies have shown that pro-environmental behaviors, such as energy efficiency and resource management, serve as operational mechanisms that transform GHRM practices into measurable environmental outcomes (Sahan et al., 2024; Agmapisarn, 2025; Sarfo et al., 2024; Yang et al., 2023). This confirms that the effectiveness of GHRM depends largely on its ability to tangibly influence individual behavior, not merely at the policy or procedural level.

Within the behavioral dimension, the literature distinguishes between in-role and extra-role pro-environmental behavior. In-role behavior refers to environmentally friendly actions integrated into formal job descriptions, such as waste management or energy efficiency in routine tasks. GHRM practices that align job design and performance indicators with environmental goals have proven effective in encouraging these behaviors (Obeng et al., 2024; Yang et al., 2023; Matejun et al., 2024). In contrast, extra-role or green citizenship behavior encompasses voluntary actions beyond formal requirements, such as green innovation and participation in organizational sustainability initiatives. The literature indicates that GHRM has a strong influence on these behaviors through AMO mechanisms and organizational climate mediation (Obeng et al., 2024; Sarfo et al., 2024; Yang et al., 2023; Abredu et al., 2025).

However, the relationship between GHRM and PEB is contingent and influenced by various contextual factors. Individual environmental values have been shown to be an important moderator, with employees with a high environmental orientation demonstrating a stronger response to GHRM practices (Li et al., 2023; Agmapisarn, 2025; Nguyen et al., 2024; Shaikh, 2025). Furthermore, information technology capabilities and green leadership play a role in strengthening the relationship through the provision of measurement systems, feedback, and behavioral reinforcement (Hameed et al., 2022; Agmapisarn, 2025; Abredu et al., 2025). Sector and geographic variations also influence the strength of the relationship, although in general the positive relationship between GHRM and PEB remains consistent across industry and country contexts (Li et al., 2023; Obeng et al., 2024; Agmapisarn, 2025; Sarfo et al., 2024; Shaikh, 2025; Yang et al., 2023; Abredu et al., 2025; Matejun et al., 2024).

Integratively, the literature confirms that GHRM is a key determinant of employee pro-environmental behavior, both in the form of task-related and voluntary behavior. The transformation from GHRM implementation to improved environmental performance relies on psychological mediating mechanisms such as green climate, psychological ownership, and environmental values, as well as social exchange processes that foster ecological engagement (Li et al., 2023; Waqas et al., 2021; Agmapisarn, 2025; Sarfo et al., 2024; Abredu et al., 2025; Matejun et al., 2024). Furthermore, transparency of green policies and practices has been shown to increase employees' emotional engagement with environmental issues, which then encourages reciprocal behavior in the form of pro-environmental actions (Altassan, 2024; Li et al., 2023; Agmapisarn, 2025; Hossain et al., 2024; Yang et al., 2023). This finding also confirms that the achievement of environmental performance does not only depend on technology, but

is largely determined by the collective behavior of employees formed through GHRM practices (Altassan, 2024; Li et al., 2023; Agmapisarn, 2025; Hossain et al., 2024; Yang et al., 2023; Matejun et al., 2024).

Practical implications suggest that organizations need to design an integrated GHRM based on the AMO pillars, including environmental value-based recruitment, relevant training, employee engagement in green initiatives, and evaluation and reward systems aligned with sustainability goals (Waqas et al., 2021; Hameed et al., 2022; Agmapisarn, 2025; Sarfo et al., 2024; Yang et al., 2023). Furthermore, strengthening a green psychological climate and internalizing environmental values are important factors in enhancing GHRM effectiveness (Li et al., 2023; Agmapisarn, 2025; Nguyen et al., 2024; Shaikh, 2025; Abredu et al., 2025). Organizations also need to manage mediators and moderators such as psychological ownership and individual values, as well as integrate technological and leadership support to strengthen the relationship between GHRM and pro-environmental behavior (Waqas et al., 2021; Li et al., 2023; Agmapisarn, 2025; Sarfo et al., 2024; Shaikh, 2025; Abredu et al., 2025; Matejun et al., 2024; Hameed et al., 2022).

3.4. Connection to Firm Performance: Competitive Advantage and Financial Performance

The results and literature discussion indicate that the influence of Green Human Resource Management (GHRM) on company performance occurs through several integrated mechanisms: operational, strategic, capability based and innovation-based. These findings confirm that the relationship between GHRM, environmental performance, and financial performance is not direct but is mediated by various internal organizational factors and influenced by the external context.

In operational terms, GHRM serves as an instrument for increasing resource efficiency and reducing production costs. Practices such as green recruitment, environmental training, and green indicator-based performance management direct employee behavior toward more efficient energy and material use and optimal waste management. The direct impact of these mechanisms is reduced input costs and increased organizational productivity (Khaskhely et al., 2022; Aziz et al., 2020; Zaid & Jaaron, 2022; Khan & Muktar, 2021; Bombiak, 2019; Al-Ghalabi et al., 2024). Conceptual and empirical literature consistently positions energy and resource efficiency as the primary value proposition of GHRM, where HR practices play a role in transforming environmental objectives into improved operational performance that translates into economic benefits (Renwick et al., 2012; Al-Swidi et al., 2021; Din et al., 2024; Fachada et al., 2022; Putra, 2024). Thus, GHRM serves not only as an environmental compliance tool but also as a cost-efficiency mechanism that contributes to operational-based competitive advantage.

Strategically, GHRM contributes to the formation of environmental reputation and increased stakeholder value. Consistent implementation of GHRM practices builds a sustainability-oriented organizational identity, which in turn enhances positive perceptions from customers, investors, and regulators (Bombiak, 2019; Al-Swidi et al., 2021; Putra, 2024). A strong environmental reputation serves as an intangible asset that increases market trust, enables product differentiation, and opens access to green financing and ESG-based investments. The literature shows that this reputation mechanism is one of the main pathways linking GHRM to financial performance through increased demand, premium pricing, and reduced cost of capital (Renwick et al., 2012; Fachada et al., 2022). Thus, GHRM creates strategic value beyond operational efficiency by strengthening organizational legitimacy in the eyes of stakeholders.

Furthermore, capability-based and innovation-based pathways indicate that the effect of GHRM on financial performance is largely mediated by environmental performance, green innovation, and organizational dynamic capabilities. GHRM improves environmental

performance by fostering pro-environmental behaviors and green operational practices, which in turn foster the development of eco-innovation and strategic flexibility (Ansari et al., 2022; Hameed et al., 2023; Esponda-Pérez et al., 2023; Chowdhury et al., 2023; Putra, 2024). Within the Resource-Based View (RBV) and Natural Resource-Based View (NRBV) frameworks, environmental capabilities resulting from GHRM practices are viewed as difficult-to-imitate strategic resources, thus providing a sustainable competitive advantage. Green innovation serves as a key bridge connecting HR-based behaviors to economic performance, particularly in markets demanding environmentally friendly products and processes (Ansari et al., 2022; Chowdhury et al., 2023). In addition, factors such as green leadership and organizational culture strengthen this pathway by increasing the effectiveness of GHRM implementation and accelerating the transformation towards sustainable performance (Din et al., 2024; Esponda-Pérez et al., 2023; Al-Swidi et al., 2021; Putra, 2024).

Integratively, the literature identifies four main pathways linking GHRM to firm performance. First, the operational efficiency pathway, where GHRM improves resource efficiency and lowers production costs. Second, the reputation pathway, which strengthens market value and stakeholder relationships. Third, the capability and innovation pathway, which emphasizes the role of green dynamic capabilities and eco-innovation in creating competitive advantage. Fourth, the cyclical mediation pathway, where environmental performance acts as a mediator between GHRM and financial performance, while creating a reinforcing cycle through sustainability investments and increased innovation capacity (Ansari et al., 2022; Bombiak, 2019; Fachada et al., 2022; Chowdhury et al., 2023; Putra, 2024). This model demonstrates that the GHRM–performance relationship is dynamic and involves continuous feedback between environmental and economic aspects.

However, the literature also shows significant variation in empirical results, particularly regarding the direct relationship between GHRM and financial performance. Some studies find a strong positive relationship, while others show inconsistent results or are context-dependent (Khaskhely et al., 2022; Lin et al., 2024; Khan & Muktar, 2021; Chandana et al., 2024). This variation suggests that the effects of GHRM are strongly influenced by contingent factors such as industry sector, maturity level of GHRM implementation, regulatory pressure, and market conditions. Furthermore, the financial benefits of GHRM can be both short-term and long-term, with operational efficiency having an immediate impact, while reputational benefits and capital access take time to materialize (Bombiak, 2019; Fachada et al., 2022; Renwick et al., 2012).

Practical implications suggest that organizations need to integrate GHRM into a comprehensive sustainability strategy, which includes investments in energy efficiency, process optimization, and green innovation to maximize economic and environmental benefits (Khaskhely et al., 2022; Aziz et al., 2020; Zaid & Jaaron, 2022; Khan & Muktar, 2021; Bombiak, 2019; Al-Ghalabi et al., 2024). Furthermore, strengthening green leadership and organizational culture are key factors in enhancing the effectiveness of GHRM in generating superior performance (Din et al., 2024; Al-Swidi et al., 2021; Putra, 2024). From a policy perspective, GHRM can be positioned as an indicator of organizational credibility in managing environmental risks and increasing company value, making it relevant in the context of developing green finance and sustainability policies (Bombiak, 2019; Fachada et al., 2022; Renwick et al., 2012).

4. CONCLUSION

This study concludes that GHRM is a crucial determinant in improving environmental performance and corporate performance by strengthening individual and collective capabilities. Based on the AMO framework, the integration of green recruitment, training, and performance management successfully shapes employee pro-environmental behavior, both formal and voluntary. Furthermore, green organizational culture and ethical leadership are

proven to be significant moderating variables in strengthening the impact of GHRM practices on overall organizational effectiveness.

HR practitioners are advised not to implement GHRM partially. Building a green ecosystem must begin with the selection of candidates with environmental value congruence, followed by a continuous sustainability literacy development program. Furthermore, organizations must integrate green performance indicators (Green KPIs) into their reward systems to ensure accountability. Leadership at all levels must demonstrate a clear ethical commitment to create a psychological climate that supports green innovation at the operational level.

This study has limitations in terms of generalizability of its findings due to variations in responses across industries and geographic contexts. Future research is recommended to employ a longitudinal approach to more accurately capture the long-term impact of GHRM on financial performance. Furthermore, the integration of GHRM with Industry 4.0 technologies and its impact on employee well-being within a sustainability context is a highly promising area for further exploration.

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