UNLOCKING ENVIRONMENTAL PERFORMANCE: THE CONDITIONAL IMPACT OF GREEN TRANSFORMATIONAL LEADERSHIP ON GREEN HUMAN RESOURCE MANAGEMENT OUTCOMES

Hoang Thi Hue
National Economics University
hoanghue@neu.edu.vn
Hoang Linh Anh
National Economics University
linhanhhoang.work@gmail.com
Hoang Phuong Huyen
National Economics University
hoangphuonghuyen3092005@gmail.com
Le Huy Hoang
National Economics University
lhhoang.bdn.hsv.neu@gmail.com
Nguyen Tuan Phong
National Economics University
ntphong0508.work@gmail.com
Pham Ngoc Thai
National Economics University
pthai9181@gmail.com

Abstract: This study examines the relationship between Green human resource management (GHRM) and Environmental performance (EP), focusing on the individual effects of three components: Green ability (GA), Green motivation (GM), and Green opportunity (GO). It also investigates the moderating role of Green transformational leadership (GTL) in the relationship between GHRM and EP. Using survey data from 339 managers and employees in Vietnamese enterprises and analyzing it with SmartPLS, the findings indicate that GA and GO positively influence EP, whereas GM shows no significant effect. Moreover, the absence of a signifcant moderating effect of GTL contributes to resolving prior empirical inconsistencies regarding green transformational leadership and underscores its context-dependent effectiveness in emerging economies. The study incorporates three theoretical foundations: the Natural Resource Based View to explain sustainable competitive advantage at the organizational level; the Ability, Motivation, and Opportunity (AMO) framework to describe mechanisms at the individual level; and Social Cognitive theory (SCT) to capture psychological and behavioral dynamics. This multi-level integration provides a comprehensive understanding of the internal mechanisms through

which GHRM enhances EP and clarifies the conditions under which GTL may effectively support organizational greening. Based on the empirical evidence, the study recommends that leaders and managers strengthen the implementation of GHRM practices while reinforcing leadership that inspires employees and cultivates a culture of sustainability. Such a coordinated approach can enhance competitive capabilities and ensure long-term growth amid rising environmental and societal pressures.

Keywords: *Green human resource management, environmental performance, green transformational leadership, natural-resource-based view, ability-motivation-opportunity theory, social cognitive theory*

Code: JHS -303 **Received:** 20th Oct 2025 **Revised:** 8th Nov 2025
Accepted: 20th Nov 2025

1. Introduction

Environmental issues have become a significant challenge for organizations seeking to protect their reputation and maintain long-term performance (Afsar et al., 2018). However, achieving strong environmental outcomes requires more than compliance with regulatory standards; it also relies on employees' willingness to respond proactively to environmental concerns by engaging in pro-environmental behaviors (Unsworth & McNeill, 2017). Given the close interdependence between human behavior and environmental outcomes, firms are increasingly expected to encourage employee involvement in environmental initiatives as part of their broader sustainability responsibilities (Baykal & Divrik, 2023).

In response to these expectations, Green human resource management (GHRM) has emerged as a key organizational approach that embeds environmental sustainability within HR policies and practices (Jackson et al., 2014). According to the HR dimension of environmental management (Renwick et al., 2013), GHRM emphasizes pollution prevention through operational processes and has become a strategic tool for firms seeking to internalize sustainability and enhance environmental performance (Aftab et al., 2023). However, the effectiveness of GHRM in promoting widespread environmental performance may be influenced by the extent to which it is complemented by leadership practices. Green Transformational Leadership (GTL) serves as a catalyst for change by motivating, inspiring, and guiding employees toward environmental goals (Chen & Chang, 2013; Singh et al., 2020). While GHRM provides structured, policy-oriented mechanisms to shape green behaviors, GTL complements these efforts by offering psychological support and cultivating subjective environmental norms that help employees internalize sustainability values (Robertson & Barling, 2013). Together, GHRM and GTL represent as effectively influential managerial approaches for advancing environmental responsibility within organizations (Leroy et al., 2018).

This is further strengthened by global policy developments. According to the Organisation for Economic Cooperation and Development - OECD (2020), the 2030 Agenda has established a universal sustainability framework for both developed and developing nations, outlining shared priorities for sustainable development. In alignment with this agenda, countries around the world are actively pursuing the Sustainable Development Goals (SDGs) (UN, 2015), including SDG 8 on sustainable economic growth and decent work (Liu et al., 2024), and SDG 12 on responsible consumption and production (Walsh et al., 2020). Both goals underscore the necessity for organizations to adopt green practices and develop environmentally responsible workforces (Chang et al., 2025).

In developing countries, these issues are even more pronounced, as weaker institutional frameworks, resource constraints, and sociocultural barriers make the adoption of comprehensive green practices significantly more challenging (Kodua et al., 2022). These barriers highlight the importance of human resource-based interventions, such as GHRM and GTL, which can cultivate internal capabilities even when external conditions are less supportive. Vietnam provides a particularly relevant context for this investigation. As one of ASEAN's fastest-growing industrial economies, Vietnam's rapid economic expansion has led to significant increases in energy consumption and carbon emissions (Hung, 2023). Thu et al. (2022) report that a 1% increase in GDP corresponds to a 1.26% rise in CO_2 emissions, surpassing the global average. These trends highlight the pressing need for Vietnamese firms to balance economic growth with environmental stewardship, particularly in light of the National Climate Change Strategy to 2050 (Decision No. 896/QĐ-TTg) and Vietnam's commitment at COP26, where the Prime Minister pledged to achieve net-zero greenhouse gas emissions by 2050.

Nevertheless, despite the rising scholarly focus on GHRM and environmental outcomes, empirical insights into GTL's moderating role remain limited and inconsistent. As highlighted by Dong et al. (2024), although research on green leadership has expanded, its specific influence on organizational sustainability is still far from fully understood in Vietnamese context. This gap becomes even more critical as contemporary enterprises are expected to integrate economic priorities with social responsibilities and environmental stewardship (Yang et al., 2024). Furthermore, while Niazi et al. (2023) report supportive evidence for the moderating role of GTL in the banking industry, Younis & Hussain (2023) show that GTL does not significantly moderate the pathway through which GHRM enhances EP via a stronger green psychological climate. It highlights notable inconsistency in prior findings, requiring further empirical examination of when and how GTL strengthens or fails to stimulate the translation of GHRM into EP, particularly within emerging economies such as Vietnam, where contextual factors may shape or constrain leadership effects. Moreover, existing research tends to focus on single industries such as manufacturing (Aftab et al., 2023; Singh et al., 2020) or services (Vu et al., 2025), leaving a gap in understanding how GHRM and GTL operate across diverse and mixed industry settings.

Against this backdrop, the present study investigates the impact of GHRM practices on EP and examines the moderating role of GTL, thereby clarifying how and under what conditions GTL enhances the translation of GHRM into improved environmental outcomes within Vietnamese businesses. By providing empirical evidence from an emerging economy, the study makes several important contributions to the literature. Specifically, it develops an integrated framework grounded in the Natural Resource-Based View (NRBV), the Ability-Motivation-Opportunity (AMO) model, and Social Cognitive Theory (SCT), offering a theoretically robust explanation of how green capabilities are cultivated and enacted within organizations. Collectively, these contributions strengthen theoretical understanding and offer practical insights, providing a solid foundation for examining how Vietnamese enterprises can strategically leverage internal resources, particularly human and leadership capabilities, to advance environmental sustainability and reinforce competitive advantage.

2. Literature Review

2.1. Theoretical framework

2.1.1. Natural-Resource-Based View

Resource-Based View (RBV) argues that firms attain sustained competitive advantage through resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991), and has been extensively applied in HRM studies and strategic management (Barney, 1991; Chen & Yan, 2022; Singh et al., 2020). However, a key limitation of the RBV is its neglect of the natural and biophysical environment, rendering it insufficient for addressing sustainability-oriented challenges (Hart, 1995; AlNuaimi et al., 2021). To overcome this shortcoming, Hart (1995) first introduced Natural Resource-Based View (NRBV), expanding the traditional RBV by incorporating environmental considerations into strategic management. NRBV positions a firm's competitive advantage as contingent not only on its internal capabilities but also on how it engages with the natural environment (Suleman et al., 2024). As an evolution of RBV, this perspective embeds environmental considerations directly into strategic thinking, arguing that future sources of competitive advantage will stem from capabilities that foster environmentally responsible and sustainable practices (Aslam et al., 2024).

Under the NRBV, firms can cultivate enduring competitive advantage through three mutually reinforcing strategic pathways: pollution prevention, product stewardship, and sustainable development (Hart, 1995). These pathways highlight that advantage can be created by reducing waste and inefficiencies (pollution prevention), addressing environmental impacts throughout the product life cycle (product stewardship), and pursuing long-term growth through green technologies and sustainable markets (sustainable development).

Grounded in this theoretical perspective, the current study adopts the NRBV as its principal framework. The theory clarifies how essential intangible resources - particularly leadership and human capital - contribute to the development of internal green capabilities for these strategies, such as GHRM and GTL, which subsequently drive improvements in environmental performance (Hart, 1995; AlNuaimi et al., 2021; Aslam et al., 2024; Niazi et al., 2023; Suleman et al., 2024).

In addition, firms in developing and emerging economies such as Vietnam frequently encounter institutional constraints and possess weaker environmental capabilities than those in more developed countries, making employing the NRBV especially pertinent (Zafarullah & Mehnaz, 2025; Chan, 2005). These contextual challenges underscore the critical importance of building robust internal green capabilities to achieve both sustainability and competitive performance. As Hart (1995) emphasizes, developing such capabilities and fostering a shared vision dedicated to sustainable development are particularly crucial for firms in emerging markets, as they provide the strategic guidance and long-term commitment necessary to promote environmentally sound growth and achieve

sustainable competitive advantage even in resource-constrained contexts.

2.1.2. Ability-Motivation-Opportunity theory

While the NRBV explains why GHRM and GTL, as internal green capabilities, constitute valuable and hard-to-imitate strategic resources that support EP and sustainable competitive advantage (Hart, 1995; AlNuaimi et al., 2021; Niazi et al., 2023), the Ability-Motivation-Opportunity (AMO) theory offers a complementary micro-level perspective by detailing the mechanisms through which these capabilities lead to improved environmental outcomes (Appelbaum, 2000; Renwick et al., 2013). According to AMO theory, employees' performance outcomes arise from the interplay of their abilities, motivation, and the opportunities provided for them to contribute (Appelbaum, 2000; Renwick et al., 2013). Within the environmental domain, these components clarify the mechanisms through which GHRM practices improve EP. Specifically, green abilities are developed through recruitment and training initiatives that equip employees with ecological knowledge and competencies; green motivation is fostered through evaluation and reward systems that reinforce pro-environmental behaviors; and green opportunities emerge when employees are empowered to engage in environmental initiatives (Anwar et al., 2020; Marin-Garcia & Tomas, 2016; Pham et al., 2019). This theoretical perspective connects individual employee behaviors with organizational environmental outcomes (Jiang et al., 2013), which in turn provides a coherent mechanism for achieving superior EP (Song et al., 2021).

A growing stream of empirical studies has employed the AMO framework to explain how GHRM drives organizational outcomes across various sectors. Prior research has examined GHRM in contexts such as healthcare (Pinzone et al., 2016), hospitality (Pham et al., 2019), the automobile industry (Yu et al., 2020), SMEs (Singh et al., 2020), universities (Anwar et al., 2020), and manufacturing in a developing country (Aftab et al., 2023), with findings highlighting roles of green innovation, pro-environmental behavior, and environmental strategy. Together, this evidence underscores that embedding GHRM within the AMO model offers a coherent and empirically supported explanation for how GHRM activates employees to improve EP.

Furthermore, recent research has broadened the AMO perspective by integrating leadership as a contextual force capable of either amplifying or weakening the HRM-performance linkage. Hameed et al. (2021) identified GTL as a significant moderating factor that intensifies the effect of GHRM on green creativity, while Awan et al. (2023) showed that GTL facilitates the transformation of employees' green abilities into GI, thereby enhancing EP. Extending beyond the AMO lens, Niazi et al. (2023) found that GTL strengthens the GHRM-EP relationship by cultivating a green vision and a supportive, inspirational learning climate. This conclusion is consistent with Younis & Hussain (2023), who highlighted GTL's crucial role in developing a psychological green climate that reinforces employees' environmental identification and motivates sustainable outcomes. Therefore, combining AMO with the NRBV reinforces the study's theoretical foundation: the NRBV highlights the strategic importance of human and leadership resources, whereas the AMO framework clarifies the behavioral mechanisms through which these resources enhance environmental performance (Singh et al., 2020; Renwick et al., 2013).

2.1.3. Social cognitive theory

Social Cognitive Theory (SCT) further enriches this multi-level framework by explaining the social and psychological mechanisms through which leadership influences environmental management systems (Bandura, 1991, 1999; Aslam et al., 2024; Chen & Yan, 2022). Central to SCT is the principle of triadic reciprocal causation, which rejects one-way determinism and instead suggests that personal factors, behavioral patterns, and environmental conditions operate as mutually interacting determinants (Bandura, 1999). Within this theoretical view, individuals are seen as active agents whose learning and performance emerge through processes such as observational learning, social modeling (Bandura, 1999), and the development of self-efficacy and self-regulatory capabilities (Bandura, 1991), rather than being shaped solely by external circumstances.

Building on this logic, a growing body of sustainability research has drawn on SCT to explain how social and contextual signals influence employees' pro-environmental behavior (Aslam et al., 2024). In line with this understanding, GTL operates as a key mechanism, fostering learning, empowerment, and environmentally oriented innovation among employees (Awan et al., 2023). By serving as a social-cognitive model that stimulates employees' self-efficacy and motivations to engage in ecological actions (Chen & Yan, 2022), GTL exemplifies how leaders shape environmental behavior. Leaders who communicate a compelling environmental vision and consistently demonstrate green behaviors create conditions that facilitate observational learning and collective identification, ultimately encouraging continuous improvements in EP (Chen & Chang, 2013; Niazi et al., 2023).

Consistent with SCT's assertion that purposeful behaviors derive from the interaction between external social cues and individuals' internal beliefs through self-regulatory mechanisms, prior studies increasingly emphasize the pivotal role of perceived efficacy in shaping adaptive and innovative behaviors (Bandura, 1991,

1999). In this light, the present study positions GTL as an essential moderating element within the GHRM-EP pathway. SCT hence offers a micro-level lens suggesting that employees' green behaviors are shaped not only by the formal structures of HRM practices but also by leaders' capacity to cultivate self-efficacy, self-regulation, and shared environmental values.

2.1.4. Theoretical integration and multi-level framework

Drawing upon the aforementioned theories, this section provides a synthesis that avoids a fragmented use of theories and addresses limited and inconsistent empirical evidence on the moderating role of GTL (Niazi et al., 2023; Younis & Hussain, 2023) - particularly within emerging economies such as Vietnam and across diverse industry contexts. We synthesize the NRBV, AMO, and SCT into an integrated multi-level framework that elucidates how firms' internal green capabilities are converted into EP. Specifically, NRBV provides strategic foundation that explains why firms must develop internal green capabilities to achieve sustainable competitive advantage, while AMO clarifies how GHRM translates this strategic intent into employees' green abilities, motivation, and opportunities. SCT, then, offers the psychological lens to explain how GTL operates as a higher-order contextual force that shapes employees' self-efficacy, self-regulatory processes, and observational learning (Aslam et al., 2024; Chen & Yan, 2022; Bandura, 1991, 1999). These psychological mechanisms, in turn, reinforce employees' green abilities, motivation, and opportunities, enabling environmental strategies to yield tangible performance improvements. Together, these perspectives form a coherent theoretical flow that elucidates how firms' internal green capabilities are converted into EP through the contextual role of GTL.Building on this theoretical integration, our study advances the sustainable HRM literature in several important ways. First, anchoring the analysis in the NRBV, AMO, and SCT, we propose a comprehensive multi-level model that captures how individual-level psychological processes aggregate into organizational-level environmental outcomes. While AMO and SCT primarily explain behaviors at the micro level, we extend their application by drawing on Multilevel Theory (Ployhart & Moliterno, 2011) to bridge the micro-macro interface. According to this lens, emergent organizational phenomena materialize when individual cognitions, emotions, and behaviors reinforce one another through interaction, ultimately forming higher-level collective capabilities. Following this logic, we argue that effective GHRM and GTL create a shared organizational climate in which employees' green abilities and motivation consolidate into firm-level environmental capabilities that shape EP.

Additionally, integrating the NRBV, AMO, and SCT provides a strong theoretical foundation for explaining the conditional mechanisms through which GHRM enhances EP, particularly the way GTL strengthens this relationship. This tripartite framework offers a nuanced account of how green capabilities emerge and interact within organizations, thereby generating clearer conceptual insights and actionable guidance for sustainable management, especially in emerging economies such as Vietnam, where institutional pressures and resource limitations make the development of organizational green capabilities increasingly critical.

2.2. Green human resource management

Green human resource management refers to HR practices designed to influence firms' environmental outcomes by aligning people-related activities with organizational environmental strategies and encouraging employees' green behaviors (Renwick et al., 2013; Singh et al., 2020). As a subdomain within Sustainable HRM, which balances financial, social, and ecological goals (Elkington, 2004), GHRM shifts the traditional HRM focus from performance enhancement toward mobilizing employees to advance environmental outcomes (Paulet et al., 2021). Ren et al. (2018) further clarify the construct by defining GHRM as an organizational phenomenon that examines how HRM systems are designed, implemented, and developed in relation to activities affecting the natural environment. In line with Jackson et al.'s (2014) broader view of HRM systems, this perspective positions GHRM as an organizational commitment to developing HR practices that proactively and positively address ecological challenges.

In addition, from a strategic standpoint, GHRM also reflects the core logic of the NRBV (Hart, 1995). By cultivating employees' green knowledge, skills, and values, GHRM enables firms to convert environmental pressures into strategic opportunities, in turn supporting ecological sustainability while strengthening long-term competitiveness (Rehman et al., 2021). In this sense, GHRM functions as a pivotal mechanism through which organizations develop human capital that aligns with and advances environmentally responsible corporate strategies.

The existing literature categorizes GHRM practices in multiple ways, reflecting different perspectives on how HRM activities contribute to environmental management (Pham et al., 2019; Tang et al., 2018; Ren et al., 2018; Anwar et al., 2020; Awan et al., 2023; Ngo et al., 2022). Among these, Tang et al. (2018) offer one of the most systematic classifications by outlining five core practices - green recruitment and selection, green training, green performance management, green pay and reward, and green involvement - which serve as the operational framework for this study. Besides, building on Renwick et al. (2013) further consolidate these practices into three higher-order components under the lens of AMO theory (Appelbaum, 2000): green

abilities (via green recruitment and green training), green motivation (via green performance management and green rewards) , and green opportunities (via green employee involvement). Such an integration reflects the core logic of the AMO framework, which provides a foundational explanation for how HR practices shape employee behaviors and, ultimately, organizational performance (Appelbaum, 2000; Renwick et al., 2013; Marin-Garcia & Tomas, 2016). Thus, by integrating the individual-level lens of AMO with the firm-level perspective of the NRBV (Jiang et al., 2013) , GHRM emerges as a cohesive mechanism that cultivates employees' green abilities, motivation, and opportunities while simultaneously building environmentally oriented human capital as a strategic resource, thereby enhancing firms' environmental outcomes and long-term competitive advantage.

2.3. Hypothesis development

2.3.1. Green human resource managementand Environmental performance

Environmental performance is defined as the extent to which an organization's activities fulfill or surpass societal expectations regarding environmental stewardship (Chan, 2005). Rather than merely complying with environmental regulations, it reflects a proactive orientation toward broader ecological goals (Chen et al., 2015). The concept also captures the environmental consequences of a firm's processes, products, and resource utilization, emphasizing actions that meet legal standards while advancing long-term sustainability (Singh et al., 2020). In practice, such stewardship is manifested through measurable environmental outcomes, including compliance with environmental standards, reductions in emissions and resource consumption, and minimized use of hazardous materials, which capture the actual environmental impacts of firms' green initiatives (Laosirihongthong et al., 2013).

To achieve these superior environmental outcomes, the NRBV indicates that firms must develop unique organizational capabilities derived from bundles of intangible resources (Hart, 1995). Building on Grant's (1991) distinction, resources serve as the antecedents of organizational capabilities, which in turn constitute the primary source of competitive advantage. In the context of environmental strategy, it is argued that the effective application of eco-friendly technologies requires more than just physical assets; it demands the full involvement, commitment, and coordination of human resources (Hart, 1995; Chan, 2005). Accordingly, GHRM can be viewed as a strategic HR system that mobilizes human resources to support NRBV-based environmental capabilities such as pollution prevention and sustainable development (Mustafa et al., 2023), consistent with earlier arguments emphasizing the importance of human and organizational resources for environmental improvement (Russo & Fouts, 1997).

In particular, GHRM operationalizes these NRBV-based capabilities through the AMO framework, creating a behavioral mechanism that translates intangible human resources into tangible environmental performance (Mustafa et al., 2023; Anwar et al., 2020). First, regarding green abilities, by integrating environmental criteria into job descriptions and candidate evaluations, firms attract and select individuals whose personal values align with the organization's sustainability goals (Tang et al., 2018). This value alignment is critical because employees who share the organization's environmental values are more likely to commit to sustainability, actively participate in eco-initiatives, and continuously develop their environmental knowledge that ultimately improve the firm's EP (Renwick et al., 2013; Hameed et al., 2021; del Brio et al., 2007; Tang et al., 2018). Furthermore, a strong green employer branding allows firms to attract and compete for high-quality talent who prioritize sustainability (Gupta & Gupta, 2013). In the specific context of Vietnam, recent evidence confirms that green recruitment practices significantly enhance organizational prestige and attract a workforce ready to commit to environmental agendas (Ngo et al., 2022).

While green recruitment and selection secures the potential, green training transforms this potential into actionable competence. Training equips employees with specific technical knowledge and skills, such as waste management, energy conservation, and recycling protocols, necessary to operationalize environmental strategies to gain superior EP (Daily & Huang, 2001; Teixeira et al., 2012). Beyond technical skills, effective green training raises awareness, enabling employees to identify environmental problems (e.g., leakages, inefficiencies) and empowering them to take proactive corrective actions (Teixeira et al., 2012). Consistent with the NRBV, firms with a higher proportion of environmentally trained employees exhibit a stronger capacity to respond to environmental challenges and evolving regulatory demands (Hart, 1995).

Synthesizing these arguments, green abilities function as a critical driver of EP (Awan et al., 2023; Anwar et al., 2020), by ensuring that employees are not only willing (via recruitment and selection) but also capable (via training) of performing environmentally responsible behaviors. When employees possess the requisite abilities, they can effectively optimize resource usage and minimize negative ecological impacts, thereby directly enhancing the firm's EP. Based on this discussion, we propose the following hypothesis:

H1: Green abilities positively impact EP.

Green motivation refers to the evaluative and incentive-based HR mechanisms: performance appraisal, systematic feedback, and reward systems that

foster employee behaviors aligned with organizational environmental objectives (Harvey et al., 2013). Green performance management serves as a structured directional system that translates broad environmental strategies into actionable individual targets (Pham et al., 2019). By explicitly incorporating environmental criteria into performance appraisals, firms clarify employees' roles and expectations in environmental management (Anwar et al., 2020) and strengthen accountability and alignment with ecological priorities, thus stimulating overall EP (Guerci et al., 2016). The mechanism of green performance management also relies on the feedback loop; regular reviews allow employees to evaluate their effectiveness against green standards and identify areas for improvement (Darvishmotevali & Altinay, 2022). As Jackson et al. (2011) argue, this feedback process not only strengthens accountability but also enhances employees' green competencies, motivating them to create innovative solutions for overlooked environmental problems.

Complementing the directional role of green performance management, green pay and rewards serve as fundamental HRM mechanisms that reinforce desired behaviors, positioning them as highly effective in encouraging employees to engage in environmental initiatives (Saeed et al., 2019). It creates a tangible link between EP and personal benefit through both financial incentives and non-financial recognition (Jabbour et al., 2013). Tying compensation and recognition to environmental outcomes also strengthens employees' sense of responsibility and promotes organizational citizenship behaviors toward the environment (Daily & Huang, 2001). Although non-financial incentives, such as praise or eco-related benefits, can effectively motivate employees (Jabbour et al., 2008), research suggests that combining monetary and non-monetary rewards is generally most effective for sustaining long-term engagement (Jackson et al., 2011; Renwick et al., 2013). In addition, when employees fall short of green targets, organizations may employ disincentives as a form of negative reinforcement to strengthen employees' environmental responsibility (Tang et al., 2018).

When combined, green performance management and green rewards create a robust motivational environment where employees are not only aware of what they need to do but are also deeply committed to doing it. Empirical evidence indicates that this combination significantly strengthens employee commitment and willingness to participate in eco-initiatives, which directly translates into superior organizational environmental performance (Rawashdeh, 2018). In the specific context of Vietnam, Ngo et al. (2022) confirmed that reward systems linked to environmental outcomes. Thus, grounded in NRBV and AMO, we give the hypothesis that:

H2: Green motivation positively impacts EP.

Within the AMO framework, green opportunities are realized primarily through green employee involvement practices (Singh et al., 2020; Renwick et al., 2013). From the perspective of the NRBV, Hart (1995) emphasizes that successful pollution prevention strategies cannot rely solely on top-down mandates; rather, they require the decentralized, active participation of employees to detect and eliminate waste and process inefficiencies at the source. Therefore, offering employees opportunities to participate is a critical strategic capability, with green employee involvement functioning as the primary mechanism that facilitates their engagement in environmental management (Renwick et al., 2013; DuBois & Dubois, 2012; Awan et al., 2021, 2023).

DuBois & Dubois (2012) further highlight that green employee involvement creates a platform for employees to voice environmental concerns, share knowledge, and propose innovative solutions to complex ecological challenges, like reducing waste and pollution while promoting the efficient use of resources (Tang et al., 2018). This mechanism operates on two levels to enhance environmental performance:

First, at the individual level, empowering employees to participate in environmental decision-making enhances their self-control and problem-solving capabilities, contributing to higher EP (Alt & Spitzeck, 2016). When employees perceive that their input is relevant and valued - a concept Zaichkowsky (1985) refers to as involvement, they develop a sense of ownership over environmental outcomes. This psychological ownership fosters proactive behaviors, such as identifying non-obvious sources of pollution or suggesting process improvements that managers might overlook (Renwick et al., 2013). Crucially, Boiral (2002) notes that this involvement generates tacit environmental knowledge which is experiential insights - a unique, inimitable resource according to the NRBV logic, to strengthen EP.

Second, at the organizational level, green employee involvement facilitates collective action through mechanisms such as green teams, open communication channels, and supportive learning climates (Tang et al., 2018). Given that environmental problems are often multifaceted and cross-functional, these opportunities allow for the exchange of diverse ideas and the coordination required for an effective environmental management system (Del Brío et al., 2007). By leveraging the collective intelligence of the workforce, firms can implement sustainable practices more efficiently, reduce waste, and improve resource utilization (Tang et al., 2018; Pinzone et al., 2016).

In the specific context of Vietnam, where businesses are increasingly integrating sustainability into their core operations, the ability to mobilize the entire workforce through involvement initiatives is vital. Evidence suggests that when Vietnamese firms provide these green

opportunities, it stimulates organizational citizenship behaviors for the environment (Pham et al., 2019) and directly contributes to superior ecological outcomes (Ngo et al., 2022). Consistent with Hart (1995), active participation of employees through empowered work teams enables firms, especially in resource-constrained contexts, to prevent pollution effectively, reducing waste and associated costs while enhancing environmental performance. Therefore, we posit that:

H3: Green opportunities positively impact EP.

2.3.2. The moderating role of Green transformational leadership

Green transformational leadership (GTL) describes leadership behaviors that inspire employees to pursue environmental goals and to go beyond required levels of environmental performance (Chen & Chang, 2013). Rooted in Transformational Leadership theory (Bass, 1985), GTL reorients the four main aspects - intellectual stimulation, individualized consideration, idealized influence (charisma), and inspirational motivation - toward environmental and sustainability outcomes (Robertson & Barling, 2013). Idealized influence manifests when leaders act as moral role models by prioritizing environmental responsibility and the collective good, thereby encouraging employees to emulate pro-environmental behaviors. Inspirational motivation involves articulating an appealing environmental vision that inspires employees to transcend self-interest and persist in environmentally beneficial actions despite challenges. Intellectual stimulation encourages employees to question existing environmental assumptions and to approach ecological problems in innovative ways, while individualized consideration is reflected in leaders' personalized support and mentoring that help employees develop environmental competencies and internalize green values. Hence, through stimulating new ways of thinking, providing personalized support, and articulating an engaging environmental vision, GTLs foster employees' environmental learning, creative problem-solving, and commitment to ecological objectives (Bass, 1985; Gong et al., 2009). In turn, GTL cultivates a psychologically supportive climate that strengthens employees' green creativity, innovative thinking, and environmental engagement (Chen & Chang, 2013; Younis & Hussain, 2023).

Strategically, the NRBV positions GTL as an intangible organizational resource that leverages human skills and learning capabilities to strengthen green innovation and EP, at the same time contributing to firms' long-term competitiveness (Hart, 1995; Singh et al., 2020). Within the AMO theory, GTL complements GHRM by translating employees' green abilities, motivation, and opportunities into effective pro-environmental actions through inspiration, empowerment, and shared vision (Awan et al., 2022; Singh et al., 2020; Chen & Chang, 2013). From the perspective of SCT, GTL shapes behavior through social learning with leaders' pro-environmental conduct as a model that employees observe and internalize, then improving their moral commitment and self-efficacy (Bandura, 1991, 1999; Robertson & Barling, 2013; Chen & Yan, 2022).Taken together, GTL operates as a cross-level mechanism that links firm-level sustainability strategy (NRBV) with individual-level cognition and behavior shaped by abilities, motivation, opportunities, social learning and modeling (AMO & SCT).

In addition, some studies have examined the positive effects of GTL and transformational leadership on employees' pro-environmental behaviors and organizational environmental performance. Chen & Chang (2013) indicate that GTLs guide employees toward environmental objectives by articulating a clear green vision and inspiring them to internalize these goals. Through charisma and inspirational motivation, they encourage innovative thinking and the pursuit of performance beyond routine expectations, thereby fostering green creativity and contributing to environmental outcomes. These align with NRBV (Hart, 1995), that providing a clear environmental vision and actively involving employees in empowered teams enables firms to translate strategic green goals into effective pollution prevention, achieving faster reductions in emissions and waste while strengthening EP. Additionally, GTLs stimulate employees to acquire new knowledge by creating a learning-oriented environment in which leaders model adaptive behavior, encourage exploration, and motivate followers to seek novel solutions to emerging challenges, while simultaneously enhancing their psychological empowerment and organizational commitment (Para-González et al., 2018). Grounded in SCT, it also strengthens employees' self-efficacy by providing role modeling, encouragement, and mastery opportunities (Gong et al., 2009).

GTL further cultivates employees' green passion by eliciting strong emotional identification through charisma, stimulating enthusiasm for environmental goals through inspirational motivation, offering supportive individualized consideration, and fostering confidence and optimism via intellectual stimulation (Jia et al., 2018). Empirical evidence from banks in Pakistan supports that higher levels of GTL enhance employees' effective internalization of GHRM practices, consequently, strengthening their impact on EP (Niazi et al., 2023). Moreover, Mansoor et al., (2021) suggest that GTL and GHRM often operate in a mutually reinforcing manner to establish the organizational conditions necessary for implementing environmental agendas. Rather than functioning in isolation, GTL complements structural HR practices by adding the

behavioral influence required to foster green creativity and performance. In this regard, the commitment and support of top management or supervisors remain critical to ensuring that environmental programs achieve their intended outcomes (Afum et al., 2021).

Hence, drawing on NRBV, AMO, and SCT, we posit that GTL acts as a catalyst leadership resource that intensifies the impact of GHRM components on EP. Specifically, GTLs leverage intellectual stimulation to create a psychologically safe environment, encouraging employees to effectively apply their green abilities. Besides, by providing intrinsic meaning through inspirational motivation and idealized influence, GTL reinforces the link between green motivation and performance. Finally, through individualized consideration, leaders actively empower employees to seize green opportunities for tangible environmental outcomes. Accordingly, the following hypotheses are proposed:

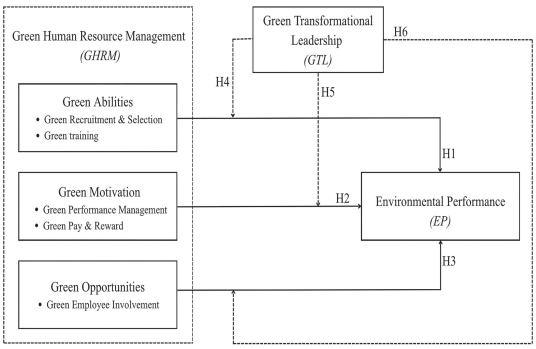
H4: GTL moderates the link between green abilities and EP.

H5: GTL moderates the link between green motivation and EP.

H6: GTL moderates the link between green opportunities and EP.

Based on the proposed hypotheses, the conceptual model is illustrated in Figure 1.

Figure 1. Conceptual Model



Source: Compiled by the authors

3. Research methodology

3.1. Sampling and data collection

A quantitative research approach was adopted to study the impact of GHRM on EP and moderating with GTL. The study was conducted using questionnaire and non-probability convenience sampling, done in such a way that it could take into account the flexibility of accessibility for respondents and obtain samples from firms across all provinces and cities throughout Vietnam. After development of the formal survey instrument, an electronic questionnaire was sent to managers and workers, allowing for efficient data collection with a large geographic spread at low cost. In line with the common "5-10 times rule" referring to minimum sample size in PLS-SEM (Hair et al., 2011). As the structural model consists of 30 items, the recommended minimum sample size ranges from 150 to 300 respondents. The collection of 339 valid responses in this study exceeds this threshold, ensuring that the model estimation is both sufficiently powered and reliable for further analysis.

3.2. The measurement of the constructs

In this study, the questionnaire was constructed using measurement scales adapted from prior research on GHRM, GTL, and EP. The original English-language scales were translated into Vietnamese by the research team and subsequently refined to ensure linguistic accuracy and contextual relevance for domestic enterprises. The questionnaire consisted of observed variables corresponding to each construct in the research model and employed a 5-point Likert scale, where a score of 1 indicated "completely disagreed" and a score of 5 indicated "completely agreed." This design allowed respondents to express their assessments clearly while ensuring that the data collected were both distinctive and reliable for subsequent quantitative analysis.

More specifically, the scale for the "Green Human Resource Management" construct, comprising 19 observed variables and adapted from Tang et al. (2017), was organized into three subdimensions consistent with the framework of this study: "Green Abilities" with 6 items, "Green Motivation" with 7 items, and "Green Opportunities" with 6 items. The "Green Transformational Leadership" scale consists of 6 observed variables adapted from Chen and Chang (2013). Meanwhile, the "Environmental Performance" scale includes 5 observed variables based on the measurement framework proposed by Laosirihongthong et al. (2013).

3.3. Data analysis

Partial Least Squares Structural Equation Modeling (PLS-SEM) was utilized in this study to assess the proposed model and empirically examine the formulated hypotheses using the collected dataset. This method is well suited for analyzing complex associations among latent and observed variables, particularly when the data may not follow a normal distribution or when the available sample size is relatively modest. After the survey data were gathered, the responses were processed and analyzed through SmartPLS 4 using a linear modeling framework. The reliability of the constructs was examined through composite reliability and Cronbach's alpha, while convergent validity and discriminant validity were employed to evaluate the validity of the measurement model. Once the measurement model satisfied all required quality criteria, a Bootstrapping procedure with 339 samples was implemented to assess the statistical significance of the path coefficients and to substantiate the study's hypotheses.

4. Results

4.1. Demographic profile of the respondents

The demographic profile indicates that the respondents possessed adequate professional experience, educational backgrounds, and organizational positions to provide valid and reliable responses for this study. Demographic information was collected on several key characteristics, including gender, age, educational level, job position, years of work experience, industry sector, type of enterprise, and company size. Approximately 51.3% of the firms in the sample are classified as small and medium-size enterprises (SMEs), with the remainder belonging to micro and large enterprises. In terms of industry sector, the majority of respondents (72.9%) worked in the service sector, followed by 24.4% in the industrial construction sector, and a small proportion in agriculture and related fields. Regarding job position, 67.1% of respondents identified as employees, while 32.9% held managerial or leadership roles. Concerning educational attainment, most respondents possessed a university degree (64.4%), followed by 28.8% with postgraduate qualifications, with only a small fraction holding lower educational levels.

4.2. Measurement model

Table 1. Results of factor loading, reliability analysis and convergent validity

Construct	Item	Factor loading	Cronbach's alpha	Composite reliability	AVE (Construct level)
GHRM	GA1	0.871	0.936	0.949	0.757
	GA2	0.874			
	GA3	0.839			
	GA4	0.895			
	GA5	0.855			
	GA6	0.886			
	GM1	0.912	0.956	0.964	0.792
	GM2	0.847			
	GM3	0.925			
	GM4	0.866			
	GM5	0.874			
	GM6	0.901			
	GM7	0.903			
	GO1	0.926	0.957	0.966	0.824
	GO2	0.908			
	GO3	0.912			
	GO4	0.923			
	GO5	0.920			
	GO6	0.854			
GTL	GTL1	0.923	0.974	0.978	0.883
	GTL2	0.951			
	GTL3	0.956			
	GTL4	0.953			
	GTL5	0.945			
	GTL6	0.910			
EP	EP1	0.924	0.948	0.960	0.828
	EP2	0.939			
	EP3	0.881			
	EP4	0.893			
	EP5	0.911			

Source: Calculated by the authors

Before assessing the structural relationships, this study first evaluates the measurement model by examining scale reliability, internal consistency, and construct validity including both convergent and discriminant validity as presented in table 1. The initial focus is placed on internal reliability, assessed through Cronbach's alpha and composite reliability, to ensure the adequacy of the measurement scales. Following the recommendations of Nunnally and Bernstein (1994), the Cronbach's alpha coefficients obtained in this study (ranging from 0.936 to 0.974) exceed the minimum threshold of 0.70, indicating a very high level of internal consistency across the constructs. Composite reliability values show a similar pattern of robustness, ranging from 0.949 to 0.978, which further confirms strong internal consistency. While some constructs slightly exceed the recommended CR threshold of 0.95, this can be explained by the theoretical consistency of items drawn from validated measurement instruments, and thus the indicators were retained to maintain content validity. However, several constructs (GM, GO, EP, and GTL) display composite reliability values above the recommended upper boundary of 0.95 (Hair et al., 2017), suggesting potential redundancy among items and possible conceptual overlap. This finding underscores the importance of further examining discriminant validity and reviewing the item composition of these constructs. Convergent validity was assessed using the Average Variance Extracted (AVE), and all AVE values (ranging from 0.757 to 0.883) surpass the minimum threshold of 0.50, demonstrating satisfactory convergent validity in accordance with Fornell and Larcker (1981).

4.3. Structural model

Table 2. Structural model results

	R Square	R Square Adjusted
EP	0.743	0.738

Source: Calculated by the authors

The study employed Partial Least Squares (PLS) analysis to assess the effectiveness of the proposed model. The direct effect results, presented in table 2, include the explanatory variance (R^2), path coefficients, and their statistical significance. Bootstrapping was further applied to confirm the significance of these relationships. The R^2 values of the endogenous variables were also examined to evaluate the model's predictive capability. The structural model explains a substantial proportion of the variance in Environmental Performance (EP), with an R Square of 0.743 and an adjusted R Square of 0.738. According to Hair et al. (2017), such values indicate strong explanatory power, suggesting that the predictors provide a robust explanation for EP.

4.4. Results of direct effect and moderating effect

Table 3. Results of direct effects analysis

Hypothesis	Effects	β	p-value	f Square
H1	GA -> EP	0.164	0.052	0.015
H2	GM -> EP	0.093	0.315	0.005
H3	GO -> EP	0.267	0.017	0.031

Source: Calculated by the authors

Among the subdimensions of GHRM, Green Abilities (GA) demonstrate a marginally significant positive effect, while Green Opportunities (GO) exert a statistically significant positive influence on Environmental Performance (EP) (H1: GA -> EP: $\beta = 0.164$, $p = 0.052$; H3: GO -> EP: $\beta = 0.267$, $p = 0.017$). The corresponding effect sizes for H1 ($f^2 = 0.015$) and H3 ($f^2 = 0.031$) are small, indicating that both GA and GO have modest impacts on EP. In contrast, Green Motivation (GM) does not affect EP (H2: GM -> EP: $\beta = 0.093$, $p = 0.315$). Overall, these results suggest that while specific aspects of GHRM, namely abilities and opportunities, contribute to improvements in EP, the motivational component does not exhibit a direct significant effect within this model.

Table 4. Results of moderating effects analysis

Hypothesis	Effects	β	p-value	f Square
H4	GTL x GA -> EP	-0.085	0.352	0.005
H5	GTL x GM -> EP	-0.005	0.969	0.000
H6	GTL X GO -> EP	0.060	0.664	0.002

Source: Calculated by the authors

The analysis of moderating effects reveals that Green Transformational Leadership (GTL) does not significantly moderate the relationships between the GHRM subdimensions and Environmental Performance (EP). Specifically, the interaction between GTL and Green Abilities (GA) do not impact EP (H4: $\beta = -0.085$, $p = 0.352$). Similarly, the interaction of GTL with Green Motivation (GM) is not statistically

significant (H5: β = -0.005, p = 0.969), and no moderating effect is found for the interaction between GTL and Green Opportunities (GO) (H6: β = 0.060, p = 0.664). Moreover, the corresponding effect sizes (f^2) for H4, H5, and H6 are very small (0.005, 0.000, and 0.002, respectively), indicating negligible moderation. Collectively, these results suggest that GTL neither amplifies nor diminishes the influence of GA, GM, or GO on EP, demonstrating the absence of moderating effects in the proposed model.

5. Discussion

This study re-examines the relationship between GHRM and EP while clarifying the role of each individual component within the underlying mechanism. The findings reaffirm the positively significant impact of GO on EP and reveal a marginally positive influence of GA, suggesting that employees' green abilities and opportunities play meaningful roles in driving EP. GA indicates that employees who possess environmental values and knowledge aligned with the organization's sustainability orientation tend to demonstrate stronger commitment, actively participate in green initiatives, and continuously enhance their environmental understanding thereby contributing significantly to EP (Renwick et al., 2013; Awan et al., 2023; Anwar et al., 2020). In our findings, although GA attains only marginal significance, it still exhibits potential and opportunities to exert a positive influence on EP. With respect to GO, it exerts a positive impact on EP by creating the space and opportunities for employees to propose, share, and implement green solutions in their daily work (DuBois & Dubois, 2012). Notably, in the context of developing countries, GO often emerges as the most influential component affecting EP. In Vietnamese enterprises where power distance remains relatively high, employees frequently encounter barriers when attempting to voice their ideas (Rafiei & Pourreza, 2013), and consequently, when organizations actively provide avenues and opportunities for employee involvement, the positive effects on EP become particularly pronounced.

In contrast, a noteworthy finding is that GM does not exhibit a significant effect on EP, which contradicts the conclusions of Awan et al. (2023) regarding the motivational role of GM. Drawing on the crowding effect theory proposed by Frey and Jegen (2001), external motivational practices that are superficial or poorly designed may undermine employees' intrinsic motivation. This phenomenon is particularly prevalent in enterprises in developing countries, where GM initiatives tend to be formalistic and financially driven, relying heavily on compliance-oriented external incentives. As a result, employees' intrinsic motivation toward green behaviors is constrained, preventing GM from translating into improvements in EP.

Furthermore, the study finds that GTL does not fulfill its expected moderating role. GTL does not influence any of the relationships between GA, GO, GM, and EP, which contradicts the findings of Niazi et al. (2023), who argue that GTL can strengthen the impact of GHRM on EP. However, this result aligns with Younis & Hussain (2023), who assert that GTL does not significantly moderate the pathway through which GHRM enhances EP via a stronger green psychological climate. One plausible explanation is that GTL typically functions to support and reinforce the implementation of GHRM practices, rather than directly strengthening the impact of GHRM on EP (Dahinine et al., 2024). While GTL primarily operates at the organizational level and emphasizes intrinsic motivation (Sun et al., 2022), GHRM exerts stronger and broader influence by simultaneously fostering green capabilities and providing opportunities for employees (Mustafa et al., 2023). Consequently, when the effects of GHRM are sufficiently strong, the moderating role of GTL may become less pronounced. Additionally, GTL is characterized by idealization, inspiration, and individualized consideration (Huang et al., 2021), yet in developing countries, leadership styles that rely heavily on subjective vision or do not align well with organizational culture may struggle to generate meaningful influence on EP.

This research also offers theoretical contributions by integrating the AMO, NRBV, and SCT frameworks, thereby extending the analysis from the individual level to the organizational level. From the NRBV perspective, the findings reinforce the argument that GHRM and GTL represent strategic green capabilities that are difficult to imitate and particularly valuable for developing countries such as Vietnam, where firms face substantial environmental capability constraints and institutional pressures (AlNuaimi et al., 2021). AMO further elucidates the micro-level mechanism through which GHRM translates into EP, as GA and GO emerge as the two primary components that enhance environmental performance by strengthening employee capabilities and expanding opportunities to engage in green activities (Appelbaum, 2000; Renwick et al., 2013). Meanwhile, the absence of GTL's moderating effect may be interpreted through SCT: leadership signals may not be sufficiently strong to build employees' self-efficacy or activate learning-modeling mechanisms as suggested in prior studies (Bandura, 1991, 1999; Gong et al., 2009; Chen & Yan, 2022). Taken together, these three theoretical lenses complement one another, thereby forming a

comprehensive analytical framework for interpreting the study's findings.

5.1. Theoretical contribution

This study contributes to the theoretical literature in three main ways.

First, it reconfirms the role of GHRM components in enhancing EP, thereby reinforcing previous empirical evidence and clarifying the mechanisms through which GA, GO, and GM operate. Specifically, the findings highlight the differentiated effects of individual GHRM components, showing that GA and GO play more substantive roles in improving EP, whereas GM may be less effective in contexts where motivation practices are compliance-driven and externally oriented.

Second, it sheds light on the moderating role of GTL in the relationship between GHRM and EP, demonstrating that GTL's moderating effect may not materialize in certain organizational contexts, particularly within developing countries. This suggests that GTL may serve more as a supportive organizational capability rather than a universal moderator capable of amplifying the effects of GHRM on EP.

Third, by simultaneously integrating the AMO, NRBV, and SCT frameworks, the study offers a more comprehensive theoretical foundation that encompasses multiple levels of analysis within organizations.

5.2. Practical implications

Based on the empirical findings, this study proposes several practical implications for Vietnamese firms and managers seeking to enhance environmental performance.

First, organizations should increase investment in training programs aimed at strengthening employees' practical green capabilities, such as standardized waste-handling skills, material efficiency practices, or energy-saving equipment operation. These contents should be designed to be closely integrated with employees' daily tasks to ensure practical applicability.

Moreover, firms should broaden opportunities for employees to participate in green activities by empowering them to propose innovations, encouraging experimentation with new solutions, and establishing reward systems aligned with green contributions. For example, firms can establish internal channels to collect employees' green ideas, allow small-scale pilot implementations to test feasibility, and formally recognize initiatives that contribute to cost and resource saving.

For leaders, it is essential to avoid allowing personal inspiration or subjective visions to impose pressure on employees as this may trigger negative reactions or latent resistance within the organization. Instead, selecting and applying leadership styles compatible with organizational culture and the broader context of developing countries will help ensure effective management and foster green behaviors. Managers should prioritize a supportive and guidance-oriented leadership style by providing clear directions, offering regular feedback, and facilitating employees' gradual adaptation to new green requirements.

5.3. Limitations and future research

This study still has several limitations. First, the sample size remains relatively small and is concentrated primarily in Northern Vietnam. Future studies should expand the sample size and geographical coverage to improve generalizability and provide a more comprehensive picture.

Second, the theoretical perspectives adopted in this study mainly focus on internal organizational mechanisms. To gain deeper insights into external influences on GHRM and EP, future research could incorporate additional frameworks such as institutional theory to examine the roles of regulatory environments, institutional pressures, and external stakeholders.

REFERENCES

Aftab, J., Abid, N., Cucari, N. & Savastano, M. (2023). Green human resource management and environmental performance: The role of green innovation and environmental strategy in a developing country. *Business Strategy and the Environment, 32*(4), 1782-1798. https://doi.org/10.1002/bse.3219

Afum, E., Agyabeng-Mensah, Y., Opoku Mensah, A., Mensah-Williams, E., Baah, C., & Dacosta, E. (2021). Internal environmental management and green human resource management: significant catalysts for improved corporate reputation and performance. *Benchmarking: An International Journal, 28*(10), 3074-3101. https://doi.org/10.1108/BIJ-09-2020-0504

AlNuaimi, B. K., Singh, S. K., & Harney, B. (2021). Unpacking the role of innovation capability: Exploring the impact of leadership style on green procurement via a natural resource-based perspective. *Journal of business research*, 134, 78-88.https://doi.org/10.1016/j.jbusres.2021.05.026

Alt, E. & Spitzeck, H. (2016). Improving environmental performance through unit-level organizational citizenship behaviors for the environment: A capability perspective. *Journal of Environmental Management*, 182, 48-58. https://doi.org/10.1016/j.jenvman.2016.07.034

Anwar, N., Mahmood, N.H.N., Yusliza, M.Y., Ramayah, T., Faezah, J.N. & Khalid, W. (2020). Green human

resource management for organisational citizenship behaviour towards the environment and environmental performance on a university campus. *Journal of Cleaner Production*, 256, 20401.
https://doi.org/10.1016/j.jclepro.2020.120401

Appelbaum, E. (2000), *Manufacturing advantage: Why high-performance work systems pay off*, Cornell University Press, Ithaca, NY.

Aslam, N., Shi, D., & Sahibzada, U. F. (2024). Combating green innovation in Italian luxury hotels: combination of social cognitive theory and natural resource-based view. *Business Process Management Journal, 30*(4), 1185-1212. https://doi.org/10.1108/BPMJ-07-2023-0518

Awan, F.H., Dunnan, L., Jamil, K. & Gul, R.F. (2023). Stimulating environmental performance via green human resource management, green transformational leadership, and green innovation: A mediation-moderation model. *Environmental Science and Pollution Research, 30*(2), 2958-2976. https://doi.org/10.1007/s11356-022-22424-y

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational behavior and human decision processes, 50*(2), 248-287.
https://doi.org/10.1016/0749-5978(91)90022-L

Bandura, A. (1999). Social cognitive theory of personality. *The coherence of personality: Social-cognitive bases of consistency, variability, and organization*, 185-241.

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management, 17*(1), 99-120. https://doi.org/10.1177/014920639101700108

Bass, B. M. (1985). Leadership: Good, better, best. *Organizational dynamics, 13*(3), 26-40.
https://doi.org/10.1016/0090-2616(85)90028-2

Baykal, E., & Divrik, B. (2023). Employee involvement in sustainability projects in emergent markets: Evidence from Turkey. *Sustainability, 15*(18), 13929.
https://doi.org/10.3390/su151813929

Boiral, O. (2002). Tacit knowledge and environmental management. *Long Range Planning, 35*(3), 291-317. https://doi.org/10.1016/S0024-6301(02)00047-X

Chan, R. Y. (2005). Does the natural-resource-based view of the firm apply in an emerging economy? A survey of foreign invested enterprises in China. *Journal of management Studies, 42*(3), 625-672.
https://doi.org/10.1111/j.1467-6486.2005.00511.x

Chang, Y. Y., Chiang, F. Y., Hu, Q., & Hughes, M. (2025). From green HRM to SDG success: pathways through exploratory innovation and developmental culture. *Review of Managerial Science*, *19*(6), 1711-1741. 10.1007/s11846-024-00805-6.

Chen, Y. S., & Chang, C. H. (2013). The determinants of green product development performance: Green dynamic capabilities, green transformational leadership, and green creativity. *Journal of business ethics, 116*(1), 107-119. https://doi.org/10.1007/s10551-012-1452-x

Chen, Y. S., & Yan, X. (2022). The small and medium enterprises' green human resource management and green transformational leadership: a sustainable moderated-mediation practice. *Corporate Social Responsibility and Environmental Management, 29*(5), 1341-1356.
https://doi.org/10.1002/csr.2273

Chen, Y., Tang, G., Jin, J., Li, J. & Paillé, P. (2015). Linking market orientation and environmental performance: The influence of environmental strategy, employee's environmental involvement, and environmental product quality. *Journal of Business Ethics*, 127, 479-500.
https://doi.org/10.1007/s10551-014-2059-1

Dahinine, B., Laghouag, A., Bensahel, W., Alsolami, M., & Guendouz, T. (2024). Modelling the combined effect of green leadership and human resource management in moving to green supply chain performance enhancement in Saudi Arabia. *Sustainability, 16*(10), 3953.
https://doi.org/10.3390/su16103953

Daily, B.F. & Huang, S.C. (2001). Achieving sustainability through attention to human resource factors in environmental management. *International Journal of Operations & Production Management*, *21*(12), 1539-1552. https://doi.org/10.1108/01443570110410892

Darvishmotevali, M., & Altinay, L. (2022). Green HRM, environmental awareness and green behaviors: The moderating role of servant leadership. *Tourism Management*, 88, 104401.
https://doi.org/10.1016/j.tourman.2021.104401.

Del Brío, J. Á., Fernandez, E., & Junquera, B. (2007). Management and employee involvement in achieving an environmental action-based competitive advantage: an empirical study. *The International Journal of Human Resource Management,* 18(4), 491-522.
https://doi.org/10.1080/09585190601178687.

Dong, T. T. H., Nguyen, D. T., Hoang, H. G. & Nguyen, V. N. (2024). Tầm quan trọng của lãnh đạo xanh đến sự bền vững của doanh nghiệp [The importance of green leadership to business sustainability]. Tạp chí Khoa học và Công nghệ Đại học Công nghệ Đồng Nai [Journal of Science and Technology, Dong Nai University of Technology], 04-2024, 124-137.

DuBois, C.L. & Dubois, D.A. (2012). Strategic HRM as social design for environmental sustainability in organization. *Human Resource Management, 51*(6), 799-826.
https://doi.org/10.1002/hrm.21504

Elkington, J (2004). Enter the triple bottom line. in Henriques, A & Richardson, J (eds), *The Triple Bottom Line: Does It All Add Up*, Routledge, London.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, *18*(1), 39-50.
https://doi.org/10.1177/002224378101800104
(Original work published 1981)

Frey, B. S., & Jegen, R. (2001). Motivation crowding theory. *Journal of Economic Surveys, 15*(5), 589-611. https://doi.org/10.1111/1467-6419.00150

Gong, Y., Huang, J. C., & Farh, J. L. (2009). Employee learning orientation, transformational leadership, and employee creativity: The mediating role of employee creative self-efficacy. *Academy of management Journal, 52*(4), 765-778. https://doi.org/10.5465/amj.2009.43670890

Grant, R. M. (1991). Porter's 'competitive advantage of nations': an assessment. *Strategic management journal, 12*(7), 535-548. https://doi.org/10.1002/smj.4250120706

Guerci, M., Longoni, A., & Luzzini, D. (2016). Translating stakeholder pressures into environmental performance–the mediating role of green HRM practices. *The International Journal of Human Resource Management, 27*(2), 262-289. https://doi.org/10.1080/09585192.2015.1065431

Gupta, G. & Gupta, A. (2013). Green recruiting. *International Journal of Management and Information Technology, 3*(3), 32-36. https://doi.org/10.24297/ijmit.v3i3.1749

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice, 19*(2), 139–152. https://doi.org/10.2753/MTP1069-6679190202

Hameed, Z., Naeem, R.M., Hassan, M., Naeem, M., Nazim, M. & Maqbool, A. (2021). How GHRM is related to green creativity? A moderated mediation model of green transformational leadership and green perceived organizational support. *International Journal of Manpower, 43*(3), 595-613. https://doi.org/10.1108/IJM-05-2020-0244

Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of management review, 20*(4), 986-1014. https://doi.org/10.5465/amr.1995.9512280033

Harvey, G., Williams, K. & Probert, J. (2013). Greening the airline pilot: HRM and the green performance of airlines in the UK. *The International Journal of Human Resource Management, 24*(1), 152-166. https://doi.org/10.1080/09585192.2012.669783

Huang, S. Y. B., Ting, C., & Li, M. (2021).The effects of green transformational leadership on adoption of environmentally proactive strategies: The mediating role of green engagement. *Sustainability, 13*(6), 3366. https://doi.org/10.3390/su13063366

Hung, N. T. (2023). Green investment, financial development, digitalization and economic sustainability in Vietnam: Evidence from a quantile-on-quantile regression and wavelet coherence. *Technological Forecasting and Social Change, 186*, 122185. https://doi.org/10.1016/j.techfore.2022.122185

Jabbour, C.J.C., de Sousa Jabbour, A.B.L., Govindan, K., Teixeira, A.A. & de Souza Freitas, W.R. (2013). Environmental management and operational performance in automotive companies in Brazil: the role of human resource management and lean manufacturing. *Journal of Cleaner Production*, 47, 129-140. https://doi.org/10.1016/j.jclepro.2012.07.010

Jabbour, C.J.C., Santos, F.C.A. & Nagano, M.S. (2008). Environmental management system and human resource practices: Is there a link between them in four Brazilian companies?. *Journal of Cleaner Production, 16*(17), 1922-1925. https://doi.org/10.1016/j.jclepro.2008.02.004

Jackson, S. E., Schuler, R. S., & Jiang, K. (2014). An aspirational framework for strategic human resource management. *Academy of Management Annals, 8*(1), 1-56. https://doi.org/10.5465/19416520.2014.872335

Jackson, S.E., Renwick, D.W., Jabbour, C.J. & Muller-Camen, M. (2011). State-of-the-art and future directions for green human resource management: Introduction to the special issue. *German Journal of Human Resource Management, 25*(2), 99-116. https://doi.org/10.1177/239700221102500203

Jia, J., Liu, H., Chin, T., & Hu, D. (2018). The continuous mediating effects of GHRM on employees' green passion via transformational leadership and green creativity. *Sustainability, 10*(9), 3237. https://doi.org/10.3390/su10093237

Jiang, K., Takeuchi, R., & Lepak, D. P. (2013). Where do we go from here? New perspectives on the black box in strategic human resource management research. *Journal of Management Studies, 50*(8), 1448-1480. https://doi.org/10.1111/joms.12057

Kodua, L. T., Xiao, Y., Adjei, N. O., Asante, D., Ofosu, B. O., & Amankona, D. (2022). Barriers to green human resources management (GHRM) implementation in developing countries. Evidence from Ghana. *Journal of cleaner production, 340*, 130671. https://doi.org/10.1016/j.jclepro.2022.130671

Kuehr, R. (2007). Environmental technologies–from misleading interpretations to an operational categorisation & definition. *Journal of Cleaner Production, 15*(13-14), 1316-1320. https://doi.org/10.1016/j.jclepro.2006.07.015

Laosirihongthong, T., Adebanjo, D., & Tan, K. C. (2013). Green supply chain management practices and performance. *Industrial Management & Data Systems, 113*(8), 1088–1109. https://doi.org/10.1108/IMDS-04-2013-0164

Leroy, H., Segers, J., Van Dierendonck, D., & Den Hartog, D. (2018). Managing people in organizations: Integrating the study of HRM and leadership. *Human Resource Management Review, 28*(3), 249-257. https://doi.org/10.1016/j.hrmr.2018.02.002

Liu, J., Ji, L., Sun, Y., Chiu, Y. H., & Zhao, H. (2024). Unleashing the convergence between SDG 9 and SDG 8 towards pursuing SDGs: Evidence from two urban

agglomerations in China during the 13th five-year plan. *Journal of Cleaner Production, 434*, 139924. https://doi.org/10.1016/j.jclepro.2023.139924

Mansoor, A., Farrukh, M., Lee, J. K., & Jahan, S. (2021). Stimulation of employees' green creativity through green transformational leadership and management initiatives. *Sustainability*, *13*(14), 7844. https://doi.org/10.3390/su13147844

Mustafa, K., Hossain, M. B., Ahmad, F., Ejaz, F., Khan, H. G. A., & Dunay, A. (2023). Green human resource management practices to accomplish green competitive advantage: A moderated mediation model. *Heliyon*, *9*(11). https://doi.org/10.1016/j.heliyon.2023.e21830

Ngo, M.T., Le, T.N. and Luong, T.N.Y. (2022). Quản trị nguồn nhân lực xanh và hiệu quả xanh của doanh nghiệp: Bằng chứng thực nghiệm từ các doanh nghiệp sản xuất tại thành phố Cần Thơ [Green human resource management and firms' green performance: Empirical evidence from manufacturing enterprises in Can Tho City]. *Tạp chí Nghiên cứu Kinh tế và Kinh doanh Châu Á [Journal of Asian Business and Economic Studies].* https://digital.lib.ueh.edu.vn/handle/UEH/65333

Niazi, U. I., Nisar, Q. A., Nasir, N., Naz, S., Haider, S., & Khan, W. (2023). Green HRM, green innovation and environmental performance: the role of green transformational leadership and green corporate social responsibility. *Environmental Science and Pollution Research, 30*(15), 45353-45368. https://doi.org/10.1007/s11356-023-25442-6

Para-González, L., Jiménez-Jiménez, D., & Martínez-Lorente, A. R. (2018). Exploring the mediating effects between transformational leadership and organizational performance. *Employee Relations, 40*(2), 412-432. https://doi.org/10.1108/ER-10-2016-0190

Paulet, R., Holland, P., & Morgan, D. (2021). A meta-review of 10 years of green human resource management: is Green HRM headed towards a roadblock or a revitalisation?. *Asia Pacific Journal of Human Resources, 59*(2), 159-183. https://doi.org/10.1111/1744-7941.12285

Pham, N.T., Tuckova, Z. & Jabbour, C.J.C. (2019). Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behavior in hotels? A mixed-methods study. *Tourism Management*, 72, 386-399. https://doi.org/10.1016/j.tourman.2018.12.008

Pinzone, M., Guerci, M., Lettieri, E. & Redman, T. (2016). Progressing in the change journey towards sustainability in healthcare: The role of 'Green' HRM. *Journal of Cleaner Production*, 122, 201-211. https://doi.org/10.1016/j.jclepro.2016.02.031

Ployhart, R. E., & Moliterno, T. P. (2011). Emergence of the human capital resource: A multilevel model. *Academy of management review, 36*(1), 127-150. https://doi.org/10.5465/amr.2009.0318

Rafiei, S., & Pourreza, A. (2013). The moderating role of power distance on the relationship between employee participation and outcome variables. *International Journal of Health Policy and Management, 1*(1), 79-83. https://doi.org/10.15171/ijhpm.2013.12

Rawashdeh, A. (2018). The impact of green human resource management on organizational environmental performance in Jordanian health service organizations. *Management Science Letters*, *8*(10), 1049-1058. 10.5267/j.msl.2018.7.006

Rehman, A., Ma, H., Ozturk, I., Murshed, M., & Dagar, V. (2021). The dynamic impacts of CO2 emissions from different sources on Pakistan's economic progress: a roadmap to sustainable development. *Environment, Development and Sustainability, 23*(12), 17857-17880. https://doi.org/10.1007/s10668-021-01418-9

Ren, S., Tang, G. & Jackson, S.E. (2018). Green human resource management research in emergence: A review and future direction. *Asia Pacific Journal of Management, 35*(3), 769-803. https://doi.org/10.1007/s10490-017-9532-1

Renwick, D. W., Redman, T., & Maguire, S. (2013). Green human resource management: A review and research agenda. *International journal of management reviews, 15*(1), 1-14. https://doi.org/10.1111/j.1468-2370.2011.00328.x

Robertson, J. L., & Barling, J. (2013). Greening organizations through leaders' influence on employees' pro-environmental behaviors. *Journal of organizational behavior, 34*(2), 176-194. https://doi.org/10.1002/job.1820

Russo, M. V., & Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. *Academy of management Journal*, *40*(3), 534-559. https://doi.org/10.5465/257052

Saeed, B. B., Afsar, B., Hafeez, S., Khan, I., Tahir, M., & Afridi, M. A. (2019). Promoting employee's proenvironmental behavior through green human resource management practices. *Corporate Social Responsibility and Environmental Management*, *26*(2), 424-438. https://doi.org/10.1002/csr.1694

Singh, S.K., Del Giudice, M., Chierici, R. & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, 150, 119762. https://doi.org/10.1016/j.techfore.2019.119762

Song, W., Yu, H., & Xu, H. (2021). Effects of green human resource management and managerial environmental concern on green innovation. *European journal of innovation management, 24*(3), 951-967. https://doi.org/10.1108/EJIM-11-2019-0315

Suleman, A. R., Kyei-Frimpong, M., & Akwetey-Siaw, B. (2024). The role of green innovation in the relationship between green HRM practices and sustainable business performance; evidence from the mining industry. *Asia-Pacific Journal of Business Administration, 16*(5), 1112-1131. https://doi.org/10.1108/APJBA-09-2023-0471

Sun, X., Askary, A. E., Meo, M. S., Zafar, N. U. A., & Hussain, B. (2022). Green transformational leadership and environmental performance in small and medium enterprises. *Economic Research-Ekonomska Istraživanja*, 35(1), 5273-5291. https://doi.org/10.1080/1331677x.2021.2025127

Tang, G., Chen, Y., Jiang, Y., Paillé, P. & Jia, J. (2018). Green human resource management practices: Scale development and validity. *Asia Pacific Journal of Human Resources, 56*(1), 31-55. https://doi.org/10.1111/1744-7941.12147

Teixeira, A.A., Jabbour, C.J.C. & de Sousa Jabbour, A.B.L. (2012). Relationship between green management and environmental training in companies located in Brazil: A theoretical framework and case studies. *International Journal of Production Economics, 140*(1), 318-329. https://doi.org/10.1016/j.ijpe.2012.01.009

Thu, N. T. P., Xuan, V. N., & Huong, L. M. (2022). Analysis of the factors affecting environmental pollution for sustainable development in the future-the case of Vietnam. *Sustainability, 14*(23), 15592. https://doi.org/10.3390/su142315592

Unsworth, K. L., & McNeill, I. M. (2017). Increasing pro-environmental behaviors by increasing self-concordance: Testing an intervention. *Journal of Applied Psychology, 102*(1), 88. https://doi.org/10.1037/apl0000155

Vu, T. D., Nguyen, T. T. N., Nguyen, H. N., & Nguyen, M. H. (2025). Sustainable management in the hospitality industry: The influence of green human resource management on employees' pro-environmental behavior and environmental performance. *Journal of Hospitality and Tourism Insights*. https://doi.org/10.1108/JHTI-09-2024-0912

Yang, Y., Din, A. U., Din, Q. M. U., & Khan, I. U. (2024). Green leadership in manufacturing industry: Unveiling the green Revolution's impact on organizational performance. *Heliyon, 10*(6). https://doi.org/10.1016/j.heliyon.2024.e27831

Younis, Z., & Hussain, S. (2023). Green transformational leadership: bridging the gap between green HRM practices and environmental performance through green psychological climate. *Sustainable Futures, 6*, 100140. https://doi.org/10.1016/j.sftr.2023.100140

Yu, W., Chavez, R., Feng, M., Wong, C.Y. & Fynes, B. (2020). Green human resource management and environmental cooperation: An ability-motivation-opportunity and contingency perspective. *International Journal of Production Economics*, 219, 224-235. https://doi.org/10.1016/j.ijpe.2019.06.013

Zafarullah, H., & Mehnaz, M. (2025). Balancing economic growth and sustainability for environmental protection in Southeast Asia: a regional perspective. *Southeast Asia: A Multidisciplinary Journal.* https://doi.org/10.1108/SEAMJ-01-2025-0003

Zaichkowsky, J. L. (1985). Measuring the involvement construct. *Journal of consumer research*, 341-352. 10.1086/208520