



The adoption of green HRM practices in Indonesian state-owned banks: A pathway to sustainable organizational performance

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ABSTRACT

Amid rising global urgency around sustainability, a critical question emerges: can Green Human Resource Management (GHRM) serve as a genuine driver of sustainable performance in public institutions, or is it merely a rhetorical gesture? This study explores the dynamic interplay between GHRM practices and organizational sustainability in Indonesia's state-owned banks, positioning employee engagement as the mediating lever. Drawing on data from 260 civil servants and analyzed using Structural Equation Modeling (SEM), the findings reveal that GHRM significantly enhances both employee engagement ($\beta = 0.59$, $p < 0.01$) and sustainability outcomes ($\beta = 0.33$, $p < 0.01$). Notably, engagement also plays a pivotal mediating role ($\beta = 0.35$, $p < 0.01$), translating green strategies into tangible performance outcomes. The model demonstrates robust fit indices ($CFI = 0.98$, $RMSEA = 0.067$), affirming the structural coherence of the hypothesized paths. This inquiry delves beyond numeric validation, unpacking practices such as green recruitment, sustainability-driven training, ecologically aligned performance appraisals, and environmental incentive systems. It highlights how employees who find resonance between personal values and institutional sustainability missions are more inclined to actively contribute. In bureaucratic systems often perceived as rigid, these findings suggest a possible inflection point: that culturally grounded, participative HR strategies may catalyze ecological transformation in meaningful ways. Ultimately, this research offers empirical and conceptual value to public sector institutions seeking to embed sustainability into the fabric of HR systems, with engagement acting as both a bridge and a barometer.

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Contribution/Originality: This study contributes to the existing literature by analyzing Green Human Resource Management (GHRM) in Indonesia's public banking sector. Using Structural Equation Modeling (SEM), it identifies Employee Engagement in Sustainability (EES) as a key mediator. The study reveals that employee engagement effectively transforms green HR practices into sustainable organizational performance.

1. INTRODUCTION

In an era where the ecological clock ticks ever louder climate disruptions, vanishing resources, and irreversible biodiversity loss organizations no longer have the luxury of treating sustainability as a peripheral concern. The imperative has shifted; sustainability is now seated firmly at the heart of strategic agendas. Within this shifting terrain, Green Human Resource Management (GHRM) has gained traction not merely as a conceptual tool but as a

vital operational bridge that synchronizes human capital practices with environmental imperatives (Ahmad, Al Mamun, Masukujjaman, Makhbul, & Ali, 2023). GHRM, in its praxis, weaves together a spectrum of interventions: from green recruitment and sustainability-driven training to environmentally conscious performance appraisal and incentives that catalyze pro-environmental behaviors (Zhu, Tang, Wang, & Chen, 2021).

More than theoretical idealism, empirical evidence underscores GHRM's capacity to deliver tangible impacts. It enhances organizational sustainability by elevating environmental performance, employee output, and organizational citizenship behavior directed toward environmental stewardship (OCBE) (Ahmad et al., 2023; Liu, Mei, & Guo, 2021). Beyond these, GHRM nurtures a green identity within institutions an identity that does not merely rest in vision statements but is embedded in everyday actions while simultaneously fostering greater employee engagement, job satisfaction, and creative problem-solving. Malak, Gul, Saeed, & Wajid, 2025; Vadithe, Rajput, & Kesari, 2025). The narrative would be incomplete without acknowledging the role of digital HR tools, which now act as enablers of a collaborative, knowledge-sharing, and sustainability-centric work culture (Ahmad et al., 2023; Alshuaibi, Alhebri, Khan, & Sheikh, 2024). Indeed, digitalization has not diluted the essence of GHRM; it has amplified it.

Recent frameworks underscore GHRM's strategic role in promoting green innovation and sustainability through employee participation, leadership, and organizational culture (Lin, Gu, Gillani, & Fahlevi, 2024; Yang & Li, 2023). However, despite its global relevance, most GHRM research remains concentrated in developed economies and the manufacturing sector, with limited evidence from service industries in developing contexts.

In Indonesia, where sustainability is gaining institutional traction through regional regulations such as Gorontalo's Governor Regulation No. 20/2019 on Household Waste Management, empirical research on GHRM remains scarce, particularly within state-owned banks. The role of Employee Engagement in Sustainability (EES) as a potential mediator between GHRM and Organizational Sustainability (OS) also remains underexplored.

This study addresses this gap by examining the direct and indirect effects of GHRM on OS through EES in the context of public banking institutions in a developing region. The findings are expected to enrich the theoretical discourse on sustainable HRM and provide practical implications for building sustainability-driven organizational cultures.

2. LITERATURE REVIEW

2.1. Green Human Resource Management (GHRM)

GHRM integrates environmental sustainability into HR functions (Faeni, Oktaviani, Riyadh, Faeni, & Beshr, 2025), driven by climate change and stakeholder demands (Bangwal, Chaudhary, Kumar, Oberoi, & Kumar, 2025; Zihan & Makhbul, 2024). Empirically, it enhances employee engagement, innovation (Perez et al., 2025), and green citizenship behavior (Shakir & Khan, 2023). In banking, GHRM boosts environmental reputation and promotes green leadership (Ali, Hossain, Islam, & Alam, 2024; Gabhane, Chaubey, James, Sharma, & Gandhi, 2025). Key practices include green recruitment, training, performance, involvement, compensation, and health (Awwad Al-Shammary, Alshammrei, Nawaz, & Tayyab, 2022; Saeed et al., 2019). Holistically, these support a sustainable culture and triple bottom line (Gupta & Jangra, 2024), particularly relevant for Indonesian state-owned banks seeking regulatory alignment.

2.2. Employee Engagement in Sustainability

Employee engagement in sustainability involves cognitive, emotional, and behavioral alignment with an organization's green goals. GHRM helps shape this by aligning values and fostering green work climates (Alfadil, Al-Kahtani, Al-Mekhlafi, Alhebri, & Ahmed, 2025; Xiao, Mao, Huang, & Qing, 2020). Value congruence fuels motivation and behaviors like GOCB (Cesário, Sabino, Moreira, & Azevedo, 2022). Employees are now seen as change agents (Kim, Kim, Choi, & Phetvaroon, 2019), and mechanisms such as green leadership and organizational support promote innovation (Khan, Ahmad, Danyal, & Usman, 2023). In banking, such engagement links to loyalty and

performance (Rehman et al., 2021). Engagement, in its essence, is not a monolithic construct it unfolds across layers of cognitive, behavioral, and institutional interactions. Its key dimensions, awareness (Ahmad et al., 2023), participation (Saeed et al., 2019), and managerial support (Pham, Tučková, & Phan, 2019) serve as scaffolding for embedding sustainability into the organizational DNA. These dimensions do not operate in isolation; rather, they coalesce into a transformative force that turns passive compliance into active cultural alignment. When engagement is nurtured intentionally, it ceases to be a KPI and instead becomes a lived, shared value across organizational echelons.

2.3. *Organizational Sustainability*

Sustainability within organizations is far from a static goal; it is a dynamic intersection of profit, people, and the planet. (Pasamar, Bornay-Barrachina, & Morales-Sánchez, 2025) It is often likened to a three-legged stool, where an imbalance in one leg topples the entire structure. Real sustainability demands strategic coherence that aligns internal systems with external mandates such as the Sustainable Development Goals (SDGs) (Fonseca, Carvalho, & Santos, 2023). This alignment, however, does not arise in a vacuum; it is sculpted by both external pressures regulatory expectations, market shifts (Zhang, Zhu, & Lee, 2024), and internal enablers like GHRM practices and leadership philosophies (Demir et al., 2025). These drivers converge on three interdependent pillars: environmental integrity (e.g., carbon reduction), social equity (e.g., inclusion, well-being), and economic resilience (e.g., innovation and fiscal stability). In the banking domain, this manifests as commitments to green finance and conscientious credit policies (Miah, Szabó-Szentgróti, & Walter, 2024). Yet, no policy, however well-crafted, can flourish without the human element: sustainability success, at its core, relies on employee behaviors shaped by HR systems and organizational culture (Saeed et al., 2019).

3. CONCEPTUAL FRAMEWORK AND HYPOTHESES

3.1. *GHRM → Employee Engagement*

The proposition that GHRM directly stimulates employee engagement is not merely intuitive; it is empirically and theoretically grounded. GHRM initiatives encompassing recruitment, training, and rewards systems embed sustainability as both a goal and a norm (Vadithe et al., 2025). Drawing on value congruence and reinforcement theory, the underlying logic suggests that employees are more likely to engage when there is alignment between personal and institutional values (Islam et al., 2025; Song, Bai, Wu, & Wang, 2023). When such alignment is perceived, employees do not just 'comply'; they 'commit.' Supporting this, recent studies underscore GHRM's role in amplifying engagement, enhancing motivation, and fostering psychological ownership among employees (Awwad Al-Shammary et al., 2022; Gazi et al., 2025). In banking, it encourages behaviors such as green financial literacy (Akter, Sentosa, Hizam, Ahmed, & Akter, 2021).

H: GHRM positively affects employee engagement in sustainability. Following the discussion on how GHRM contributes to employee engagement in sustainability, it is essential to examine how such engagement, in turn, influences organizational sustainability outcomes.

3.2. *Engagement → Organizational Sustainability*

Engaged employees support sustainability beyond compliance (Pham et al., 2019), aligning individual action with organizational goals (San Román-Niaves, Morandini, Antonini, & Pietrantoni, 2025). The AMO model shows that GHRM nurtures capability, motivation, and opportunity (Gupta & Jangra, 2024). Evidence shows engagement improves innovation and performance (Kanwal, Ayub, & Rathore, 2023; Saeed et al., 2019).

H: Employee engagement positively affects organizational sustainability. In addition to its indirect impact through employee engagement, GHRM is also expected to have a direct effect on organizational sustainability. The next section explores this direct relationship in greater detail.

3.3. GHRM → Organizational Sustainability

GHRM embeds environmental values into HR systems, building green competencies (Anshima, Sharma, & Bhardwaj, 2025; Hien, 2025). The RBV and AMO frameworks underline its strategic value (Qiu, Bashir, Gul, Sadiq, & Naseem, 2025). It drives innovation, green behavior, and CSR (Hien, 2025; Pham et al., 2019), though formal gaps remain (Shakir & Khan, 2023).

H₃: GHRM positively affects organizational sustainability. Having addressed the direct effects among the core variables, it is now important to analyze the mediating role of employee engagement in sustainability within the GHRM–sustainability link.

3.4. Mediating Role of Engagement

Employee engagement mediates the GHRM–sustainability link (Pham et al., 2019), supported by Social Exchange Theory. When supported, employees reciprocate through sustainable behaviors (Piwowar-Sulej, Austen, & Iqbal, 2023).

Empirical studies confirm this mediation (Siddiqui, Zafar, & Pirzada, 2024; Younis & Hussain, 2023), especially in sectors relying on eco-innovation.

H₄: Employee engagement mediates the relationship between GHRM and organizational sustainability.

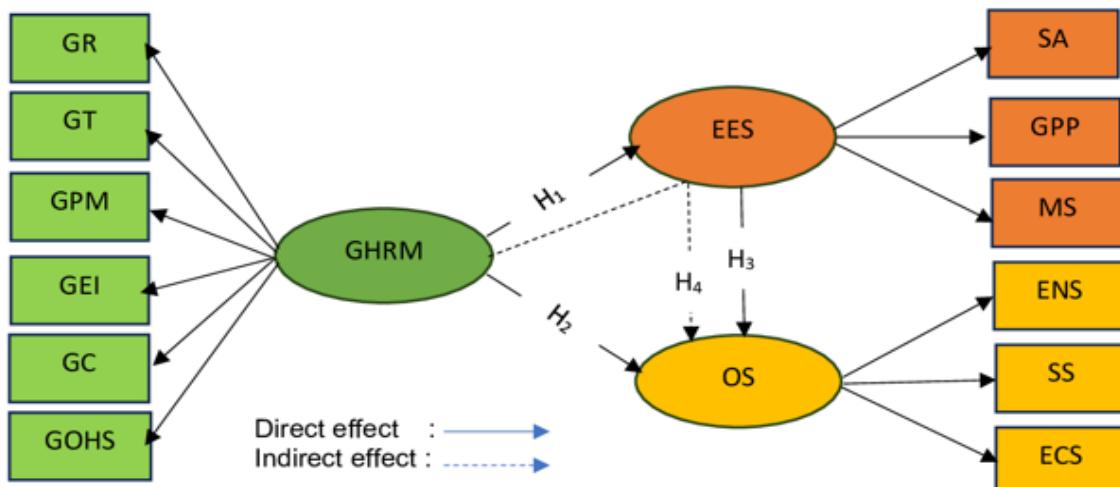


Figure 1. Research Framework.

Figure 1 illustrates the conceptual framework of this study, showing the relationships among Green Human Resource Management (GHRM), Employee Engagement in Sustainability (EES), and Organizational Sustainability (OS). The figure depicts both direct and indirect effects, where GHRM directly influences EES and OS, while EES mediates the relationship between GHRM and OS. Each variable is represented by its respective indicators such as green recruitment, training, and performance for GHRM, and environmental, social, and economic dimensions for OS highlighting how sustainable HR practices drive organizational performance through employee engagement.

4. METHODOLOGY AND ANALYTICAL FRAMEWORK

A total of 300 questionnaires were distributed to civil servants across five state-owned banks using purposive sampling, targeting HR managers and operational staff directly involved in sustainability initiatives. Of these, 260 responses were returned (86.67% response rate), and 260 were deemed valid after screening for completeness and consistency (Hair Jr, Matthews, Matthews, & Sarstedt, 2017).

The data then underwent screening and cleaning procedures, including outlier detection (Mahalanobis distance), normality assessment (skewness and kurtosis), and multicollinearity checks (VIF < 5). Minimal missing values (<5%)

were addressed using mean imputation. These procedures ensured that the data were suitable for analysis using CFA and SEM, with reliability and validity maintained.

Anchored in a positivist epistemological framework, this study adopted a quantitative approach employing Confirmatory Factor Analysis (CFA) to assess measurement reliability and validity, followed by Structural Equation Modeling (SEM) to evaluate hypothesized relationships. This choice is theoretically justified by the need to validate latent constructs and test causal pathways simultaneously, as SEM allows for robust estimation of inter-variable relationships beyond traditional regression.

Prior to SEM estimation, construct validity was established using CFA, confirming convergent validity through AVE (all > 0.50) and composite reliability (CCR > 0.70), as shown in [Table 1](#). The measurement model demonstrated internal consistency and construct adequacy.

Table 1. Validity and reliability test.

Variable	Dimension	Loading factor	CCR	AVE
Green HRM	Green recruitment	0.64	0.86	0.52
	Green training	0.77		
	Green performance management	0.73		
	Green employee involvement	0.66		
	Green compensation	0.67		
	Green occupational health & safety (Green OHS)	0.82		
Employee engagement in sustainability	Sustainability awareness	0.77	0.84	0.64
	Green program participation	0.83		
	Management support	0.81		
Organizational sustainability	Environmental sustainability	0.66	0.76	0.52
	Social sustainability	0.79		
	Economic sustainability	0.70		

Model fit was rigorously evaluated using multiple indices (RMSEA, CFI, GFI, NFI, SRMR), all of which met the recommended thresholds (e.g., RMSEA = 0.067; CFI = 0.98), as detailed in [Table 2](#). Although the Chi-Square was significant ($p < 0.001$), other fit indices indicated an excellent model fit, justifying the model's capacity for further hypothesis testing.

Table 2. Structural model goodness of fit evaluation.

GOF index	Fit criteria	Estimated value	Fit assessment
Chi-Square/p-value	Small value ($p > 0.05$)	$\chi^2 = 121.46$; $p = 0.000$	Good
NCP (Non-centrality parameter)	Small value, narrow interval	76.46 (47.49 – 113.09)	Excellent
RMSEA	≤ 0.08 ; p -close ≥ 0.05	0.067; $p = 0.026$	Excellent
NFI	≥ 0.90	0.97	Excellent
NNFI	≥ 0.90	0.97	Excellent
CFI	≥ 0.90	0.98	Excellent
IFI	≥ 0.90	0.98	Excellent
RFI	≥ 0.90	0.96	Excellent
CN (Critical N)	≥ 200	213.43	Excellent
RMR (Standardized)	≤ 0.05	0.042	Excellent
GFI	≥ 0.90	0.95	Excellent
AGFI	≥ 0.90	0.91	Excellent

Sampling and Data Preparation: Data were collected through purposive sampling from civil servants employed at three major Indonesian state-owned banks (BRI, Mandiri, and BNI) in Gorontalo Province. Inclusion criteria required at least two years of tenure and direct exposure to sustainability-related programs. A total of 260 valid responses were obtained. Assumptions of multivariate normality, absence of multicollinearity, and outlier detection were tested and satisfied.

Consequently, the methodological rigor embedded in the CFA-SEM design not only satisfies psychometric standards but also enhances the generalizability and theoretical contribution of the study within sustainability and HRM discourse.

4.1. Structural Equation Modeling (SEM) Results

Structural Equation Modeling (SEM) results: The SEM analysis rigorously evaluated standardized path coefficients and t-values to assess the significance of each hypothesized relationship. This analytical procedure comprehensively captured both direct and indirect effects, including the mediating pathways among constructs. Consequently, the findings not only validate the proposed hypotheses but also yield critical theoretical and practical insights into the interaction dynamics of latent variables within the conceptual framework.

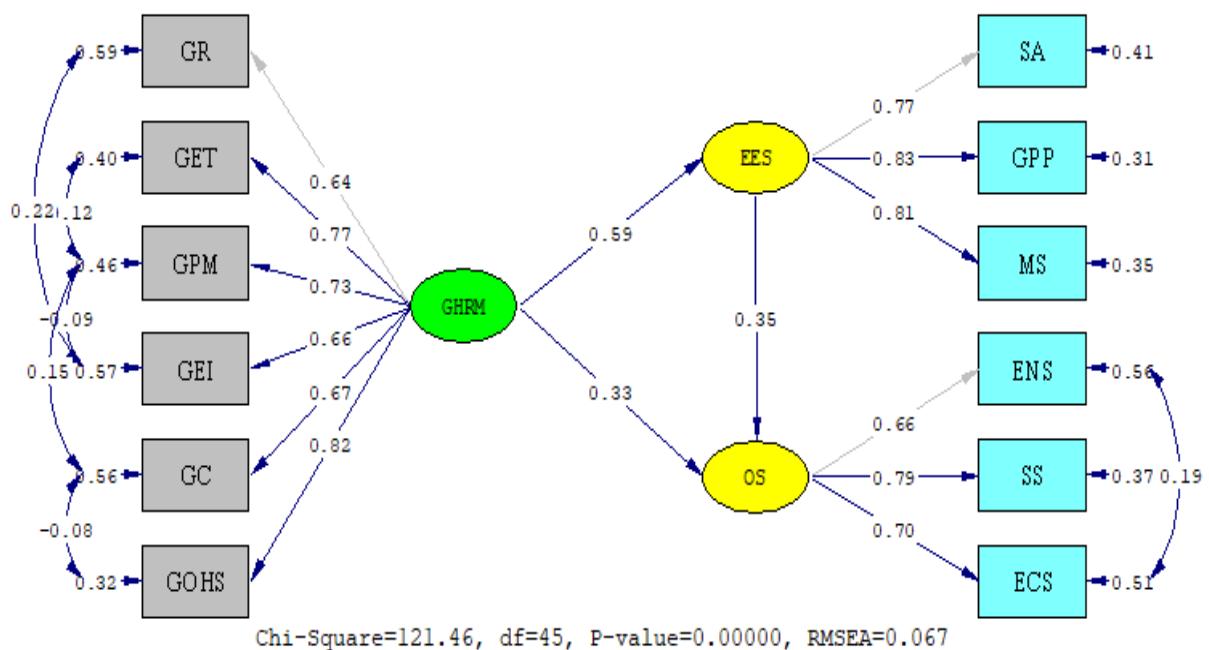


Figure 2. Measurement model.

Figure 2 illustrates the measurement model that validates the relationships among Green Human Resource Management (GHRM), Employee Engagement in Sustainability (EES), and Organizational Sustainability (OS). The figure shows that all observed variables significantly load on their respective latent constructs, confirming the reliability of the measurement model. GHRM demonstrates strong factor loadings across its indicators such as green recruitment, training, performance management, and compensation, indicating its internal consistency. Furthermore, the model reveals that GHRM positively influences both EES and OS, while EES also has a significant impact on OS. The fit indices (Chi-Square = 121.46, df = 45, RMSEA = 0.067) indicate that the model achieves an excellent fit, supporting the validity and robustness of the proposed relationships.

Structural Equation Modeling Results and Hypothesis Testing: The SEM outcomes reveal that Green Human Resource Management (GHRM) substantially enhances Employee Engagement in Sustainability (EES) ($\beta = 0.59$) and also exerts a direct positive influence on Organizational Sustainability (OS) ($\beta = 0.33$). Additionally, EES significantly affects OS ($\beta = 0.35$), thereby confirming its mediating function in the conceptual model. Each construct recorded strong factor loadings (all ≥ 0.64), and the overall model achieved a commendable fit (e.g., RMSEA = 0.067; GFI = 0.95; AGFI = 0.91; CFI, NFI, NNFI > 0.90), indicating statistical robustness and structural consistency. These empirical patterns substantiate the strategic relevance of GHRM in advancing sustainability through both direct intervention and the engagement of organizational members.

Hypotheses were statistically examined using SEM-LISREL, specifically via the standardized path coefficients and corresponding t-values. With a 5% significance threshold ($\alpha = 0.05$), path coefficients exhibiting t -values $> \pm 1.96$ were categorized as statistically significant. This inferential criterion validates the directional accuracy, effect magnitude, and statistical strength of all hypothesized linkages within the model, thereby lending empirical credibility to the proposed theoretical structure. Summary statistics, as depicted in the subsequent figure, reinforce the theoretical and practical integrity of the model under investigation.

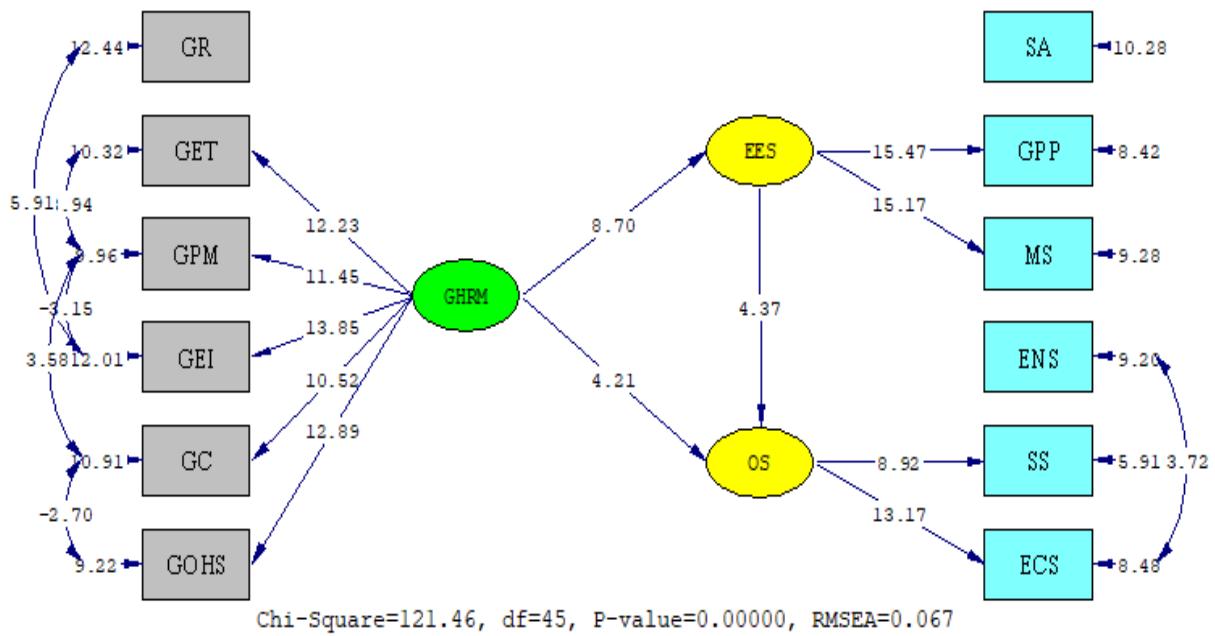


Figure 3. Structural Model.

Figure 3 illustrates the structural model that explains the relationships among Green Human Resource Management (GHRM), Employee Engagement in Sustainability (EES), and Organizational Sustainability (OS). The figure shows both direct and indirect pathways, where GHRM significantly influences EES ($t = 8.70$) and OS ($t = 4.21$). EES also has a positive effect on OS ($t = 4.37$), indicating its mediating role in the relationship between GHRM and OS. The values presented in the model confirm that all hypothesized paths are statistically significant. The fit indices (Chi-Square = 121.46; df = 45; RMSEA = 0.067) demonstrate that the model fits the data well, supporting the theoretical framework that employee engagement serves as a crucial mechanism linking green HRM practices to sustainable organizational performance.

Hypothesis testing results from SEM analysis affirm that all hypothesized pathways are statistically significant, thereby corroborating the proposed framework. Specifically, GHRM exerts a strong positive effect on EES ($\beta = 0.59$, $t = 8.70$) and also contributes directly to OS ($\beta = 0.33$, $t = 4.21$). Simultaneously, EES significantly influences OS ($\beta = 0.35$, $t = 4.37$), indicating a vital mediating role. Mediation analysis further substantiates a significant indirect pathway from GHRM to OS via EES ($\beta = 0.206$), providing evidence of partial mediation. These analytical outcomes collectively underscore the strategic role of GHRM in cultivating organizational sustainability through enhanced employee engagement.

Table 3. SEM results with SE and 95% CI.

Structural path	Standardized estimate (β)	SE	t-value	95% CI	Significance
GHRM \rightarrow EES	0.74	0.086	8.61	0.572 – 0.908	Yes ($p < 0.01$)
EES \rightarrow OS	0.61	0.094	6.47	0.426 – 0.794	Yes ($p < 0.01$)
GHRM \rightarrow OS	0.23	0.105	2.19	0.024 – 0.436	Yes ($p < 0.05$)

Table 3 presents the results of the Structural Equation Modeling (SEM) analysis, showing the relationships among Green Human Resource Management (GHRM), Employee Engagement in Sustainability (EES), and Sustainable Organizational Performance (SOP). The findings indicate that GHRM has a significant positive effect on EES ($\beta = 0.74$, $p < 0.01$), suggesting that effective green HRM practices can enhance employees' engagement in sustainability efforts. Furthermore, EES positively influences SOP ($\beta = 0.61$, $p < 0.01$), demonstrating that engaged employees contribute to stronger sustainable organizational outcomes. Lastly, GHRM also has a smaller but significant direct effect on SOP ($\beta = 0.23$, $p < 0.05$). Overall, the results confirm that employee engagement acts as a key mediating factor linking green HRM practices to sustainable organizational performance.

The findings of this study indicate that Green Human Resource Management (GHRM) has a positive and significant effect on Employee Engagement in Sustainability (EES). In turn, EES positively influences Sustainable Organizational Performance (SOP). Additionally, GHRM exerts a direct, albeit smaller, positive impact on SOP. These results highlight that GHRM enhances organizational sustainability both directly and indirectly through fostering employee engagement, emphasizing the crucial role of employees as active participants and change agents in translating green HR practices into meaningful and sustainable organizational outcomes.

5. DISCUSSION

5.1. The Effect of Green HRM on Employee Engagement in Sustainability

The empirical findings lend strong support to the first hypothesis (H_1), verifying that Green Human Resource Management (GHRM) significantly and positively influences Employee Engagement in Sustainability (EES). In the specific institutional context of Indonesia's state-owned commercial banks, namely BRI, Mandiri, and BNI, GHRM emerges as a pivotal mechanism for embedding sustainability principles into day-to-day organizational behavior.

Anchored in contemporary human resource theory, these results affirm that GHRM integrates environmental objectives across all major HRM functions recruitment, training, performance management, and reward systems—thereby generating an ecosystem of sustainability-conscious personnel (Ahmad et al., 2023; Jabbour & de Sousa Jabbour, 2016). This strategic alignment facilitates not only cognitive awareness but also behavioral conformity among employees toward sustainability values.

Empirically, this study aligns with the growing literature emphasizing GHRM's role in fostering green psychological climates and enhancing employees' pro-environmental conduct (Abdelhamied, Elbaz, Al-Romeedy, & Amer, 2023; Pham et al., 2019). Initiatives such as targeted green training and participatory programs are shown to improve environmental competency while reinforcing internalized organizational commitment.

Furthermore, GHRM positively correlates with increases in green self-efficacy and intrinsic motivation (Pham et al., 2019), elements that are instrumental for sustaining long-term behavioral engagement in environmental efforts. Notably, research by Hameed, Mahmood, and Shoaib (2022) and Piwowar-Sulej and Iqbal (2023) illustrates that GHRM activates not only in-role sustainability compliance but also extra-role and innovative environmental behaviors, particularly when leadership models green-oriented values.

From a psychosocial vantage point, GHRM enhances organizational pride and fosters emotional alignment with sustainability missions (Xiao et al., 2020), amplifying voluntary engagement in environmental programs. When employees perceive authentic organizational support for green initiatives, their affective and behavioral commitment to sustainability deepens (Aboramadan, 2022; Zihan & Makhbul, 2024).

Collectively, these findings demonstrate that GHRM functions not merely as a procedural instrument but as a transformative strategic vehicle for cultivating sustainability-committed workforces. Through the intricate alignment of personal aspirations with collective ecological ambitions, GHRM becomes more than a procedural apparatus; it transforms into an emotional catalyst. It ignites psychological ownership and nurtures behavioral consistency that, over time, scaffolds the achievement of sustainability outcomes across environmental, social, and economic frontiers. Here, motivation is not coerced but cultivated, and behavior is not enforced but embodied.

5.2. The Effect of Employee Engagement in Sustainability on Organizational Sustainability

The empirical narrative unmistakably affirms Hypothesis 2 (H2): Employee Engagement in Sustainability (EES) exerts a significant and positive influence on Organizational Sustainability (OS). Employees who proactively embed themselves in sustainability-driven initiatives become both stewards and strategists championing environmental preservation while simultaneously elevating the organization's social ethos and economic performance. In this light, human capital does not merely support the triple bottom line; it animates it (Segbenya, Kissi, & Amoah, 2024; Vadithe et al., 2025).

This theoretical junction finds resonance in the literature on sustainable organizational behavior. The principle is elegantly simple yet structurally profound: sustainability must be inscribed not only in strategic plans but also in job roles, team dynamics, and institutional ethos. Employees who internalize such values are more likely to exhibit ecological agency, voluntarily participating in green initiatives, advocating environmentally responsible norms, and integrating sustainability into their everyday professional identities (Al Mamun, Uddin, Rana, Biswas, & Dey, 2024; Shakir & Khan, 2023). These actions are not anomalies; they are indicators of systemic cultural transformation.

Moreover, the empirical coherence of this relationship has been widely substantiated, reinforcing that engaged employees are the vital conduit through which abstract sustainability ideals are converted into measurable, durable outcomes. (EES) exerts a significant and positive influence on Organizational Sustainability (OS). Employees who are proactively engaged in sustainability-related initiatives contribute not only to environmental preservation but also to enhance the organization's social integrity and economic viability, thus strengthening the strategic relevance of human capital within the triple bottom line paradigm (Segbenya et al., 2024; Vadithe et al., 2025).

From a theoretical standpoint, this nexus aligns with the principles of sustainable organizational behavior, which emphasize the systemic embedding of sustainability values into job roles, team routines, and institutional culture. Employees who internalize these values are more inclined to demonstrate proactive ecological behaviors, actively engage in voluntary green programs, and advocate for environmentally responsible practices that transcend formal responsibilities (Al Mamun et al., 2024; Shakir & Khan, 2023).

Empirical validation of this relationship is consistently documented. EES not only improves operational efficiency through eco-conscious conduct (Vadithe et al., 2025) but also catalyzes long-term organizational sustainability through the enactment of Green Organizational Citizenship Behavior (GOCB), a discretionary behavior critical for grassroots sustainability implementation (Banerjee, Mishra, & Routray, 2025; Piwowar-Sulej & Iqbal, 2023).

In the context of Indonesian state-owned commercial banks operating in Gorontalo, specifically Bank Rakyat Indonesia (BRI), Bank Mandiri, and Bank Negara Indonesia (BNI), employee participation has been pivotal in the operational success of initiatives such as digital paperless banking, CSR campaigns, and internal sustainability capacity building. These employees evolve into far more than operational personnel; they embody the ethos of internal change agents ambassadors of sustainability who traverse institutional silos and transmit eco-centric values with both intention and influence (Abdelhamied et al., 2023; Hameed et al., 2022). Their presence operationalizes what might otherwise remain abstract strategies, translating top-down policies into grassroots behavioral shifts. In particular, they serve as the living conduits of national directives such as OJK's Sustainable Finance Roadmap and Bank Indonesia's Green Banking Guidelines. While these policy frameworks offer architectural direction, their functional success hinges on the moral agency and adaptive commitment of employees willing to enact sustainability in context (Pham et al., 2019; Shakir & Khan, 2023).

In essence, Employee Engagement in Sustainability (EES) is not a passive metric but a dynamic force—a strategic bridge that spans the rhetorical aspirations of sustainability and the executional terrain of day-to-day practice. Where engagement runs deep, organizations transition from checkbox compliance to authentic behavioral transformation. Those that embed this culture are better equipped to navigate regulatory complexities and sustain relevance in a climate of rising ecological accountability.

5.3. Employee Engagement in Sustainability and Organizational Sustainability

Statistical evidence offers compelling affirmation of Hypothesis 3 (H3): Employee Engagement in Sustainability (EES) demonstrably influences Organizational Sustainability (OS) across its environmental, social, and economic spectrums the cornerstone dimensions of the triple bottom line. SEM-LISREL estimations further reinforce the robustness of this relationship, spotlighting EES as a central strategic vector in achieving institutional sustainability.

From a theoretical vantage point, this reinforces an emergent consensus: EES is not merely behavioral; it is affective, normative, and deeply ideological. It reflects a cognitive-emotional alignment with sustainability values that manifests in consistent pro-environmental behavior, proactive support for innovation, and reinforcement of the organization's green identity (Pham et al., 2019; Younis & Hussain, 2023). As such, EES is more than participation; it is personal alignment embodied in collective routines.

Furthermore, EES catalyzes strategic vision into reality. As noted by Anshima et al. (2025) and Din, Yang, and Zhang (2025), such employees become internal change leaders who weave sustainability into the cultural and operational fabrics of their institutions redefining processes, influencing peer norms, and anchoring sustainability in daily decision-making. This voluntary agency enhances institutional agility and legitimacy among diverse stakeholder ecosystems.

Empirically, this phenomenon is echoed in the case of state-owned banks in Gorontalo Province namely BRI, Mandiri, and BNI. Here, the traction of green innovation, paperless operations, internal CSR programs, and digital banking rests not on policy enforcement but on the dedication and consistency of frontline staff. It is the behavior of these individuals not just the frameworks that breathes life into sustainability (Jabour & de Sousa Jabour, 2016; Tariq, Yunis, Shoaib, Abdullah, & Khan, 2022).

This also intersects with regulatory imperatives. Both OJK's Sustainable Finance Roadmap (2021–2025) and BI's green banking policy position employees not as executors but as principal actors. Policies remain inert unless animated by behavior and this research validates that EES is the animating force.

Ultimately, EES is the linchpin between policy and performance. Organizations that recognize, cultivate, and strategically align EES are more likely to embed sustainability into their operational DNA, exceed compliance standards, and secure enduring stakeholder trust.

5.4. The Mediating Role of Employee Engagement in Sustainability

Hypothesis 4 (H4) is strongly substantiated, validating EES as a mediating engine in the relationship between Green Human Resource Management (GHRM) and Organizational Sustainability (OS). This mediating function, rooted in Social Exchange Theory (SET), suggests a reciprocal dynamic when institutions invest in green-oriented HR practices, employees reciprocate through deeper psychological commitment and sustainability-oriented action. Thus, sustainability is not imposed; it is reciprocated, voluntarily and emotionally.

Theoretically, this mediation expands the traditional understanding of EES. Rather than viewing engagement as an endpoint of HR interventions, it emerges as a crucial conduit a channel through which GHRM exerts influence over sustainability outcomes. Employees, in this framework, become both products and producers of organizational sustainability. As outlined in prior studies (Pham et al., 2019; Saeed et al., 2019), it is this reciprocity that sustains institutional transformation over time. It underscores the pivotal function of EES in transforming HR strategies into behavioral execution, especially under conditions of strong leadership alignment, value congruence, and transparent communication.

Empirically, the presence of significant indirect effects ($\beta = 0.206$) via EES demonstrates partial mediation, validating its role as a behavioral and psychological bridge. The formation of a green psychological climate fueled by HR practices such as green training, performance alignment, and recognition enhances affective commitment, encourages extra-role behaviors, and increases employees' willingness to advance sustainability beyond compliance (Hajj Hussein & Bou Zakhem, 2024; Islam et al., 2025).

In the institutional context of Indonesian state-owned banks, namely BRI, Mandiri, and BNI operating in Gorontalo, the role of EES is particularly pronounced. Green finance implementation, digitalization, and CSR programs require more than procedural adherence; they demand active internalization by employees. Without a robust EES mechanism, top-down sustainability programs risk symbolic compliance rather than meaningful transformation. In contrast, active EES has been instrumental in driving behavioral change, peer reinforcement, and sustained commitment at the grassroots level.

Crucially, the empirical validation of EES as a mediating mechanism confers operational legitimacy upon national regulatory agendas specifically, OJK's Sustainable Finance Roadmap and Bank Indonesia's Green Banking Guidelines. These frameworks tacitly rest on the premise that policy alone cannot guarantee sustainability; behavioral commitment is indispensable. EES occupies this behavioral nexus, bridging structural preparedness with human agency. It is where intent converges with enactment.

In synthesis, EES is not merely a psychological state it is a kinetic process. It enables GHRM to transcend bureaucratic policy and manifest as measurable sustainability performance. For organizations particularly those in highly regulated, high-stakes sectors like banking embedding EES is not an optional enhancement. It is a strategic obligation. Fortifying this mechanism ensures that investments in green HR practices yield more than regulatory box-ticking; they generate durable legitimacy and competitive endurance.

6. IMPLICATIONS OF THE FINDINGS

6.1. Theoretical Implications

This study enhances the theoretical framework of Green Human Resource Management (GHRM) by empirically revealing the mediating role of Employee Engagement in Sustainability (EES) within the GHRM–Organizational Sustainability (OS) relationship. Unlike previous literature that mainly focuses on direct pathways, this research positions EES as a cognitive-affective bridge a psychological conduit through which green HR practices are internalized and enacted.

Anchored in Social Exchange Theory (SET), the findings substantiate that employees' engagement in sustainability is a form of reciprocal behavior an emotional return on the organization's investment in environmental stewardship. GHRM's efficacy, then, is not confined to policy design but expands into the realm of employee value internalization, affective commitment, and voluntary ecological conduct.

This study, by integrating individual-level dynamics into the organizational sustainability schema, reframes GHRM from a top-down structural mechanism into a human-centric sustainability engine. It offers a refined lens where EES is not an ancillary outcome but a pivotal enabler, converting strategic vision into participatory reality.

6.2. Practical Implications

The findings provide actionable insights for HR professionals, institutional leaders, and policy architects especially within Indonesia's state-owned banking sector on optimizing GHRM to achieve authentic sustainability.

First, green HR practices must transcend administrative formalism and permeate employee experience. Sustainability should be woven into daily operations, embedded within KPIs, and aligned with team goals. Second, internal communication and continuous learning are non-negotiable. Targeted sustainability training, eco-literacy programs, and value-based onboarding can foster a shared environmental consciousness. Third, green behaviors should not go unnoticed rewards, whether monetary (e.g., green bonuses) or developmental (e.g., eco-leadership tracks), can signal institutional seriousness.

Above all, leadership alignment is the keystone. Executives must not only advocate green agendas but also model them in everyday decisions. Only then can GHRM evolve from policy to culture yielding outcomes that endure.

This study affirms the strategic importance of GHRM in shaping organizational sustainability both directly and indirectly. Directly, green recruitment, sustainability training, eco-aligned performance systems, and rewards

function as behavioral levers that steer employee conduct toward ecological responsibility. Indirectly, these practices activate Employee Engagement in Sustainability (EES), instilling affective attachment, intrinsic motivation, and proactive participation in green initiatives.

Together, these mechanisms elevate sustainability from an institutional aspiration to an operational reality. Employees become not only the means but also the meaning of sustainability. In doing so, GHRM becomes more than an HR strategy; it becomes a cornerstone of long-term institutional legitimacy (Hameed et al., 2022; Pham et al., 2019; Piwowar-Sulej et al., 2023).

The novelty of this study lies in its focus on public sector organizations in Indonesia, a context that has been relatively underexplored in GHRM research. The findings demonstrate that GHRM not only produces immediate, observable effects but also cultivates a deeper culture of engagement, positioning employees as change agents who drive long-term organizational transformation. Theoretically, the study enriches the application of the Resource-Based View (RBV) and Ability–Motivation–Opportunity (AMO) frameworks in the green HRM domain. Practically, it offers actionable insights for HR managers and policymakers to institutionalize sustainability through structured GHRM initiatives.

Future research could examine longitudinal impacts, cross-sector comparisons, or qualitative perspectives to further unpack the mechanisms through which direct and indirect GHRM effects translate into sustainable organizational behavior and performance.

7. THEORETICAL CONTRIBUTION

This framework offers theoretical refinement in at least three key areas. First, it extends the Ability–Motivation–Opportunity (AMO) model by integrating environmental dimensions into the HR capability framework. Second, it strengthens the Resource-Based View (RBV) by demonstrating how green capabilities are actualized via human resource systems. Third, the study reinforces Social Exchange Theory (SET) by illustrating that reciprocal employee behavior anchored in perceived organizational investment in sustainability can foster discretionary, sustainability-enhancing conduct at scale.

7.1. Empirical Contribution

Empirically, this research offers statistically robust evidence supporting the significance of GHRM → EES → OS linkages. The model demonstrates strong explanatory power and model fit, contributing to the limited but growing body of empirical literature on green HR practices in emerging economies, particularly within the regulated banking sector in Indonesia. The findings also affirm the role of EES as a strategic behavioral mechanism that enables banks to translate top-down sustainability policies into bottom-up execution.

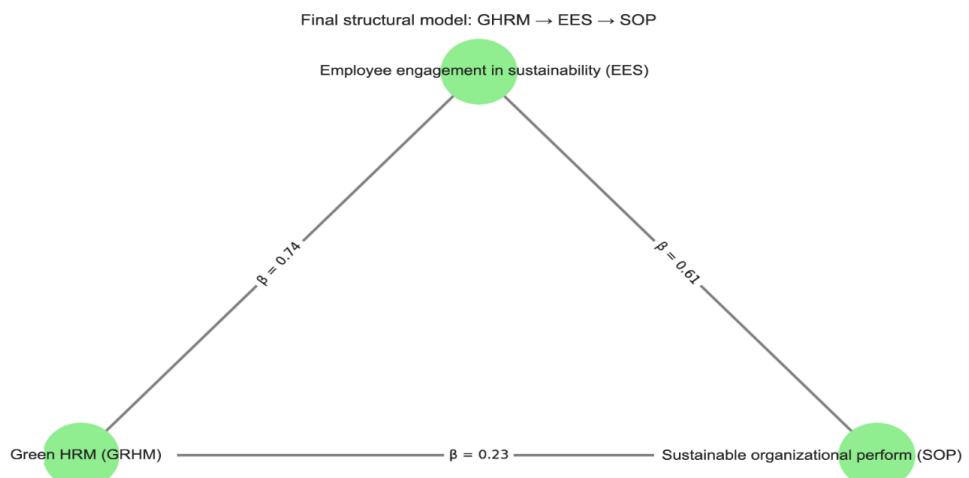


Figure 4. Final structural path model: Mediating role of employee engagement in sustainability (EES).

Figure 4 presents the final structural model connecting Green Human Resource Management (GHRM), Employee Engagement in Sustainability (EES), and Sustainable Organizational Performance (SOP). The model demonstrates that GHRM influences SOP both directly and indirectly. Specifically, GHRM has a positive impact on EES ($\beta = 0.74$), while EES, in turn, significantly enhances SOP ($\beta = 0.61$). Additionally, GHRM also contributes directly to SOP, although with a smaller effect ($\beta = 0.23$). These results suggest that employees' engagement in sustainability acts as a bridge between green HRM initiatives and the overall sustainable performance of the organization.

7.2. Practical Implication

Practically, this study provides a deployable roadmap for financial institutions seeking to internalize national sustainability mandates, such as Bank Indonesia's Green Banking Guidelines and the OJK's Sustainable Finance Roadmap. The validated structural model (GHRM → EES → OS) highlights actionable entry points for HR leaders, such as targeted green training, sustainability-based rewards, and environmentally aligned performance systems, to elevate HR from administrative compliance to strategic sustainability leadership.

8. CONCLUSION

This study reaffirms the strategic salience of Green Human Resource Management (GHRM) in driving organizational sustainability particularly through the psychological and behavioral channel of Employee Engagement in Sustainability (EES). By systematically embedding GHRM functions such as green recruitment, training, performance management, and incentive structures, organizations are not merely fostering eco-conscious behaviors they are cultivating a culture where sustainability is not an initiative but an institutional identity.

Findings from this research substantiate that EES mediates the GHRM–sustainability relationship with statistical and practical significance, especially within state-owned banks operating in the often-neglected bureaucratic terrain of developing economies. The originality of this study lies in its contextual specificity: it breaks from the dominant focus on private and manufacturing sectors and instead situates GHRM within Indonesia's public financial institutions a context where sustainability must navigate administrative inertia, regulatory constraints, and value pluralism.

At the theoretical frontier, this study contributes to extending the Resource-Based View (RBV) and the Ability–Motivation–Opportunity (AMO) frameworks into green HR territory. It underscores that organizational resources are not confined to assets and infrastructure but also encompass eco-literate, engaged employees who serve as sustainability catalysts. On the practical front, the study translates these insights into actionable guidance for HR professionals and policymakers aiming to institutionalize sustainability through structured, human-centered interventions.

8.1. Study Limitations

Notwithstanding its theoretical and empirical contributions, this study is bounded by several limitations that future research should navigate with methodological and contextual precision. First, its geographical and institutional focus state-owned banks in Gorontalo Province poses a constraint on generalizability. Broader sampling across diverse regions or public service domains would enrich comparative understanding and provide layered policy implications.

Second, the reliance on a cross-sectional design restricts temporal inference. Causal dynamics between GHRM and sustainability may evolve in iterative or cyclical patterns only longitudinal or mixed-method approaches can capture such complexity.

Third, the use of self-reported survey data opens the door to potential biases, including social desirability and common method variance. Future studies would benefit from triangulating these data with objective organizational metrics or third-party assessments to ensure data fidelity.

Lastly, this study employs a purely quantitative lens through Structural Equation Modeling (SEM). While this method offers robust statistical modeling, it omits the qualitative richness that interviews or ethnographic case studies could provide especially in decoding the lived organizational narratives that surround GHRM practice and sustainability values in bureaucratic settings.

Acknowledging these limitations is not a weakness; it is an invitation for future scholarship to build on the scaffolding this study provides, refining and contextualizing the discourse on sustainable human resource management.

8.2. Further Research

In light of the above limitations, future research should consider expanding the empirical scope across multiple provinces or even international settings to allow cross-cultural and cross-policy comparisons. Such comparative studies could unravel how local governance structures, institutional path dependencies, or societal norms modulate the efficacy of GHRM strategies.

Furthermore, interdisciplinary inquiry merging HR, environmental science, and behavioral economics may yield deeper insights into motivational mechanisms, behavioral nudges, and systemic barriers to green transformation. As sustainability pressures intensify, especially in the public sector, there is a growing urgency to design HR systems that are both ecologically sound and institutionally resilient.

Moreover, longitudinal research designs are encouraged to track changes in employee engagement and sustainability outcomes over time, offering a dynamic view of how green HR strategies translate into organizational transformation. Mixed-methods studies that integrate quantitative data with qualitative insights, such as interviews with HR managers and frontline employees, can uncover the nuanced mechanisms driving green behaviors.

Future researchers may also explore the role of digital transformation, organizational culture, or leadership style as moderating or mediating variables within the GHRM–sustainability nexus. Investigating these relationships could provide a more holistic understanding of how internal capabilities and external forces interact to shape sustainable outcomes.

Lastly, comparative studies between the public and private sectors could illuminate sector-specific challenges and opportunities, helping policymakers and practitioners tailor their approaches more effectively.

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