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The Influence of Green Human Resource Management and Work-Life Balance on Environmental Performance Mediated by Green Innovation

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ABSTRACT

Purpose – This study aims to examine the influence of Green Human Resource Management (GHRM) and Work-Life Balance (WLB) on Environmental Performance (EP), with Green Innovation (GI) as a mediating variable, within the context of a manufacturing company in Indonesia. **Methodology/approach –** A quantitative approach using Partial Least Square Structural Equation Modeling (PLS-SEM) was employed to analyze data collected through structured questionnaires distributed to 100 permanent employees of PT. Sankei Gohsyu Industries. The constructs were measured using validated indicators derived from prior studies. **Findings –** The results reveal that GHRM has a significant positive effect on both EP and GI. WLB significantly influences EP but does not significantly affect GI. Additionally, GI does not significantly impact EP and fails to mediate the relationship between GHRM and EP, nor between WLB and EP. These findings suggest that while green HR practices and work-life balance are vital in enhancing environmental outcomes, green innovation alone may not yet serve as an effective mediating mechanism in this organizational setting. **Novelty/value –** This research contributes to the growing body of literature on sustainable HRM by clarifying the distinct roles of green HR practices and work-life balance in fostering environmental performance. It also highlights the limited mediating role of green innovation in this relationship, providing practical implications for HR and environmental policy strategies in the manufacturing sector of emerging economies.

INTRODUCTION

Environmental performance has emerged as a crucial global and national concern as industries grapple with the pressures of climate change, resource scarcity, and sustainability requirements. In Indonesia, the manufacturing sector, particularly the automotive industry, faces the dual challenge of complying with environmental regulations while boosting its competitiveness. At PT Sankei Gohsyu Industries, despite the implementation of environmental policies, internal evaluations have exposed significant

gaps in waste management, employee involvement, and innovation practices. These shortcomings underscore the pressing need to investigate the factors that genuinely drive environmental performance. Recent research highlights the significant roles of employees and innovation through the concepts of Green Human Resource Management (GHRM) and Work-Life Balance (WLB). GHRM practices, which include eco-oriented recruitment, training, and performance evaluations, are designed to embed environmental values within an organization's core operations. Meanwhile, WLB is seen as a way to enhance employee motivation and increase their participation in sustainability initiatives. Simultaneously, Green Innovation (GI) is considered a crucial enabler that transforms these human resource practices into tangible environmental outcomes. However, research findings on these topics remain inconsistent. Some studies indicate a positive relationship between GHRM and environmental performance, while others find no significant connection. The same inconsistency applies to the effect of WLB, with some research reporting positive results and others reporting none. Furthermore, the mediating role of GI has not been extensively tested within the Indonesian manufacturing context, where innovation capacity is often constrained. These research gaps offer a valuable opportunity to reassess the relationships among GHRM, WLB, GI, and environmental performance.

This study aims to fill these gaps by making both theoretical and practical contributions. From a theoretical standpoint, it integrates the Resource-Based View (RBV) with sustainability practices, exploring how human resource and work-life factors influence green innovation and overall performance. On a practical level, this research directly addresses the challenges faced by PT Sankei Gohsyu Industries, including absenteeism, low employee engagement, and limited innovation outcomes despite having formal green policies in place. Therefore, this study sets out to examine the effect of GHRM and WLB on environmental performance, assess their influence on GI, and evaluate the mediating role of GI. The novelty of this research lies in its integration of GHRM, WLB, and GI into a single, unified model of environmental performance specifically tailored for the Indonesian manufacturing sector. By clarifying these mixed findings and testing GI as a mediator, this study extends sustainability-oriented HRM research and offers valuable insights for companies looking to strengthen their environmental strategies.

LITERATURE REVIEW

Theoretical Foundation: Resource-Based View (RBV) : The Resource-Based View (RBV), introduced by Wernerfelt (1984), highlights that firms can achieve sustainable competitive advantage through resources that are valuable, rare, inimitable, and non-substitutable. Within the context of sustainability, human resources and organizational capabilities represent strategic assets that enable companies to achieve superior environmental performance and long-term competitiveness.

Research Variables

Green Human Resource Management (GHRM) refers to HR practices that integrate environmental considerations into the core of human capital management. It includes eco-friendly recruitment, training, performance appraisal, and rewards that encourage employees to adopt pro-environmental behavior. Previous studies emphasize that GHRM not only enhances employees' environmental awareness but also drives organizational commitment to sustainability and environmental responsibility (Opatha & Arulrajah, 2014; Sharma & Gupta, 2020).

Work-Life Balance (WLB) represents the ability of employees to harmonize professional responsibilities with personal and family life. A healthy balance reduces stress, increases satisfaction, and enhances productivity. More importantly, WLB provides employees with the psychological well-being and motivation to actively engage in organizational initiatives, including sustainability programs.

Scholars highlight that supportive work-life practices strengthen employee involvement in achieving both social and environmental goals (Greenhaus & Allen, 2011; Johari et al., 2023).

Green Innovation (GI) is defined as the development and implementation of eco-friendly products, services, or processes aimed at reducing negative environmental impacts. GI embodies organizational knowledge, capabilities, and creativity in promoting sustainable solutions. It is often viewed as a strategic link that connects HRM practices and employee well-being to environmental performance outcomes, thus playing a mediating role in sustainability research (Munawar et al., 2022).

Environmental Performance (EP) reflects an organization's ability to manage and minimize its environmental footprint. It is commonly measured through compliance with environmental regulations, achievement of ISO 14001 certification, reduction of waste and emissions, and the efficient use of resources. As a key dimension of corporate social responsibility, EP indicates the extent to which companies uphold sustainability commitments and build legitimacy among stakeholders (Pramesti, 2021; Rustiarini et al., 2023).

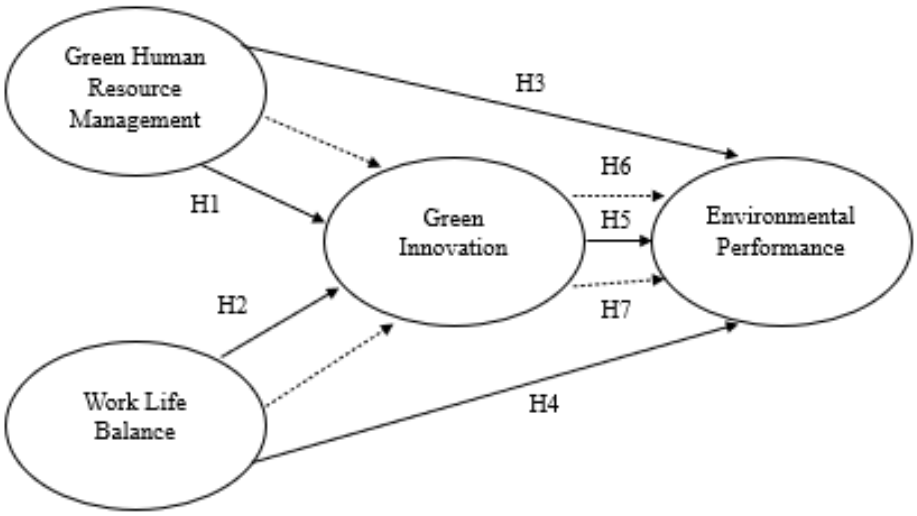

Figure 1. Conceptual Framework

Hypotheses Development

Based on the literature review and theoretical framework, the following hypotheses are proposed:

H1: Green Human Resource Management (GHRM) has a positive and significant effect on Environmental Performance (EP).

H2: Work-Life Balance (WLB) has a positive and significant effect on Environmental Performance (EP).

H3: Green Human Resource Management (GHRM) has a positive and significant effect on Green Innovation (GI).

H4: Work-Life Balance (WLB) has a positive and significant effect on Green Innovation (GI).

H5: Green Innovation (GI) has a positive and significant effect on Environmental Performance (EP).

H6: Green Innovation (GI) mediates the relationship between Green Human Resource Management (GHRM) and Environmental Performance (EP).

H7: Green Innovation (GI) mediates the relationship between Work-Life Balance (WLB) and Environmental Performance (EP).

METHOD

This study applied a quantitative approach using an associative research design to examine the relationships among Green Human Resource Management (GHRM), Work-Life Balance (WLB), Green Innovation (GI), and Environmental Performance (EP). The design was selected to test the direct and indirect effects among the variables in a predictive structural model. The population in this research consisted of permanent employees working in the forging department of PT. Sankei Gohsyu Industries, an automotive manufacturing company located in Cikarang, Indonesia. A total of 100 employees were selected as respondents using saturated sampling, considering that the entire population met the criteria for participation in the study. Data were collected through a structured questionnaire based on validated indicators from previous studies. Each item was measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), covering dimensions of GHRM, WLB, GI, and EP. The collected data were analyzed using Partial Least Square Structural Equation Modeling (PLS-SEM) with SmartPLS version 4. This method was chosen due to its ability to handle complex models, small sample sizes, and non-normally distributed data. The analysis involved two stages: evaluation of the measurement model (outer model) and the structural model (inner model). The validity, reliability, R-square, path coefficients, and hypothesis testing were examined to determine the significance of relationships among variables.

RESULT AND DISCUSSION

Descriptive Statistics

This study collected responses from 100 permanent employees of PT. Sankei Gohsyu Industries.

Table 1 Description of Respondents

Category	Indicator	Frequency (n)	Percentage (%)
Gender	Male	66	66 %
	Female	34	34 %
Age	25–35 years	53	53 %
	36–50 years	38	38 %
	> 50 years	9	9 %
Education	Senior High School	61	61 %
	Undergraduate	30	30 %
	Postgraduate	5	5 %
Work Experience	< 10 years	40	40 %
	11–20 years	40	40 %
	> 20 years	20	20 %

Source: Processed Data (2025)

Based on the demographic characteristics, 66% of the respondents were male and 34% were female. The majority of the participants (53%) were between 25 and 35 years old, followed by 38% in the 36–50 age group. Most respondents (61%) had completed senior high school, while 30% held undergraduate degrees, and 5% had postgraduate degrees. Regarding work experience, 40% had worked for 11–20 years, and 20% had worked for over 20 years, indicating that most employees had considerable tenure in the company. Furthermore, the descriptive statistics of each construct are presented in Table 2.

Table 2. Descriptive Statistics of Research Variables

Variable	N	Min	Max	Mean	Std. Deviation
Green Human Resource Management (GHRM)	100	2.50	5.00	4.10	0.52
Work-Life Balance (WLB)	100	2.00	5.00	3.85	0.60
Green Innovation (GI)	100	2.00	5.00	3.25	0.55
Environmental Performance (EP)	100	2.50	5.00	3.70	0.58

Source: Processed Data (2025)

In terms of variable distribution, the mean scores for each construct indicated generally positive perceptions among employees. The average score for Green Human Resource Management was relatively high, suggesting that employees perceived HR practices to be environmentally oriented. Work-Life Balance also showed a moderate to high mean, indicating employees were able to balance their personal and professional lives. However, Green Innovation scored slightly lower, reflecting a gap between organizational policies and the actual implementation of eco-friendly innovation initiatives. Environmental Performance showed a moderately high mean, indicating that some sustainability efforts were recognized but not fully internalized.

These descriptive results suggest that while GHRM and WLB are perceived positively by employees, Green Innovation may still require reinforcement through leadership commitment and process integration to effectively enhance environmental performance. This aligns with the structural model findings, where green innovation was not a significant predictor nor mediator, indicating its limited implementation in daily operations.

SEM-PLS (Partial Least Squares) Data Analysis Results

1. Measurement Model Evaluation (Outer Model)

Table 3. Convergent Validity Test Results

Variable	Dimension	Indicator	Loading Factor	Remarks
Green Human Resource Management	Green Recruitment	X1.1	0.821	Valid
		X1.2	0.829	Valid
		X1.3	0.809	Valid
	Green Training & Development	X1.4	0.822	Valid
		X1.5	0.846	Valid
		X1.6	0.806	Valid
	Performance Management & Appraisal	X1.7	0.763	Valid
		X1.8	0.849	Valid
		X1.9	0.804	Valid
	Green Reward & Compensation	X1.10	0.704	Valid
		X1.11	0.700	Valid
		X1.12	0.775	Valid
	Green Employee Empowerment	X1.13	0.783	Valid
		X1.14	0.854	Valid
		X1.15	0.896	Valid
	Green Leadership Development	X1.16	0.832	Valid
		X1.17	0.652	Not Valid
		X1.18	0.821	Valid

Work-Life Balance	Time Balance	X2.1	0.771	Valid
		X2.2	0.581	Not Valid
		X2.3	0.719	Valid
	Involvement Balance	X2.4	0.766	Valid
		X2.5	0.767	Valid
		X2.6	0.772	Valid
	Satisfaction Balance	X2.7	0.826	Valid
		X2.8	0.749	Valid
		X2.9	0.738	Valid
Green Innovation	Knowledge	M1.1	0.762	Valid
		M1.2	0.705	Valid
		M1.3	0.796	Valid
	Ability	M1.4	0.820	Valid
		M1.5	0.755	Valid
		M1.6	0.764	Valid
	Employee Capability	M1.7	0.729	Valid
		M1.8	0.726	Valid
	Experience	M1.9	0.733	Valid
		M1.10	0.765	Valid
Environmental Performance	Corporate Environmental Performance Rating Program	Y1.1	0.789	Valid
		Y1.2	0.637	Not Valid
	ISO 14001 Certification	Y1.3	0.754	Valid
		Y1.4	0.798	Valid
		Y1.5	0.612	Not Valid
		Y1.6	0.688	Not Valid
		Y1.7	0.284	Not Valid
	Operational Environmental Impact Management	Y1.8	0.785	Valid
		Y1.9	0.711	Valid
		Y1.10	0.859	Valid
	CSR Disclosure	Y1.11	0.703	Valid
		Y1.12	0.799	Valid
		Y1.13	0.803	Valid

Source: Researcher-processed data, 2025

The results in Table 3 show that most indicators met the required loading factor threshold (> 0.70) and are therefore valid. However, six indicators were found to be invalid, namely: X1.17, X2.2, Y1.2, Y1.5, Y1.6, and Y1.7, because their loading factor values were below 0.70. Due to the presence of these invalid indicators, a re-evaluation was necessary. The invalid items were subsequently removed to improve the measurement model, and further analysis was conducted using the revised set of indicators.

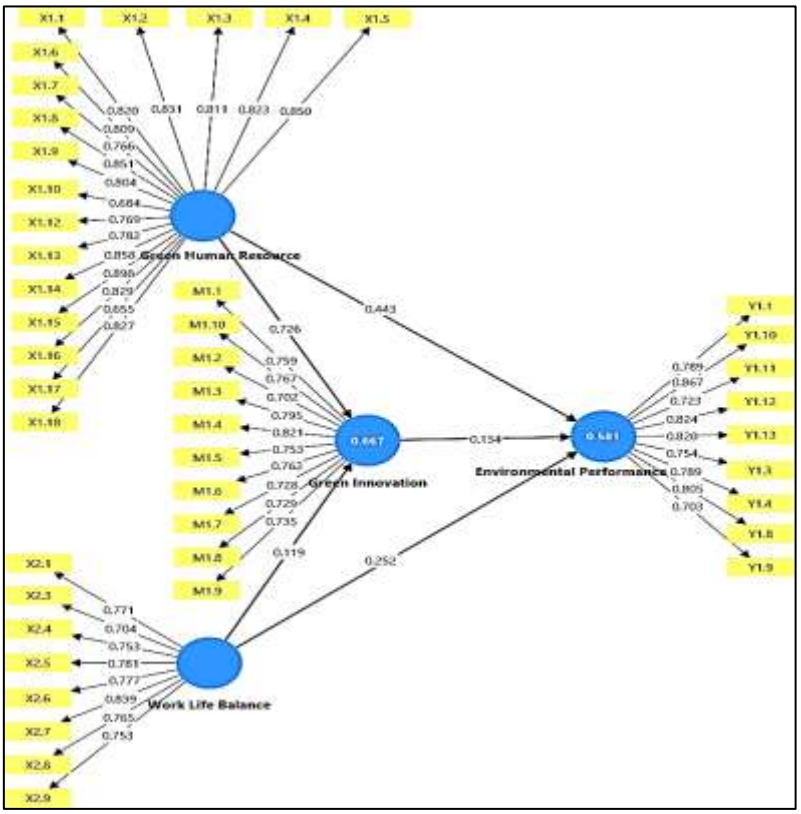

Figure 2. Path Diagram Step 2 (Summary)

Each construct is measured by multiple indicators shown in yellow boxes, with outer loadings above 0.7 indicating high indicator reliability. The arrows represent path coefficients between latent constructs. Green Human Resource Management has a strong direct effect on Green Innovation (0.443) and a moderate effect on Environmental Performance (0.134). Green Innovation positively influences Environmental Performance (0.252). Work-Life Balance also contributes to both Green Innovation (0.119) and Environmental Performance (0.252). The R^2 values in the center indicate that 66.7% of the variance in Green Innovation and 58.1% of the variance in Environmental Performance are explained by the model. Overall, the model highlights the important roles of human resources and work-life balance in driving green innovation and improving environmental performance.

Table 4. Convergent Validity Test Result

Variable	Dimension	Indicator	Loading Factor	AVE	Cronbach's Alpha	Composite Reliability
Green Human Resource	Green recruitment	X1.1	0.820	**0.679**	**0.966**	**0.976**
		X1.2	0.831			
		X1.3	0.811			
	Green training & development	X1.4	0.823			
		X1.5	0.850			
	Performance Management & Appraisal	X1.6	0.809			
		X1.7	0.766			
		X1.8	0.851			
		X1.9	0.804			
	Green Reward and Compensation	X1.10	0.684			
		X1.11	0.769			
		X1.12	0.782			

Variable	Dimension	Indicator	Loading Factor	AVE	Cronbach's Alpha	Composite Reliability
Work Life Balance	Green Employee Empowerment	X1.13	0.858	0.591	0.901	0.906
		X1.14	0.898			
		X1.15	0.829			
	Green Leadership Development	X1.16	0.655			
		X1.17	0.827			
		X1.18	0.771			
	Time Balance	X2.1	0.704			
		X2.2	0.753			
		X2.3	0.781			
	Involvement Balance	X2.4	0.777			
		X2.5	0.839			
		X2.6	0.765			
	Satisfaction Balance	X2.7	0.753			
		X2.8	0.759			
		X2.9	0.702			
Green Innovation	Knowledge	M1.1	0.795	0.571	0.919	0.929
		M1.2	0.821			
		M1.3	0.753			
	Ability	M1.4	0.762			
		M1.5	0.728			
		M1.6	0.729			
	Employee Capability	M1.7	0.735			
		M1.8	0.767			
	Experience	M1.9	0.789			
		M1.10	0.754			
Environmental Performance	Corporate Environmental Performance Rating Program	Y1.1	0.789	0.620	0.923	0.930
		Y1.2	0.805			
	ISO 14001 Certification	Y1.3	0.703			
		Y1.4	0.867			
	Operational Environmental Impact Management	Y1.5	0.723			
	CSR Disclosure	Y1.6	0.824			
		Y1.7	0.820			

Source: Researcher-processed data, 2025

The results of convergent validity testing presented in Table 4 demonstrate that the construct of Green Human Resource Management (GHRM), which consists of 18 indicators, is measured across six dimensions: green recruitment, green training and development, performance management and appraisal, green reward and compensation, green employee empowerment, and green leadership development. Out of the 18 indicators, 16 achieved acceptable loading factors above 0.70, confirming strong convergent validity. However, two indicators—X1.10 (0.684) and X1.16 (0.655)—fell below

the recommended threshold, and therefore were deemed invalid. Despite these exceptions, the overall construct achieved AVE = 0.679, Cronbach's Alpha = 0.966, and Composite Reliability = 0.976, indicating high reliability and validity for the GHRM construct.

The construct of Work-Life Balance (WLB) was measured using nine indicators grouped into three dimensions: time balance, involvement balance, and satisfaction balance. As shown in Table 4, all nine indicators had loading factors ranging between 0.702 (X2.9) and 0.839 (X2.5), exceeding the recommended threshold. The reliability analysis showed AVE = 0.591, Cronbach's Alpha = 0.901, and Composite Reliability = 0.906, confirming that the WLB construct is both valid and reliable. These findings suggest that the instrument effectively captures the extent of employees' balance between work and personal life.

For Green Innovation (GI), ten indicators representing knowledge, ability, employee capability, and experience dimensions were tested. Table 4 shows that the loading factors for GI indicators ranged from 0.728 (M1.5) to 0.821 (M1.2), all above the 0.70 threshold. The construct recorded AVE = 0.571, Cronbach's Alpha = 0.919, and Composite Reliability = 0.929, which confirms its strong convergent validity and internal consistency. This demonstrates that the measurement effectively represents the multidimensional aspects of innovation within a green organizational framework.

The construct of Environmental Performance (EP) was measured using seven indicators covering corporate environmental performance rating programs, ISO 14001 certification, operational environmental impact management, and CSR disclosure. Based on Table 4, all indicators showed satisfactory loadings, with the lowest at 0.703 (Y1.3) and the highest at 0.867 (Y1.4). The construct achieved AVE = 0.620, Cronbach's Alpha = 0.923, and Composite Reliability = 0.930, validating its reliability and convergent validity. These results confirm that EP is a robust construct to measure organizations' environmental achievements and sustainability practices.

In summary, the analysis of Table 4 confirms that most indicators across all four constructs (GHRM, WLB, GI, and EP) are valid and reliable. Although two indicators in GHRM (X1.10 and X1.16) were found to be invalid due to low loading factors, the overall constructs demonstrated satisfactory values for AVE, Cronbach's Alpha, and Composite Reliability, thereby meeting the criteria for convergent validity and internal consistency.

Overall, the convergent validity and reliability results presented in Table 4 provide strong evidence that the measurement model is statistically sound. The consistently high values of Cronbach's Alpha and Composite Reliability across all constructs demonstrate internal consistency, while the AVE values above the 0.50 threshold confirm that the indicators sufficiently explain the variance of each latent construct. The presence of two invalid indicators within GHRM (X1.10 and X1.16) does not significantly undermine the overall reliability of the construct, as the majority of indicators remain robust. These findings collectively indicate that the research model is well-suited for further hypothesis testing in the structural model analysis.

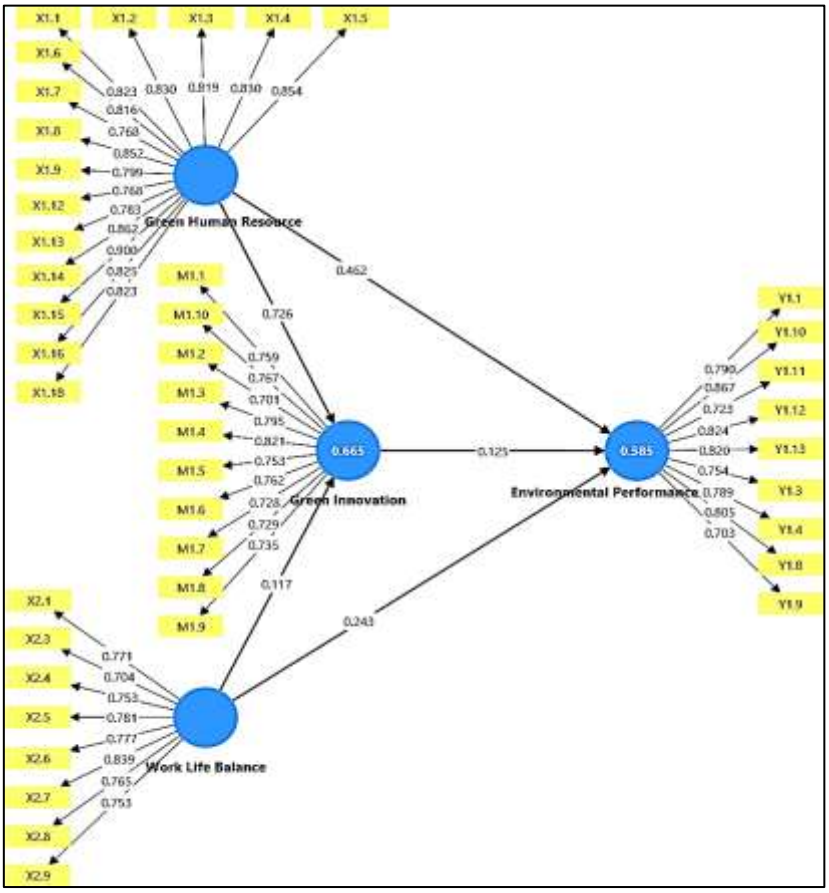

Figure 2. Path Diagram Step 3 (Summary)

The analysis shows that Green Human Resource Management (GHRM) strongly influences Green Innovation (GI) (coefficient 0.462) and indirectly affects Environmental Performance (EP) through GI (0.125). Work-Life Balance (WLB) also positively impacts both GI (0.117) and EP (0.243). With R^2 values of 0.665 for GI and 0.585 for EP, the model highlights the crucial role of HR management and work-life balance in promoting green innovation and improving environmental performance.

Table 5. HTMT Test Results

Variable	Environmental Performance	Green Human Resource	Green Innovation	Work Life Balance
Environmental Performance	–			
Green Human Resource	0.773	–		
Green Innovation	0.669	0.812	–	
Work Life Balance	0.709	0.778	0.674	–

Source: Researcher-processed data, 2025

Based on Table 6, the evaluation of discriminant validity using the Heterotrait-Monotrait (HTMT) ratio shows that all variables Green Human Resource Management (GHRM), Work-Life Balance (WLB),

Green Innovation (GI), and Environmental Performance (EP) have HTMT values below 0.90. This indicates that each construct is distinct from the others, leading to the conclusion that the indicators used to measure each variable are discriminantly valid.

Table 6. Goodness of Fit Test Results

Variable Endogen	R-square	Q-square
Green Innovation	0.665	0.614
Environmental Performance	0.585	0.557

Source: Researcher-processed data, 2025

The R-square value of 0.665 for Green Innovation indicates that 66.5% of its variance is explained by the independent variables (Green Human Resource Management and Work Life Balance), while the remaining 33.5% is due to other factors. For Environmental Performance, the R-square value is 0.585, meaning 58.5% of its variance is explained by Green Innovation, GHRM, and Work Life Balance. The Q-square values of 0.614 (Green Innovation) and 0.557 (Environmental Performance) indicate good predictive relevance. Overall, the structural model demonstrates strong explanatory and predictive power, effectively explaining the relationships between variables with statistical significance**.**

Table 7. Path Coefficient Test

Path	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Remarks
Green Human Resource -> Environmental Performance	0.147	3.140	0.002	H1 Accepted
Green Human Resource -> Green Innovation	0.074	9.781	0.000	H2 Diterima
Work Life Balance -> Environmental Performance	0.111	2.181	0.029	H3 Accepted
Work Life Balance -> Green Innovation	0.090	1.293	0.196	H4 Rejected
Green Innovation -> Environmental Performance	0.148	0.846	0.398	H5 Rejected

Source: Researcher-processed data, 2025

Based on the results presented in Table 7, the structural model analysis reveals several key findings. Green Human Resource Management (GHRM) demonstrates a significant positive effect on both Environmental Performance (coefficient = 0.462, p = 0.002) and Green Innovation (coefficient = 0.726, p = 0.000). These findings support and confirm hypotheses H1 and H2.

In contrast, while Work-Life Balance (WLB) significantly influences Environmental Performance (coefficient = 0.243, p = 0.029), thus accepting H3, its effect on Green Innovation is not statistically significant (coefficient = 0.117, p = 0.196), leading to the rejection of H4. Similarly, the direct effect of Green Innovation on Environmental Performance is also found to be insignificant (coefficient = 0.125, p = 0.398), which results in the rejection of H5.

Table 8. Indirect Path Coefficient Test Results

Path	Original Sample (O)	Std. Dev (STDEV)	T Statistics	P Values	Remarks
Green Human Resource → Green Innovation → Environmental Performance	0,091	0,111	0,815	0,415	Rejected
Work Life Balance → Green Innovation → Environmental Performance	0,015	0,024	0,597	0,550	Rejected

Source: Researcher-processed data, 2025

Based on the results presented in Table 8, the analysis of indirect effects reveals that Green Innovation does not act as a significant mediator in the relationship between either Green Human Resource Management (GHRM) or Work-Life Balance (WLB) and Environmental Performance. Specifically, the indirect effect of GHRM on Environmental Performance through Green Innovation was found to be statistically insignificant (coefficient = 0.091, p = 0.415). Similarly, the indirect effect of WLB on Environmental Performance through Green Innovation was also not significant (coefficient = 0.015, p = 0.550). Since both p-values are greater than the 0.05 significance level, both related hypotheses were rejected.

Discussion of Hypotheses

H1: The Effect of Green Human Resource Management (GHRM) on Environmental Performance (EP)

The positive and significant effect of GHRM on EP (path coefficient = 0.462, $p < 0.01$) confirms that environmentally oriented HR practices substantially enhance organizational environmental outcomes. This result underscores the role of human capital as a strategic resource, in line with the Resource-Based View (RBV), which argues that unique and valuable human resources can serve as a source of sustainable competitive advantage (Wernerfelt, 1984). By embedding environmental considerations into HR policies, companies ensure that sustainability is not only a corporate strategy but also an integral part of employee behavior and daily operations.

This finding is consistent with Jabbour (2013), who demonstrated that green HRM practices facilitate employee engagement in sustainability efforts, thereby strengthening firms' ability to achieve superior environmental performance. Marrucci et al. (2021) similarly emphasized that structured HR practices—such as green recruitment, targeted environmental training, environmentally oriented performance appraisal, and reward systems are critical drivers of improved environmental outcomes, particularly in manufacturing contexts where resource efficiency and pollution control are essential.

Moreover, Amjad et al. (2021) found that GHRM promotes the development of a green organizational culture that fosters pro-environmental behavior among employees, which ultimately translates into stronger environmental performance. Al-Shammari et al. (2022) further confirmed that firms adopting GHRM practices are more likely to integrate sustainability into their operations, thereby achieving higher levels of environmental compliance and performance. This reflects the notion that environmental improvements are not solely dependent on technology and processes, but also on the commitment, awareness, and behavior of employees shaped by HRM practices.

In addition, Renwick et al. (2016) proposed that green HRM acts as a key enabler in aligning employee objectives with environmental strategies, ensuring that individual actions contribute to organizational sustainability goals. Such alignment strengthens organizational legitimacy and stakeholder trust, which are increasingly important in markets where environmental responsibility is highly scrutinized. From this perspective, the present finding reinforces the strategic importance of HRM not just as a support function, but as a critical mechanism for embedding sustainability into the organizational fabric.

Taken together, the evidence suggests that GHRM exerts a direct and meaningful impact on EP by shaping employee behavior, fostering environmental awareness, and building a culture that prioritizes sustainability. As organizations continue to face pressure from stakeholders and regulators to improve environmental outcomes, the adoption of GHRM emerges as a vital pathway for ensuring compliance, enhancing reputation, and achieving long-term competitiveness in dynamic and environmentally sensitive markets.

H2: The Effect of GHRM on Green Innovation (GI)

The strong positive effect of GHRM on GI (path coefficient = 0.726, $p < 0.001$) suggests that environmentally friendly HR policies play a critical role in encouraging the development and adoption of eco-friendly innovations within organizations. This finding highlights the strategic function of HRM in not only managing people but also in shaping organizational capacity for innovation that supports sustainability. Through green recruitment, firms attract employees with pro-environmental values; through green training, they develop employees' skills to identify and implement eco-innovative solutions; and through green appraisal and reward systems, they reinforce behaviors aligned with environmental goals.This result is consistent with Renwick et al. (2016), who argued that proactive HR systems significantly enhance organizational capacity to foster sustainability-oriented innovation. Amjad et al. (2021) further supported this perspective, showing that GHRM directly cultivates a green organizational culture in which employees are motivated to propose and adopt innovative environmental practices. Such a culture creates an environment where innovation is not seen as an optional activity but as a natural extension of organizational values and strategies.

In line with this, Munawar et al. (2022) found that green innovation is strongly influenced by internal organizational mechanisms, particularly HR policies that empower employees to act as agents of change. By embedding environmental considerations into HR systems, organizations create a foundation where innovation is not only encouraged but also institutionalized. Similarly, Al-Shammari et al. (2022) emphasized that firms with structured green HR practices are more capable of translating employee engagement into concrete green innovations that improve both environmental and operational performance.

Moreover, Chen et al. (2015) highlighted that organizational absorptive capacity defined as the ability to recognize, assimilate, and apply new knowledge is significantly strengthened when HR practices are aligned with environmental objectives. GHRM enhances absorptive capacity by equipping employees with the mindset and competencies required to adopt green knowledge and transform it into innovative practices. This reinforces the idea that innovation is not merely a technical process but also a human-centered activity dependent on motivation, skills, and organizational culture.

H3: The Effect of Work-Life Balance (WLB) on Environmental Performance (EP)

WLB was found to have a significant positive impact on EP (path coefficient = 0.243, $p < 0.05$), indicating that employees who achieve a better balance between their professional and personal lives tend to be more engaged and environmentally conscious. Employees with balanced work and personal responsibilities are less likely to experience stress or burnout, allowing them to direct more energy toward constructive organizational activities, including sustainability programs. This result highlights the importance of organizational policies that support flexible working arrangements, reduced work overload, and a healthy integration of work and non-work domains.

Chen et al. (2015) argued that employees with a healthy work-life balance are generally more motivated, creative, and proactive in contributing to organizational goals, which includes participating in environmental initiatives. Their findings suggest that balance not only benefits the individual but also strengthens collective organizational capacity by fostering innovation and green practices. Irawanto et al. (2021) further reinforced this view by showing that work-life balance directly improves job satisfaction and organizational commitment, which in turn enhances employee willingness to support environmental programs. Thus, WLB functions as an indirect enabler of sustainability by improving employees' psychological well-being and engagement.

In addition, Kusmaningtyas and Faidah (2023) highlighted that a supportive work-life environment promotes job satisfaction, which plays a mediating role in encouraging employees to participate in green work initiatives. Employees who feel their personal well-being is valued are more inclined to

reciprocate with positive behaviors, such as conserving energy, reducing waste, or volunteering for corporate sustainability activities. This indicates that the positive effect of WLB on EP is not only behavioral but also cultural, as it strengthens a workplace climate where environmental responsibility is shared across all organizational levels. Therefore, ensuring a healthy work-life balance emerges as a critical managerial strategy for organizations striving to enhance environmental performance through employee engagement.

H4: The Effect of WLB on Green Innovation (GI)

Although positive, the effect of WLB on GI (path coefficient = 0.117, $p > 0.05$) was not statistically significant. This indicates that while employee well-being and balance between professional and personal life contribute to improved morale and engagement, they may not be sufficient on their own to stimulate green innovation. Innovation, particularly sustainability-oriented innovation, requires not just motivated individuals but also structured organizational systems, leadership support, and resource allocation. Without these supporting mechanisms, employees' well-being may enhance productivity and satisfaction but may fall short of translating into concrete innovative practices.

This finding resonates with Ahmad et al. (2020), who emphasized that innovation depends not only on employee motivation but also on strategic organizational investment, such as funding research and development, providing knowledge-sharing platforms, and embedding sustainability within corporate strategies. In the absence of such enabling structures, employees even when satisfied and motivated may lack the resources and organizational direction necessary to generate eco-innovative solutions. Similarly, Chen et al. (2015) highlighted that absorptive capacity and organizational learning are crucial for innovation, suggesting that human motivation must be matched with structural and strategic support to achieve innovation outcomes.

Kusmaningtyas and Faidah (2023) also observed that the primary outcomes of WLB are improved job satisfaction, employee retention, and productivity rather than innovation. This suggests that WLB acts more as a foundation for employee stability than as a direct driver of creativity or innovation. For innovation to emerge, particularly green innovation, there needs to be a deliberate alignment between employee well-being policies and organizational innovation strategies. Thus, the non-significant effect of WLB on GI highlights the necessity for organizations to complement well-being initiatives with concrete innovation frameworks, such as environmental training, innovation incentives, and cross-functional collaboration, in order to fully harness the potential of balanced employees in driving sustainability-oriented innovation

H5: The Effect of Green Innovation (GI) on Environmental Performance (EP)

The effect of GI on EP was positive but not statistically significant (path coefficient = 0.125, $p > 0.05$). This suggests that while the company has begun to implement environmentally friendly innovations, these initiatives may not yet be sufficiently advanced or widespread to produce measurable improvements in environmental outcomes. Green innovation often requires time to diffuse across organizational processes, and its benefits are not always immediately observable. In the early stages, organizations may focus more on compliance-driven changes rather than transformative innovations, which limits their direct impact on environmental performance indicators such as waste reduction, emission control, or resource efficiency.

Munawar et al. (2022) emphasized that the effectiveness of GI depends heavily on how deeply it is integrated into core business processes rather than being treated as peripheral or symbolic initiatives. If innovations remain isolated to specific departments or projects, their cumulative effect on overall performance may be minimal. Rehman et al. (2021) also found that green innovation requires strong regulatory support and consistent organizational commitment to create meaningful environmental improvements. Without these factors, innovation may remain at the level of pilot projects or surface-level changes that do not fully transform the company's environmental trajectory.

Furthermore, Fang et al. (2022) argued that the link between GI and firm performance is highly contingent on strategic alignment and long-term investment. For innovations to contribute significantly to EP, companies must not only develop green products and processes but also ensure that these are systematically implemented, scaled, and supported by appropriate technologies. Al-Shammari et al. (2022) also pointed out that the impact of green innovation becomes more visible when combined with other strategic practices, such as green HRM and supply chain collaboration. Therefore, the non-significant effect observed in this study may reflect the early stage of innovation adoption within the company, underscoring the need for stronger integration, investment, and policy alignment to realize the full potential of green innovation in driving environmental performance.

H6: The Mediating Role of GI between GHRM and EP

The mediation test rejected the hypothesis that GI mediates the relationship between GHRM and EP. This finding indicates that although GHRM exerts a strong direct influence on environmental performance, the innovation process within the organization may not yet be sufficiently mature or institutionalized to serve as a significant mediating mechanism. In practice, GHRM policies such as green recruitment, training, and appraisal are directly shaping employee behavior and environmental practices without necessarily being filtered through structured innovation systems. This suggests that the benefits of GHRM on EP are realized more through immediate behavioral and cultural changes rather than long-term innovation pathways.

Rehman et al. (2021) emphasized that effective mediation of innovation requires robust ecosystems that combine technological capabilities, regulatory incentives, and organizational readiness. In many emerging contexts, these conditions may not yet be fully present, making it difficult for green innovation to function as a bridge between HR practices and environmental outcomes. Al-Shammari et al. (2022) further noted that sustained investment in innovation is necessary for HR-driven environmental initiatives to be effectively channeled into measurable performance outcomes. Without continuous financial, structural, and leadership support, innovation tends to remain fragmented and insufficient to capture the influence of HRM on sustainability results.

This outcome also aligns with the argument of Fang et al. (2022), who stressed that the mediating role of green innovation becomes more visible only when firms strategically align innovation with broader organizational policies. In cases where innovation initiatives are isolated or not fully scaled, the direct impact of GHRM on EP will dominate, leaving the mediating role of GI insignificant. Therefore, the rejection of this hypothesis highlights the need for organizations to move beyond direct HR interventions and develop stronger innovation systems through collaboration, cross-functional integration, and sustained investment so that GI can effectively mediate and amplify the impact of GHRM on environmental performance.

H7: The Mediating Role of GI between WLB and EP

The results indicate that GI did not mediate the relationship between WLB and EP. This finding suggests that the positive influence of WLB on environmental performance is realized primarily through direct mechanisms, such as improved employee engagement, job satisfaction, and productivity, rather than through innovation channels. Employees who experience a healthy work-life balance are more likely to adopt environmentally responsible behaviors in their daily work, but this does not necessarily translate into innovative practices unless organizational systems are designed to capture and channel their well-being into structured innovation outcomes.

Fang et al. (2022) emphasized that innovation can act as a mediator only when there is deliberate strategic alignment between employee well-being initiatives and organizational innovation policies. In the absence of this alignment, the contribution of WLB to EP tends to remain direct, as employees' improved psychological and emotional states primarily enhance their willingness to comply with environmental policies rather than generate new eco-friendly ideas. Similarly, Ahmad et al. (2020) found that innovation requires more than motivated and satisfied employees—it also depends on clear organizational strategies, investment in R&D, and cultural support for experimentation. Without these enabling factors, the role of innovation as a mediator remains limited.Kusmaningtyas and Faidah (2023) further noted that WLB outcomes are more closely associated with employee retention, loyalty, and productivity than with creativity or innovation. Thus, while WLB strengthens the workforce's stability

and willingness to contribute positively to sustainability efforts, it does not automatically foster the development of new environmental innovations. To enable GI to mediate the WLB–EP relationship, organizations must intentionally link well-being programs with innovation structures, for example by integrating flexible work arrangements with collaborative innovation projects or by rewarding employees for contributing green ideas. Without such deliberate connections, the effect of WLB on EP will remain direct, bypassing innovation as an intermediary channel.

CONCLUSION

This study concludes that Green Human Resource Management (GHRM) has a significant positive effect on both Green Innovation (GI) and Environmental Performance (EP). Work-Life Balance (WLB) also positively affects Environmental Performance but does not have a significant impact on Green Innovation. Green Innovation itself shows a positive but non-significant effect on Environmental Performance. Additionally, Green Innovation does not mediate the relationships between GHRM or WLB and Environmental Performance. These results indicate that direct human resource practices and work-life balance are crucial drivers of environmental performance, while the role of green innovation as a mediator is still limited within the company studied.

RECOMMENDATION

Based on the findings, it is recommended that PT. Sankei Gohsyu Industries strengthen the implementation of green innovation by enhancing leadership support and integrating environmental innovations into daily operations more effectively. The company should also continue to develop and promote Green Human Resource Management practices and support employees' work-life balance, as these have proven to improve environmental performance. Future research is encouraged to explore additional mediating or moderating variables to better understand the mechanisms linking HR practices, work-life balance, and environmental outcomes.

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