JTUS, Vol. 4, No. 2 Februari 2026
E-ISSN: 2984-7435, P-ISSN: 2984-7427
DOI: https://doi.org/

Journal Transnational Universal Studies

The Influence of Green Human Resource Management on Green Performance Through Green Work Climate, Green Work Engagement and Green Employee Behavior at PT Super Andalas Steel (SAS) Medan

Yoshe Stephanie*, Hananiel M. Gunawan
Universitas Pelita Harapan, Indonesia
Email: 02619240010@student.uph.edu*, hananiel.gunawan@uph.edu

Abstract
Environmental conservation has long been a topic of discussion among the public, especially among manufacturing companies. PT. Super Andalas Steel (SAS) in Medan is a manufacturing company that has addressed this issue by achieving ISO 14001 certification through the implementation of green human resource management practices. The purpose of this study is to determine what factors can improve green performance to maintain the company's environmental sustainability. A quantitative research method was employed, with data collected through online questionnaires distributed to PT. SAS employees from each department, as well as short interviews with related personnel. The data obtained were processed using SmartPLS 4 software to analyze the research results. The results of the study indicate that all variables in the research model are valid and reliable; however, there is one variable that is not significant, namely green recruitment on green work engagement, and the variable that most influences green performance is green employee behavior through green work climate, which is triggered by green rewards. Based on these results, managerial implications and several recommendations are obtained for PT. SAS to consistently build and maintain a culture of environmental sustainability and improve green performance.

Keywords: Green Recruitment; Green Training; Green Reward; Green Work Climate; Green Work Engagement.

INTRODUCTION

Environmental conservation is a topic that is widely discussed among the public, especially in companies such as manufacturing companies (Oyelakin et al., 2025). As time went by, it was discovered that this was only a topic of conversation without any action, and more frequent outreach was needed so that the public would realize that environmental sustainability is the responsibility of all parties (Antara News, 2022).

The government stated that the number of companies that comply with environmental management at present is only 17.5% and hopes that in the future more companies will realize the importance of proper environmental management and the value that companies obtain without having to be obliged (KOMPAS.id, 2023). However, there are several manufacturing companies that have maximized environmental protection activities by implementing ISO 14001 as an international standard for companies that want to raise operational efficiency standards that will have a positive impact on the environment (Consultant Indonesia, 2023).

Green Human Resource Management (GHRM) can be understood as the implementation of the function of Human Resource Management (HRM) which has a positive impact on the behavior of employees who care about the environment and will also directly support the environment by

focusing on environmental problems within and around the company (Sobaih et al., 2020; Sulich & Sołoducho-Pelc, 2025). To assist companies in this regard, implementation is necessary so that company employees work in accordance with policies that integrate environmental principles that have been established by company management (Kristensen et al., 2021).

According to KOMPAS.id (2023), it is important for every company to pay attention to a healthy work environment because it can increase employee productivity. Besides that, in the implementation of GHRM, there is also training and development included, and of course it will be assessed how effective this is in helping to increase the performance value of the company's employees (Kodua et al., 2022; Mishra, 2017).

Employee performance values are important for the sustainability of the company because the quality of performance greatly influences productivity, where employees can carry out their work efficiently and reduce what are known as error costs (Stundziene & Baliute, 2022). Employee performance evaluation helps company management determine the next steps and becomes material for improving relations between employees and management (Zebua, 2025). GHRM consists of several indicators, which are Green Recruitment (GR), Green Training (GT), Green Reward (GRW), Green Work Climate (GWC), Green Work Engagement (GWE), Green Employee Behavior (GEB), dan Green Performance (GP) (Huo et al., 2022).

Several previous studies have examined the relationship between Green Human Resource Management practices and green performance (Acquah et al., 2021). Investigated the influence of Green Human Resource Management on environmental performance in small lodging enterprises, finding that green innovation plays a mediating role in this relationship (Rana & Arya, 2024; Sobaih et al., 2020). Huo et al. (2022) explored the role of Green Human Resource Management practices in driving green performance in the context of manufacturing SMEs, demonstrating that green work climate and green employee behavior serve as important mechanisms linking GHRM practices to environmental outcomes. Munawarah et al. (2025) examined the implementation of Green Human Resource Management, employee green behavior, and corporate social responsibility in industrial companies in Aceh, highlighting the importance of integrating environmental principles into HR practices (Acquah et al., 2021). Fardhal Virgiawan Ramadhan & Ade Chaerul (2023) studied the implementation of Green Human Resource Management in improving corporate sustainability in companies in Cikarang, Indonesia, confirming the positive impact of GHRM practices on organizational sustainability (Ali et al., 2024). Despite these contributions, there remains a gap in the literature regarding the comprehensive examination of the sequential mediating mechanisms through which GHRM practices (green recruitment, green training, and green reward) influence green performance via green work climate, green work engagement, and green employee behavior in the context of ISO 14001-certified manufacturing companies in Indonesia (Ali et al., 2024; Xie et al., 2023).

PT Super Andalas Steel (SAS), as the object of research, is engaged in the manufacturing sector and has been established since 1975 at Jalan KL Yos Sudarso Km 9.5, Medan City, North Sumatra, and has developed since then. This company was chosen because of concerns about the

growth of manufacturing companies, which could increase the threat and even damage to the natural environment by large companies (Fardhal Virgiawan Ramadhan & Ade Chaerul, 2023).

PT. SAS has obtained ISO 14001 certification and has implemented GHRM practices, such as implementing green recruitment through "go paperless," emphasizing job descriptions related to environmentally friendly management, utilizing reusable items in every training activity, providing green rewards such as certificates and green facilities, providing trash cans that have been divided according to the type of waste, having a Wastewater Treatment Plant system, green planting in the environment around the company and work areas, and green habits such as collecting unusable safety helmets. To review the company's green performance, a KPI assessment system is implemented which includes an assessment of environmentally friendly practices (Malarvizhi & Raji, 2024; Marrucci et al., 2024).

The purpose of this study is to test and analyze the research model regarding the influence of Green Human Resource Management (GHRM) practices on green performance through green work climate, green work engagement, and green employee behavior at PT. Super Andalas Steel (SAS) Medan, and to see which variables are most influential in improving green performance at PT. Super Andalas Steel based on the relationship between variables. The benefits of this research are to provide empirical evidence on the mediating mechanisms of GHRM practices for manufacturing companies, to offer managerial insights for PT. SAS in optimizing green rewards and work climate to enhance green performance, and to contribute to the academic literature on green human resource management in the Indonesian industrial context.

METHODS

This research used a quantitative approach to test the relationship between variables obtained from collecting numerical data, which was then tested using objective statistical techniques. Therefore, the research used primary and secondary data types.

Primary data was obtained directly from respondents through a questionnaire. In this study, the respondents were employees of PT Super Andalas Steel (SAS) Medan from each department. Meanwhile, secondary data was obtained through document archives from the past and present to support the primary data (Sugiyono, 2020).

The population in this research referred to the employees of PT Super Andalas Steel (SAS) Medan. The sampling technique applied was non-probability sampling with respondents who met the following criteria:

1) Employees of PT. Super Andalas Steel (SAS) Medan from every department.
2) Employees who understood and followed Green Human Resource Management (GHRM) practices.

Data was processed through a descriptive and inferential statistical approach using SmartPLS, with the final results presented in numerical form. The hypothesis in this study was tested using Partial Least Squares (PLS) analysis, examining the relationship between variables using numerical data from the questionnaire results in the form of path coefficients, Q^2, R^2, construct validity and reliability, also IPMA (Importance Performance Map Analysis). The PLS

analysis was conducted through three stages, namely outer model analysis, inner model analysis, and hypothesis testing.

RESULTS AND DISCUSSION

In the descriptive analysis of each variable, the highest indicator was obtained from each variable used in the research model, which is:

Table 1. Descriptive Analysis

Variable	Average value	Highest Indicator
Green Recruitment (GR)	4,51 (Strongly agree)	X1.2 "I feel proud to work at PT. SAS because it has an image that cares about the environment (green employer branding)"
Green Training (GT)	4,49 (Strongly agree)	X2.2 "I am motivated by PT. SAS's activities to contribute to maintaining a healthy work environment"
Green Reward (GRW)	4,43 (Strongly agree)	X3.2 "I get non-financial incentives (such as providing electric transportation facilities and sports fields)"
Green Work Climate (GWC)	4,55 (Strongly agree)	Z1.1 "I believe that PT. SAS cares about environmental sustainability to reduce the environmental impact of its work"
Green Work Engagement (GWE)	4,45 (Strongly agree)	Z2.1 "I feel very happy to carry out activities that support environmental conservation because I become more enthusiastic"
Green Employee Behavior (GEB)	4,40 (Strongly agree)	Y1.5 "Trying to do other things that protect the environment without waiting for instructions at work is a culture within me"
Green Performance (GP)	4,58 (Strongly agree)	Y2.4 "I believe that PT. SAS is serious about reducing the potential for environmental accidents"

Source : Author's data processing results, 2025

The results of the analysis using the inferential statistical method through the Partial Least Square-Structural Equation Model (PLS-SEM) approach, namely:

Table 2. Outer Model

Indicator	Outer Loadings
GEB1 <- Green Employee Behavior	0.831
GEB2 <- Green Employee Behavior	0.882
GEB3 <- Green Employee Behavior	0.867
GEB4 <- Green Employee Behavior	0.833

GEB5 <- Green Employee Behavior	0.865
GEB6 <- Green Employee Behavior	0.837
GP1 <- Green Performance	0.916
GP2 <- Green Performance	0.881
GP3 <- Green Performance	0.828
GP4 <- Green Performance	0.897
GP5 <- Green Performance	0.849
GR2 <- Green Recruitment	0.900
GR3 <- Green Recruitment	0.836
GRW1 <- Green Reward	0.874
GRW2 <- Green Reward	0.866
GRW3 <- Green Reward	0.859
GT1 <- Green Training	0.887
GT2 <- Green Training	0.923
GT3 <- Green Training	0.901
GWC1 <- Green Work Climate	0.928
GWC2 <- Green Work Climate	0.950
GWC3 <- Green Work Climate	0.935
GWE1 <- Green Work Engagement	0.927
GWE2 <- Green Work Engagement	0.932
GWE3 <- Green Work Engagement	0.885
GR1 <- Green Recruitment	0.893

Source : Author's data processing results, 2025

The outer loadings value above shows that each indicator has a very high value above 0.7 (the relationship between the indicator and the measured latent variable is strong).

Tabel 3. Validity Test

	Average variance extracted (AVE)
Green Employee Behavior	0.727
Green Performance	0.765
Green Recruitment	0.768
Green Reward	0.750
Green Training	0.817
Green Work Climate	0.879
Green Work Engagement	0.838

Source : Author's data processing results, 2025

The validity test is convergent in nature to ensure that each indicator truly represents its latent variable by looking at the Average Variance Extracted (AVE) value > 5 which means it is valid.

Table 4. Reliability Test

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
Green Employee Behavior	0.925	0.927	0.941
Green Performance	0.923	0.924	0.942
Green Recruitment	0.849	0.850	0.909
Green Reward	0.834	0.836	0.900
Green Training	0.888	0.889	0.930
Green Work Climate	0.931	0.932	0.956
Green Work Engagement	0.903	0.909	0.939

Source : Author's data processing results, 2025

Uji reliabilitas dalam mengukur konsistensi indikator dilihat dari nilai Composite Reliability (CR) > 0,7 yang berarti konstruk memiliki reliabilitas baik. Hasil di atas bahkan melebihi 0,8 artinya semua variabel dalam kuesioner penelitian sangat reliabel (konsisten).

Table 5. Model Fit Test (SRMR)

	Saturated model	Estimated model
SRMR	0.047	0.078

Source : Author's data processing results, 2025

This SRMR value can conclude that the ideal model with existing data to test the research hypothesis.

Table 6. R-Square (R2) Value

	R-square	R-square adjusted
Green Employee Behavior	0.698	0.697
Green Performance	0.659	0.657
Green Work Climate	0.782	0.780
Green Work Engagement	0.776	0.774

Source : Author's data processing results, 2025

In detail, according to Chin (1998), the value categories are divided into 4, namely > 0.67 means strong, 0.33 - 0.67 means moderate, 0.19 - 0.33 means weak, and < 0.19 means very weak/not significant. The variance in green employee behavior is 69.8% which means strong, green performance is 65.9% which means moderate, green work climate is 78.2% which is strong, and green work engagement is 77.6% which means strong.

Table 7. Q-Square (Q2) Value

Construct (Dependent Variable)	Q^2predict
Green Employee Behavior	0.742
Green Performance	0.595

Green Work Climate	0.776
Green Work Engagement	0.737

Source: Author's data processing results, 2025

According to Hair et al., 2017, a value > 0 indicates a model with good predictive relevance, and a value ≤ 0 indicates a model with no predictive relevance. The results above demonstrate that the model has good predictive power and is therefore suitable for use in hypothesis testing.

The IPMA analysis results show that green work climate is the most important and influential variable. Green employee behavior and green performance are primarily influenced by green work climate, while green recruitment, green training, and green rewards have a relatively small influence. Green work engagement is supported by green work climate and green training, while green rewards play a less significant role.

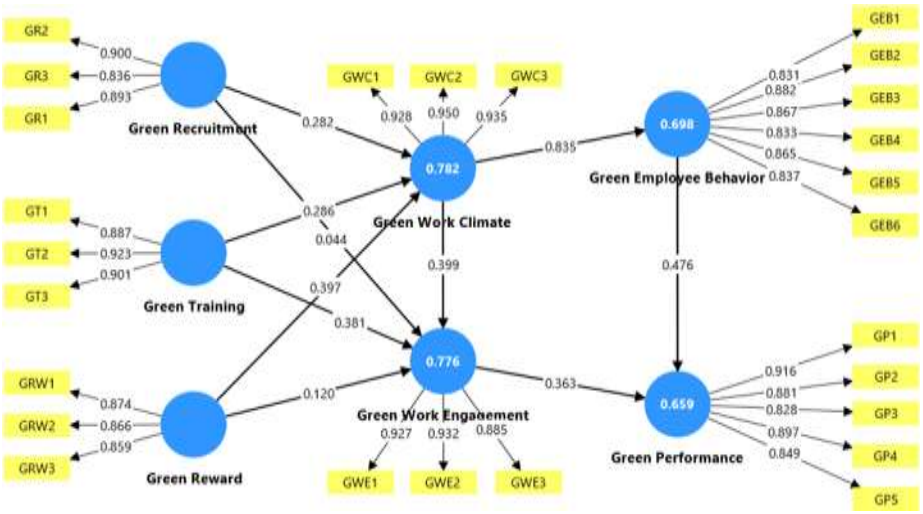

Figure 1. Inner Model

Source: Author's data processing results, 2025

Table 8. Hypothesis Testing Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Green Recruitment -> Green Work Climate	0.282	0.278	0.065	4.305	0.000
Green Recruitment -> Green Work Engagement	0.044	0.044	0.064	0.690	0.490
Green Training -> Green Work Climate	0.286	0.292	0.079	3.621	0.000
Green Training -> Green Work Engagement	0.381	0.386	0.072	5.308	0.000
Green Reward -> Green Work Climate	0.397	0.394	0.066	6.009	0.000
Green Reward -> Green Work Engagement	0.120	0.120	0.057	2.104	0.035

Green Work Climate -> Green Employee Behavior	0.835	0.832	0.032	26.400	0.000
Green Work Climate -> Green Work Engagement	0.399	0.392	0.076	5.283	0.000
Green Work Engagement -> Green Performance	0.363	0.361	0.075	4.830	0.000
Green Employee Behavior -> Green Performance	0.476	0.478	0.069	6.929	0.000

Source: Author's data processing results, 2025

Green performance at PT. Super Andalas Steel is influenced by green employee behavior that is formed through a green work climate. Green work climate is primarily built through the implementation of green rewards through its main indicators which encourage environmentally friendly work behavior. In addition, green work climate also plays an important role in increasing green work engagement, which together supports the achievement of the company's green performance.

However, the research results show that green recruitment does not have a significant effect on green work engagement, so that green work engagement is more shaped by the work climate and sustainability practices experienced by employees daily.

CONCLUSION

The questionnaire responses were satisfactory overall, with descriptive values ranging between 4.21 and 5.00, indicating that respondents strongly agreed with the research indicators. The green performance variable recorded the highest mean value of 4.58, reflecting a shared commitment between employees and PT. SAS toward improving environmental sustainability. All hypotheses were accepted, with the exception that green recruitment was found to be not significant for green work engagement, with a p-value of 0.490, suggesting that while PT. SAS may continue recruiting with green principles, the current process — which is limited to an initial introduction assessing whether prospective candidates share the company's environmental commitment — is insufficient to increase employee engagement in green work. The improvement in green performance at PT. SAS was found to be most strongly driven by green employee behavior through a green work climate fostered by the company, supported by the provision of green rewards that trigger employee motivation through environmentally friendly facilities (GRW1). It is therefore recommended that PT. SAS strengthen its green work climate through consistent provision of green rewards and environmentally friendly facilities, while also developing more comprehensive green recruitment strategies that extend beyond initial candidate screening to include ongoing engagement programs. For future research, it is suggested that studies examine the long-term effectiveness of green recruitment strategies in sustaining employee engagement, as well as explore additional mediating variables — such as green organizational culture or green leadership — that may further clarify the mechanisms through which GHRM practices influence green performance in ISO 14001-certified manufacturing companies.

REFERENCES

Acquah, I. S. K., Agyabeng-Mensah, Y., & Afum, E. (2021). Examining the link among green human resource management practices, green supply chain management practices and performance. *Benchmarking: An International Journal*, *28*(1), 267–290.

Ali, M., Shujahat, M., Fatima, N., Lopes de Sousa Jabbour, A. B., Vo-Thanh, T., Salam, M. A., & Latan, H. (2024). Green HRM practices and corporate sustainability performance. *Management Decision*, *62*(11), 3681–3703.

Antara News. (2022, June 5). Pakar:Intensifkan Sosialisasi Tentang Pentingnya Melestarikan Alam. Diakses Pada 10 Oktober 2024, Dari Https://Www.Antaranews.Com/Berita/2921073/Pakar-Intensifkan-Sosialisasi-Tentang-Pentingnya-Melestarikan-Alam.

Consultant Indonesia. (2023). Sertifikasi Iso-Apa itu Sertifikasi ISO dan Seberapa Pentingnya di Dunia Bisnis? Diakses pada 18 Oktober 2024, dari https://frconsultantindonesia.com/id/apa-itu-sertifikasi-iso-dan-seberapa-pentingnya-didunia-bisnis/.

Fardhal Virgiawan Ramadhan, & Ade Chaerul. (2023). Implementasi Green Human Resource Management dalam Meningkatkan Corporate Sustainability pada Perusahaan di Cikarang, Indonesia. Jurnal Riset Ekonomi Dan Akuntansi, 1(3), 315–330. https://doi.org/10.54066/jrea-itb.v1i3.817

Huo, X., Azhar, A., Rehman, N., & Majeed, N. (2022). The Role of Green Human Resource Management Practices in Driving Green Performance in the Context of Manufacturing SMEs. Sustainability, 14(24), 16776. https://doi.org/10.3390/su142416776

Kodua, L. T., Xiao, Y., Adjei, N. O., Asante, D., Ofosu, B. O., & Amankona, D. (2022). Barriers to green human resources management (GHRM) implementation in developing countries. Evidence from Ghana. *Journal of Cleaner Production*, *340*, 130671.

KOMPAS.id. (2023, December 20). Baru 17,5 Persen Industri yang Taat pada Pengelolaan Lingkungan Diakses pada 18 Oktober 2024, dari https://www.kompas.id/baca/humaniora/2023/12/20/baru-175-persen-industri-ikut-proper?loc=comment.

Kristensen, H. S., Mosgaard, M. A., & Remmen, A. (2021). Integrating circular principles in environmental management systems. *Journal of Cleaner Production*, *286*, 125485.

Malarvizhi, S., & Raji, V. (2024). Reviewing the landscape: A literature-based exploration of sustainable HR practices and Key performance indicators (KPIs) in green HRM for assessing organizational sustainability. *3rd International Conference on Reinventing Business Practices, Start-Ups and Sustainability (ICRBSS 2023)*, 580–588.

Marrucci, L., Daddi, T., & Iraldo, F. (2024). Creating environmental performance indicators to assess corporate sustainability and reward employees. *Ecological Indicators*, *158*, 111489.

Mishra, P. (2017). Green human resource management: A framework for sustainable organizational development in an emerging economy. *International Journal of Organizational Analysis*, *25*(5), 762–788.

Munawarah, M., Syaripuddin, S., Yumna, M., & Simahatie, M. (2025). Implementasi Green Human Resource Management, Employee's Green Behavior dan Corporate Social

Responsibility pada Perusahaan Industri di Aceh. Jurnal Ilmu Sosial Dan Ilmu Politik Malikussaleh (JSPM), 6(1), 38–50. https://doi.org/10.29103/jspm.v6i1.18988

Oyelakin, I. O., Yusuf, A. H., Arbak, S., & Dhar, B. K. (2025). Building resource capabilities through green servitization and ISO 14001 for sustainable performance: perspectives from manufacturing firms. *Corporate Social Responsibility and Environmental Management*, *32*(3), 3770–3784.

Rana, G., & Arya, V. (2024). Green human resource management and environmental performance: mediating role of green innovation–a study from an emerging country. *Foresight*, *26*(1), 35–58.

Sobaih, A. E. E., Hasanein, A., & Elshaer, I. (2020). Influences of green human resources management on environmental performance in small lodging enterprises: The role of green innovation. *Sustainability*, *12*(24), 10371.

Stundziene, A., & Baliute, A. (2022). Personnel Costs and Labour Productivity: The Case of European Manufacturing Industry. Economies, 10(2), 31. https://doi.org/10.3390/economies10020031

Sulich, Adam, & Sołoducho-Pelc, Letycja Magdalena. (2025). Sustainable development in production companies: Integrating environmental strategy and green management style. *Discover Sustainability*, *6*(1), 434.

Sugiyono. (2020). Metode Penelitian Kuantitatif, Kualitatif, dan R&D (Edisi ke-2). Alfabeta.

Xie, J., Bhutta, Z. M., Li, D., & Andleeb, N. (2023). Green HRM practices for encouraging pro-environmental behavior among employees: the mediating influence of job satisfaction. *Environmental Science and Pollution Research*, *30*(47), 103620–103639.