THE EFFECT OF GREEN TRANSFORMATIONAL LEADERSHIP AND GREEN HUMAN RESOURCE MANAGEMENT ON ENVIRONMENTAL PERFORMANCE WITH GREEN INNOVATION AS A MEDIATING VARIABLE AT PT INDUKSARANA KEMASINDO IN JAKARTA

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Keywords	ABSTRACT
Green Transformational Leadership, Green Human Resource Management, Green Innovation, Environmental Performance	This study aims to analyze the influence of Green Transformational Leadership (GTL) and Green Human Resource Management (GHRM) on Environmental Performance and Green Innovation, as well as the relationship between Green Innovation and Environmental Performance. This study uses a quantitative approach with the partial least squares structural equation modeling (PLS-SEM) analysis method, with Green Innovation as the mediating variable. The study uses primary data collected through questionnaires from 110 employees of PT Induksarana Kemasindo. The results show that GHRM and GTL have a significant role in improving environmental performance and green innovation (Green Innovation) at PT. However, Green Innovation does not function as a significantly mediator between GTL, GHR, and environmental performance. As a practical suggestion, companies need to improve the effectiveness of the GTL by integrating environmental sustainability principles into all aspects of human resource management and creating a work environment that supports Green Innovation.

INTRODUCTION

Indonesia faces significant environmental challenges due to the accumulation of waste, including factory, hospital, and household waste in various forms—solid, liquid, and gaseous. The country's rapidly growing economy and large population exacerbate the problem, particularly with the widespread use of non-biodegradable plastics, which contribute to severe pollution on land and in waterways. This pollution poses serious threats to the ecosystem, human health, and the natural environment. In response, regulations like PermenLHK No. 75 of 2019 mandate producers to implement waste reduction strategies, but the management of plastic waste remains inadequate. High levels of air pollution in major cities, partly due to the burning of plastic waste, further underscore the urgency of addressing these environmental issues.

In 2023, Jakarta generated 3.47 tons of plastic waste, with only 17% being recycled, indicating that current efforts to reduce plastic use and increase recycling are insufficient. Although modern advancements have made more materials recyclable, such as biodegradable plastics made from plant and animal extracts, their use remains limited due to higher costs compared to conventional plastics. To address this issue, increased public awareness and cooperation among various stakeholders are essential. Both the community and producers must take responsibility for environmental protection, with producers implementing better environmental performance practices in their operations.

Environmental Performance is a measure of how well an organization manages its environmental impact (Asiaei et al., 2022; Claver et al., 2007). This can be measured through various indicators, such as emission reduction, energy use, waste, and water consumption. Environmental Performance allows the creation of an atmosphere that encourages new ideas as well as leading to Green Innovation within the company. Improving Environmental Performance is not only a moral responsibility, but also provides long-term economic benefits, such as improved operational efficiency, reduced costs, and improved corporate reputation in the eyes of consumers and investors who are increasingly concerned about environmental issues. The first thing that affects this Environmental Performance is Green Transformational Leadership which is an environmentally-focused leadership style, where a leader not only encourages his followers to achieve environmental goals, but also inspires them to exceed expectations in their environmental performance (Mansoor et al., 2021; Ren et al., 2024). Green transformational leaders have a clear vision of environmental sustainability and motivate employees to achieve that vision.

Green Transformational Leadership and Environmental Performance are closely intertwined in creating a conducive and sustainable work environment (Riva et al., 2021). Environmental Performance promotes environmentally friendly practices in the company's operations, and Green Transformational Leadership positively supports the effective implementation of this environmental performance. If these two things are combined, it will provide companies with many benefits such as improving the company's image (Riva et al., 2021), increasing employee retention (Singh et al., 2020), increasing efficiency and cost savings (Riva et al., 2021), increasing innovation and increasing competitiveness between one company and another so that the company will be more in demand by consumers and investors who are aware of the environment (Sun et al., 2022). Green Transformational Leadership can also motivate employees to engage in pro-environmental actions and participate in programs that support sustainability (Zhang et al., 2020). The positive role of Green Transformational in supporting the implementation of Environmental Performance will also make it easier for companies to communicate green organizational values and practices to employees (Singh et al., 2020), encourage employee participation in environmentally friendly initiatives, create a sense of responsibility for the company's environmental impact, provide recognition and appreciation to employees so that they can motivate them to continue to maintain environmental performance (Sun et al., 2022), and the latter provides a platform for collaboration so that employees can exchange ideas and work together on eco-friendly projects (Riva et al., 2021).

The second factor that affects Environmental Performance is Green Human Resource Management which is the application of human resource management practices that integrate environmental awareness into all aspects of employee management, from recruitment and selection, training and development, to performance appraisal and compensation (Renwick et al., 2013). The goal is to create an environmentally conscious workforce and support the company's sustainability goals. Green Human Resource Management has a close relationship with improving the company's Environmental Performance. The implementation of GHRM practices, such as recruitment and selection that focuses on environmental awareness, training and development related to environmental issues, and a reward system that encourages environmentally friendly behavior, can create a corporate culture that cares about the environment. This in turn encourages employees to be more active in proposing and implementing green initiatives, reducing the company's negative impact on the environment, and contributing to improving overall environmental performance.

In such a company culture, employees not only understand the importance of preserving the environment, but are also encouraged to proactively propose and participate in various green initiatives. These initiatives can include reducing energy and water consumption, minimizing waste, using more environmentally friendly raw materials, as well as other practices aimed at reducing the company's negative impact on the environment. Thus, the implementation of GHRM not only provides benefits to the environment, but also encourages innovation and operational efficiency, which ultimately contributes to the improvement of the company's overall environmental performance.

The third factor that affects Environmental Performance is Green Innovation which refers to innovations in technologies or processes that aim to reduce negative impacts on the environment and improve sustainability (Chen et al., 2006). This could include the development of eco-friendly products, the use of clean technologies, and sustainable management practices. Green Innovation is a driving force for improving environmental performance. Through the development of environmentally friendly products, services, and processes, companies can significantly reduce their negative impact on the

environment. These innovations not only contribute to nature conservation, but can also improve operational efficiency and open up new market opportunities.

Thus, Green Innovation is a key strategy for companies that want to achieve sustainability and competitive advantage in an era that is increasingly environmentally conscious. The implementation of Green Innovation has a positive correlation with the improvement of Environmental Performance. This is reflected in various case studies that show that companies that invest in green innovation tend to have a lower carbon footprint, more efficient energy consumption, and better waste management. Green innovation can also encourage companies to adopt sustainable business practices, such as the use of recycled raw materials and the reduction of greenhouse gas emissions. The relationship between Green Innovation and Environmental Performance is a cycle that reinforces each other.

The better a company's environmental performance, the greater the incentive to continue to innovate in creating environmentally friendly solutions. On the contrary, green innovations that are successfully implemented will have a positive impact on environmental performance, which in turn will improve the company's reputation and attract consumers who are increasingly concerned about environmental issues.

This study aims to analyze the influence of Green Transformational Leadership and Green Human Resources Management on Environmental Performance and Green Innovation, as well as the relationship between Green Innovation and Environmental Performance. This research is expected to provide theoretical benefits as a source of information and reference for further research, as well as practical benefits in the development of science related to improving environmental performance in organizations or companies.

The hypotheses used in this study are:
1) H1: Green Transformational Leadership has a positive effect on Environmental Performance
2) H2: Green Human Resources Management has a positive effect on Environmental Performance
3) H3: Green Transformational Leadership has a positive effect on Green Innovation
4) H4: Green Human Resources Management has a positive effect on Green Innovation
5) H5: Green Innovation has a positive effect on Environmental Performance
6) H6: Green Transformational Leadership has a positive effect on Environmental Performance mediated by Green Innovation
7) H7: Green Human Resources Management has a positive effect on Environmental Performance mediated by Green Innovation

METHODS

This study uses a quantitative approach with the partial least squares structural equation modeling (PLS-SEM) analysis method to examine the influence of Green Transformational Leadership and Green Human Resource Management on Environmental Performance, with Green Innovation as the mediating variable. The object of the study is PT Induksarana Kemasindo, a packaging company that has the potential to have a significant environmental impact, and the subject of the study is its employees who are directly involved in operational activities related to the environment. This study aims to explain the cause-and-effect relationship between these variables by focusing on the efficiency and relevance of data in the context of the company's environmental performance.

The variables in this study include Green Transformational Leadership and Green Human Resource Management as independent variables, Environmental Performance as dependent variables, and Green Innovation as mediating variables. This study uses primary data collected through questionnaires from 110 employees of PT Induksarana Kemasindo. The research instrument in the form of a questionnaire is designed based on a literature review and tested for validity and reliability. Data analysis is carried out through SEM, specifically PLS-SEM, which allows testing the complex relationship between latent variables and their indicators, as well as measuring the strength of the relationship between variables in the research model.
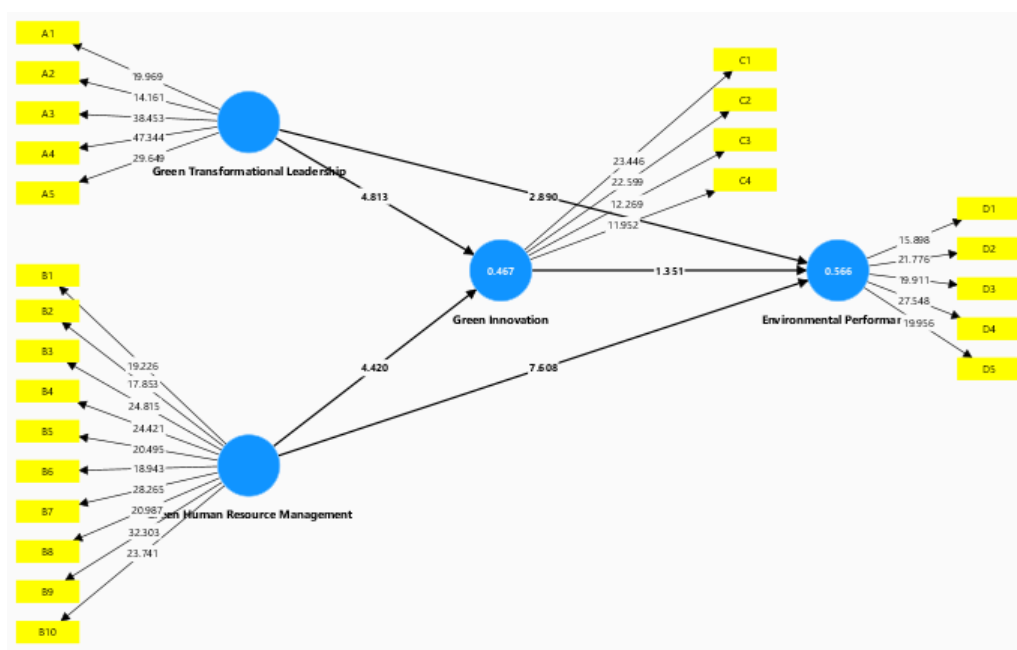
RESULTS
Direct Effect

Figure 1. Path Coefficients with t Statistics
Source : SmartPLS 4.0

Table 1. Results of Hypothesis Testing (Direct Effect)

	Original sample	T statistics	P values	Description
Green Human Resource Management -> Environmental Performance	0.654	7.608	0.000	Significant
Green Human Resource Management -> Green Innovation	0.359	4.420	0.000	Significant
Green Innovation -> Environmental Performance	-0.143	1.351	0.088	Not Significant
Green Transformational Leadership -> Environmental Performance	0.271	2.890	0.002	Significant
Green Transformational Leadership -> Green Innovation	0.41	4.813	0.000	Significant

Source : SmartPLS 4.0

Table 1 shows the results of hypothesis testing in this study using data that has been collected from respondents, the following is an explanation of each hypothesis, as follows.

H1: Green Transformational Leadership affects Environmental Performance
Table 1 shows that Green Transformational Leadership on Environmental Performance has a statistical t-value of 2.890, which means it is greater than 1.96, and a P value of 0.000, which means less than 0.05, so H0 is rejected and Ha is accepted. Based on the test results, the hypothesis in this study is accepted. This shows that the Green Transformational Leadership variable has a positive and significant effect on Environmental Performance. Green Transformational Leadership has a very significant influence on Environmental Performance, this shows that a leadership style oriented to the green environment can have an effect on the environmental performance of a company.

H2: Green Human Resource Management affects Environmental Performance
Table 1 shows that Green Human Resource Management has a statistical t value of 7.608 which means it is greater than 1.96 and a P value of 0.000 means less than 0.05 so that H0 is rejected and Ha is accepted. Based on the test results, the hypothesis in this study is accepted. This shows that the Green

Human Resource Management variable has a positive and significant effect on Environmental Performance. Green Human Resource Management has a very significant influence on Environmental Performance, this shows that the alignment of human resource management with environmental management can have an effect on environmental performance in a company.

H3: Green Transformational Leadership affects Green Innovation

Table 1 shows that Green Transformational Leadership for Green Innovation has a statistical t-value of 4.813, which means it is greater than 1.96, and a P value of 0.000, which means that it is less than 0.05, so H0 is rejected and Ha is accepted. Based on the test results, the hypothesis in this study is accepted. This shows that the Green Transformational Leadership variable has a positive and significant effect on Green Innovation. Green Transformational Leadership has a very significant influence on Green Innovation, this means that the higher the influence of the original leadership style on the green environment, the more creative the employees are in developing innovations in the green environment.

H4: Green Human Resource Management affects Green Innovation

Table 1 shows that Green Human Resource Management for Green Innovation has a statistical t value of 4.420, which means it is greater than 1.96, and a P value of 0.000, which means less than 0.05, so that H0 is rejected and Ha is accepted. Based on the test results, the hypothesis in this study is accepted. This shows that the Green Human Resource Management variable has a positive and significant effect on Green Innovation. Green Human Resource Management has a significant influence on Green Innovation. This means that the alignment of human resource management with environmental management also affects employee creativity in developing innovations regarding the green environment.

H5 : Green Innovation affects Environmental Performance

Table 1 shows that Green Innovation on Environmental Performance has a statistical t-value of 1.351, meaning less than 1.96 and a P value of 0.088, meaning more than 0.05, so H0 is accepted and Ha is rejected. This shows that the Green Innovation variable has no influence on Environmental Performance. Based on the results of the test, the hypothesis in this study was rejected or not accepted.

Indirect Effect

Table 2. Results of Hypothesis Testing (Indirect Effect)

	Original sample	T statistics	P values	Description
Green Human Resource Management -> Green Innovation -> Environmental Performance	-0.051	1.153	0.124	Not Significant
Green Transformational Leadership -> Green Innovation -> Environmental Performance	-0.059	1.365	0.086	Not Significant

Source : SmartPLS 4.0

Table 2 presents the results of the analysis regarding the indirect influence between the variables studied, in accordance with the model and hypothesis proposed in this study. Based on the data, it can be concluded that Green Innovation does not act as a mediator between Green Transformational Leadership and Green Human Resource Management with Environmental Performance, because the t-statistical value for Green Transformational Leadership (1.465) and p values (0.086) means that it does not meet the criteria, while the t-statistical value for Green Human Resource Management (1.153) and P values (0.124) which also did not meet the criteria.

Comparison of Direct Effect and Indirect Effect Results

Table 3. Comparison of Direct Effect and Indirect Effect Hypothesis Testing Results

	Original sample	T statistics	P values	Description	Result
Green Human Resource Management -> Green Innovation -> Environmental Performance	-0.051	1.153	0.124	Not Significant	
Green Human Resource Management -> Environmental Performance	0.654	7.608	0.000	Significant	Better
Green Transformational Leadership -> Green Innovation -> Environmental Performance	-0.059	1.365	0.086	Not Significant	
Green Transformational Leadership -> Environmental Performance	0.271	2.890	0.002	Significant	Better

Source : SmartPLS 4.0

The table shows that Green Human Resource Management mediated by Green Innovation does not have a significant direct influence on Environmental Performance (EP) (T = 1.153, p > 0.05). However, Green Human Resource Management had a positive and significant effect on Environmental Performance (T = 7,608, p < 0.001). Meanwhile, Green Transformational Leadership mediated by Green Innovation does not have a significant direct influence on Environmental Performance (T = 1,365, p > 0.05), but Green Transformational Leadership has a positive and significant influence on Environmental Performance (T = 2,890, p < 0.01), so that in this study the results of hypothesis testing by direct effect are better than using mediation (Indirect Effect).

The Effect of Green Transformational Leadership on Environmental Performance

The results of this study show that Green Transformational Leadership for Environmental Performance has a statistical t value of 2.890, which means it is greater than 1.96, and a P value of 0.000, which means less than 0.05, so that H0 is rejected and Ha is accepted. Based on the test results, the hypothesis in this study is accepted. This shows that the Green Transformational Leadership variable has a positive and significant effect on Environmental Performance. The results of this study are supported by previous research which states that Green Transformational Leadership has a positive and significant influence on Environmental Performance in the manufacturing sector (Tian et al., 2023). Based on this discussion, it can be concluded that Green Transformational Leadership has a role in Environmental Performance in terms of the green environment.

The Effect of Green Human Resource Management on Environmental Performance

The results of this study show that Green Human Resource Management for Environmental Performance has a statistical t value of 7.608 meaning greater than 1.96 and a P value of 0.000 meaning less than 0.05 so that H0 is rejected and Ha is accepted. Based on the test results, the hypothesis in this study is accepted. This shows that the Green Human Resource Management variable has a positive and significant effect on Environmental Performance. The results of this study are supported by previous research which states that Green Human Resource Management has a positive and significant influence on Environmental Performance in the manufacturing sector (Peng et al., 2024). Based on this discussion, it can be concluded that Green Human Resource Management has a role in Environmental Performance in terms of the green environment.

The Effect of Green Transformational Leadership on Green Innovation

This study shows that Green Transformational Leadership towards Green Innovation has a statistical t-value of 4.813, which means it is greater than 1.96, and a P value of 0.000, which means less than 0.05, so that H0 is rejected and Ha is accepted. Based on the test results, the hypothesis in this study is accepted. This shows that the Green Transformational Leadership variable has a positive and significant effect on Green Innovation. The results of this study are supported by previous research which states that Green Transformational Leadership has a positive and significant influence on Green Innovation in the manufacturing sector (Purnomo et al., 2024). Based on this discussion, it can be

concluded that Green Transformational Leadership has a role in Green Innovation in terms of the green environment.

The Effect of Green Human Resource Management on Green Innovation

The table shows that Green Human Resource Management for Green Innovation has a statistical t value of 4.420, which means it is greater than 1.96, and a P value of 0.000, which means that it is less than 0.05, so H0 is rejected and Ha is accepted. Based on the test results, the hypothesis in this study is accepted. This shows that the Green Human Resource Management variable has a positive and significant effect on Green Innovation. The results of this study are supported by previous research which states that Green Human Resource Management has a positive and significant influence on Green Innovation (Malik et al., 2021). Based on this discussion, it can be concluded that Green Human Resource Management has a role in Green Innovation in terms of the green environment.

The Effect of Green Innovation on Environmental Performance

The table shows that Green Innovation on Environmental Performance has a statistical t value of 1.351 meaning less than 1.96 and a P value of 0.088 meaning more than 0.05 so that H0 is accepted and Ha is rejected. This shows that the Green Innovation variable has no influence on Environmental Performance. Based on the test results, the hypothesis in this study is rejected and is not in accordance with previous research where Green Innovation has a positive influence on Environmental Performance (Rehman et al., 2021).

CONCLUSION

This study highlights the significant role of Green Human Resource Management (GHRM) and Green Transformational Leadership (GTL) in enhancing environmental performance and green innovation at PT Induksarana Kemasindo. While GHRM and GTL positively influence environmental outcomes, the research did not find a significant mediating effect of Green Innovation between these variables and environmental performance, suggesting the need for further exploration of other mediators or moderators. The study recommends companies to integrate environmental sustainability into HR practices, foster a supportive environment for green innovation, and regularly evaluate the effectiveness of GHRM and GTL programs. It also calls for future research across diverse industries and cultural contexts, with a focus on Green Creativity and eco-friendly products to bolster environmental performance.

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