

Creating A Green Organizational Culture: A Blend of Green Human Resource Management and Green Innovation Practices in the Fertilizer Industry

Nurmala¹, Ulya Liana Rusydi^{1*}, A Hadi Arifin¹, FaisalMatriadi¹

¹Faculty of Economics and Business, Malikussaleh University, INDONESIA
Corresponding author: ulya.210410054@mhs.unimal.ac.id

ABSTRACT

This study investigates the influence of Green Human Resource Management (GHRM) and Green Innovation (GI) on the development of Green Organizational Culture (GOC) at PT Pupuk Iskandar Muda, Lhokseumawe. A quantitative approach was employed using multiple linear regression analysis, with data collected from 90 respondents determined through the Slovin formula. The results demonstrate that GHRM exerts a significant positive effect on GOC ($t = 7.634$; $p = 0.000$; $B = 0.826$), while GI also shows a significant contribution ($t = 3.984$; $p = 0.000$; $B = 0.480$). When tested simultaneously, the two variables explain 75.8% of the variance in GOC (adjusted $R^2 = 0.758$), indicating that both factors play a substantial role in shaping a sustainable organizational culture. The novelty of this research lies in its focus on the fertilizer industry in a developing country, which remains underexplored. Theoretically, the study expands the application of AMO Theory and the Resource-Based View (RBV) to sustainability research. Practically, it offers guidance for managers to integrate HR and innovation strategies in building sustainable organizations. Limitations include reliance on self-reported data and focus on a single company. Future studies should consider leadership, environmental awareness, and regulatory factors.

Keywords: Green human resource management; green innovation; green organizational culture

INTRODUCTION

In recent years, environmental challenges such as climate change, ecosystem degradation, and increasingly stringent government regulations have forced organizations across industries to integrate sustainability principles into their core strategies. This global pressure has highlighted the importance of fostering organizational cultures that embed green values, often referred to as Green Organizational Culture (GOC). Such a culture does not only shape employees' environmentally responsible behavior but also enhances a company's ability to remain competitive in the era of sustainability. This urgency becomes particularly critical for industries with a high environmental footprint, such as the chemical and fertilizer sectors, where operational activities are closely linked to ecological risks.

PT Pupuk Iskandar Muda (PT PIM), a state-owned fertilizer manufacturer in Lhokseumawe, Aceh, has demonstrated efforts toward environmental stewardship by adopting the "Green Energy" theme and receiving recognition through the PROPER award. However, preliminary observations suggest that challenges remain, including limited employee involvement in environmental initiatives and uneven implementation of green innovation across departments. These issues reveal that while the company has initiated sustainability measures, further improvements are needed to build a more consistent and deeply embedded green culture.

Previous research has often addressed Green Human Resource Management (GHRM) and Green Innovation (GI) separately, with the majority focusing on service industries or multinational corporations in developed countries. As a result, studies that empirically investigate the integration of GHRM and GI in shaping GOC within heavy industries particularly in developing nations are still scarce. This gap indicates a need for more context-specific evidence that reflects the challenges faced by industries with high environmental impact, such as fertilizer production. Therefore, this study aims to examine the influence of GHRM and GI on the development of GOC at PT Pupuk Iskandar Muda. By doing so, it seeks to fill the empirical gap in sustainability research within heavy industries, particularly in developing countries where such studies remain limited. Beyond this contribution, the study also extends the application of sustainability-related frameworks such as the AMO and RBV theories to a high-impact industrial context. Practically the findings are expected to provide actionable insights for managers on how to integrate human resource practices with green innovation strategies to strengthen organizational sustainability.

LITERATURE REVIEW

GREEN HUMAN RESOURCE MANAGEMENT (GHRM)

Green Human Resource Management (GHRM) refers to the implementation of HR practices that promote environmental sustainability within an organization. These practices include green recruitment, training, performance appraisal, and reward systems that encourage employees to adopt eco-friendly behavior (Renwick et al. 2013). According to the Ability, Motivation Opportunity (AMO) framework, GHRM enhances employees' capacity to act sustainably through proper training, motivates them with recognition and rewards, and creates opportunities for green participation.

Previous studies have shown that GHRM positively influences employees' pro-environmental behavior and contributes to the formation of a green organizational culture (Roscoe et al. 2020). However, most research has focused on service-oriented or multinational firms in advanced economies, while limited attention has been given to heavy industries in developing contexts. This indicates a need for further exploration of GHRM's role in sectors with higher ecological risks, such as fertilizer production.

GREEN INNOVATION

Green Innovation (GI) involves the development and application of new processes, technologies, or products that reduce environmental impact while maintaining competitiveness (Chen et al. 2006). From the perspective of the Resource-Based View (RBV), GI can be seen as a strategic capability that enables firms to achieve sustainable advantage by integrating environmental considerations into innovation activities.

Studies have highlighted that GI fosters sustainable performance by reducing waste, improving resource efficiency, and enhancing reputation (Hojnik & Ruzzier 2021). Nonetheless, the successful implementation of GI often requires substantial resources and organizational readiness, which may pose challenges for companies operating in developing countries. Thus although GI has the potential to strengthen green organizational culture, its effectiveness may vary depending on contextual factors such as resource availability and managerial commitment.

GREEN ORGANIZATIONAL CULTURE

Green Organizational Culture (GOC) is defined as a set of values, norms, and practices that emphasize environmental responsibility within an organization (Harris & Crane 2002). A strong GOC ensures that sustainability principles are integrated into daily routines, decision-making, and long-term strategies.

Research has demonstrated that a well-established GOC does not only improve environmental performance but also enhances employee engagement and organizational reputation (Khan et al. 2023). However, building such a culture requires both supportive HR practices and continuous innovation. Without these drivers, GOC risks being symbolic rather than substantive.

Integration of Green Human Resource Management and Green Innovation in Shaping Green Organizational Culture while GHRM focuses on shaping employee behavior and attitudes, GI emphasizes technological and process-oriented changes. Together, these elements can create a synergistic effect in fostering GOC. Several scholars argued that the integration of HR practices with innovation strategies is essential to building a sustainable organizational culture (Jabbour & de Sousa Jabbour 2016).

Nevertheless, empirical studies examining this integration in heavy industries remain limited. Most prior works concentrated on sectors such as hospitality, education, or multinational corporations, leaving a research gap in industries with higher environmental footprints. Addressing this gap is particularly important for fertilizer manufacturing, whereby this sector's operations directly impact ecological sustainability.

RESEARCH GAP AND HYPOTHESIS DEVELOPMENT

Based on the review above, it can be seen that previous studies have confirmed the significance of both GHRM and GI in promoting sustainability. However, gaps remain in three areas:

Contextual gap – Prior studies are dominated by service sectors and developed nations, with limited evidence from heavy industries in developing countries

1. Contextual gap – Prior studies are dominated by service sectors and developed nations, with limited evidence

- from heavy industries in developing countries
2. Integration gap – Few studies have jointly examined the roles of GHRM and GI in shaping GOC.
3. Practical gap – There is a need for context-specific insights into how companies in environmentally sensitive sectors, such as fertilizer, can integrate HR practices and innovation strategies.

To address these gaps, this study develops the following hypotheses:

- H₁ Green Human Resource Management (GHRM) has a positive effect on Green Organizational Culture (GOC).
H₂ Green Innovation (GI) has a positive effect on Green Organizational Culture (GOC).
H₃ Green Human Resource Management (GHRM) and Green Innovation (GI) simultaneously influence Green Organizational Culture (GOC).

METHODOLOGY

This study employed a quantitative causal-associative design to analyze the effects of Green Human Resource Management (GHRM) and Green Innovation (GI) on Green Organizational Culture (GOC). The research was conducted at PT Pupuk Iskandar Muda (PT PIM), a fertilizer company in Aceh with a significant environmental footprint, making it a relevant setting for sustainability studies.

The population consisted of 643 organic employees, with organic staff being selected because of their direct involvement in production activities that impact the environment. Using Slovin's formula with a 10% margin of error, a representative sample of 90 respondents was obtained. Data were collected through a structured questionnaire on a five-point Likert scale, adapted from validated instruments in prior studies. Instrument testing confirmed both validity and reliability, with all factor loadings exceeding 0.30 and Cronbach's Alpha values above 0.70 (GHRM = 0.89; GI = 0.86; GOC = 0.91). Data were analyzed using multiple linear regression, following classical assumption tests for normality, multicollinearity, and heteroscedasticity. The regression model is specified as:

$$GOC = \beta_0 + \beta_1(GHRM) + \beta_2(GI) + \varepsilon$$

While self-reported data were used, anonymity was assured to minimize bias. This method remains appropriate as organizational culture is best captured through employees' perceptions.

RESULTS

The results of the data analysis demonstrate that both Green Human Resource Management (GHRM) and Green Innovation (GI) exert significant effect on Green Organizational Culture (GOC) at PT Pupuk Iskandar Muda.

PARTIAL EFFECT (T-TEST)

The regression analysis shows that GHRM has a strong and positive effect on GOC ($\beta = 0.826$, $t = 7.634$, $p < 0.001$). This indicates that the more consistently green HR practices are implemented—such as recruitment, training, and performance appraisal oriented toward sustainability—the stronger the green culture within the organization.

Similarly, GI also contributes positively to GOC ($\beta = 0.480$, $t = 3.984$, $p < 0.001$). Although its impact is smaller compared to GHRM, the result confirms that environmentally oriented innovations in processes and technologies still play a significant role in strengthening organizational culture. Thus, both H₁ and H₂ are supported.

TABLE 1.1. Partial Test (t-Test)

Coefficients ^a								
Model	Unstandardized Coefficients	Std. Error		Standardized Coefficients	Collinearity Statistics			
	B			Beta	t	Sig.	Tolerance	VIF
1	(Constant)	6.096		1.277	4.775	.000		
	GHRM	.826	.108	.607	7.634	.000	.440	2.272
	GI	.480	.120	.317	3.984	.000	.440	2.272

a. Dependent Variable: Total_Y

SIMULTANEOUS EFFECTS (F-TEST)

The joint effect of Green Human Resource Management and Green Innovation on Green Organizational Culture was tested through the F-test. The results indicate that the model is highly significant ($F = 135.910$, $p < 0.001$), confirming that, together, the two predictors influence the development of a green organizational culture. Therefore, H_3 is supported.

TABLE 1.2. Simultaneous Test (F Test)

ANOVA ^a						
Model	Sum of Squares		df	Mean Square	F	Sig.
1	Regression	625,592	2	312.796	135.910	.000 ^b
	Residual	200.230	87	2.301		
	Total	825.822	89			

a. Dependent Variable: Total_Y

b. Predictors: (Constant), Total_X2, Total_X1

COEFFICIENT OF DETERMINATION (R^2)

The adjusted R^2 value of 0.758 shows that 75.8% of the variance in Green Organizational Culture can be explained by Green Human Resource Management and Green Innovation, while the remaining 24.2% is influenced by other factors not included in this study. This suggests a strong explanatory power of the model, highlighting the critical role of HR practices and innovation strategies in shaping sustainability oriented organizational values.

TABLE 1.3 Results of coefficient determination test

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.870 ^a	.758	.752	1.51707

a. Predictors: (Constant), Total_X2, Total_X1

b. Dependent Variable: Total_Y

DISCUSSION

The findings of this study confirmed that both Green Human Resource Management (GHRM) and Green Innovation (GI) significantly contribute to the development of Green Organizational Culture (GOC) at PT Pupuk Iskandar Muda. Between the two predictors, GHRM exerts a stronger influence, highlighting the pivotal role of human capital in embedding environmental values into organizational practices.

From a theoretical standpoint, these results are consistent with the Ability–Motivation– Opportunity (AMO) framework, which suggests that employees are more likely to engage in pro- environmental behavior when they are equipped with the necessary skills (ability), driven by appropriate incentives (motivation) and given the opportunities to participate (opportunity). In this study, HR practices such as green recruitment, training, and performance appraisal appear to be effective in shaping employees' environmental awareness, which in turn strengthens the organizational culture.

The positive effect of GI also aligns with the Resource-Based View (RBV), which regards innovation as a strategic resource that enhances organizational competitiveness. Although its influence is smaller than that of GHRM, the adoption of green technologies and environmentally friendly processes still contributes meaningfully to the cultivation of green values within the company. This supports previous research that emphasized the importance of aligning technological innovation with cultural transformation to achieve sustainable outcomes (Hojnik & Ruzzier 2021; Khan et al. 2023).

Comparisons with prior studies further reinforce the novelty of this research. While earlier works in developed economies and service industries have demonstrated the role of GHRM and GI in sustainability, empirical evidence from heavy industries in developing countries remains limited. The findings of this study extend the literature by providing context-specific insights from the fertilizer sector, an industry with inherently high environmental risks. From a practical perspective, the stronger influence of GHRM implies that PT PIM should prioritize the integration of sustainability into its HR practices. This includes embedding environmental criteria within recruitment and selection, providing continuous training on eco- friendly practices, and rewarding employees for green initiatives. At

the same time, innovation efforts should not be overlooked; consistent investment in green technologies and process improvements is necessary to reinforce and sustain a culture of environmental responsibility.

Overall, the results underscore the importance of aligning HRM policies with innovation strategies to build a robust GOC. This alignment does not only enhance organizational sustainability, but also ensures compliance with regulatory pressures and strengthens corporate reputation in an increasingly environmentally conscious market.

CONCLUSION

This study demonstrates that both Green Human Resource Management (GHRM) and Green Innovation (GI) significantly shape Green Organizational Culture (GOC) at PT Pupuk Iskandar Muda, with GHRM exerting a stronger influence. Together, the two variables explain 75.8% of the variance in GOC, highlighting the importance of aligning HR practices with innovation strategies in fostering sustainability-oriented cultures.

Theoretically, the findings extend the application of the AMO framework and the Resource- Based View (RBV) within the heavy industry context of a developing country, thereby addressing a gap in prior research dominated by service sectors and developed economies. Practically, the study suggests that companies in environmentally intensive industries should integrate environmental criteria into HRM systems while consistently investing in eco- innovation. This integration does not only support regulatory compliance, but also strengthens competitiveness and corporate reputation.

Although limited by its reliance on self-reported data and single-company context, this study offers a foundation for further research. Future studies are encouraged to examine multiple industries and consider additional variables such as leadership, employee environmental awareness, or regulatory influences to provide a more comprehensive understanding of green organizational culture.

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