
**GREEN HUMAN RESOURCE MANAGEMENT, GREEN WORK
ENGAGEMENT, AND ETHICAL LEADERSHIP**

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Abstract

This study focuses on batik SMEs in Surakarta, particularly in Laweyan and Kauman, which have adopted sustainable production practices using natural dyes and environmentally friendly materials (Wasita, 2025). However, it remains unclear whether these sustainability values have been fully reflected in employees' green behavior, even though the success of sustainability policies depends on how well individuals internalize and apply such values in their daily work activities. This study aims to analyze the influence how Green Human Resource Management, Green Work Engagement, and Ethical Leadership can encourage the consistent emergence of Green Behavior among SME actors, in order to bridge the gap between awareness and concrete actions in supporting sustainability. Data collection in this study was conducted through questionnaires, which are instruments consisting of a systematically and clearly designed list of written questions prepared by the researcher to be answered by the respondents. The results revealed that all the hypothesis testing in the research model, when Batik SMEs seek to improve their employees' green behavior whether formal (in-role), voluntary (extra-role), or innovative (green innovative work behavior) this can be achieved by strengthening ethical leadership, optimizing Green Human Resource Management (GHRM) practices, and enhancing employees' green work engagement. These findings are demonstrated by the fact that Ethical Leadership, Green Human Resource Management, and Green Work Engagement predominantly have positive and significant effects on various dimensions of employees' green behavior within the Batik SME environment.

Keywords: Green Human Resource Management, Green Work Engagement, Ethical Leadership

INTRODUCTION

The world is currently facing increasingly complex environmental challenges, most of which are triggered by human activities. Climate change caused by various human activities such as the use of non-recyclable materials, the burning of non-renewable fuels, and poor waste management has become a major driver of changes in weather conditions and temperatures across the globe (Denchak, 2023). According to the Intergovernmental Panel on Climate Change, global temperatures have increased by more than 1°C since the pre-industrial era and are projected to rise by up to 1.5°C within the next two decades without significant intervention (Henson & Yool, 2022).

Within organizations, employees' environmentally friendly behavior, or Green Behavior, serves as a key pillar in supporting operational and environmental sustainability. Green Behavior is divided into three main forms: In-Role Green Behavior (IRGB), which refers to behavior aligned with formal job responsibilities such as waste reduction and energy efficiency; Extra-Role Green Behavior (ERGB), which involves voluntary initiatives beyond formal responsibilities, such as adopting environmentally friendly lifestyles; and Green Innovative Work Behavior (GIWB), which refers to the creation of innovative solutions that support sustainability, such as developing environmentally friendly systems or technologies (Gupta & Jangra, 2024; Zahrani, 2024). These three forms complement one another in creating a behavioral ecosystem that supports organizational sustainability and long-term green transformation.

Such green behavior does not emerge spontaneously but is influenced by internal factors such as personal values, intrinsic motivation, and environmental awareness, as well as external factors such as organizational culture, reward systems, and supervisor support. One important factor that strengthens Green Behavior is Green Work Engagement (GWE), which reflects the extent to which employees feel motivated and actively involved in sustainability activities in the workplace (Madsen & Ulhøi, 2001). To support this engagement, organizations need to implement Green Human Resource Management (GHRM), which refers to the integration of sustainability principles into the entire human resource management cycle, ranging from recruitment and training to performance evaluation (Huo et al., 2022; Ismail & Abdelghani, 2024). GHRM not only contributes to environmental preservation but also enhances job satisfaction and company competitiveness through initiatives such as recycling, reducing paper usage, and remote working practices (Rawash & Aloqaily, 2022; Viterouli et al., 2023). These practices also contribute to Corporate Social Responsibility (CSR) and serve as a foundation for the emergence of green behavior at the individual level (I. Ahmad & Umrani, 2019).

This study focuses on batik SMEs in the City of Surakarta, particularly in the areas of Laweyan and Kauman, which are known as traditional batik centers that have begun implementing sustainable production approaches through the use of natural dyes and environmentally friendly materials (Wasita, 2025). These practices demonstrate the integration of sustainability values into SME operational activities. However, has this

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integration truly been reflected in individual-level green behavior? This question is important because the success of sustainability policies depends not only on organizational strategies but also on the extent to which individuals within the organization internalize and apply these values in their daily actions. Therefore, it is important to further examine how Green Human Resource Management, Green Work Engagement, and Ethical Leadership can encourage the consistent emergence of Green Behavior among SME actors, in order to bridge the gap between awareness and concrete actions in supporting sustainability.

REVIEW OF LITERATURE

Social Exchange Theory (SET)

Social Exchange Theory (SET), first introduced by Peter Blau (Blau, 1964), views social interaction as a reciprocal exchange of tangible and intangible resources between individuals or groups. This theory is based on the norm of reciprocity, which emphasizes long-term mutual obligations and socio-emotional benefits. In organizational contexts, research by Fan et al. (2021) shows that SET is widely used to explain how fair treatment and ethical behavior from leaders and institutions can build positive social exchange relationships. When employees feel they are treated fairly, they tend to reciprocate by demonstrating commitment, loyalty, and positive behavior toward the organization. Similarly, reciprocal exchanges of support and information can increase trust, cooperation, and performance (Luqman et al., 2023)

Supply-Value Fit Theory (SVFT)

Intrinsic work values, such as the desire for meaningful and autonomous work, can significantly enhance employees' intrinsic motivation. However, this motivational potential becomes most effective when the work environment provides conditions aligned with those values. Park (2023) illustrated this dynamic through a study of worker cooperatives, a type of organization that naturally grants workers substantial decision-making freedom.

Ethical Leadership

Ethical Leadership (EL) is characterized by leader behaviors that demonstrate and promote ethical conduct through personal integrity, fairness, and moral management. This leadership style positively influences ESG (Environmental, Social, and Governance) performance, as shown in the study by Zhu et al. (2025), by encouraging organizations to adopt environmentally friendly practices, engage in social responsibility, and maintain transparent and accountable governance.

In-Role Green Behavior

In-Role Green Behavior (IRGB) refers to environmentally responsible actions that employees are formally required to perform as part of their job duties. These behaviors are typically included in job descriptions, aligned with organizational environmental policies, and often influenced by Green Human Resource Management (GHRM) practices (Paillé & Boiral, 2013).

Extra-Role Green Behavior

Extra-Role Green Behavior (ERGB) refers to voluntary pro-environmental actions performed by employees that are not part of their formal job responsibilities. These behaviors

are carried out voluntarily rather than due to organizational obligations, yet they still contribute significantly to sustainability through practices such as implementing environmentally friendly initiatives, participating in green committees, or proposing ideas to improve organizational environmental performance (Paillé & Boiral, 2013).

Green Innovative Work Behavior

Green Innovative Work Behavior (GIWB) refers to employees' proactive and creative efforts to generate, support, and implement new ideas, practices, and solutions oriented toward environmental sustainability. GIWB combines innovation and ecological responsibility to reduce negative environmental impacts while improving organizational performance. Moreover, GIWB reflects employees' personal initiatives to explore, develop, and implement environmentally friendly innovations in products and services. These actions are voluntary and not always included in normal job descriptions, yet they have a substantial impact on achieving organizational environmental goals (Madan et al., 2025). Examples include reusing waste materials, reducing resource consumption, and innovating work processes that support sustainability (Alnaqbi et al., 2024).

Green Human Resource Management

Green Human Resource Management (GHRM) refers to the integration of sustainability principles into traditional HRM practices to encourage environmentally friendly behavior and improve organizational environmental performance. GHRM includes various strategies such as:

Green Work Engagement

Green Work Engagement (GWE) refers to the extent of employees' cognitive, emotional, and physical involvement in carrying out environmentally sustainable tasks in the workplace. GWE is a specific form of work engagement that channels energy, enthusiasm, and dedication specifically toward environmental responsibilities.

RESEARCH METHOD

Data collection in this study was conducted through questionnaires, which are instruments consisting of a systematically and clearly designed list of written questions prepared by the researcher to be answered by the respondents (Sekaran & Bougie, 2016). This method was chosen because it is suitable for the quantitative approach used in this study, which emphasizes the collection and analysis of numerical data. Each item in the questionnaire was developed based on the indicators of the research variables, which include Ethical Leadership, Green Human Resource Management, Green Work Engagement, In-Role Green Behavior, Extra-Role Green Behavior, and Green Innovative Work Behavior. The questions were carefully constructed to objectively and accurately capture respondents' perceptions and attitudes toward each variable.

RESULTS AND DISCUSSION

Table 1. Hypothesis Testing Based on Path Coefficients

Hypothesis	Relationship Between Variables	Path Coefficient	Standart Deviation	T-Statistics	P-Values	Conclusion
H1a+	EL→IRGB	0,271	0,057	4.725	0.000	Accepted
H1b+	EL→ERGB	0,313	0,057	5.520	0.000	Accepted
H1c+	EL→GIWB	0,206	0,052	3.944	0.000	Accepted
H2a+	GHRM→IRGB	0,205	0,064	3.187	0.002	Accepted
H2b+	GHRM→ERGB	0,182	0,061	2.992	0.003	Accepted
H2c+	GHRM→GIWB	0,333	0,061	5.442	0.000	Accepted
H3a+	GWE→IRGB	0,333	0,057	5.822	0.000	Accepted
H3b+	GWE→ERGB	0,131	0,060	2.188	0.029	Accepted
H3c+	GWE→GIWB	0,399	0,058	6.852	0.000	Accepted

Table 2. Specific Indirect Effect Mediation Test

Hypothesis	Relationship Between Variables	Path Coefficient	Standart Deviation	T-Statistics	P-Values	Conclusion
H4a	GHRM→GWE→IRGB	0,028	0,030	5,487	0,000	Accepted
H4b	GHRM→GWE→ERGB	0,065	0,030	2,167	0,031	Accepted
H4c	GHRM→GWE→GIWB	0,198	0,035	5,691	0,000	Accepted
H5a	EL→GHRM→GWE→IRGB	0,077	0,016	4,783	0,000	Accepted
H5b	EL→GHRM→GWE→ERGB	0,030	0,014	2,112	0,035	Accepted
H5c	EL→GHRM→GWE→GIWB	0,093	0,018	5,139	0,000	Accepted

Ethical Leadership has a positive effect on employees' In-Role Green Behaviour

The results of the hypothesis testing on the relationship between Ethical Leadership and In-Role Green Behaviour among Batik SME employees indicate a positive and significant relationship, supporting hypothesis H1a. These findings explain that the majority of Batik SME owners demonstrate strong ethical leadership by providing role models in the use of environmentally friendly natural dyes and playing an important role in sustainable batik production processes, which significantly influence employees' green behavior within their formal job responsibilities (in-role). Ethical leaders are able to transmit sustainability values into operational standards that are followed by all batik artisans in their work.

Ethical Leadership has a positive effect on employees' Extra-Role Green Behaviour

The hypothesis testing results for Ethical Leadership and Extra-Role Green Behaviour among Batik SME employees reveal a positive and significant relationship, supporting hypothesis H1b. These findings indicate that most Batik SME owners demonstrate strong ethical leadership by showing openness toward employees' environmental preservation ideas and playing an important role in operational activities, which significantly influence employees' green behavior beyond their formal roles (extra-

role). Employees feel supported in engaging in voluntary actions beyond their standard responsibilities because they observe genuine commitment from leaders toward sustainability.

Ethical Leadership has a positive effect on employees' Green Innovative Work Behaviour

The hypothesis testing results for Ethical Leadership and Green Innovative Work Behaviour among Batik SME employees show a positive and significant relationship, supporting hypothesis H1c. These findings explain that most Batik SME owners demonstrate strong ethical leadership by providing full support for environmentally friendly motif innovations and playing an important role in batik design development, which significantly influences employees' green innovative work behaviour. This indicates that the ethical behavior of business owners provides artisans with opportunities to channel their energy and skills into creating sustainable innovations.

These findings are in line with Iqbal et al. (2020), who stated that Ethical Leadership encourages followers to channel their energy and skills, ultimately leading to Innovative Work Behaviour. Similarly, Zhu et al. found that leaders' ethical behaviour positively impacts employee creativity, which triggers innovative work behaviour.

Green Human Resource Management has a positive effect on employees' In-Role Green Behaviour

The hypothesis testing results for Green Human Resource Management and In-Role Green Behaviour among Batik SME employees indicate a positive and significant relationship, supporting hypothesis H2a. These findings explain that the majority of Batik SME management demonstrates strong GHRM practices by providing special training on batik waste management and playing an important role in production processes, which significantly influence employees' green behavior within their formal job responsibilities. Employees tend to follow established green operational standards due to the existence of HR management systems that support sustainability principles.

These findings are consistent with Islam et al. (2021), who found a positive influence of green HRM on individual in-role green behavior.

Green Human Resource Management has a positive effect on employees' Extra-Role Green Behaviour.

The hypothesis testing results for Green Human Resource Management and Extra-Role Green Behaviour among Batik SME employees indicate a positive and significant relationship, supporting hypothesis H2b. These findings explain that the majority of Batik SME management demonstrates strong GHRM practices by providing incentives for employees who maintain workplace cleanliness and play an important role in fabric quality management, which significantly influences employees' voluntary green behavior. This suggests that environmental initiatives implemented by organizations encourage employees to contribute positively beyond their formal responsibilities.

Green Human Resource Management has a positive effect on employees' Green Innovative Work Behaviour.

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The hypothesis testing results for Green Human Resource Management and Green Innovative Work Behaviour among Batik SME employees indicate a positive and significant relationship, supporting hypothesis H2c. These findings explain that most Batik SME management demonstrates strong GHRM practices by fostering a sustainability-based work culture and playing an important role in operational management, which significantly enhances employees' green innovative work behaviour. This indicates that management systems focused on environmental sustainability stimulate artisans to create creative solutions in the batik production process.

Green Work Engagement has a positive effect on employees' In-Role Green Behaviour.

The hypothesis testing results for Green Work Engagement and In-Role Green Behaviour among Batik SME employees reveal a positive and significant relationship, supporting hypothesis H3a. These findings explain that most Batik SME staff demonstrate strong Green Work Engagement by showing dedication in every environmentally friendly batik waxing process and playing an important role in batik production, which significantly influences employees' green behavior within their formal tasks. Employees who feel emotionally attached to the organization's environmental goals tend to be more disciplined and responsible in carrying out sustainability-based work instructions.

Green Work Engagement has a positive effect on employees' Extra-Role Green Behaviour.

The hypothesis testing results for Green Work Engagement and Extra-Role Green Behaviour among Batik SME employees indicate a positive and significant relationship, supporting hypothesis H3b. These findings explain that most Batik SME staff demonstrate strong Green Work Engagement by showing enthusiasm for maintaining the surrounding SME ecosystem and playing an important role in daily operational activities, which significantly influences employees' voluntary green behavior. Employees who feel enthusiastic and emotionally attached to the company's environmental values tend to voluntarily engage in pro-environmental actions beyond their formal job descriptions.

Green Work Engagement has a positive effect on employees' Green Innovative Work Behaviour.

The hypothesis testing results for Green Work Engagement and Green Innovative Work Behaviour among Batik SME employees reveal a positive and significant relationship, supporting hypothesis H3c. These findings explain that most Batik SME staff demonstrate strong Green Work Engagement by showing creativity in combining natural dyes and playing an important role in fabric quality management, which significantly influences employees' green innovative work behaviour. Employees' enthusiasm and dedication toward environmental values encourage them to actively seek innovative solutions that support sustainable batik production processes.

CONCLUSION

Overall, based on the results of the hypothesis testing in the research model, when Batik SMEs seek to improve their employees' green behavior, whether formal (in-role),

voluntary (extra-role), or innovative (green innovative work behavior), this can be achieved by strengthening ethical leadership, optimizing Green Human Resource Management (GHRM) practices, and enhancing employees' green work engagement. These findings are demonstrated by the fact that Ethical Leadership, Green Human Resource Management, and Green Work Engagement predominantly have positive and significant effects on various dimensions of employees' green behavior within the Batik SME environment. In addition, ethical leadership has been proven to stimulate stronger work engagement and encourage the implementation of more effective environmental management systems to foster work behavior that aligns with environmental sustainability.

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