



# Green human resources management practices, leadership style and employee engagement: Green banking context

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## ABSTRACT

This paper discusses green human resource management practices, employee engagement, and transformational leadership in green banking. Specifically, we explore how green human resource management practices influence employee engagement, and how the role of transformational leadership influences their relationships. We used a random sample of 363 green bank employees in Indonesia. Data was collected through online surveys and analyzed using regression modeling. The results show that in general, green human resource management practices are positively and significantly related to employee engagement, and transformational leadership is shown to moderate the relationship. However, specifically, green recruitment and selection only affects the behavioral factors of employee engagement, but not affective and cognitive factors. Meanwhile, training and development only affect the affective factors of employee engagement, but not cognitive and behavioral factors. Furthermore, this research presents novel discoveries regarding how the interplay of contextual and institutional factors between transformational leadership behaviors and green human resource management practices can promote employee engagement.

## 1. Introduction

In recent years, issues regarding green banking have been widely discussed by people around the world. This issue arises along with the increasing global concern about the harmful effects of pollution and environmental contamination. In simple terms, green banking can be interpreted as the banking business concept with a green environmental perspective. This concept is aimed at creating a green industry in the context of restoring environmental pollution and sustainable ecological balance [1,2]. Currently, the majority of banks around the world have implemented this concept into their business, which is governed by formal rules and laws. However, will they be successful in achieving the goals of the concept? A number of researchers argue that The successful attainment of an organization's strategic sustainability goals relies on having employees of competent, possessing an extensive technical and managerial skill [3–6]. In other words, achieving the goals of a sustainability strategy depends on “green human resource management” practices, employee engagement, and organizational leadership.

It is undeniable that human resources are the main factor for achieving organizational goals, including in building a sustainable organization [4]. “Green human resource management” practices are needed to produce quality, manage and develop environmentally sound employees. However, this practice also does not fully guarantee the natural resources and its environment preservation. This is because issues related to the environment are interdisciplinary in nature, which requires initiative and pro-environmental behavior

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from each individual [7,8]. Therefore, this practice becomes very important when it is able to foster employee involvement when carrying out activities related to the environment [6] and encourages innovation environment [4]. When employees are involved, both formally and informally, this can encourage high-level initiatives, innovative behavior, role expansion, and have the ability to adapt to change [9]. In addition, employee involvement can also encourage them to be psychologically present when carrying out their work, and comply with formal employment prerequisites and organizational regulations [10].

On the other hand, organizational leadership also plays an important role in the link between “green human resource management” practices and employee engagement. Belief in attaining objectives and practices within the organization (including “green human resource management” practices) is the result of reciprocal exchanges between leaders and their subordinates [11]. Individuals feel compelled to respond to the economic, emotional, and social support provided by their leaders [12]. Therefore, the engagement variable, which comprises implications of creative, pro-social, and proactive behavior, can be encouraged by positive interactions between individuals and their leaders [11,13]. Specifically, Ababneh et al. (2021) have demonstrated the important leadership role in the link between “green human resource management” practices and employee engagement. Theirs is the first study to explore this, and found a significant positive interaction influence transformational leadership on the relationship.

The concept of green banking has been widely implemented in Indonesia, especially since the implementation of “Law No. 32 of 2009” pertains to the protection and management of the environment. However, the new green banking boom began in 2015. Until now, studies on green banking practices in the human resources context are still limited. The majority of existing studies also focus on organizational and environmental performance [14,15]. Studies on the link between “green human resource management” practices and performance can indeed help to understand organizational conditions and practices, but are unable to identify how employees understand, interact, and adapt to a green-based work environment [4,9,16]. This is the first study to examine the link between “green human resource management” practices, employee engagement, and transformational leadership in the context of green banking in Indonesia.

The research objectives of this study are as follows:

1. To investigate the associations between GHRM practices and employee engagement.
2. To assess the potential moderating role of transformational leadership in the associations between GHRM practices and employee engagement.

Therefore, this research aims to address the aforementioned gaps in knowledge. In this study, we analyze green HRM practices associate with organizational and individual levels in order to address the following research questions:

**RQ1a.** Do “green recruitment and selection” associate with employee engagement?

**RQ1b.** Do “green training and development” associate with employee engagement?

**RQ2a.** Do transformational leadership moderate the associations between “green recruitment and selection” and employee engagement?

**RQ2b.** Do transformational leadership moderate the associations between “green training and development” and employee engagement?

## 2. Literature review and hypothesis development

### 2.1. Green human resource management practices

“Green human resource management” practices have been broadly defined, but all definitions lead to green environment-oriented aspects. Al-Romeedy [3] defines it as “the involvement of all activities in the development, implementation and maintenance of a sustainable system, with the aim of making employees and organizations environmentally aware.” Meanwhile, Amrutha and Geetha [17] define it as “policies, practices and systems that make organizational employees green for the benefit of individuals, society, the environment and business.” Rana and Sharma [18] define it as “the application of “green human resource management” practices with the aim of promoting the use of sustainable resources, which prioritizes environmental preservation to increase employee awareness and commitment to environmental management issues.” This is in line with Deshwal [19], who views it as “an organizational strategy to increase employees’ environmental awareness.” As such, the “green human resource management” practice refers to traditional “human resource management” practices with a focus on a green environment orientation. So, in principle, “green human resource management” practices are the same as traditional “human resource management” practices. Conventional “human resource management” practices center on hiring and choosing personnel, enhancing their skills and expertise, providing remuneration, evaluating their performance, while “green human resource management” practices do more than just that. “Green human resource management” practices need to integrate conventional “human resource management” practices with managing the environment with the aim of promoting and affecting attitudes, knowledge, motivation, and behavior related to employee sustainability [20–22]. This practice adopts a comprehensive comprehension of the “triple bottom-line concept,” which involves practices that are aligned with the three pillars of “environmental, social, and economic balance sustainability” [23], and bring long-term benefits [24].

Just like traditional “human resource management” practice, “green human resource management” practice also includes factors, such as “green recruitment and selection,” “green training and development,” performance evaluation, compensation, etc., but all of them are green environment oriented. To illustrate, in a green recruitment and selection process, “green human resource management”

practices emphasize the recruitment and selection of employees who endorse and exhibit interest in the environment [25]. During the job analysis phase, environmental aspects and accomplishments should be elucidated and emphasized in job descriptions and individual specifications, and elaborate on the expectations for prospective environmentally-conscious employees [25,26]. Thus, this recruitment and selection can ensure that new employees comprehend the organization's green culture and uphold its environmental principles [27]. In line with this, training and development are also more focused on aspects that are environmentally friendly [4], and this is the most significant factor for creating green behavior from employees [17]. Likewise related to performance evaluation and compensation are also focused on green environment-oriented aspects, such as providing feedback for employees to be able to support continuous improvement [20,25], "giving awards to employees for their commitment to environmental practices" [28].

## 2.2. Employee engagement

Saks and Gruman [29] defined employee engagement as "a multidimensional construct consisting of physical, cognitive, affective, and behavioral components." Employees who are engaged feel capable of completing their assigned tasks, as they possess higher levels of energy and connection towards their work [30]. [31] identified four types of employee engagement: (1) "personal resource development," the focus of personal resource development is on enhancing individual strengths, such as "self-efficacy, resilience, and optimism"; (2) "development of employment resources," the aim of employment resource development is to cultivate positive dimensions of the employee engagement, such as "autonomy, social support, feedback, and development opportunities"; (3) "leadership training," leadership training is designed to enhance managerial leadership skills through a combination of educational and hands-on training methods, such as group-based exercises in "goal-setting and problem-solving"; and (4) "health promotion," the main objective of health promotion is to enhance individual health and well-being while minimizing stress.

## 2.3. Relationship between GHRM practices and employee engagement

Park et al. [32] developed the Ability Motivation Opportunity (AMO) theory. They give a framework for examining the relationship between employee engagement and "green human resource management" practices. This theory posits that employee capabilities can be enhanced through the recruitment of skilled and competent staff, and/or by effective training and development program implementations. The selection of competent employees is aligned with employee engagement's task-performance dimension, in which engaged employees are present psychologically when performing their formal duties [9,33]. While it is not always necessary for employees to be creative and innovative when dealing with environmental issues, there are instances where adherence to pre-developed policies and procedures is required to control certain behaviors in the workplace. Therefore, efforts to improve the alignment between employee competencies, values, and goals, and organizational goals are important [16]. Hiring environmentally knowledgeable employees positively influences their perceptions and cognitive evaluations of corporate environmental initiatives, which leads to their full engagement in carrying out tasks in an environmentally friendly manner [34,35]. Engagement variables can also link training and development to the goal orientation and task performance domains [36]. Designing training and orientation and programs that focus on environmental aspects can increase employee awareness of their surrounding environment and their role in achieving these goals effectively. Several studies have also confirmed the positive association "green recruitment and selection" and "green training and development" with "green employee engagement" [6,36,37]. Thus, this study hypothesizes that:

**H1a.** Green recruitment and selection are positively associated with green employee engagement

**H1b.** green training and development are positively associated with green employee engagement

## 2.4. Moderating effects of transformational leadership

The leadership quality paradigm known as transformational leadership [9] aligns individual values and employee demands with organizational vision, mission, strategy, and goals. Transformational leaders have the ability to inspire, empower, and persuade their subordinates to take part in organizational change and achieve goals [37]. They are crucial for promoting positive social interactions with subordinates and are known for their skills in exciting, inspiring, building trust, providing meaning and challenge, and reinforcing proactivity and adaptability in the workplace [38]. As a result, transformational leaders play an important role in aligning followers' self-actualization with organizational values and systems.

The AMO framework describes that transformational leadership can enhance the relationship between GHRM practices and employee engagement. [39] stated that leaders who exhibit transformational qualities are capable of creating a culture of learning that motivates subordinates to seek out new learning opportunities. As a result, employees become actively engaged in training programs designed to improve their knowledge and skills related to solving environmental issues [6]. Furthermore, transformational leaders possess the necessary vision and judgment to select employees who have the appropriate experience and knowledge for the organization's environment, standards of performance, and goals. This indicates that transformational leaders are inclined to foster the development of new competencies, and the recruitment of environmentally knowledgeable employees reinforces the abilities dimension of AMO. Additionally, transformational leadership can play a motivational role in the AMO framework.

Transformational leaders motivate and inspire their subordinates by sharing their vision, communicating expectations and standards of performance, providing feedback on their performance, and recognizing their achievements both intrinsically and extrinsically. Additionally, recognizing and appraising employees' ongoing behavior can enhance their sense of role meaningfulness, which, in turn, increases their enthusiasm and energy towards achieving superior performance [40]. Finally, transformational leaders' behaviors

can also bolster employee engagement. Thus, this study hypothesizes that:

**H2a.** Green transformational leadership moderates the relationship between green recruitment and selection with green employee engagement.

**H2b.** Green transformational leadership moderates the relationship between green training and development with green employee engagement.

This study proposes to empirically examine the moderates' relationships between "green human resource management" practices and transformational leadership, and employee engagement (see Fig. 1).

### 3. Research methods

#### 3.1. Sample and procedure

Data was collected through the distribution of electronic questionnaires to employees working in green banking in Indonesia. The questionnaire contains a number of questions, which are measured with a 5 Likert scale, namely "strongly disagree," "disagree," "undecided, agree," and "strongly agree." This electronic questionnaire was distributed via social media in the period from 1 to 30 September 2021. Until the specified deadline, only 363 questionnaires were filled in. Specifically, 54.1 % of them were filled by female respondents and the other 45.9 % by men. Based on age, 39.1 % of them were filled by respondents aged 21–30 years, 43.6 % aged 31–40 years, and 17.3 % aged more than 40 years. Based on education, 33.1 % were respondents with diploma education, 53.4 % undergraduate, and 13.5 % postgraduate. Based on tenure, 35.3 % were filled by respondents with tenures of 3–5 years, 54.2 % with tenures of 6–10 years, and 10.5 % with tenures of more than 10 years.

#### 3.2. Measures

In this study, employee engagement is defined as an employee's assessment of his or her feelings, which reflects the extent to which an employee is psychologically present in an organizational role. The indicators and questionnaire to measure employee engagement were adopted from Ren et al. [41] and Schaufeli et al. [42]. Meanwhile, GHRM practice is defined as an employee's assessment of the process of finding and selecting prospective employees to fill job vacancies in their organization. The indicators and questionnaires to measure this were adopted from Tang et al. [43]. Meanwhile, transformational leadership is defined as an assessment of the way leaders build close relationships with their subordinates. The indicators and questionnaires for their measurement are adopted from Singh et al. [44].

#### 3.3. Data analysis

The relationship between the dependent variable (y) and the independent variables (x) is expressed through a regression equation, which captures the functional connection between them [45]. When there is more than one independent variable, it is referred to as multiple regression. In this study, we employ the method of ordinary least squares (OLS) regression to construct a multivariate regression model [46]. "OLS is a statistical technique that minimizes the sum of squared differences between the observed values and the predicted values based on a set of functions and desired variables." [45].

Data analysis using the regression model. The regression models developed for this research are:

$$EE = \beta_1RS + \beta_2TD + \beta_3TL + \beta_4(RS * TL) + \beta_5(TD * TL) + \beta_6Gender + \beta_7Age + \beta_8Edu + \beta_9Tenure + \epsilon \tag{1}$$

where: EE is "green employee engagement;" RS is "green recruitment and selection;" TD is "green training and development;" TL stands for "green transformational leadership;" (RS\*TL) is the interaction between recruitment and selection with transformational leadership; (TD\*TL) is the interaction between training and development and transformational leadership; Gender, Age, Education, and Tenure are the demographic factors of the respondents (control variables);  $\beta$  is the slope; and  $\epsilon$  is the residual error.

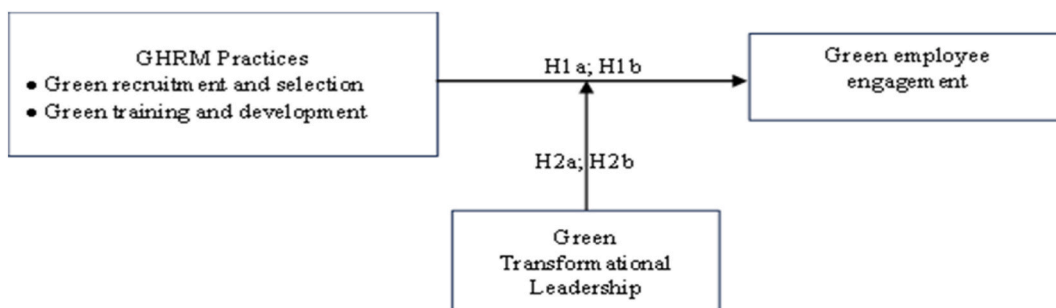


Fig. 1. Research model.

## 4. Results and discussion

### 4.1. Descriptive statistics

The results of the study show that employee engagement (EE) in activities with a green environmental perspective is not optimal. This can be seen from the average value of the indicators which is still smaller than a scale of 5 (mean = 2.49), which means that respondents are doubtful about their involvement in activities with a green environmental perspective. Likewise with green recruitment and selection (RS) (mean = 2.56), and green training and development (TD) (mean = 2.36). Meanwhile, the bank's leadership style is also not completely transformational (mean = 2.45). These four aspects are positively correlated with each other, indicating that if one of these aspects is improved, the other aspects will also increase. Their correlation level is very large, which is more than 50 % (see Table 1).

From a demographic perspective, the correlation of employee engagement is only significant with age, while the correlation with gender, education, and tenure is not significant. The positive and significant correlation between EE and age indicates that the higher the employee's age, the higher the engagement. Meanwhile, these demographic factors are not correlated with green RS. Likewise with green TD and TL. For the demographic factor itself, gender does not have a significant correlation with age, education, and tenure. Age is only positively correlated with tenure, but not with other demographic factors. This shows that the older the employees, the higher their tenure. Education is only correlated with tenure, but not with other demographic factors. The positive and significant correlation between education and tenure shows that the higher the education level of employees, the higher their tenure, or vice versa.

### 4.2. Common method bias

If all the data in a study is collected from a single source and during a single time period, there is a potential issue called common method bias (CMB) that can affect the reliability of the findings [46,47]. In this particular study, the researchers employed Hermann's one-factor test to assess the presence of CMB. The test revealed that the collected data could be categorized into four factors, with the first factor explaining only 39.67 % of the variance, which is significantly lower than 50 %. Based on these results, the authors concluded that CMB did not pose a significant risk in the study.

### 4.3. Relationship between GHRM practices and employee engagement

Specifically, "green recruitment and selection" and "green training and development" are positively and significantly related to "green employee engagement", partially, even after controlling for demographic factors such as gender, age, education, and tenure (see Table 2). H1a indicate associations between "green recruitment and selection" with "green employee engagement," and H1b show associations between "green training and development" with "green employee engagement." In the model proposed in the present study, the direct associations "green recruitment and selection" with "green employee engagement," ( $\beta = 0.62, p < 0.01$ ), and "green training and development" with "green employee engagement" ( $\beta = 0.66, p < 0.01$ ). Based on these results, H1a was supported, and H1b also was supported. This shows that "green recruitment and selection" and "green training and development" can drive "green employee engagement" significantly. When compared between the two, the contribution of "green training and development" to "green employee engagement" is greater than the effect of "green recruitment and selection" ( $\beta = 0.66$  vs.  $0.62$ ). This shows that "green training and development" is more effective in creating "green employee engagement" than "green recruitment and selection." Nevertheless, both are strong predictors of building "green employee engagement."

Meanwhile, the hypotheses (H2a and H2b) proposed that the association between "green recruitment and selection," "green training and development," and "green employee engagement" would be moderated by "green transformational leadership." The findings indicated that the relationship between "green recruitment and selection" and "green employee engagement" was significant ( $\beta = 0.25, p < 0.05$ ). In contrast, the relationship between "green training and development" and "green employee engagement" was not significant.

**Table 1**  
Descriptive statistics and correlations matrix.

	Mean	SD	EE	RS	TD	TL	Gen	Age	Edu
Green Employee engagement (EE) <sup>a</sup>	2.49	0.71	1.00						
Green Recruitment & selection (RS) <sup>a</sup>	2.56	0.86	0.62***	1.00					
Green Training & development (TD) <sup>a</sup>	2.36	0.75	0.65***	0.58***	1.00				
Transformational leadership (TL) <sup>a</sup>	2.45	0.80	0.68***	0.65***	0.72***	1.00			
Gender (Gen) <sup>b</sup>	0.54	0.50	0.06	0.10	0.08	0.14*	1.00		
Age (Age) <sup>c</sup>	1.78	0.72	0.15*	0.05	0.11	0.05	-0.01	1.00	
Education (Edu) <sup>d</sup>	1.80	0.65	-0.01	0.01	0.03	0.07	0.01	0.08	1.00
Tenure (Ten) <sup>e</sup>	1.80	0.57	0.10	-0.03	-0.03	0.05	0.08	0.68***	0.16*

Note: "a) the data was measured using a Likert scale, where 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree; b) data is measured with dummy, where male = 0 and female = 1; c) data is measured on a dummy, where 1 = 21–30 years, 2 = 31–40 years, and 3 = > 40 years; d) data is dummy, where 1 = diploma, 2 = undergraduate, and 3 = postgraduate; e) data is dummy, where 1 = 3–5 years, 2 = 6–10 years, and 3 = <10 years; \*\*\* significant 1 %, \*\* significant 5 %, and \*significant 10 %".

**Table 2**  
Hypotheses testing employing regression analysis.

	$\beta$ value	R <sup>2</sup> values	$\rho$ level	Conclusion
Gender (Gen)	-0.04			
Age (Age)	0.07			
Education (Edu)	-0.05			
Tenure (Ten)	0.04			
<b>H1a:</b> RS → green employee engagement	0.62***	0.40	0.00***	Supported
<b>H1b:</b> TD → green employee engagement	0.66***	0.44	0.00***	Supported
<b>H2a:</b> RS*GTL → green employee engagement	0.25**		0.02**	Supported
<b>H2b:</b> GTD*GTL → green employee engagement	0.11		0.07	Not Supported

Note: “ $\beta$  = Path Coefficient; R<sup>2</sup>=R Squared\*; = not significant ( $p > 0.05$ ); \*\* =  $p < 0.05$ ; \*\*\* =  $p < 0.01$ ” RS = “green recruitment and selection;” TD = “green training and development;” TL = “green transformational leadership”.

found to be insignificant ( $b = 0.19, p < 0.05$ ). Based on these outcomes, **H2a** was supported, while **H2b** was not supported.

High “green employee engagement” with organizational environmental initiatives depends on the influence of the effectiveness of “green recruitment and selection” and individual personality propositions (awareness and positive influence). That is, various aspects of individual behavior (“voluntary and involuntary”) are influenced by the congruence between employees’ individual “perceptions, values, and norms and organizational practices, goals, and norms” [29]. Therefore, in an environmental context, a variable set of “green recruitment and selection” is likely to motivate employees to engage with corporate environmental initiatives [48]. Contrary to the theoretical arguments developed earlier in this study, proactive personality reports a non-significant effect on the relationship between “green recruitment and selection” and “green employee engagement.” This can be attributed to the disruptive influence of “cultural norms, beliefs, and values” that employees may have on how they interpret role requirements and procedures, adapt to changing business requirements, and understand “green recruitment and selection” [16]. In other words, individual perceptions and interpretations of an organization’s actions and initiatives on the environment may vary according to their differences in “cultural norms, standards, traditions and principles.”

Meanwhile, sustainability requires not only adherence to formal rules but also “green employee engagement” with voluntary green initiatives in the workplace. And this can result from having green training and development practices [37]. Implementing sustainability in green training and development practices helps in obtaining different benefits for the organization such as cutting costs, retaining and attracting employees with green behavior and awareness, and improving the company’s business. One of the important aspects of this practice is green training and development practices which can influence various environmentally friendly behaviors of employees, especially employee engagement [4]. Implementing appropriate green training and development practices through their impact on employee engagement will increase the competitive advantage of these organizations [49].

The role of green transformational leadership” in encouraging and motivating followers, managing change, shaping perceptions and values, and promoting innovative thinking and problem-solving skills in the workplace has increased in recent years [50]. To this end, leadership has been suggested to enhance employees’ favorable perceptions of “green recruitment and selection” that involve organizational goals, policies, and systems, since the conduct and practices of leaders are closely linked to the performance of subordinates/employees [51]. This can be viewed through the lens of social exchange theory, in which individuals exhibit diverse patterns while engaging in social structures that they encounter at work [12].

To achieve positive individual interactions such as achieving desired goals and performing assigned tasks, it is essential to meet employees’ expectations of recognition and reward, such as “autonomy, praise, and compensation” [49]. Furthermore, beliefs in corporate initiatives, practices, and intentions arise from the social approvals exchanged between leaders and the individual values of their subordinates, which can be negatively or positively affected by such social interactions. As a result, individuals’ expectations of role fulfillment depend on their evaluations of the quality of these exchanges, which rely on how much each member of the dyad is willing to comply with their role obligations and face the associated consequences and expectations [12,49].

In the leadership literature, “green transformational leadership” is regarded as the leadership quality paradigm that fosters alignment and gradual identification between the values and demands of individual employees and the organization’s mission, vision, and strategic goals (Bass et al., 2003). “Green transformational leadership” possess characteristics such as “ideal influence, individual consideration, intellectual stimulation, and inspirational motivation” that allow them to motivate, empower, and persuade subordinates to participate in organizational change and goal attainment processes [52].

Consequently, transformational leaders are viewed as having qualities that are critical in promoting positive social exchanges with their subordinates. “Green transformational leadership” is known for its ability to energize, inspire, build trust, provide meaning and challenge, and reinforce proactiveness and workplace adaptability (Bass et al., 2003). Given the above arguments that emphasize the critical role of transformational leaders in aligning subordinates’ self-actualization with organizational systems and values, it is reasonable to propose a moderating impact of “green transformational leadership” on the link between “green recruitment and selection” and “green employee engagement” in an environmental context.

## 5. Conclusion implication, and limitations

In general, “green human resources management” practices, such as “green recruitment and selection” and “green training and development,” demonstrate a significant and positive association with “green employee engagement,” although the impacts on different aspects of engagement may vary. The positive and significant correlation between “green human resources management” practices and “green employee engagement” is further strengthened by the presence of “green transformational leadership,” and this relationship exhibits a high explanatory variance.

### 5.1. Theoretical implications

This study makes several theoretical contributions to the relevant literature. It contributes to the examination of how different resources impact the engagement of employees in green initiatives. All resources, such as “green transformational leadership” and “green human resources management,” work together to expand the resources available to bank employees. This underscores their importance in driving “green employee engagement” and offers a coherent theoretical framework.

Furthermore, we discovered that “green transformational leadership” acts as a moderating factor in the relationship between “green human resources management” and “green employee engagement.” This extends the theory by demonstrating that contextual resources, like “green human resources management,” contribute to various work outcomes, including “green employee engagement,” due to their positive influence on human resources, such as “green transformational leadership” [9].

### 5.2. Practical implications

Our research provides valuable recommendations for leaders and managers looking to foster “green employee engagement” and harness it for enhanced environmental performance, outpacing competitors in the market.

Firstly, we propose that investing in “green employee engagement” benefits the banking sector by enhancing its reputation among stakeholders, who increasingly demand eco-friendly processes, products, and services. Our study indicates that banking institutions should prioritize and reinforce “green transformational leadership” behaviors, essential for the successful implementation of “green HRM practices.”

Secondly, banking organizations should invest in “green HRM practices” and view them as a strategic asset to direct the workforce toward effective environmental management. We hypothesize that “green HRM” aligns with the bank’s strategic commitment to environmental responsibility and motivates employees to adopt eco-conscious work behaviors, thereby reducing pollution impact. Consequently, our research suggests that top management should work on aligning the bank’s environmental objectives with green HRM policies and practices to promote and sustain “green employee engagement.”

Overall, our study offers practical insights for managers, leaders, and policymakers on how to establish and maintain robust “green HRM practices” and green employee engagement” through “green transformational leadership”.

## 6. Limitation and future research

While the current study provides valuable insights into the theory and practice of “green human resources management,” there are several areas that require further investigation.

Firstly, considering the limitation of the study being confined to the banking industry in Indonesia, external validity may be a concern. Therefore, future research should explore the proposed framework in other non-bank financial industries and various financial or non-financial sectors to examine the consistency of results across different industries.

Secondly, this study focuses on the Indonesian context and examines the influence of “green recruitment and selection,” “green training and development,” “green transformational leadership,” and “green employee engagement.” Extending these findings to developing countries and countries with different cultural backgrounds would provide valuable insights for future research.

Thirdly, while this study examines the role of moderating “green transformational leadership” in the relationship between “green recruitment and selection,” “green training and development,” with “green employee engagement,” future research should enhance the data source by incorporating qualitative data through methods such as “in-depth interviews” or “focus groups.” Adopting such an approach would offer supplementary insights into the mediating effect of “green transformational leadership” on “green employee engagement.”

Furthermore, there may be other variables that mediate the link between “green recruitment and selection,” “green training and development,” and “green employee engagement,” which future studies should consider. Finally, future research on the link between “green human resources management” practices and “green employee engagement” should examine moderators, which could provide additional insights into this important link.

### Data availability statement

Data will be made available on <https://repository.latansamashiro.ac.id/>

## Additional information

No additional information is available for this paper.

## CRedit authorship contribution statement

**Juliansyah Noor:** Writing – original draft, Validation, Supervision, Methodology, Formal analysis, Data curation, Conceptualization. **Zakiyya Tunnufus:** Writing – review & editing, Validation, Resources, Methodology, Funding acquisition. **Voppy Yulia Handrian:** Validation, Software, Resources, Project administration. **Yumhi Yumhi:** Validation, Software, Resources, Project administration, Investigation, Validation, Software, Resources, Project administration, Investigation.

## Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Juliansyah Noor reports financial support, administrative support, equipment, drugs, or supplies, and statistical analysis were provided by La Tansa Mashiro University. Zakiyya Tunnufus reports financial support, administrative support, article publishing charges, travel, and writing assistance were provided by La Tansa Mashiro University. Voppy Yulia Handrian reports financial support, article publishing charges, equipment, drugs, or supplies, travel, and writing assistance were provided by La Tansa Mashiro University. Yumhi reports financial support, administrative support, article publishing charges, and writing assistance were provided by La Tansa Mashiro University. Juliansyah Noor reports a relationship with La Tansa Mashiro University that includes: employment, funding grants, non-financial support, and speaking and lecture fees. Zakiyya Tunnufus reports a relationship with La Tansa Mashiro University that includes: board membership, consulting or advisory, employment, equity or stocks, funding grants, paid expert testimony, and travel reimbursement. Voppy Yulia Handrian reports a relationship with La Tansa Mashiro University that includes: funding grants, non-financial support, paid expert testimony, and speaking and lecture fees. Yumhi reports a relationship with La Tansa Mashiro University that includes: consulting or advisory, funding grants, paid expert testimony, and speaking and lecture fees. Juliansyah Noor has patent licensed to Juliansyah noor. Zakiyya Tunnufus has patent licensed to Zakiyya Tunnufus. Voppy Yulia Handrian has patent licensed to Voppy Yulia Handrian. Yumhi has patent licensed to Yumhi. Correspondent author's previously employed by La Tansa University-JN Co-author previously employed by La Tansa University-ZT Co-author previously employed by La Tansa University-VY Co-author previously employed by La Tansa University-YM If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## References

- [1] B.R. Bhardwaj, A. Malhotra, Green banking strategies: sustainability through corporate entrepreneurship, *Greener J Bus Manag Stud* 3 (2013) 180–193, <https://doi.org/10.15580/gjbms.2013.4.122412343>.
- [2] A. Rehman, I. Ullah, F.e.A. Afridi, Z. Ullah, M. Zeeshan, A. Hussain, et al., Adoption of green banking practices and environmental performance in Pakistan: a demonstration of structural equation modelling, *Environ. Dev. Sustain.* 23 (2021) 13200–13220, <https://doi.org/10.1007/s10668-020-01206-x>.
- [3] B.S. Al-Romeedy, Green human resource management in Egyptian travel agencies: constraints of implementation and requirements for success, *J. Hum. Resour. Hospit. Tourism* 18 (2019) 529–548, <https://doi.org/10.1080/15332845.2019.1626969>.
- [4] S. Roscoe, N. Subramanian, C.J.C. Jabbour, T. Chong, Green human resource management and the enablers of green organisational culture: enhancing a firm's environmental performance for sustainable development, *Bus. Strat. Environ.* 28 (2019) 737–749, <https://doi.org/10.1002/bse.2277>.
- [5] N.Y. Ansari, M. Farrukh, A. Raza, Green human resource management and employees pro-environmental behaviours: examining the underlying mechanism, *Corp. Soc. Responsib. Environ. Manag.* 28 (2021) 229–238, <https://doi.org/10.1002/csr.2044>.
- [6] D.W.S. Renwick, C.J.C. Jabbour, M. Muller-Camen, T. Redman, A. Wilkinson, Contemporary developments in Green (environmental) HRM scholarship, *Int. J. Hum. Resour. Manag.* 27 (2016) 114–128, <https://doi.org/10.1080/09585192.2015.1105844>.
- [7] P. Zientara, A. Zamojska, Green organizational climates and employee pro-environmental behaviour in the hotel industry, *J. Sustain. Tourism* 26 (2018) 1142–1159, <https://doi.org/10.1080/09669582.2016.1206554>.
- [8] P. Paillé, Y. Chen, O. Boiral, J. Jin, The impact of human resource management on environmental performance: an employee-level study, *J. Bus. Ethics* 121 (2014) 451–466, <https://doi.org/10.1007/s10551-013-1732-0>.
- [9] O.M. Ali Ababneh, A.S. Awwad, A. Abu-Haija, The association between green human resources practices and employee engagement with environmental initiatives in hotels: the moderation effect of perceived transformational leadership, *J. Hum. Resour. Hospit. Tourism* 20 (2021) 390–416, <https://doi.org/10.1080/15332845.2021.1923918>.
- [10] A. Presbitero, How do changes in human resource management practices influence employee engagement? A longitudinal study in a hotel chain in the Philippines, *J. Hum. Resour. Hospit. Tourism* 16 (2017) 56–70, <https://doi.org/10.1080/15332845.2016.1202061>.
- [11] O.M.A. Ababneh, M. LeFevre, T. Bentley, Employee engagement: development of a new measure, *Int. J. Hum. Resour. Dev. Manag.* 19 (2019) 105–134, <https://doi.org/10.1504/IJHRDM.2019.098623>.
- [12] M. Černe, S. Batistič, R. Kenda, HR systems, attachment styles with leaders, and the creativity–innovation nexus, *Hum. Resour. Manag. Rev.* 28 (2018) 271–288, <https://doi.org/10.1016/j.hrmr.2018.02.004>.
- [13] M.T. Azim, L. Fan, M.A. Uddin, M.M. Abdul Kader Jilani, S. Begum, Linking transformational leadership with employees' engagement in the creative process, *Manag Res Rev* 42 (2019) 837–858, <https://doi.org/10.1108/MRR-08-2018-0286>.
- [14] W. Yu, R. Chavez, M. Feng, C.Y. Wong, B. Fynes, Green human resource management and environmental cooperation: an ability-motivation-opportunity and contingency perspective, *Int. J. Prod. Econ.* 219 (2020) 224–235, <https://doi.org/10.1016/j.ijpe.2019.06.013>.
- [15] I.S.K. Acquah, Y. Agyabeng-Mensah, E. Afum, Examining the link among green human resource management practices, green supply chain management practices and performance, *Benchmarking* 28 (2021) 267–290, <https://doi.org/10.1108/BJL-05-2020-0205>.
- [16] J. Dumont, J. Shen, X. Deng, Effects of green HRM practices on employee workplace green behavior: the role of psychological green climate and employee green values, *Hum. Resour. Manag.* 56 (2016) 613–627, <https://doi.org/10.1002/hrm>.
- [17] V.N. Amrutha, S.N. Geetha, A systematic review on green human resource management: implications for social sustainability, *J. Clean. Prod.* 247 (2020), 119131, <https://doi.org/10.1016/j.jclepro.2019.119131>.



- [18] G. Rana, R. Sharma, Emerging human resource management practices in Industry 4.0, *Strateg. HR Rev.* 18 (2019) 176–181, <https://doi.org/10.1108/shr-01-2019-0003>.
- [19] P. Deshwal, Green HRM : an organizational strategy of greening people, *Int J Appl Res* 1 (13) (2015) 176–181, 2015;1:176–81.
- [20] N. Anwar, N.H. Nik Mahmood, M.Y. Yusliza, T. Ramayah, J. Noor Faezah, W. Khalid, Green Human Resource Management for organisational citizenship behaviour towards the environment and environmental performance on a university campus, *J. Clean. Prod.* 256 (2020), 120401, <https://doi.org/10.1016/j.jclepro.2020.120401>.
- [21] Y.J. Kim, W.G. Kim, H.M. Choi, K. Phetvaroon, The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance, *Int. J. Hospit. Manag.* 76 (2019) 83–93, <https://doi.org/10.1016/j.ijhm.2018.04.007>.
- [22] J.A. Laub, *Assessing the Servant Organization Development of the Servant Organizational Leadership Assessment (SOLA) Instrument*, Florida Atlantic University, 1999.
- [23] Y.M. Yusoff, M. Nejadi, D.M.H. Kee, A. Amran, Linking green human resource management practices to environmental performance in hotel industry, *Global Bus. Rev.* 21 (2020) 663–680, <https://doi.org/10.1177/0972150918779294>.
- [24] I. Ehnert, S. Parsa, I. Roper, M. Wagner, M. Muller-Camen, Reporting on sustainability and HRM: a comparative study of sustainability reporting practices by the world's largest companies, *Int. J. Hum. Resour. Manag.* 27 (2016) 88–108, <https://doi.org/10.1080/09585192.2015.1024157>.
- [25] S. Ren, G. Tang, E. Jackson, S. Green human resource management research in emergence: a review and future directions, *Asia Pac. J. Manag.* 35 (2018) 769–803, <https://doi.org/10.1007/s10490-017-9532-1>.
- [26] J.Y. Yong, M.Y. Yusliza, T. Ramayah, B.M.R.P. Seles, Testing the stakeholder pressure, relative advantage, top management commitment and green human resource management linkage, *Corp. Soc. Responsib. Environ. Manag.* 29 (2022) 1283–1299, <https://doi.org/10.1002/csr.2269>.
- [27] P.C. Bahuguna, R. Srivastava, S. Tiwari, Two-decade journey of green human resource management research: a bibliometric analysis, *Benchmarking An Int Journa* 30 (2023) 585–602, <https://doi.org/10.1108/BJJ-10-2021-0619>.
- [28] C.J. Jabbour, D.S. Jabbour, Green human resource management and green supply chain management: linking two emerging agendas, *J. Clean. Prod.* 112 (2016) 1824–1833, <https://doi.org/10.1016/j.jclepro.2015.01.052>.
- [29] A.M. Saks, J.A. Gruman, What do we really know about employee engagement?, *J. Hum. Resour. Dev. Q.* 25 (2014) 155–182, <https://doi.org/10.1002/hrdq.21187>.
- [30] W. Robijn, M.C. Euwema, W.B. Schaufeli, J. Deprez, Leaders, teams and work engagement: a basic needs perspective, *Career Dev. Int.* 25 (2020) 373–388, <https://doi.org/10.1108/CDI-06-2019-0150>.
- [31] K. Knight, M. Patterson, J. Dawson, Work engagement interventions can be effective: a systematic review, *Eur. J. Work. Organ. Psychol.* 28 (2019) 348–372, <https://doi.org/10.1080/1359432X.2019.1588887>.
- [32] R. Park, E. Appelbaum, D. Kruse, Employee involvement and group incentives in manufacturing companies: a multi-level analysis, *Hum. Resour. Manag. J.* 20 (2010) 227–243, <https://doi.org/10.1111/j.1748-8583.2010.00126.x>.
- [33] A. Presbitero, B. Roxas, D. Chadee, The International Journal of Human Looking beyond HRM practices in enhancing employee retention in BPOs : focus on employee – organisation value fit, *Int. J. Hum. Resour. Manag.* 27 (2016) 635–652, <https://doi.org/10.1080/09585192.2015.1035306>.
- [34] C. Jabbour, C. Jose, J. Sarkis, L. de S. Jabbour, A. Beatriz, S. Renwick, et al., Who is in charge? A review and a research agenda on the 'human side' of the circular economy, *J. Clean. Prod.* 222 (2019) 793–801, <https://doi.org/10.1016/j.jclepro.2019.03.038>.
- [35] D.W.S. Renwick, T. Redman, S. Maguire, Green human resource management: a review and research agenda, *Int. J. Manag. Rev.* 15 (2013) 1–14, <https://doi.org/10.1111/j.1468-2370.2011.00328.x>.
- [36] M. Pinzone, M. Guerci, E. Lettieri, D. Husingh, Effects of 'green' training on pro-environmental behaviors and job satisfaction: evidence from the Italian healthcare sector, *J. Clean. Prod.* 226 (2019) 221–232, <https://doi.org/10.1016/j.jclepro.2019.04.048>.
- [37] S. Naz, S. Jamshe, Q.A. Nisar, N. Nasir, Green HRM, psychological green climate and pro-environmental behaviors: an efficacious drive towards environmental performance in China, *Curr. Psychol.* 42 (2023) 1346–1361, <https://doi.org/10.1007/s12144-021-01412-4>.
- [38] B.M. Bass, R.E. Riggio, *Transformational Leadership*, second ed., Lawrence Erlbaum Associates, Inc, Mahwah, New Jersey, 2005.
- [39] J.J. Sosik, V.M. Godshalk, F.J. Yammarino, Transformational leadership, learning goal orientation, and expectations for career success in mentor-protégé relationships: a multiple levels of analysis perspective, *Leader. Q.* 15 (2004) 241–261, <https://doi.org/10.1016/j.leaqua.2004.02.003>.
- [40] J. Kotzé, S. van der Westhuizen, E. Nel, The relationship between employees' experience of performance management and work engagement within a South African organisation, *J. Psychol. Afr.* 24 (2014) 475–479, <https://doi.org/10.1080/14330237.2014.997027>.
- [41] Y. Ren, R. Tang, M. Li, The relationship between delay of gratification and work engagement: the mediating role of job satisfaction, *Heliyon* 8 (2022) 101–120, <https://doi.org/10.1016/j.heliyon.2022.e10111>.
- [42] W.B. Schaufeli, A.B. Bakker, M. Salanova, The measurement of work engagement with a short questionnaire: a cross-national study, *Educ. Psychol. Meas.* 66 (2006) 701–716, <https://doi.org/10.1177/0013164405282471>.
- [43] G. Tang, Y. Chen, Y. Jiang, P. Paillé, J. Jia, Green human resource management practices: scale development and validity, *Asia Pac. J. Hum. Resour.* 56 (2018) 31–55, <https://doi.org/10.1111/1744-7941.12147>.
- [44] S.K. Singh, M Del Giudice, R. Chierici, D. Graziano, Green innovation and environmental performance: the role of green transformational leadership and green human resource management, *Technol. Forecast. Soc. Change* 150 (2020) 1–12, <https://doi.org/10.1016/j.techfore.2019.119762>.
- [45] O. Zaborovskaia, O. Nadezhina, E. Avduevskaya, The impact of digitalization on the formation of human capital at the regional level, *J Open Innov Technol Mark Complex* 6 (2020) 1–24, <https://doi.org/10.3390/joitmc6040184>.
- [46] O. Pesämaa, O. Zwikael, J.F. Hair, M. Huemann, Publishing quantitative papers with rigor and transparency, *Int. J. Proj. Manag.* 39 (2021) 217–222, <https://doi.org/10.1016/j.ijproman.2021.03.001>.
- [47] P.M. Podsakoff, S.B. MacKenzie, J.Y. Lee, N.P. Podsakoff, Common method biases in behavioral research: a critical review of the literature and recommended remedies, *J. Appl. Psychol.* 88 (2003) 879–903, <https://doi.org/10.1037/0021-9010.88.5.879>.
- [48] C. Bailey, A. Madden, K. Alfes, L. Fletcher, The meaning, antecedents and outcomes of employee engagement: a narrative synthesis, *Int. J. Manag. Rev.* 19 (2017) 31–53, <https://doi.org/10.1111/ijmr.12077>.
- [49] A.S. Davis, B.L.J.M. Van der Heijden, Reciprocity matters: idiosyncratic deals to shape the psychological contract and foster employee engagement in times of austerity, *Hum. Resour. Dev. Q.* 29 (2018) 329–355, <https://doi.org/10.1002/hrdq.21327>.
- [50] J.M. Burns, *Transforming Leadership*, Grove Press: New York, New York, 2007.
- [51] A.J. Wefald, R.J. Reichard, S.A. Serrano, Fitting engagement into a nomological network: the relationship of engagement to leadership and personality, *J. Leader. Organ Stud.* 18 (2011) 522–537, <https://doi.org/10.1177/1548051811404890>.
- [52] K. Rothfelder, M.C. Ottenbacher, R.J. Harrington, The impact of transformational, transactional and non-leadership styles on employee job satisfaction in the German hospitality industry, *Tourism Hospit. Res.* 12 (2012) 201–214, <https://doi.org/10.1177/1467358413493636>.