Modelling environmental performance through green human resource management practices, green transformational leadership and organizational citizenship behaviour towards environment in local government authorities, Tanzania

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ABSTRACT

This study was designed to model environmental performance with Green Human Resource Management practices, Green Transformational Leadership, and Organizational Citizenship Behavior toward the Environment in Tanzanian Local Government Authorities (LGAs). The theoretical base of the research is built on Resource-Based View, Social Exchange Theory, and Ability–Motivation–Opportunity Theory. This study adopted a quantitative research approach using a descriptive survey research design. The population of interest was officials from the Local Government Authorities. Data was collected by a closed-ended questionnaire, and stratified sampling was used to select respondents. In total, 400 questionnaires were distributed, and a total of 228 were returned successfully, which is a response rate of 57%. Data were analyzed using Partial Least Square Structural Equation Modelling (PLS-SEM) employing SmartPLS 4. The results revealed that the incorporation of Green Human Resource Management practices in the organizational processes has a significant contribution toward the enhancement of environmental performance in LGAs. In addition, green transformational leadership plays a significant role in translating organizational green practices to better environmental performance outcomes, thus showing the importance of leadership in strengthening environmental management practices. The results also indicate that the effect of formal Green Human Resource Management practices on environmental performance is reinforced by employees' voluntary organizational citizenship behavior toward the environment. The findings indicate that formal green human resource practices alone may not be enough to achieve the desired level of environmental performance in LGAs. Their effectiveness, however, can be enhanced through appropriate leadership and voluntary environmentally responsible behaviors of employees. The study thus suggests that Tanzanian LGAs should embed Green Human Resource Management practices with green transformational leadership and promote employees' environmentally oriented citizenship behaviors for better environmental performance. The study contributes to an understanding of the complementary roles of organizational practices, leadership, and employee behavior in promoting environmental sustainability in the public sector.

Keywords: Environmental Performance, Green Human Resource Management Practices, Green Transformational Leadership, Local Government Authorities, Organizational Citizenship Behaviour Towards Environment, Tanzania

I. INTRODUCTION

Increasing environmental issues, regulatory requirements, stakeholder expectations, and the need for sustainable development have made environmental performance an important concern for organizations (Ahmed et al., 2021). Organizations should reduce waste and pollution, conserve natural resources, improve energy efficiency, and implement environmentally responsible practices while maintaining organizational effectiveness (Aggarwal & Agarwala, 2023). Therefore, good environmental performance necessitates investments not only in technology and operations but also in the effective management of employees with the knowledge, skills, motivation, and behaviors that influence the implementation of environmental initiatives (Saeed et al., 2019). In this context, green human resource management practices have been proposed as an important organizational strategy to incorporate environmental goals into human resource management (Masri & Jaaron, 2017). Green human resource management practices encompass green recruitment and selection, green training and development, green performance management, green rewards, and employee participation in environmental activities (Mashala, 2018). Green human resource management practices may improve the environmental performance by developing the employees' environmental competencies and motivating the employees to behave in an environmentally responsible manner (Saeed et al., 2019). Empirical evidence from different countries usually demonstrates a positive association between green human resource management practices and

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environmental performance (Hameed et al., 2021; Birbirsa et al., 2023; Omolo, 2025; Kimeu et al., 2025). Research in Asia, Europe, the Middle East, and other emerging economies has shown that greening recruitment, training, performance management, rewards, and employee involvement can lead to improved environmental outcomes (Aggarwal & Agarwala, 2023). However, the strength of this association varies between organizational and national settings. However, empirical research on green human resource management practices and environmental performance in Tanzania is relatively scarce against the backdrop of others' findings (Mashala, 2018).

More importantly, existing studies have been mainly concerned with the direct relationship between green human resource management practices and environmental performance, with less attention paid to the organizational mechanisms and behavioral conditions that could explain or improve this relationship (Kim et al., 2018). In other words, despite the fact that previous studies suggest that green human resource management practices are positively associated with environmental performance, these are not adequate for enhancing organizational environmental performance (Muisyo & Qin, 2021). Mediating and moderating variables play a vital role in enhancing environmental performance (Muisyo & Qin, 2021) in addition to direct association. Therefore, this study examines the influence of green human resource management practices on environmental performance through the mediating role of green transformational leadership and the moderating role of organizational citizenship behavior towards the environment, thereby offering a more comprehensive description of how and under what conditions green human resource management practices can contribute to environmental performance.

In doing so, this study integrates the reciprocity principle of the social exchange theory, the VRIN Framework of Resource Based View, and the AMO theoretical framework to model environmental performance through green human resource management practices, green transformational leadership, and organizational citizenship behavior towards the environment in LGAs, Tanzania. Thus, three specific objectives were crafted to guide the study including to determine the association between green human resource management practices and environmental performance; to investigate the mediating role of Green Transformational Leadership in the association between Green Human Resource Management Practices and Environmental Performance and to examine the moderating role of organizational citizenship behavior towards the environment in the association between green human resource management practices and environmental performance.

1.1 Statement of the Problem

Organizations are under increasing pressure to improve their environmental performance by reducing waste, pollution, and natural resource consumption, while increasing energy efficiency and complying with environmental regulations (Saeed et al., 2019). The expectation is that organizations should incorporate environmental sustainability into their human resource management systems through Green Human Resource Management Practices (Aggarwal & Agarwala, 2023). Effective green human resource management practices should encourage environmentally responsible behaviors and develop employees' environmental knowledge, skills, motivation, and commitment (Birbirsa et al., 2023). And, Green Transformational Leadership should provide environmental vision, motivation, role modelling, and support. Further, organizational citizenship behavior toward the environment should motivate employees to voluntarily perform environmental activities beyond their formal job responsibilities (Alamanda et al., 2022). Primarily, most of the studies have addressed the Green Human Resource Management Practices' direct effect on environmental performance (Agha et al., 2024), which is not sufficient to predict adequate environmental performance in an organization (Muisyo & Qin, 2021). The combination of moderation and mediation constructs is proposed to add value in an attempt to predict environment performance through Green Human Resource Management Practices (Zhou et al., 2018; Muisyo & Qin, 2021).

Without attention to environmental performance prediction issues, organizations may continue to suffer from inefficient use of resources, greater waste and pollution, weak employee environmental engagement, and failure to achieve intended sustainability objectives. Furthermore, organizations may be inhibited in their efforts to develop effective human resource and leadership strategies for environmental sustainability by a limited understanding of the mechanisms and conditions under which green human resource management practices contribute to environmental performance. Consequently, the current study is intended to investigate the impact of green human resource management practices on environmental performance, considering green transformational leadership as a mediating mechanism and organizational citizenship behavior toward the environment as a moderating condition. The study specifically examines whether Green Human Resource Management Practices are positively related to Environmental Performance, whether Green Transformational Leadership mediates the relationship between Green Human Resource Management Practices and Environmental Performance, and whether Organizational Citizenship Behavior Toward Environment moderates the relationship between Green Human Resource Management Practices and Environmental Performance. The theoretical base of the research is built on Resource-Based View, Social Exchange Theory, and Ability–Motivation–Opportunity Theory.

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1.2 Research Hypotheses

Ho_1: There is a positive association between Green Human Resource Management Practices and Environmental Performance

Ho_2: Green Transformational Leadership mediates the association between Green Human Resource Management Practices and Environmental Performance

Ho_3: Organizational Citizenship Behaviour Towards Environment positively moderates the association between Green Human Resource Management Practices and Environmental Performance

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Resource-Based View

The Resource-Based View (RBV) is a strategic management theory that explains differences in organisational performance by the effective development and deployment of internal resources and capabilities (Barney, 1991). The theory suggests that organisations can perform better and sustainably if they possess resources that are valuable, rare, difficult to imitate and non-substitutable (Bhandari et al., 2020). Resource-Based View assumes that there is heterogeneity of resources across organisations and that organisations differ in their capabilities to acquire, develop and utilise these resources (Bhandari et al., 2020). Therefore, organisations that are good at managing their internal resources can develop distinctive capabilities that give them an advantage over competitors. Resource-Based View can explain the positive relationship between green human resource management practices and environmental performance by taking into account employees and their environmental knowledge, skills, competencies and behaviours as important organisational resources (Barney et al., 2021). The Green Human Resource Management Practices, such as green recruitment, green training, green performance management, green rewards and employee involvement, offer an opportunity for organisations to develop employees with the knowledge and capabilities to support environmental strategic objectives (Gerhart & Feng, 2021).

Through these practices, employees can be developed into valuable human resources that can contribute to environmental initiatives and sustainability goals. The theory also suggests that organisations can develop organisational capabilities that are difficult for competitors to imitate through the effective development and use of their human resources (Shaw, 2021). In the framework of environmental management, green human resource management practices can contribute to the organisation's capability to reduce waste, consume fewer resources, increase energy efficiency, satisfy environmental requirements, and apply environmental innovations (Ployhart, 2021). Hence, it is expected that organisations that successfully implement green human resource management practices would develop stronger environmental capabilities and achieve superior environmental performance (Campbell & Kryscynski, 2019). Resource-Based View is particularly relevant to this relationship as environmental performance is dependent not only on physical resources and technologies but also on the knowledge, skills, commitment and behaviours of employees (Eckardt & Jiang, 2019). Green human resource management practices are therefore conceptualised as a means to develop and align human resources with environmental strategic objectives (Nyberg et al., 2018). Thus, organisations that invest well in green human resource management practices are expected to use their human resources more strategically and produce better environmental outcomes (Constance et al., 2023). On the basis of this theoretical rationale, the study posits that Green Human Resource Management Practices is positively related to Environmental Performance.

2.1.2 Social Exchange Theory

Social Exchange Theory (SET) views social relationships as exchanges where individuals and organisations provide each other with resources, support and benefits, seeking reciprocal responses (Singogo, 2025). According to the theory, relationships are developed when the parties involved perceive the exchange as mutually beneficial, supportive and fair (Barno et al., 2026). In organisational settings, when organisations demonstrate commitment and support through appropriate practices, employees and leaders tend to respond positively (Agha et al., 2024). Green human resource management practices reflect an organisation's commitment to environmental sustainability via green training, environmental incentives, green performance management, and the chance for employees and managers to engage in environmental activities (Tilahun, 2024). These practices might generate perceptions of organisational support and motivate leaders to reciprocate with green transformational leadership behaviours aimed at achieving environmental strategic objectives (Yoshikawa et al., 2018). Therefore, leaders are able to develop and communicate a powerful environmental vision, inspire employees to achieve environmental objectives, encourage environmental innovation, and demonstrate their own commitment to sustainability (Bos-nehles & Meijerink, 2018). Green transformational leadership

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can then influence environmental performance by encouraging employees to engage in environmentally responsible behaviours and by connecting individual actions with organisational environmental strategic objectives (Jun & Lee, 2023). This reciprocal relationship makes employees more responsive to leaders who show a real commitment to the environment and results in increased participation in environmental initiatives, resource conservation, waste reduction and other behaviours that contribute to better environmental outcomes (Yoshikawa et al. 2018). Thus, green transformational leadership provides a behavioural mechanism to transform green human resource management practices into environmental performance (Åström, 2021). Social Exchange Theory is especially relevant as it considers how organisational human resource practices can induce reciprocal leadership and employee responses rather than automatically produce environmental outcomes (Chernyak-Hai & Rabenu, 2018). Thus, the theory offers a rational basis to think of green transformational leadership as an intervening process between green human resource management practices and environmental performance (Limão 2016). Empirical studies generally support this argument, indicating that green human resource management practices are positively related to green leadership behaviours and that green transformational leadership is involved in employees' environmental behaviours and organisational environmental outcomes (Iftikhar et al., 2021). Thus, to understand the positive association of Green Human Resource Management Practices and Environmental Performance, the study proposes Green Transformational Leadership as a mediator based on Social Exchange Theory.

2.1.3 Ability–Motivation–Opportunity (AMO) Theory

The Ability – Motivation – Opportunity (AMO) Theory explains employee performance by suggesting that effective performance will occur when employees have the necessary ability, motivation and opportunity to perform desired behaviours (Ogbonnaya & Messersmith 2019). According to Yung et al. (2025), ability refers to employee knowledge, skill and competencies; motivation refers to the willingness and incentives of employees to perform; and opportunity refers to the organisational conditions that enable employee participation and contribution. The theory assumes that employee behaviours and performance are influenced by the interaction of these three conditions and that organisations can improve performance by developing employee abilities, motivating them and providing opportunities for participation. In the human management context, green human resource management practices enhance employees' environmental capability by green recruitment and training, enable employees' environmental participation through green rewards and performance management, and offer employees opportunities to participate in environmental strategic initiatives (Sensmeier 2019). However, the degree to which these practices lead to improved environmental performance may depend on employees' readiness to engage in voluntary environmental behaviours outside their formal job duties (Zaman et al. 2025). Employees with high organisational citizenship behaviour for the environment are more likely (based on the ability-motivation-opportunity framework) to voluntarily conserve resources, reduce waste, support environmental initiatives, and encourage colleagues to adopt environmentally responsible practices (Paillé et al., 2020). Consequently, AMO Theory is relevant, as it provides a behavioural framework for how human resource management practices are transformed into environmental outcomes (Ominyi et al. 2025). While human resource management practices offer the opportunity, motivation and ability for environmental performance (Cheng et al., 2025), organisational citizenship behaviour for the environment is the voluntary willingness of employees to use these conditions beyond prescribed duties (Singh et al., 2020). That is to say, organisations with higher levels of organisational citizenship behaviour for the environment are thus expected to get more environmental benefits from their green human resource management practices (Omolo, 2026). Based on AMO, the empirical evidence generally indicates that green human resource management practices should have a positive effect on employees' green knowledge, motivation and opportunities for environmental participation, while organisational citizenship behaviour towards the environment positively affects environmental behaviours and organisational environmental performance (Gul et al., 2026). There is also evidence that voluntary environmental behaviours of employees may improve the effectiveness of organisational green practices (Tahir et al. 2024). Hence, with the strong theoretical foundation of AMO Theory, organisational citizenship behaviour for the environment is expected to be a positive moderator of the green human resource management practices-environmental performance relationship.

2.2 Empirical Review

2.2.1 Green Human Resource Management Practices and Environmental Performance

Green human resource management practices refer to the incorporation of environmental goals into human resource management practices to motivate employees to create and show knowledge, skills, attitudes and behaviours that are environmentally responsible (Birbirsa et al., 2023). These practices are green recruitment and selection, green training and development, green performance management, green rewards and employee participation in environmental initiatives (Omolo, 2026). Green human resource management practices are multidimensional in nature, as they include environmental issues throughout the employee management cycle. It seeks to attract environmentally aware employees,

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educate them on environmental skills, reward green behaviour and performance, and provide opportunities for employees to participate in environmental decisions (Omolo, 2025). Green human resource management practices are therefore a methodical approach to organisations' green human resource practices and environmental sustainability objectives (Dumont et al., 2016). Empirical evidence generally suggests that green human resource management practices are positively related to environmental performance (Hameed et al., 2021; Birbirsa et al., 2023; Omolo, 2025; Kimeu et al., 2025). Organisations with green recruitment, training, performance appraisal, rewards and employee participation tend to achieve improved resource efficiency, waste reduction, pollution prevention, environmental compliance and wider environmental outcomes (Saeed et al., 2019).

However, organisations can strengthen the impact of green human resource management practices on environmental performance by ensuring green human resource management practices are consistent and congruent with broader environmental strategies (Hameed et al., 2021). This can be accomplished by continuous green training, meaningful environmental rewards, clear green performance targets, employee participation, effective communication of environmental goals and alignment between human resource policies and the environmental management system (Jabbour & de Sousa Jabbour, 2016; Tang et al., 2018; Saeed et al., 2019). Organisations should also monitor environmental results to ensure that green human resource management practices produce measurable improvements (Singh et al., 2020). Further, organisations may integrate human resource management policies and practices with an organisation's environmental strategic plan, fostering and promoting environmentally friendly employee culture (Dumont et al., 2016). The Resource-Based View explains this relationship by considering employees' environmental knowledge, skills, competencies and behaviours as valuable resources for the organisation (Nyberg et al., 2018). These resources are built by Green Human Resource Management Practices and can be translated by organisations into green capabilities that support environmental strategic objectives (Boakye et al., 2022). Resource Based View is relevant because environmental performance depends on physical technologies as well as human capabilities (Lieberman et al., 2017). Effectively developing and utilising green human resources can help organisations develop distinctive capabilities that are difficult for competitors to imitate (Ployhart, 2021). Hence, green human resource management practices can be a strategic resource that enhances environmental capabilities and consequently environmental performance, proposing H1.

2.2.2 Green Transformational Leadership Mediation Role

Green transformational leadership is a leadership behaviour that inspires, motivates, and encourages employees to attain environmental objectives and to be involved in environmentally responsible practices (Haque et al., 2021). Green transformational leadership is about communicating a clear environmental vision, setting an example of green behaviour, encouraging employees to develop innovative environmental solutions and motivating them to participate in sustainability initiatives (Li et al., 2020). Green transformational leadership is transformational because it is not simply about asking employees to comply with environmental requirements. Instead, green transformational leaders influence the environmental values and attitudes, motivation and commitment of employees (Farrukh et al., 2022). They create a shared environmental vision and inspire employees to exceed the normal call of duty in pursuit of organisational sustainability strategic objectives (Weber & Kassab, 2024). Therefore, green transformational leadership may be an important mechanism for translating organisational green policies into employee environmental behaviours and improved environmental outcomes (Haque et al., 2021). It is generally found in the empirical evidence that Green Human Resource Management Practices has a contribution to the development of green leadership behaviours, and Green Transformational Leadership is positively related to environmental performance (Iftikhar et al., 2021). Green Human Resource Management Practices provides environmental training, green performance expectations, rewards, and employee participation mechanisms that can encourage leaders to promote environmental strategic objectives (Singh et al., 2020). Green transformational leadership then helps to implement these practices by motivating employees, driving environmental innovation and aligning individual behaviours to organisational environmental strategic objectives (Zhou et al., 2018). This implies that green transformational leadership can mediate the relationship between green human resource management practices and environmental performance.

Organisations can develop this mediating role further by providing leadership development with a sustainability perspective, defining clear environmental goals, empowering leaders to lead green initiatives, rewarding green leadership behaviours and ensuring that there is a consistent display of environmental commitment by the senior management (Dumont et al., 2017; Luu, 2018). This relationship can be explained by reciprocity according to Social Exchange Theory. The commitment to environmental sustainability through green human resource management practices may be perceived by the leaders as organisational support, which they may reciprocate by demonstrating green transformational behaviours (Agha et al., 2024). These behaviours can lead to positive responses from employees, including greater commitment and participation in environmental issues, which can ultimately improve the environmental performance (Milledzi et al., 2025). This is important because Social Exchange Theory posits that an

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organisation's green practices can promote reciprocal leadership behaviours, which in turn shape environmental outcomes (Xuecheng et al., 2022). Thus, Green Human Resource Management Practices is a plausible mediating mechanism through which Green Transformational Leadership contributes to improved Environmental Performance; suggesting H2

2.2.3 Organisational Citizenship Behaviour Towards Environmental Moderation Role

Organisational Citizenship Behaviour Towards Environment (OCBE) is defined as the voluntary and discretionary actions of employees who contribute to environmental sustainability that are not necessarily part of their formal job duties (Alamanda et al., 2021). These behaviours consist of saving organisational resources, reducing wastage, voluntarily engaging in environmental activities, motivating colleagues to use green practices and recommending green improvements (Chan & Lai 2017). The nature of organisational citizenship behaviour towards the environment is primarily discretionary, voluntary and environmentally oriented. Organisational citizenship behaviour towards the environment is different from formal environmental responsibilities because it is the employees' willingness to do more than what is required and to make an extra effort to reach the environmental goals of the organisation (Cek & Eyupoglu 2021). This can lead to a better implementation of formal green management practices by translating organisational environmental policies into everyday actions by employees (Worku & Debela, 2024). Organisations with high levels of organisational citizenship behaviour towards the environment should be able to obtain more environmental benefits from their human resource practices (Abaho et al., 2025). The empirical evidence generally shows that Green Human Resource Management Practices has a positive effect on employees' environmental knowledge, motivation and participation and that organisational citizenship behaviour towards the environment leads to better environmental behaviours and environmental outcomes (Aggarwal, 2022; Nguyen et al., 2025; Megren, 2025).

Studies also reveal that employees' discretionary environmental behaviours can improve the effectiveness of organisational green practices (Aloustani et al., 2020). Therefore, when employees have high organisational citizenship behaviour towards the environment, Green Human Resource Management Practices is more likely to be translated into better environmental performance because employees voluntarily perform environmental behaviours beyond the formal requirements (Wandile & Andrisha, 2025). Organisations can improve organisational citizenship behaviour towards the environment by offering ongoing green training, communicating clear environmental values, acknowledging discretionary green behaviours, involving employees in environmental decisions, empowering employees to suggest environmental improvements, and establishing supportive organisational climates (Abaho et al., 2025). Such measures can serve as incentives for employees to engage in voluntary environmental behaviours regularly (Aloustani et al., 2020). The moderating relationship is explained by the Ability-Motivation-Opportunity (AMO) Theory. The theory argues that employee performance is contingent upon their ability, motivation and opportunity to perform desired behaviours (Gul et al., 2026). Green Human Resource Management Practices develops environmental abilities through green training, motivates employees through green rewards and performance management and provides opportunities for environmental participation (Paillé et al. 2020). Organisational citizenship behaviour towards the environment enhances these mechanisms in that employees who voluntarily participate in environmental behaviours are more likely to utilise the abilities, motivation, and opportunities created by Green Human Resource Management Practices (Boakye et al., 2022; Halim et al., 2023). AMO Theory is relevant because it provides an explanation of the translation of Human Resource practices into employee behaviours and organisational outcomes (Tahir et al. 2024). Hence, high organisational citizenship behaviour towards the environment may improve the translation of Green Human Resource Management Practices into environmental performance, proposing H3.

III. METHODOLOGY

3.1 Research Design

This study used a descriptive survey research methodology because it was intended to use a research design that would allow for the direct collection of data from respondents (Agha et al., 2025). Descriptive survey research design was therefore deemed suitable for the study since it facilitates the direct collection of data from respondents. Precisely putting it, this study used a positivist quantitative research approach, utilising a cross-sectional design as one kind of descriptive research design and collecting data from the field only once (Frankfort & Nachmias, 1996).

3.2 Study Area

The study was conducted in Dodoma region because it is the official capital of Tanzania and the administrative center of the nation, located right in the heart of the Tanzania. The region therefore is designated as the national capital and officially housing the major government functions. Conceivably, findings of this study should be applicable across the nation

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3.3. Target Population

The population of the study comprised of Local Government Authorities (LGAs) officials with at least first degree including respective head of divisions. The aggregate number of the officials were reported to be 1, 200 but it was difficult to establish distribution details for sub-offices. In LGAs context, officials holding a first degree (bachelor's degree or equivalent qualification) enter the public service under the officer grade, which serves as the foundational executive tier for all services delivered by respective LGAs. Thus, the reasons for opting these officials were based on the assumption that they possess adequate information to inform specific objectives of the study (Ngetich et al., 2020).

3.4 Sampling and Sample

To calculate the proper sample size required for survey research, the study employed Cochran's method (Cochran, 1977). Using this method was important because the study accessed total number of officials without distribution details for sub-offices. When the population is vast and the researcher wants to estimate population proportions with a desired level of precision, this method is quite helpful (Shamnani et al., 2018). The following formula was used to get Cochran's sample size (n): $n_0 = z^2\ (1 - p)/E^2$, where n_0 is the estimated percentage of the population with the attribute of interest (or the maximum expected proportion if no prior estimate is available), E is the required sample size, z is the critical value from the standard normal distribution corresponding to the desired level of confidence, and E is the desired margin of error or precision. Therefore, we used the Cochran's formula with an unknown population proportion (p), the target parameter (95%), the confidence level (Z = 1.96), and a 5% margin of error (E = 0.05). A sample size of 385 respondents was obtained from the computation. The overall sample size was modified to 400 respondents after an additional 4% was added to account for any non-response, incomplete questionnaires, and missing data. It was discovered that this sample size provided reliable data and sufficient statistical power to evaluate hypotheses. Stratified sampling was utilised as a sampling technique in this study, which is a method used in statistical research where the population is divided into distinct subgroups, known as strata, that share similar characteristics. The strata in this study were divisions in LGAs. This technique ensured that each division was adequately represented within the sample, which could lead to more accurate and reliable

3.5 Research Instruments

To ensure reliability and validity of the measurement constructs, the study questionnaire was developed based on four instruments validated previously. The questionnaire consisted of 20 items, five for each construct. Green Human Resource Management practices were measured with five items adapted from Masri et al. (2017) and Pham et al. (2019). Environmental Performance was measured by five items adapted from Kim et al. (2018). Green Transformational Leadership was assessed through five items based on Chen and Chang (2012) and Singh et al. (2020). Lastly, 5 items of Organisational Citizenship Behaviour toward the Environment were adopted from Pham et al. (2019).

3.6 Data Analyses

Descriptive data from the questionnaire were analysed by IBM SPSS. Conversely, Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 4. We used PLS-SEM to estimate the measurement and structural models to examine the direct, mediating, and moderating relationships between the variables in the study (Hair et al., 2022). We chose PLS-SEM because it can simultaneously analyse complex models with multiple latent constructs and their relationships. Moreover, PLS-SEM is fit for prediction-orientated research and high quality in terms of managing mediation and moderation analysis and appropriate for testing the proposed conceptual framework as well as testing the hypotheses (Hair et al., 2022).

3.7 Reliability and Validity

We ensured reliability and validity in the study by testing various constructs, including common method bias (Podsakoff et al. 2012), reliability (Hair et al. 2017 & Valentini & Damasio, 2016), validity (Ab Hamid et al. (2017)), and multicollinearity (Hair et al. 2019). Validity and reliability checks were important because they ensure your data is consistent and measures what it should, thus preventing false conclusions.

3.8 Ethical Considerations

The current study followed completely with ethical concerns, which are the guidelines that direct the researcher in safeguarding the participants' rights, welfare, and dignity during the research process (Nazmul et al., 2021). Throughout the whole research process, including before it started, during its execution, and after it was finished, ethical considerations were followed. Informed consent and ethical approval were acquired before the trial. In particular, the employer, the Local Government Training Institute (LGTI) research committee, granted researchers ethical and study approval (Nazmul et al., 2021). Throughout the data collection process, participant privacy, voluntary participation,

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confidentiality, and anonymity were maintained (World Health Organization, 2021; Oswaldo, 2021). Following the study, data were safely preserved, and conclusions were presented truthfully without fabrication, falsification, or improper data modification (Knottnerus & Tugwell, 2018). Additionally, in compliance with ethical guidelines, participant data was exclusively utilised for the specified research aims (Oswaldo, 2021).

IV. FINDINGS & DISCUSSION

4.1 Demographic Information

A sample of 228 LGAs respondents participated in the study, which was conducted on a target population of 400 individuals in respective LGAs, achieving a response rate of 57%. 98 (43.0%) of the respondents were male and 130 (57.0%) were female in terms of sex. The age distribution showed that 15 (6.6%) of the respondents were 18–23 years, 99 (43.4%) were 24–29 years, 49 (21.5%) were 30–35 years, 52 (22.8%) were 36–41 years, 9 (3.9%) were 42–47 years, and 4 (1.8%) were 48 years and above. In terms of work experience, 11 (4.8%) respondents had 2-5 years, 131 (57.5%) had 6-11 years, 83 (36.4%) had 12-17 years, and 3 (1.3%) had 18-23 years. In terms of positions, the respondents were from different departments with majority being community development and extension officers followed by ward executives, health, education and land officers.

Table 1

Demographic characteristics

S/N	Demographics	Category	Frequency	Percentage%
1	Sex	Male	98	43
		Female	130	57
2	Age	18-23 yrs	15	6.6
		24-29 yrs	99	43.4
		30-35 yrs	49	21.5
		36-41 yrs	52	22.8
		42-47 yrs	9	3.9
		48+ yrs	4	1.8
3	Experience	2-5 yrs	11	4.8
		6-11 yrs	131	57.5
		12-17 yrs	83	36.4
		18-23 yrs	3	1.3
		24+ yrs	0	0
4	Position	Accounting	9	3.9
		Finance	5	2.2
		Administration	6	2.6
		Human Resource	11	4.8
		PMU	6	2.8
		ICT	3	1.3
		Land	19	8.3
		Community development	29	12.3
		Extension	29	12.7
		Ward executives	25	11
		Legal officers	2	0.9
		Health	23	10.1
		Education	23	10.1
		Planning	9	3.9
		Others	17	7.5
	TOTAL		**228**	**100**

4.2 Reliability and Validity

The study assessed common method bias error, which occurs when the design of a research study, rather than the actual relationship between variables, artificially inflates or distorts the strength of the correlations between data. It destroys construct validity, factor loadings, and reliability estimates and renders the measurement scales untrustworthy. A single-factor test of variance produced 29.9%, which is well below the 50% threshold, which suggests no common method bias error (Podsakoff et al. 2012). Further composite reliability was checked, which is a measure of internal

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consistency reliability used in structural equation modelling and factor analysis. It measures the extent to which a set of observed indicators (or survey items) collectively tap a single unobserved (latent) construct. Table 2 indicates the lowest composite reliability value is Organizational Citizenship Behavior towards Environment at the tune of 0.877, which suggests all other variables yielded decent reliability (Hair et al. 2017). Reliability was also checked through Cronbach's alpha values, which basically test how closely related a group of items in a questionnaire are. It answers a very reliable question as "Are they all measuring successfully the same underlying variable or 'construct'?" Cronbach's alpha values in table 2 range above 0.700, which is an acceptable value suggesting adequate reliability (Valentini & Damasio, 2016). On the other hand, convergent validity was assessed, which is a test that shows if two measures that are supposed to be related to each other are related in practice. It is a key part of construct validity, which tests whether a test is actually measuring the abstract idea or behavior it claims to measure. Assessment of AVE values in table 2: the study scored AVE values of at least 0.500, which indicates sufficient validity.

Table 2

Construct reliability and validity

	Cronbach's alpha	**Outer loadings**	**Composite reliability (rho_a)**	**Average variance extracted (AVE)**	**VIF**
EP	0.898		0.911	0.764	
EP1		0.853			3.291
EP2		0.870			1.551
EP3		0.890			2.924
EP4		0.884			2.746
GHRMP	0.908		0.910	0.784	
GHRMP1		0.864			2.337
GHRMP2		0.868			2.535
GHRMP3		0.900			3.264
GHRMP4		0.909			2.375
GTL	0.864		0.892	0.712	
GTL1		0.843			2.172
GTL2		0.923			2.669
GTL3		0.887			3.067
GTL4		0.705			1.691
OCBE	0.875		0.877	0.730	
OCBE1		0.788			1.994
OCBE2		0.910			1.306
OCBE3		0.896			3.213
OCBE4		0.818			2.814

Table 3

Model fit summary

	Saturated model	**Estimated model**
SRMR	0.061	0.078
d_ULS	0.504	0.836
d_G	0.265	0.275
Chi-square	1792.761	1871.196
NFI	0.945	0.938

Table 4

PLSpredict LV summary

	Q^2predict	**RMSE**	**MAE**
EP	0.278	0.851	0.685
GTL	0.042	0.981	0.772

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Table 5
Hypothesis test

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
GHRMP -> EP	0.438	0.437	0.024	18.299	0.000
OCBE x GHRMP -> EP	0.062	0.063	0.026	2.335	0.020
GHRMP -> GTL -> EP	0.036	0.036	0.008	4.752	0.000

Multicollinearity challenges were also assessed, which is a statistical issue that occurs when two or more independent (predictor) variables in a study model are correlated with each other. A challenge of multicollinearity is that coefficients from the study may be unreliable, as small changes in the data can cause large changes in the estimates. Assessment of VIF values in table 2 indicates no value crossed 5.00, the threshold, suggesting no multicollinearity challenges in the study constructs (Hair et al. 2019).

4.3 Structural Model Assessment

Structural model assessment was done after ensuring no challenges were observed related to reliability and validity. In doing so, this study assessed model fit, predictive relevance (Q^2), and predictive power of the model (RMSE and MAE). With the model fit of the Partial Least Squares Structural Equation Modelling (PLS-SEM), the study evaluated how well a proposed theoretical model matches the observed empirical data. An assessment of table 3 suggests that the Standardized Root Mean Square Residual (SRMR) recorded values are below 0.080, which proposes better model fit. Further, the suitability of our model to the study was checked through testing Squared Euclidean Distance denoted (d_ULS), Geodesic Distance (d_G), and Normed Fit index (NFI). Scanning of table 3 indicates the study collected squared Euclidean distance values below the 0.950 limit, which suggests adequate suitability of the model to the study (Hair et al. 2019). In the same vein, assessment of geodesic distance values indicates they fall below 0.950, the threshold, suggesting satisfactory suitability of the model to the study. Similarly, perusing through the normed fit index in table 3, reported values along the column are within 0.90, proposing tolerable suitability of the model to the study. With regard to the predictive relevance of the model, the study assessed stone–geisser (Q^2) values in table 4. Respective values fall between one and zero, suggesting predictive relevance of the model.

. Likewise, the predictive power of the model was assessed through Root Mean Square Error (RMSE) and Mean Absolute Error (MAE), which reported values at least beyond zero, suggesting relevant predictive power. On this assessment background, we conclude the adequacy and relevance of hypothesized relationships, the explanatory power, and the predictive relevance between latent constructs in the model of this study.

4.4 Hypotheses Testing

This study computed significance levels and path coefficients of the three hypotheses (H1, H2, and H3) crafted to address specific predetermined specific objectives of the study. With respect to hypothesis one, the study focused on testing a positive association between green human resource management practices and environmental performance grounded in resource-based view theory. Testing results in Table 5 and Figure 1 supported hypothesis one ($\beta = 0.438$; $t = 18.299$; $p = 0.000$). The hypothesis suggests that green human resource management is not just "window dressing." It's a core competency that transforms mundane employee behavior into a lasting environmental advantage that's difficult for competitors to imitate." The supported positive relationship between green human resource management practices and environmental performance is consistent with the resource-based view (RBV), especially the VRIO framework. It is interpreted that green human resource management practices have the effect of reducing waste, conserving resources, and cutting operational costs, improving environmental performance, and thereby adding value. They are also infrequent, as organizations vary in the degree to which they train and involve employees in environmentally responsible practices to clinch desired environmental performance.

Green human resource management practices are also inimitable because they foster organizational cultures characterized by green teamwork, trust, and shared environmental values, which cannot be easily replicated by competitors and may require a long time to build. Finally, it is interpreted that green human resource management practices have the effect of ensuring that organizations are properly organized to efficiently utilize employees' green abilities via appropriate systems and practices, aligning human resources with strategic environmental objectives and encouraging excellent environmental performance. Results in hypothesis one (H1) basically confirm previous findings that produced similar results, including Hameed et al. (2021), Birbirsa et al. (2023), Omolo (2025), and Kimeu et al. (2025). They found that green human resource management practices are positively related to environmental performance. This was possible because organizations with green recruitment, green training, green performance appraisal, green rewards, and green employee participation systems tended to achieve improved resource efficiency,

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waste reduction, pollution prevention, environmental compliance, and wider environmental outcomes (Saeed et al., 2019).

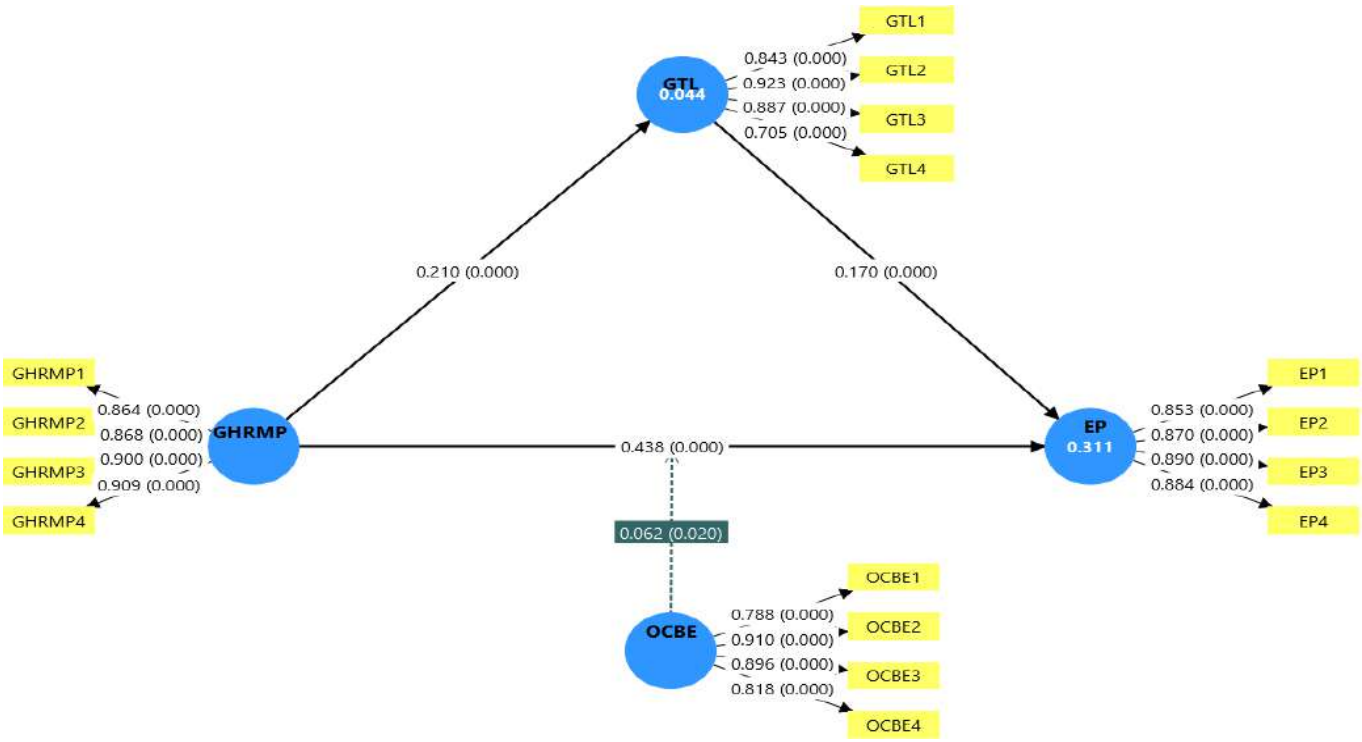


Figure 1
Path analysis

With respect to hypothesis two (H2), the study aimed at establishing whether Green Transformational Leadership mediates the association between Green Human Resource Management Practices and Environmental Performance using Social Exchange Theory (SET). Results in table 5 and figure 1 supported hypothesis two ($\beta = 0.036$; $t = 4.752$; $p = 0.000$). It interpreted that Green Transformational Leadership is able to convert formal Green Human Resource Management Practices into active employee behaviors that contribute to the improvement of Environmental Performance (EP) via a cycle of mutual trust and reciprocity. Social exchange theory explains the mediating role of Green Transformational Leadership between the relationship of Green Human Resource Management Practices and Environmental Performance (EP). It is explained by the reciprocity process, which contains three interconnected elements, namely the input, the catalyst (GTL), and the reciprocity (EP). The results indicate that the input (GHRMPs) represents organizational practices such as green training, eco-rewards, and green recruitment that indicate the organization's commitment to sustainability and employee well-being. The catalyst (GTL) is where green leaders motivate, inspire, and guide employees to make environmental practices relevant and meaningful. So, reciprocity (EP) is when employees feel valued and want to be part of the organization beyond their formal job description, which reduces waste and improves the organization's overall environmental performance. The results in hypothesis two (H2) are in line with the previous studies that reported similar results, for example, Haque et al. (2021) and Iftikhar et al. (2021). Haque et al. (2021) found that green transformational leadership is likely a key construct for the mechanism of translating organizational green policies into employee environmental behaviors and improved environmental performance outcomes. Moreover, their green transformational leadership is positively related to environmental performance, and green human resource management practices help to develop green leadership behaviors (Iftikhar et al., 2021). Both findings on the confirmed mediating role of green transformational leadership in the link between green human resource management practices and environmental performance are conceivable.

Hypothesis Three (H3) was testing whether Organizational Citizenship Behavior Toward Environment positively moderates the relationship between Green Human Resource Management Practices and Environmental Performance based on Ability–Motivation–Opportunity (AMO) Theory. The Ability-Motivation-Opportunity (AMO) theory states that Organizational Citizenship Behavior Toward Environment positively moderates the relationship between Green Human Resource Management Practices and Environmental Performance. The results reveal that voluntary employee eco-actions enhance the effectiveness of formal green human resource management practices in improving environmental performance. Regarding ability, Green Human Resource Management Practices equip employees with green knowledge and abilities through training. Concurrently, high organizational citizenship behavior

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toward the environment motivates employees to proactively apply these competencies in their daily activities. Green human resource management practices establish green goals and rewards, and high organizational citizenship behavior toward the environment reflects employees' intrinsic commitment to environmental sustainability. In terms of motivation, strengthen these mechanisms.

Finally, considering an opportunity, Green Human Resource Management Practices provide platforms for employee participation, and high Organizational Citizenship Behavior Toward Environment encourages employees to utilize these opportunities to actively share ideas and solve environmental issues toward the achievement of environmental performance strategic objectives. The results of hypothesis three (H3) are in agreement with previous findings like Worku and Debela (2024), Abaho (2025), Aggarwal (2022), Nguyen et al. (2025), and Megren (2025). For example, previous studies have shown that organizations with a high level of organizational citizenship behavior toward the environment should be able to achieve more environmental benefits from their human resource practices (Abaho, 2025). Moreover, they reported that Green Human Resource Management Practices have a positive effect on employees' environmental knowledge, motivation, and participation, and at the same time, Organizational Citizenship Behavior Toward Environment leads to better environmental behaviors and environmental performance outcomes (Aggarwal, 2022; Nguyen et al., 2025; Megren, 2025). The current results and previous findings support the moderating role of organizational citizenship behavior toward the environment in the relationship between green human resource management practices and environmental performance

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

In relation to the first specific objective, the study concludes that Green Human Resource Management Practices positively and directly affect an organization's Environmental Performance. The findings show that incorporating green human resource practices into organizational processes plays a significant role in environmental improvements. From the Resource Based View viewpoint, Green Human Resource Management Practices are strategic organizational resources and capabilities that can enhance environmental performance and serve as a source of sustained advantage. In particular, Green Human Resource Management Practices have the VRIN (valuable, rare, inimitable, and non-substitutable) characteristics, which enable organizations to develop and use employees' green knowledge, skills, and behaviors effectively. Thus, Green Human Resource Management Practices are strategic resources that allow for the improvement of environmental performance and the achievement of sustainable organizational objectives. Based on the second specific objective, the study found that Green Transformational Leadership significantly mediates the relationship between Green Human Resource Management Practices and Environmental Performance. Within the framework of Social Exchange Theory, Green Transformational Leadership serves as a conduit to convert organizational green practices into improved environmental performance outcomes. The process begins with the rule of reciprocity, whereby organizational investment in green practices and supportive green leadership makes employees feel valued and supported. This causes an employee reaction as employees feel a social and moral obligation to reciprocate through positive behaviors. Employees thus show green behaviors via extra environmental efforts, sustainable working practices, and eco-friendly ideas. Such actions, in aggregate, improve the overall environmental performance of the organization. Thus, the mediating role of Green Transformational Leadership is established. Based on the third specific objective, the study concluded that Organizational Citizenship Behavior Toward Environment positively moderated the relationship between Green Human Resource Management Practices and Environmental Performance. The findings, based on the Ability–Motivation–Opportunity (AMO) Theory, show that employees' voluntary environmental behaviors strengthen the impact of formal green human resource practices. By having greater impact, Green Human Resource Management Practices help employees develop the ability, motivation, and opportunity to participate in environmental goals. Organizational Citizenship Behaviour Towards Environment provides the discretionary effort that improves the implementation of these practices. The findings also show that active synergy is necessary, and formal green policies, training, and incentives are not enough to achieve optimal environmental performance. This should be imbibed and voluntarily translated into daily environmental actions by employees, which would improve the overall environmental performance of the organization.

5.2 Recommendations

Three recommendations are suggested for improving environmental performance in Tanzanian Local Government Authorities. *First*: the fact that the study found that Green Human Resource Management Practices positive effect on organization's Environmental Performance; enhancement of Green Human Resource Management Practices is recommended. Based on the Resource Based View; the study recommends Local Government Authorities (LGAs) should concentrate on developing valuable, rare, inimitable, and non-substitutable (VRIN) green resources and

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capabilities to enhance environmental performance. There are three key green human resource management functions that can do this. First, the development of LGAs-specific green competencies through continuous training of employees on waste reduction, energy efficiency, environmental conservation, and sustainable operations should be the first priority for green training and development. Second, measurable green Key Performance Indicators (KPIs) should be part of employee and departmental performance appraisals, for example, waste reduction targets, energy conservation, and reduced carbon footprints. Third, reward management of green should be linked to the contributions of employees in the environmental domain, especially innovative green practices, with financial and non-financial incentives. These measures can assist LGAs in developing their own unique green capabilities, increasing employee engagement and achieving continuous improvements in environmental performance. *Second*: much as Green Transformational Leadership significantly mediates the relationship between Green Human Resource Management Practices and Environmental Performance; improvement of Green Transformational Leadership is recommended. In other words, Local Government Authorities (LGAs) need to enhance their environmental performance by developing Green Transformational Leadership (GTL) and supportive Green Human Resource Management Practices. For instance, LGAs may train leaders in green vision by equipping managers and supervisors with skills in environmental leadership and encouraging them to model sustainable behavior, such as reducing paper consumption, conserving energy, and minimizing waste.

Also, LGAs should link employee green performance, rewards, and recognition to the extent to which direct supervisors support it and align Human Resource practices with green leadership. In the same vein, LGAs should exploit the reciprocity principle as suggested by social exchange theory in the course of improving environmental performance. Precisely putting, LGAs should use Social Exchange principles to create reciprocity between leaders and followers. For example, when employees are provided with green training, recognition, and supportive leadership, they are likely to reciprocate through higher environmental commitment, eco-friendly behaviors, thus improving the environmental performance of LGAs. *Third*: based on the finding that Organizational Citizenship Behavior Toward Environment positively moderated the relationship between Green Human Resource Management Practices and Environmental Performance; the study recommends strengthening of Organizational Citizenship Behavior Toward Environment in LGAs. For instance, LGAs can improve organisational citizenship behaviour towards the environment by offering ongoing green training, communicating clear environmental values, acknowledging discretionary green behaviours, involving employees in environmental decisions, empowering employees to suggest environmental improvements, and establishing supportive organisational climates. On the other hand, based on the Ability–Motivation–Opportunity (AMO) Theory, Local Government Authorities can improve environment performance by enhancing employees' abilities, motivation and opportunities to promote environmentally responsible behaviours. In doing so, they should conduct environmental training to improve employees' knowledge and skills, establish incentives and recognition systems to encourage participation in environmental activities, and provide opportunities for employees to participate in environmental decision-making and activities. Moreover, organisations should promote Organisational Citizenship Behaviour Toward Environment through encouraging voluntary environmental activities to enhance the positive impact between Green Human Resource Management Practices and Environmental Performance.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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