

GREEN LEADERSHIP AND SUSTAINABLE EMPLOYEE ENGAGEMENT IN DRIVING ORGANIZATIONAL CITIZENSHIP BEHAVIOR FOR THE ENVIRONMENT (OCBE): A SYSTEMATIC LITERATURE REVIEW

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Abstract. This article presents a systematic literature review that explores the linkages between green leadership, sustainability-focused employee engagement, and today's organizational context. Using the PRISMA 2020 framework, this study examined 45 *peer-reviewed* articles published between 2020 and 2025. The results of this survey reveal that green leadership styles, especially green transformational leadership, environmentally-specific servant leadership (ESSL), and eco-centric leadership have been proven to have a significant effect on employee engagement in various sustainability initiatives and are able to encourage pro-environmental behaviors that are carried out voluntarily. Important findings in this study show that sustainable employee engagement plays a key mediator linking green leadership to OCBE. The mechanisms behind it include green psychological capital (GpsyCap), green organizational climate, and environmental self-efficacy. The study also identified three key dimensions of OCBE, namely eco-initiatives, eco-civic engagement, and eco-assistance, all of which are positively influenced by authentic green leadership. The practice of Green Human Resource Management (GHRM) is also present as a supporting mechanism that strengthens the path of leadership, involvement, OCBE. From a theoretical perspective, this approach contributes by presenting a comprehensive framework that combines various perspectives and into a whole whole. In practical terms, these findings underscore the importance of organizations investing in green leadership competency development, building a well-rounded GHRM system, and creating an organizational climate conducive to employees' voluntary environmental civic behavior.

Keywords: Green leadership, sustainable employee engagement, organizational citizenship behavior for the environment (OCBE), green transformational leadership, GHRM,

I. INTRODUCTION

The worsening environmental crisis marked by climate change, depletion and biodiversity loss has made environmental sustainability a non-negotiable necessity for organizations around the world [1]. In this situation, the green behavior of employees is increasingly seen as the foundation for the realization of an organization that is truly ecologically sustainable. Reflecting actions in support of ecological goals, going beyond what their formal job description simply demands [2].

OCBE consists of three interconnected dimensions: (1) eco-initiative, which is voluntary behavior in the form of providing suggestions to improve environmental practices; (2) eco-civic involvement, in the form of active participation in various environmental programs of the organization; (3) Eco assistance, which is an effort to help colleagues voluntarily so that they are more sensitive to environmental issues in their daily work [3]. Empirical research shows that this voluntary behavior is crucial to an organization's environmental performance, as even the most sophisticated environmental management system will not

be able to achieve sustainability goals without the real support of every individual in it [4].

Leadership has been recognized as one of the determining factors of employee environmental behavior. Various green leadership styles have proven to have a significant impact on OCBE [5]. Green transformational leadership (GTL), environmentally-specific servant leadership (ESSL), and eco-centric leadership are leadership approaches that explicitly integrate environmental management into a broader leadership framework [6]. These leadership styles translate ecological responsibility into concrete actions and set an example, encouraging employees to take sustainable action on their own initiative.

Sustainability-oriented employee engagement has emerged as a psychological bridge connecting green leadership with OCBE. In this context, employee engagement refers to an inner state characterized by passion, commitment, and a deep appreciation for various environmental initiatives [7]. Recent research shows that employees who are truly engaged in the sustainability agenda tend to be more proactive and show

voluntary pro-environmental behavior, far beyond what is written in their employment contracts [8].

Although academic interest in this topic continues to grow, the existing literature is still scattered in explaining how green leadership influences OCBE through employee engagement. Previous studies have generally only highlighted one particular construct or leadership style, without providing a comprehensive understanding. This is the background for this systematic literature review to synthesize existing findings, identify the mechanisms and moderation factors at play, and build a more complete understanding of the nexus of green leadership, sustainable engagement, OCBE.

Using the PRISMA 2020 framework, this review seeks to answer four research questions in a systematic and transparent manner;

1. What is the most researched green leadership style in relation to OCBE?
2. How does sustainable employee engagement mediate the relationship between green leadership and OCBE?
3. What are the most relevant mechanisms and theoretical frameworks in explaining the green leadership path, engagement, OCBE?
4. What moderation factors and contextual variables influence this relationship?

Green Leadership: Conceptualization and Typology

Green leadership is a form of leadership that specifically integrates environmental sustainability into the organization's vision, strategy, and operations [9]. From various existing studies, there are at least five types of green leadership, each of which emphasizes a specific aspect of environmental management. Table 1 summarizes these typologies along with their definitions, mechanisms, and representative studies.

Green Transformational Leadership (GTL) is essentially adapting into the realm of the environment [6]. GTL-style leaders not only articulate a strong environmental vision, but also become a tangible example of sustainable behavior, encourage innovative approaches in the face of ecological challenges, and provide personalized support to employees' green initiatives. Recent empirical evidence confirms that GTL significantly encourages OCBE through the establishment of a green organizational climate and the strengthening of employee environmental awareness [10].

Environmentally-Specific Servant Leadership (ESSL) emphasizes the leader's commitment to environmental management while still prioritizing the spirit of serving and developing followers (Luu, 2019). ESSL leaders not only talk, but show real ecological responsibility, empower sustainable practices, create a work environment for employees conducive to the emergence of environmental citizenship behavior. Research proves that ESSL encourages OCBE through strengthening employees' green psychological capital which includes hope, resilience, optimism, and environmental self-efficacy [11].

Eco-Centric Leadership (Eco-L) represents a leader who truly puts ecological values at the center of every decision and action [12], eco-centric leaders actively support environmental initiatives, build a shared sense of ecological purpose, and inspire employees through genuine value alignment rather than just appeals. Research reveals that Eco-L has a significant

impact on OCBE, both directly and through mediators such as green commitment and environmental self-efficacy [13].

TABLE I. Typology of Green Leadership: Definition, Mechanism, and Representative Studies

Typology of Green Leadership	Definition	Main Mechanism	Representative Studies
Green Transformational Leadership (GTL)	Adaptation of the four dimensions of transformational leadership into the context of the environment.	Articulation of environmental vision, green organizational climate, awareness building.	(Liu & Yu, 2023), [9], [10].
Environmentally-Specific Servant Leadership (ESSL)	Leadership that combines commitment to environmental management with an orientation to serve and empower followers.	Employee empowerment, green psychological capital development (hope, resilience, optimism, self-efficacy).	[15], [16], [17]
	Leadership that prioritizes ecological values and shows a sincere commitment to environmental sustainability.	A sense of common ecological purpose, an alignment of environmental values that are intrinsic.	[18]), [19].
Environmentally-Specific Transformational Leadership	The application of transformational behavior specifically to environmental issues and initiatives.	Green voice, ecological reflexivity, person-supervisor value adjustment.	[20], [21].

Source: Compiled from a systematic literature review (2020-02-25)

Ongoing Employee Engagement

Sustainable employee engagement expands the meaning of traditional work engagement by including the dimension of employee psychological investment in the organization's sustainability agenda [22]. This involvement manifests itself in three stages: cognitive, emotional, and behavioral, all of which are directed specifically at environmental goals. Employees who are involved in sustainability contexts show a higher awareness of environmental issues, an emotional attachment to ecological goals, and active involvement in green initiatives [23].

Green Work Engagement (GWE) is a specific form of engagement, characterized by passion, dedication, and deep appreciation in carrying out environmental tasks [8]. Research shows that GWE mediates the relationship between green leadership and various outputs, including OCBE, innovative green behaviors, and organizational environmental performance provides real support, implements the right GHRM practices, and has leaders who genuinely value sustainability values [24].

Empirical evidence shows that intimate engagement is fostered through various organizational mechanisms. Resources that include green value-based, sustainable, and aligned rewards systems have been proven to significantly increase employee engagement on the sustainability agenda [25]. The role of leadership in this process is very central: green leaders create psychological conditions: a sense of meaning, security, and sufficient resources, which allows employees to truly engage with environmental initiatives [7].

Organizational

OCBE reflects the environment on the basis of awareness and volunteerism, without expecting any formal rewards or recognition from the organisational system [2]. In contrast to mandatory environmental compliance, OCBE was born from the intrinsic motivation and personal commitment of employees to sustainability. This contrast consists of three dimensions that complement each other.

Eco-Initiatives include voluntary behavior in which employees proactively provide suggestions to improve environmental practices, offer innovative solutions to ecological challenges, or voice concerns about unsustainable practices [3]. Research shows that eco-initiatives are strongly influenced by a sense of psychological ownership, environmental self-efficacy, and how much the organization gives space to employees' voices [26].

Eco Civil Engagement, participation, activities, and initiatives organized [3]. This can be joining a green committee, attending training, or being active in an organization that has a strong green climate, is supported by caring leadership, and where the values of the personal environment of the worker align with the values of the organization [27].

Help-Eco attempts to integrate caring into daily routines, for example through a variety of knowledge, guiding green practices, or collaborating on sustainability projects [3]. This behavior grows stronger in a culture that emphasizes collective environmental responsibility, green team norms, and strong prosocial motivation [28].

Theoretical Framework

Several theoretical frameworks form the foundation of understanding how green leadership, sustainability engagement, and OCBE are interconnected. Table 2 summarizes these frameworks along with their main premises and relevance in the context of this research.

Social Exchange Theory (SET) explains that employees will basically repay kindness with kindness. When leaders are genuinely committed to environmental sustainability and provide real support, employees perceive it as something that deserves to be repaid, one of which is through OCBE [16].

Conservation of Resources Theory (COR) describes how green leadership plays a role as a 'resource builder'. Green leaders help employees develop psychological resources, including: green psychological capital, environmental self-efficacy, and green work engagement, which in turn enables them to invest energy in OCBE without feeling burned out [20].

Social Information Processing Theory (SIPT) explains how signals from leaders and organizational context shape employees' perceptions of sustainability. When leaders consistently prioritize the environment, whether through words, decisions, or daily behavior. They create green organizational

norms and climates that lead employees to behave in an environmentally friendly manner.

TABLE II. The Theoretical Framework Underlying the Green Leadership Pathway, Engagement, OCBE

Theoretical Framework	Main Premises	Applications in Research	Representative Studies
Social Exchange Theory (SET)	Employees will repay the leader's environmental investment with pro-environmental behavior on a voluntary basis.	Explains why authentic green leadership drives OCBE in response to exchange.	[29], [16]
Conservation of Resources Theory (COR)	Individuals seek to acquire and protect the resources they value.	Green leadership builds psychological resources (GpsyCap, ESE, GWE) that drive OCBE.	[30], [20]
Social Information Processing Theory (SIPT)	Signals from the social environment shape employee attitudes and progress.	Leaders as a source of social information that shape the norms and climate of green organizations.	[31], (Liu & Yu, 2023),
	and autonomy encourages sustainable voluntary behavior.	Empowering green leadership increases intrinsic motivation for OCBE.	[18], [26]
Psychological Capital Theory	Positive psychological capacity (HERO) can be developed to affect performance.	GpsyCap as a resource that can be built through leadership to drive OCBE.	[17], [11]

Source: Compiled from a systematic literature review (2020-02-25)

II. RESEARCH METHODS

This systematic literature review follows the PRISMA 2020 guidelines (strict, replicated). The process takes place in four consecutive phases; identification, screening, eligibility assessment, and inclusion.

Search Strategy

Comprehensive a number of Web of Science, IEEE Xplore, ProQuest, and Google Scholar. Time coverage is limited from January 2020 to December 2025 so that this review captures the latest developments in this area. The search strategy uses Boolean operators that connect three main keyword clusters:

Green Leadership: ("green leadership" OR "environmental leadership" OR "eco-leadership" OR "sustainable leadership" OR "green transformational leadership" OR "environmentally-specific servant leadership" OR "ESSL")

Employee engagement: ("employee engagement" OR "work engagement" OR "green work engagement" OR

"sustainable employee engagement" OR "environmental engagement")

OCBE: ("OCBE" OR behavior" "employee "eco-initiative" civic engagement" helping)

Inclusion and Exclusion Criteria

The selection of studies was carried out based on criteria that had been set before the search process began (a priori). Table 3 summarizes these criteria systematically.

TABLE III. Inclusion and Exclusion Criteria in Study Recovery

Inclusion Criteria	Exclusion Criteria
1. Peer-reviewed empirical and theoretical studies, published in English.	1. Non-empirical publications such as editorials, commentaries, and opinion articles.
2. Studies that examine the relationship between green leadership, employee engagement, and/or OCBE.	2. Studies that are not available in English.
3. Publications in the range of 2020-2025	3. Conference proceedings and working papers that do not go through peer review.
4. Studies that cover a wide range of industry sectors and geographical contexts.	4. Studies that focus only on the performance of the company's environment without analysis at the employee level.

Source: Adapted from the PRISMA 2020 guidelines [32]

Study Selection Process

An initial search yielded 487 records from the entire database used. After duplication was removed ($n=142$), a total of 345 recordings were screened by title and abstract, and 278 of them were excluded because they were not relevant to the research question. Of the 67 full-text articles that were then further reviewed, 22 articles were eliminated because they did not meet the inclusion criteria: 15 articles lacked adequate empirical data, 4 did not go through peer review, and 3 were published before 2020. In the end, 45 articles were included in the qualitative synthesis.

Data Extraction and Analysis

The established data extraction form is designed to systematically capture: (1) the characteristics of the study: authors, year, country, and sector, (2) methodological details: research design, sample size, and data collection methods, (3) theoretical frameworks used, (4) constructs and measurement instruments, (5) key findings regarding the relationship between green leadership, OCBE involvement, and (6) identified moderation and mediation variables. All data were analyzed through a thematic synthesis approach to find patterns, similarities, and differences among the studies studied.

Quality Assessment

Quality is evaluated for quantitative and qualitative research: clarity of research objectives, suitability of design, accuracy of data collection and analysis, validity and reliability of instruments, and adequacy of theoretical foundations. All included studies met satisfactory quality standards, with most using validated instruments and proper statistical procedures.

III. RESULTS AND DISCUSSION

Study Characteristics

Of the 45 studies analyzed, most were located in Asia ($n = 28$, 62%), mainly China ($n = 15$), Pakistan ($n = 7$), and South Korea ($n = 3$), followed by Europe ($n = 8$, 18%), North America ($n = 5$, 11%), Africa ($n = 3.7\%$), and the Middle East ($n = 1.2\%$). The hospitality and tourism sector became the most dominant research context ($n = 18.40\%$), followed by manufacturing ($n = 12.27\%$), education ($n = 6.13\%$), and other services ($n = 9.20\%$). Table 4 presents this distribution in more detail.

TABLE IV. Geographic and Sectoral Distribution of Included Studies

Region	Number of Studies (n)	Percentage (%)	Dominant Countries
Asia	28	62%	China ($n=15$), Pakistan ($n=7$), South Korea ($n=3$)
Europe	8	18%	English, Spanish, Polish
North America	5	11%	United States, Canada
Afrikaans	3	7%	South Africa
Middle East	1	2%	Saudi Arabia
Total	45	100%	—
Industrial Sector	Number of Studies (n)	Percentage (%)	Average Effect (β)
Hospitality & Tourism	18	40%	0,52
Manufacturing	12	27%	0,46
Education	6	13%	0,39
Other Services	6	20%	0,41
Total	45	100%	—

Source: Compiled from PRIMA selection results ($N = 45$ studies)

38.84% with fewer using longitudinal ($n = 4.9\%$) or mixed methods ($n = 3.7\%$). Sample sizes ranged from 152 to 525 participants, with an average of 342 respondents per study. Table 5 presents a summary of the characteristics of the main studies analyzed.

TABLE V. Summary of Key Study Characteristics Included in the Review

Author	Year	Country	Sectors	Design	Key Findings
Aborahaman et al.	2021	Palestine	Hospitality	Quantitative SEM	ESSL $\rightarrow$ OCBE mediated green creativity climate ($\beta=0.42-0.61$)
Abdou et al.	2023	Saudi Arabia	Hospitality	Quantitative SEM	Eco-L $\rightarrow$ OCBE mediated by green work involvement ($\beta=0.53$)
Althnayan et al.	2022	Saudi Arabia	Multi-industry	Quantitative SEM	GTL $\rightarrow$ OCBE with partial mediation of green organization climate
Cahyadi et al.	2022	Indonesia	Manufacturing	Quantitative SEM	GTL $\rightarrow$ green innovation mediated by creative process involvement
Cheng et al.	2022	Chinese	Multi-industry	Quantitative SEM	ETL $\rightarrow$ green vote conditioned environmental values & psychological safety
Faraz et al.	2021	Pakistan	Banking	Quantitative SEM	Eco-L $\rightarrow$ pro-environmental

						behaviors mediated by self-efficacy & intrinsic motivation	The Role of Continuous Employee Engagement Mediation
Gupta & Jangra	2024	India	Multi-industry	Quantitative SEM	GHRM → green work engagement as a mediation towards OCBE		A total of 32 studies (71%) examined the involvement of continuous employees as mediators between green leadership and OCBE, and 31 of them (97%) confirmed a significant mediation effect. Green work engagement emerged as a very powerful mediator so that the indirect effects accounted for 35-62% of the total effects of green leadership on OCBE [34], [7].
Hasan et al.	2024	Egypt	Hospitality	Quantitative SEM	GTL → employee retention mediated by green organizational culture		This mediation is generally partial, not full, signaling that green leadership is influencing OCBE through two channels at once: directly and through increased employee engagement.
Khan & Khan	2022	Pakistan	Multi-industry	Quantitative SEM	GTL → green culture mediated by GHRM (β=0.31-0.58)		Studies with structural equation modeling identified several psychological mechanisms that explain how this engagement works. First, green leadership creates a sense of meaning; employees feel their sustainability work has high value. Second, green leaders create a sense of psychological security: employees are not afraid to try new things in the context of sustainability, even at the risk of failure. Third, leaders provide sufficient resources, training, and time for employees to be truly engaged in environmental tasks [24], [25], [22].
Kim et al.	2020	Korea	Hospitality	Quantitative ML-SEM	GHRM → eco-friendly behavior through employee engagement		Longitudinal studies provide stronger evidence for this mediating causality. Green leadership at Time 1 was shown to predict continued engagement at Time 2, which then predicted OCBE at Time 3, with a typical 3-6 month lag between measurements [35]. These temporal findings reinforce the belief that the theorized mediation pathway does indeed work causally.
Lestari & Anjaningrum	2025	Indonesia	Education	Quantitative SEM	GWE → innovative culture mediated by an evolving mindset		Psychological Mechanisms and Resources
Luu	2019	Vietnam	Hospitality	Quantitative SEM	ESSL → OCBE with partial mediation (β=0.42)		Several psychological constructs are identified as 'bridges' that connect green leadership with OCBE through a path of continuous engagement. Table 6 summarizes the key findings regarding these mechanisms.
Mankgele & Fatoki	2025	South Africa	SMEs	Quantitative SEM	Empowering leadership → OCBE mediated by GWE & psychological ownership		
Mughal et al.	2022	Pakistan	Manufacturing	Quantitative SEM	GTL → green performance mediated by green psychological capital (β=0.48-0.67)		
Noor et al.	2023	Malaysia	Banking	Quantitative SEM	GHRM + leadership → employee engagement (green banking)		
Stuttgart	2025	Chinese	Multi-industry	Longitudinal SEM	Company sustainability → GWE → OCBE (Time 1→2→3, lag 3-6 months)		
Zhang et al.	2024	Chinese	Multi-industry	Quantitative SEM	ETL → green sound conditioned ecological reflexivity & value suitability		
Iqbal et al.	2025	Malaysia	Multi-industry	Quantitative SEM	Sustainability leadership → OCBE conditioned by procedural environmental justice		

Source: Compiled from a systematic literature review (2020-2025).
Description: SEM = Structural Equation Modeling, ML = Multilevel, GTL = Green Transformational Leadership, ESSL = Environmentally-Specific Servant for.

Green Leadership and OCBE: Direct Effects

All 45 studies reviewed (100%) reported a variety of green styles and OCBEs. Consistently showed strong effects in a variety of contexts (β range from 0.31–0.58), with magnitudes of effects indicating substantial impacts (Liu & Yu, 2023). ESSL stands out especially in the hospitality sector (β = 0.42–0.61), where a service-oriented culture actually strengthens the effectiveness of this leadership style [16], (Liu & Yu, 2023). Meanwhile, eco-centric leadership emerged as an equally strong predictor of OCBE (β = 0.45–0.63), with studies confirming the importance of authentic environmental commitment, not just the symbolism of a leader [12], [19].

A comparison between approaches reveals an interesting finding: explicitly environmentally-oriented leadership styles (GTL, ESSL, Eco-L) are consistently superior to transformational or generic servant leadership in predicting OCBE. This suggests that explicit environmental orientation is an important differentiating factor [33][5].

TABLE VI .Psychological Mechanisms of Mediation in the Green Leadership Pathway-OCBE

Psychological Constructs	Main Components	Leadership Type	Effect Size	Main Study
Green Psychological Capital (GpsyCap)	Green hope, resilience, optimism, environmental self-efficacy	ESSL, GTL	β = 0.48-0.67, mediation 45%	Mughal et al. (2022), Wang et al. (2023)
Environmental Self-Efficacy (ESE)	Employee beliefs about the ability to make a difference in the environment	Eco-L, ETL	Moderation β = 0.23-0.31	Memon et al. (2022), Noor Faezah et al. (2024)
Psychological Ownership	A sense of ownership of environmental initiatives and programs	Empowering Leadership	β = 0.41–0.54; Mediation Initiative-Eco	Mankgele & Fatoki (2025)
Green Commitment	Affective attachment to the goals and values of the organization's environment	Eco-L, GTL	Mediation 32–48%	Ahuja, 2023, Faraz, 2021
Green Work Engagement (GWE)	Passion, dedication, and absorption in sustainability tasks	All typologies	Mediation 35–62% of total effects	Gupta & Jangra (2023)
Ecological Reflexivity	Careful consideration of the environmental	ETL	Limit conditions (moderation)	Liu et al. (2024), Zhang et al. (2024)

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Source: Compiled from a systematic literature review (2020-2025). Description: GpsyCap=Green Psychological Capital, ESE = Environmental Self-Efficacy, GWE = Green Work Engagement.

Green Psychological Capital (GPsyCap), which consists of green hope, resilience, optimism, and self-efficacy, has been studied in 18 studies. ESSL was shown to significantly increase GPsyCap ($\beta = 0.48-0.67$), which then mediated 45% of green leadership relationships with OCBE [17], [11]. Employees with GpsyCap are more persistent in carrying out environmental initiatives and are more resilient to sustainability challenges.

Environmental Self-Efficacy (ESE) is confirmed by 14 studies as a crucial psychological resource. Green leadership is proven to reinforce employees' belief that they can truly make a real difference to the environment. Employees with high ESE respond to green leadership with a much stronger OCBE (moderation effect $\beta = 0.23-0.31$) (Memon et al., 2022, [36]).

Organizational Contextual Factors

Green Organizational Climate (GOC) was identified as a critical contextual variable by 23 studies. The GOC reflects employees' shared perceptions of how seriously the organization prioritizes environmental values and practices [37]. Green transformational leadership was shown to form a strong GOC ($\beta = 0.51-0.68$), which then mediated 40-50% of the effects on OCBE [38], (Liu & Yu, 2023). Interestingly, in organizations with strong GOCs, the relationship between employee engagement and OCBE became significantly stronger (moderation effect $\beta = 0.28$).

The practice of GHRM was examined by 17 studies as a green leadership support system, a comprehensive GHRM system that includes green recruitment, training, performance management, and environment-based rewards that synergistically improve the effects of green leadership on engagement ($\beta = 0.34-0.47$) and OCBE ($\beta = 0.29-0.41$) [39], [25], [40]. More strikingly, organizations that implemented GHRM in an integrated manner showed an average OCBE score of 38% higher than those that relied solely on leadership without the support of a harmonized HR system.

Procedural Environmental Justice (PEJ) is an employee's perception of how fair environmental decision-making procedures are identified by the study as an important moderator. When employees feel a high level of PEJ. The relationship between sustainable leadership and OCBE strengthened significantly (moderation $\beta = 0.26-0.34$) [41].

Individual Difference Variables

Employees' Environmental Concerns, how strongly they personally prioritize ecological issues have been studied as moderators by nine studies. Employees who care about the environment are found to be much more responsive to the leadership of environmental empowerment in terms of OBCE ($\beta = 0.31$). This suggests that green leadership is most effective when 'meeting' employees who already have environmental awareness [26].

Person-Supervisor Value Conformity (PSVC) with respect to environmental issues was identified by seven studies as an

important boundary condition. When the values of the employee's environment are aligned with the values of their leaders, the relationship between transformational leadership and OCBE is strengthened (moderation $\beta = 0.27-0.35$) [20], [21]. In addition, Ecological Reflexivity i.e. the habit of carefully reflecting on the environmental impact of each work decision highlighted by four studies as a cognitive mechanism that strengthens the translation of leadership influence into real OBCE (Liu et al., 2024).

Industrial and Cultural Context

The magnitude of the effect varied between sectors: hospitality showed the strongest effects (average $\beta=0.52$), manufacturing ($\beta=0.46$) and education ($\beta=0.39$). This pattern likely reflects more direct environmental pressures in the hospitality sector regarding energy, water, and waste production consumption as well as strong customer expectations for sustainability, which together create a greater organizational push for OCBE.

Cross-cultural analysis reveals an interesting pattern: samples from collectivist cultures (especially Asian) show more relationships than individualist cultures (average $\beta=0.38$). This is consistent with collectivist values that emphasize group harmony and shared social responsibility. However, more systematic cross-cultural research is still needed to definitively establish cultural moderators.

Discussion

Theoretical Contributions

This systematic review makes several meaningful theoretical contributions to the organizational sustainability literature.

First, the review provides comprehensive evidence for a multilevel framework that defines green leadership (individual psychological level), and OCBE (behavioral level). The consistency of findings across studies supports the SET, COR, Theory, and SIPT propositions simultaneously showing that the three complement each other, not compete, in explaining the nexus of green leadership, engagement, OCBE.

Second, this review reveals that continuous employee engagement plays a role as a critical mediation mechanism and not just a parallel output. The dominance of partial mediation suggests that although engagement plays a central role, it does not fully explain the influence of green leadership on OCBE, so there are several lines of influence that work simultaneously.

Third, the identification of green psychological capital, environmental self-efficacy, psychological ownership, and green commitment as key mediation resources extend the application of COR Theory into the environmental domain. Effective green leadership not only directs employees to act in an environmentally friendly manner, it fundamentally builds the psychological capacity of employees for long-lasting voluntary citizenship.

Fourth, the consistent superiority of environmentally-specific leadership styles (GTL, ESSL, Eco-L) over generic approaches validates the argument that leadership needs to be conceptualized on a domain-specific basis. These findings challenge assumptions about transformational or servant leadership universality, while also underscoring the importance of aligning leadership content with desired behavioral outputs.

Practical Implications

Table 7 summarizes practical recommendations that can be drawn from the findings of this review, complete with indicators of their implementation success.

Intervention Areas	Practical Recommendations	Success Indicators
Leadership Development	Design competency-based training programs that emphasize authentic environmental commitments, the ability to articulate a green vision, employee enticement, and sustainable behavior modeling.	Green leadership competency scores, 360° evaluations, green organizational climate change.
Green HRM System (GHRM)	Integrate environmental criteria in the selection, provide systematic green training, input on environmental performance in assessments, and provide recognition of environmental citizenship.	GHRM index, green training participation rate, retention of environmental champions.
Ongoing Employee Engagement	Create conditions of meaning (environmental impact communication), psychological safety (space for experimentation), and availability of resources for sustainability initiatives.	GWE scores, environmental program participation rates, green engagement surveys.
Green Psychological Capital	Design interventions to build hope, resilience, optimism, and environmental self-efficacy through experiential learning, mentoring, and positive feedback.	GpsyCap score, persistence rate of environmental initiatives, self-efficacy report.
Green Organizational Climate	Build strong environmental norms and values through consistent communication, organizational symbols, formal policies, and behavioral modeling from top leadership.	Green organization's climate index, frequency of environmental initiatives, aggregate OCBE scores.

Source: Derived from the synthesis of the findings of a systematic literature review (2020-2025)

Organizations that are serious about improving environmental performance through OCBE employees need to invest in the development of authentic green leadership competencies. Leadership development programs need to emphasize four things: a sincere commitment to environmental values (not just compliance with formalities), the ability to articulate a strong and compelling environmental vision, the ability to empower employees to take initiative in the

environmental field, and the capacity to be a credible role model of sustainable behavior.

The development of green leadership needs to go hand in hand with a comprehensive GHRM system. Organizations need to integrate environmental criteria into recruitment and selection, provide systematic green training, interpret environmental performance with a scoring system, and ensure there are clear career paths for 'environmental champions'. The synergistic effect between green leadership and GHRM shows that a partial and unintegrated approach results are much more limited.

Future Direction

Some reviews are recognized and open up opportunities for further research.

First, the dominance of cross-sectional design limits the possibility of assertive causal inferences. Research with experimental, quasi-experimental, or longitudinal multi-wave designs is indispensable to definitively establish causality.

Second, the geographic concentration centered on Asia limits the generalizability of the findings to the Western context. Cross-cultural studies that explicitly examine the effects of cultural dimensions such as collectivism. Distance of power, and a avoidance of uncertainty are urgently needed.

Third, the geographic concentration concentrated in Asia limits the generalizability of the findings to the Western context. Cross-cultural studies that explicitly examine the effects of cultural dimensions such as collectivism, power distance, and uncertainty avoidance are urgently needed.

Fourth, most research focuses on hospitality and manufacturing, with limited attention to other industries such as technology, healthcare, or financial services. Future research needs to explore whether the magnitude of the relationship varies significantly based on the industry context.

Fifth, research on the dark side of green leadership, which includes green fatigue, greenwashing, and performative environmental virtue signals, is still very limited and deserves further development.

IV. CONCLUSION

This systematic literature review provides comprehensive evidence that green leadership significantly influences Organizational Citizenship Behavior for the Environment through sustainable employee engagement mechanisms. By synthesizing findings from 45 empirical studies in various organizational contexts, this review uncovers consistent patterns, both for theoretical development purposes and for concrete practical guidance. Key findings show that explicitly environmentally-oriented leadership styles, particularly green transformational leadership, environmentally-specific servant leadership, and eco-centric leadership, have a substantial effect on the three dimensions of OCBE: eco-initiatives, eco-civic engagement, and eco-assistance. This effect works a continuous employee, who serves as a psychological 'translator' that transforms the influence of leadership into voluntary environmental civic behavior. The review also identified a number of psychological resources namely green psychological capital, environmental self-efficacy, psychological ownership, and green commitment that mediate

green leadership pathways, engagement, OCBE. These resources are a key leverage point for intervention: effective sustainability leadership not only directs behavior, it also fundamentally builds the psychological capacity of employees. Contextual factors, namely in particular the green organizational climate and GHRM practices are proven to be a supporting mechanism that strengthens the effectiveness of green leadership. This synergy between leadership and organizational systems suggests that the integrated approach blends authentic green leadership with a comprehensive GHRM that produces much better outputs than stand-alone leadership interventions or HRMs. For organizations committed to environmental sustainability, the review offers clear guidance: invest in authentic green leadership competencies, implement a GHRM system that aligns with environmental goals, create an organizational climate that values environmental citizenship, and build employee psychological resources to support long-term sustainability. This integrated approach based on a solid theoretical framework and substantial empirical evidence represents the most promising path to cultivating employee voluntary behaviour that makes a real contribution to environmental goals. As global environmental challenges increase, understanding how organizations can foster environmental citizenship for employees is becoming increasingly urgent. This review confirms that green leadership and sustainable employee engagement are powerful mechanisms to mobilize employee discretionary efforts for ecological goals. By integrating these insights into organizational practice and continuing to advance research in this important domain, scholars and practitioners can make a real contribution to building more sustainable organizations and ultimately, a more sustainable world.

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