



GREEN PERFORMANCE APPRAISAL SYSTEMS AS REINFORCERS OF GREEN ORGANIZATIONAL CULTURE

Rahayu Mardikaningsih¹, Dewie Tri Wijayanti Wandoyo²

¹Universitas Sunan Giri Surabaya, ²Universitas Negeri Surabaya
correspondence: rahayumardikaningsih@gmail.com

Abstract

This study examines how green performance appraisal systems reinforce green organizational culture through measurement and evaluation of environment related performance. Green appraisal functions as a culture reinforcement mechanism through value signaling, accountability creation, feedback driven learning, and peer pressure. Effective system design requires specific and material indicators, transparent target cascading processes involving employees, high feedback frequency, and sufficient environmental metric weighting in compensation decisions. Line manager resistance and gaps between corporate design and operational implementation constitute major obstacles. Success depends on top management commitment, training and communication investments, and reliable data measurement infrastructure. Successful systems create positive reinforcement cycles where established green cultures sustain themselves through selection and socialization of new employees. Regular evaluation ensures system relevance amid changing external conditions. Green performance appraisal transforms environmental values from rhetoric into daily operational reality.

Keywords: green performance appraisal, organizational culture, environmental metrics, behavior reinforcement, sustainability management

Introduction

Global pressures toward environmental issues have transformed how companies manage their operations in the past two decades. Consumers are increasingly selective in choosing environmentally friendly products, investors include environmental criteria in their investment decisions, and regulators implement increasingly strict emission standards. Companies can no longer ignore carbon footprints and waste generated from their production processes. Because, current long-term company successes are greatly determined by how organizations align work effectiveness with environment-based human resource management practices (Mardikaningsih, 2024a). Initial responses to these pressures are usually reactive like installing chimney filters or recycling factory waste. However, reactive approaches alone are insufficient for meeting continuously increasing stakeholder expectations. Organizations begin realizing that environmental commitments must be internalized into shared values held by all organizational members. This environmental value internalization process is what then becomes known as forming green organizational cultures. This culture integration will ultimately create strong alignments in driving environmental behaviors throughout all organizational levels (Essa & Mardikaningsih, 2024). Green cultures are reflected from employees' daily behaviors like turning off unused lights, reducing paper usage, and separating organic and inorganic waste. These behavior changes will not occur spontaneously without systems driving and reinforcing pro-environmental actions (Faezah et al., 2022).

Traditional performance appraisal systems have long focused on financial metrics like revenue, net profit, and investment returns. Employees are evaluated based on how greatly their contributions achieve these financial targets. Environmental metrics if existing are usually supplementary and do not have significant weights in promotion decisions or annual bonuses. Therefore, organizations need reviewing their work behavior principles to be more adaptive toward environmental responsibility demands (Darmawan, 2013). Consequently, employees lack sufficient incentives for changing their behaviors to become more environmentally friendly. A production manager successfully reducing production costs by ignoring hazardous waste disposal will still receive good performance appraisals. Conversely, managers investing time and

resources for reducing waste but generating lower profits will receive poor appraisals. This unbalanced performance appraisal system creates disincentives for pro-environmental behaviors. Employees learn that what companies measure and value are financial results, not environmental responsibilities. Changes toward green cultures require realignments between what companies value and what societies expect. Green performance appraisal systems exist as instruments for bridging this gap by systematically including environmental metrics in employee evaluations (Li et al., 2022). This transition toward green economies can only be realized if human resource management actively plays roles in building relevant competencies for all staff (Essa & Mardikaningsih, 2023).

Green performance appraisal systems are evaluation approaches integrating environmental performance indicators into individual or team contribution measurement processes (Curri-Memeti & Selimi, 2020). These indicators can include energy consumption reductions per product unit, increases in recycled material usage percentages, or decreases in generated waste volumes. Every employee from operator levels to top managers has specific environmental targets according to their authority and influences over business processes. Human resource readiness for achieving these targets heavily depends on companies' continuously updated core competency development strategies (Mardikaningsih & Darmawan, 2016). A product designer, for example, is evaluated based on how easily their products can be recycled after use periods end. A logistics specialist is assessed from how efficiently delivery routes are designed for reducing carbon emissions. A purchasing manager is evaluated based on supplier percentages meeting certain environmental standards. With clear and measurable targets, employees understand company expectations toward environmentally friendly behaviors. They also realize that their environmental performances will affect compensations and future promotion opportunities. This system also provides clear directions in managing structured human resources based on strategic competencies (Darmawan & Mardikaningsih, 2016). This system creates real consequences driving employees to prioritize environmental aspects in daily decision-making. Over time, these new habits will crystallize into norms widely accepted within organizations.

Organizational culture reinforcement mechanisms through performance appraisal systems work through several psychological and social pathways. First, performance appraisal systems function as signals about values truly important for organizations. When companies consistently measure and reward environmentally friendly behaviors, employees receive messages that environments are priorities equal to profitability. In these adjustment processes, line managers are often faced with challenges balancing role demands with new management directions (Jahroni & Darmawan, 2013). These signals are stronger than mission statements or slogans posted on office walls because they directly impact employees' personal interests. Second, performance appraisal systems create accountability where employees must answer their environmental results to supervisors. This accountability drives employees to systematically plan pro-environmental actions not merely voluntary activities done when free time exists. Third, performance appraisal systems facilitate organizational learning through regular feedback. Employees knowing their environmental targets are not achieved will seek ways for improving performances in subsequent periods. This trial-and-error process yields innovations in more environmentally friendly work methods. Fourth, performance appraisal systems create peer pressure because employees compare their environmental achievements with coworkers. This social pressure drives behavior convergence toward more environmentally friendly directions (Ruan et al., 2022). Additionally, individual awareness about sustainable lifestyles also becomes main drivers for societies to participate reducing plastic waste footprints (Issalillah, 2025).

Implementing green performance appraisal systems faces not-simple technical challenges because environmental metric characteristics differ from financial metrics. Environmental impacts are often long-term and indirect, making them difficult to accurately attribute to specific individuals (Droz, 2020). These challenges demand companies conduct proper change management for increasing employee commitments and innovative behaviors in long terms (Mardikaningsih, 2024b). Carbon emission reductions in a factory, for example, are influenced by new technology investments, operator behavior changes, and even external weather. Separating contributions

from each factor requires complicated methodologies and potentially creates disputes between employees and management. Environmental metrics also have diverse units like ton CO₂, kilowatt-hour electricity, cubic meter water, and kilogram hazardous waste. Simplifying these various units into one composite score comparable across employees requires assumptions about relative values of each metric. These assumptions can be subjective and create debates about whether water reductions are more important than electricity reductions. Additionally, innovation successes in new work systems are greatly influenced by how digital teams are dynamically managed (Mardikaningsih et al., 2020). Other challenges are real-time data availability for environmental metrics often requiring expensive sensor installations and monitoring systems. Small companies may lack resources for building necessary measurement infrastructures. Consequently, green performance appraisal systems tend to be applied partially only in easily measurable areas. Apart from this, companies must also constantly attend to environmental justice aspects so business operations do not negatively impact surrounding community health (Issalillah & Mardikaningsih, 2022).

The first problem in implementing green performance appraisal systems is resistance from line management accustomed to simple and easily measurable financial metrics. Factory managers evaluated for twenty years based on production volumes and cost efficiencies will feel unfamiliar when suddenly having to answer per-product-unit energy consumption. They may argue that environmental targets will disturb focuses on production targets already difficult to achieve. This resistance is strengthened by uncertainties about how environmental metrics will be weighted relative to financial metrics in bonus determinations. A manager successfully achieving environmental targets but failing to achieve profit targets may still receive lower bonuses compared with colleagues achieving profit targets but ignoring environments. Doubts about this system's fairness make line managers reluctant to sincerely adopt pro-environmental behaviors. They choose performing symbolic actions making them appear green without sacrificing their financial targets. For example, a purchasing manager may switch to slightly more environmentally friendly suppliers but not conduct fundamental changes

in supplier selection criteria. For reducing these barriers, companies need increasing collaborations through cross-functional training so every part understands the same vision (Fared & Darmawan, 2021). This passive resistance is difficult to detect but its impacts on forming green cultures are very significant because symbolic behaviors will not internalize environmental values into daily work routines.

The second problem relates to gaps between green performance appraisal system designs at corporate levels and their implementations at operational levels. Top management teams may design ambitious environmental performance indicators like 30 percent carbon emission reductions within three years. However, these macro indicators are not translated into meaningful daily targets for frontline employees. A machine operator does not know how actions turning off machines during lunch breaks contribute to 30 percent carbon emission reductions. Lack of clear cause-effect relationships between individual behaviors and company targets makes employees feel their efforts are meaningless. Good performance appraisal systems must cascade targets from corporate levels down to individual levels with transparent logics. Every employee must understand that if they do A, then their contributions to team targets are B, and team contributions to company targets are C. Without clear cascade logics, employees will view green performance appraisal systems as administrative documents irrelevant to their daily jobs. They will ignore environmental targets in performance appraisals and remain focused on familiar production targets. Consequently, green performance appraisal systems fail changing behaviors and organizational cultures remain as before. Gaps between designs and implementations are often caused by lack of frontline employee involvement in performance indicator design processes.

Companies face unprecedented pressures from regulators, investors, and consumers for drastically reducing their carbon footprints. Ambitious emission reduction targets will not be achieved merely by replacing LED lights or installing solar panels on factory roofs. Fundamental changes are needed in how employees think and act daily. Green organizational cultures are the only paths for achieving sustainable emission reductions because pro-environmental behaviors must become habits not project activities. Green performance appraisal systems are the most powerful

instruments for forming these cultures because they directly touch employees' personal interests. However, without deep understandings about how these systems work and what barriers they face, implementations will fail achieving their goals. Systematic literature reviews are needed for identifying best practices in designing and implementing green performance appraisal systems. Results from these reviews will help organizations avoid common mistakes already made by other companies.

The objective of this study is to explain the causal mechanisms of how green performance appraisal systems encourage the formation of a green organizational culture. This explanation includes identifying the psychological and social pathways that mediate the relationship between performance appraisal systems and individual behavioral changes. This study also aims to identify the conditions that moderate the effectiveness of green performance appraisal systems in shaping culture. The theoretical contribution of this study is the enrichment of green human resource management literature, which is still relatively limited. Its practical contribution is a framework for HRM practitioners and top management in designing effective performance appraisal systems to support corporate sustainability initiatives.

Method

This study applies a qualitative literature study approach to explore the relationship between green performance appraisal systems and the strengthening of green organizational culture. Library-based research aims to synthesize existing knowledge from various written sources without primary data collection (Slebodnik et al., 2022). This method is consistent with the objective of the study because the topics of green performance appraisal and green culture have been widely discussed in literature on human resource management, organizational behavior, and environmental accounting. Greenfield and Greener (2016) suggest that literature studies in management research allow researchers to identify consistent patterns across various organizational and industrial settings. This approach helps the researcher draw generalizations regarding the universal principles that govern the relationship between performance evaluation systems and cultural change. The data sources for this study

consist of performance management textbooks, journal articles on green HRM, research reports from sustainability consulting firms, and case studies of green performance appraisal implementation in various multinational companies. May and Perry (2022) emphasize that the success of a literature study depends heavily on the depth of the researcher's analysis in comparing findings from various sources that may have different perspectives. The analysis procedure in this study is carried out through three stages: document collection based on relevant keywords, data reduction using criteria of recency and source reputation, and the presentation of synthesis results in the form of a coherent argumentative narrative. All sources used were selected based on the author's credibility and direct relevance to the topic of green performance appraisal.

The analytical technique used in this study is thematic content analysis, which focuses on grouping statements from various sources into specific thematic categories. Baronov (2015) states that thematic analysis in a literature study allows researchers to identify consensus as well as debates among authors regarding a particular issue. The thematic categories established in this study include the design of environmental performance indicators, the process of cascading targets from the corporate level to individuals, mechanisms for feedback and evaluation consequences, and the conditions that facilitate or hinder the system's effectiveness. The validity of conclusions in a literature study depends on the researcher's transparency in selecting sources and the clarity of the inclusion and exclusion criteria for documents (Snyder, 2019). Researchers must be aware of publication bias, where studies with positive results are more likely to be published than studies with negative or neutral results (DeVito & Goldacre, 2019). This awareness encourages researchers to actively seek sources that report failures in the implementation of green performance appraisals. The sources used in this study were selected based on the criteria of publication recency within the last ten years to ensure relevance to contemporary business practices, the reputation of the publisher or internationally indexed journals, and rigorous research design. All collected documents were then analyzed repeatedly to ensure an accurate interpretation of the original authors' statements. The bibliography listed at the end of this document contains all the references cited during the analysis process.

Result and Discussion

Green performance appraisal systems function as organizational culture reinforcement mechanisms through processes of value signals repeatedly delivered to all organizational members (Abbas & Khan, 2022). Every time an employee receives feedback about their environmental performance, the organization is indirectly sending messages that environmental aspects are important and attended to. These signals become stronger when connected with real consequences like bonuses, promotions, or even warnings. Employees learn that for succeeding in organizations they must demonstrate behaviors aligned with measured and valued values. This social learning process occurs gradually through observing coworkers receiving rewards for good environmental performances. When employees see a manager promoted after successfully significantly reducing factory waste, they will imitate strategies used by that manager. Conversely, if employees see coworkers ignored despite having good environmental records, they will conclude environmental values are merely empty slogans. Consistencies between what is measured and what is rewarded become keys to green performance appraisal system credibility. Organizations not providing real consequences for environmental metrics will experience employee trust erosion toward top management commitments. Alignments between cultural values and consistent work behaviors are main foundations for strengthening these commitments (Mardikaningsih & Darmawan, 2017). Consequently, green cultures will never form because employees see no reasons for changing their behaviors.

Effective environmental performance indicator designs must meet specific, measurable, achievable, relevant, and time-bound criteria. Indicators too abstract like contributing to sustainability cannot be evaluated objectively and will create interpretation differences between employees and supervisors. Indicators too ambitious like achieving zero waste within six months will make employees frustrated because targets are unrealistic. Good indicators must be within employee control zones meaning employees have sufficient authority to influence measured results. A machine operator cannot be responsible for overall factory carbon emissions because influenced by top management investment decisions. However, that operator can be responsible for proper machine maintenance for preventing energy leaks. Materiality principles are also

important in indicator selection, namely focusing on environmental aspects most significant for businesses. Textile manufacturing companies, for example, must focus on reducing water consumption and chemical dyes because these two aspects most impact environments. Logistics companies conversely must focus on fuel efficiency and delivery route optimizations. Selecting non-material indicators will waste resources on areas with small environmental impacts while significant areas are ignored. Proper human resource management strategies are greatly needed for aligning environmental policies with organizational operations for creating real sustainability (Hariani, Mardikaningsih, & Essa, 2022).

The target cascade process from corporate levels down to individual levels is a critical stage determining whether green performance appraisal systems will change behaviors or merely become administrative documents (Marrucci et al., 2024). Corporate sustainability targets are usually stated in absolute units like 40 percent carbon emission reductions by 2030. These targets must be translated into annual targets for every business unit based on each unit's contribution proportions to total emissions. Business units then break down annual targets into quarterly targets for every department. Departments subsequently set monthly targets for every team, and teams set weekly targets for every individual. This cascade process requires deep understandings about cause-effect relationships between activities at individual levels and impacts at corporate levels. Companies need developing simple mathematical models connecting, for example, machine operating hours with electricity consumption, and electricity consumption with carbon emissions. These models are then socialized to all employees so they understand how their individual contributions are calculated. Without cascade logic transparency, employees will view environmental targets as numbers unilaterally determined by management. Employee participation in target setting processes is also important for building ownership feelings toward those targets. Employees involved in target discussions will be more committed to achieving them. Operational model mastery in Industrial Era 4.0 becomes strategic opportunities for human resource development supporting organizational sustainability (Oluwatoyin & Mardikaningsih, 2024).

Frequency of environmental performance feedback affects the speed of forming pro-environmental habits among workers (Wong-Parodi et al.,

2019). Annual feedback commonly conducted in traditional performance appraisal systems is too infrequent for changing deeply rooted behaviors. Employees need knowing how well their environmental performances are every week or month so they can make immediate corrections. Feedback delayed for months will make relationships between actions and consequences become blurred, making learning ineffective. Real-time dashboard technologies enable organizations to display energy consumption per shift or waste volumes per production batch. Machine operators can directly see impacts from their actions on dashboards installed on factory floors. This instant feedback utilizes operant conditioning psychology principles where behaviors immediately followed by positive consequences are repeated faster. Besides feedback from systems, feedback from supervisors is also important, especially for behaviors that cannot be automatically measured. A manager can give praise when seeing employees turn off unused meeting room lights. This praise functions as positive reinforcement increasing the probability of that behavior repeating in the future. Combinations of feedback from systems and from supervisors create environments rich with information about environmental performance. Besides through feedback systems, approaches through education and public awareness are also proven effective in driving sustainable behavior changes (Gautama & Mardikaningsih, 2022). Using gamification methods in training can also accelerate employee learning processes and significantly increase their engagement (Eddine & Darmawan, 2022).

Weighting or weighting of environmental metrics relative to financial metrics in bonus determinations is the most controversial design decision in green performance appraisal systems (Bellenger & Herlihy, 2010). Weights too low, for example 5 percent, will not change employee behaviors because they can still achieve full bonuses by ignoring environments. Weights too high, for example 50 percent, risk causing maladaptive behaviors where employees manipulate environmental data to achieve targets. Research shows effective weights are in the range of 20 to 30 percent for positions having significant influences on environments (Kvam et al., 2016). For positions with small environmental impacts, lower weights are sufficient. Weight decisions must also consider industries and companies' sustainability initiative maturity levels. Companies刚开始

starting green journeys may use lower weights for building initial acceptance. Over time, weights can be gradually increased after employees become familiar with environmental metrics. Different weights across positions can also be justified as long as difference logics are explained transparently. A factory manager controlling large energy consumption should have higher environmental weights compared with administrative staff working in offices. Procedural justice in weight setting is very important for preventing perceptions that systems are unfair. Additionally, integrating sustainability aspects with organizational diversity can provide positive impacts for performance, company competitiveness, and creating inclusive work environments (Mardikaningsih & Hariani, 2022). Strengthening human resource development systems can also be optimized by implementing relevant value principles for ensuring recruitment and training systems run effectively (Darmawan, 2021).

Reward systems related to environmental performances do not always have to be financial bonuses but can vary according to employee preferences and organizational cultures (Fapohunda, 2021). Non-financial rewards like public recognition in company meetings, award plaques displayed in work areas, or opportunities attending international sustainability conferences can be more effective for employees motivated by social recognition. Research shows non-financial rewards are often more memorable and last longer in memories compared with money that quickly disappears. Gamification programs giving digital badges for certain environmental achievements can utilize human tendencies for collecting and displaying accomplishments. Point systems exchangeable for rewards like shopping vouchers or additional leave days provide flexibility for employees to choose rewards they most prefer. However, non-financial rewards should not be viewed as replacements for financial bonuses for positions traditionally accustomed to receiving large bonuses. Employees with significant annual bonus expectations will be disappointed if their bonuses are suddenly replaced with plaques. Combinations of financial bonuses for extraordinary achievements and non-financial rewards for routine achievements are the most commonly adopted approaches. In these efforts, systematically directed human capital development proves capable increasing overall company values (Mardikaningsih, 2018).

Leadership roles in successful implementations of green performance appraisal systems cannot be underestimated because leaders function as role models whose behaviors are observed and imitated by subordinates (Wu et al., 2021). When CEOs consistently ask about environmental metrics in monthly meetings, entire organizations will follow those priorities. Conversely, if CEOs only mention environmental issues in annual speeches but never follow up, employees will ignore green performance appraisal systems. Leaders need showing their commitments through real actions like allocating budgets for environmental training, visiting business units successfully reducing waste, and directly rewarding employees with best environmental performances. Leaders must also dare admonish line managers ignoring environmental targets in their subordinate evaluations. Consistencies between words and actions from top leaders are the single most important determining factors of cultural change success. Employees are very sensitive to mismatches between what leaders say and what leaders do. Leader hypocrisy will kill employee spirits for participating in green initiatives because they feel exploited. Therefore, before launching green performance appraisal systems, companies must ensure top management is truly ready for changing their own behaviors first. This success heavily depends on distributions of main factors capable increasing overall organizational effectiveness (Darmawan, 2024).

Effective training and communication are prerequisites so green performance appraisal systems can be understood and accepted by all employees (Colombo et al., 2022). Many implementation failures are caused by assumptions that employees will automatically understand logics behind new environmental metrics. In fact, metrics like equivalent ton CO₂ or blue water footprints are concepts unfamiliar to most non-technical employees. Companies need conducting training sessions explaining definitions of each metric, measurement methods, and relationships with daily work activities. Training must be delivered in simple languages with concrete examples from participants' work environments. Besides technical training, companies also need communicating reasons why green performance appraisal systems are introduced. Employees need understanding that these initiatives are not merely management trends that will pass after several years. Communications must touch moral and ethical aspects about company

responsibilities toward future generations. Employees feeling proud becoming parts of environment-conscious organizations will be more motivated for actively participating. Two-way communication channels are also important for accommodating employees' questions and concerns about new systems. Emerging questions must be answered honestly and transparently for building trust. Roles of green training and appropriate developments are very crucial in shaping employee environmental behaviors to align with organizational sustainability visions (Essa & Mardikaningsih, 2024).

Measuring and reporting environmental performance data require investments in information systems integrated with production processes (Characklis & Richards, 1999). Manual data collection using spreadsheets is vulnerable to human errors and data manipulation. Employees not achieving environmental targets may be tempted changing numbers to appear better. Automatic systems collecting data directly from sensors on factory floors eliminate manipulation potentials because data do not pass through employees' hands. Electricity consumption sensors can be installed on every large machine for tracking energy usage per production shift. Water flow sensors can be installed on inlet and outlet pipes for calculating water volumes used and discharged. Initial investments for sensors and information systems are indeed significant but will return in forms of energy savings and waste reductions. Real-time data also enable early anomaly detections like pipe leaks or energy-wasting machines. Anomalies detected earlier can be repaired before causing major losses. Good information systems must also be capable generating automatic reports accessible by managers at various levels. Easily accessible reports facilitate progress monitoring toward targets and identifying areas requiring interventions. Data reliability is the foundation of green performance appraisal system credibility. Implementing technically reliable human resource information systems is very important for supporting accurate employee management and performance appraisals (Mardikaningsih & Darmawan, 2013).

Formed green organizational cultures will maintain themselves through new employee selection and socialization mechanisms (Vargas-Hernández & Vargas-González, 2024). When green performance appraisal systems have run for several years, companies will accumulate groups of

employees comfortable with environmental values. These employees will naturally become culture agents socializing green values to new recruits. Recruitment processes can also be adjusted for filtering prospective employees having high environmental awareness. Questions about attitudes toward environmental issues can be included in initial interviews. Prospective employees not caring about environments may not tolerate working in companies with high environmental performance expectations. They will choose working elsewhere, so gradually employee compositions shift toward more pro-environmental directions. Green performance appraisal systems function as culture defense mechanisms preventing environmental value erosion with employee turnovers. Even when founders or CEOs pioneering green initiatives have retired, green cultures remain sustainable because they are embedded in routines and reward systems. This is the advantage of green performance appraisal systems compared with voluntary approaches depending on certain individual charisma. These systems create culture sustainability surpassing individual tenure periods. This is supported by human resource quality improvements directly impacting job performance and employee loyalty (Darmawan et al., 2020). Additionally, roles of internal locus of control and strong environmental insights are proven to be sustainability keys in driving individual pro-environmental behaviors (Nuraini et al., 2022).

Regular evaluations of green performance appraisal system effectiveness are needed for ensuring systems remain relevant with business condition changes and external environments (Skačkauskienė & Smirnova, 2022). Ambitious targets in the first year may already be ordinary in the third year because technologies used are outdated. Conversely, targets initially feeling impossible may become easily achievable after technology leaps. Companies must conduct annual reviews regarding metrics used, weights of each metric, and established target levels. Review processes must involve internal and external stakeholders including employees from various levels, customers, suppliers, and regulators. External stakeholders can provide new perspectives about environmental issues possibly overlooked by management. Organizational climate surveys can also be used for measuring how far employees feel green cultures have been internalized. Questions like how often coworkers remind about energy efficiency

importance provide pictures about social norm strengths supporting pro-environmental behaviors. Evaluation results must be followed up with system adjustments without waiting for annual cycles if serious problems are found. Flexibility in adjusting systems is signs of organizational maturity in managing cultural changes. Integrating green technologies in management becomes key factors for environmental and social sustainability (Mardikaningsih & Wardoyo, 2024), and needs balancing through public policies capable harmoniously bridging economic, social, and environmental interests (Mardikaningsih & Hariani, 2021).

Thus, this research provides comprehensive frameworks for understanding relationships between green performance appraisal systems and forming sustainable green organizational cultures. As next steps, it is important applying recommendations from this review in real practices for achieving sustainable successes. Effective implementations of green performance appraisal systems can become keys in building organizational cultures supporting sustainability, thereby creating positive impacts for environments and societies.

Conclusion

The green performance appraisal system functions as a mechanism for strengthening green organizational culture through four pathways: value signaling, accountability, feedback learning, and social pressure. The effectiveness of this system is determined by the quality of indicator designs that are specific and material, a transparent and participatory target cascading process, a high frequency of feedback, and a sufficiently significant weight for environmental metrics in compensation decisions. Line management resistance to system changes and the gap between corporate design and operational implementation are the main obstacles that must be overcome. Successful implementation depends heavily on the consistent commitment of top management, investment in training and communication, and a reliable data measurement infrastructure. A successful green performance appraisal system will create a positive reinforcement loop where the established green culture subsequently sustains itself through mechanisms of selection and socialization of new employees. Regular evaluation of the system is necessary to ensure relevance to changing external conditions. Ultimately, the green

performance appraisal system is a powerful instrument for transforming environmental values from mere rhetoric into daily operational reality.

The implications of this study for HRM practitioners are the need to involve line managers and front-line employees in the process of designing environmental performance indicators from the very beginning. The suggestion for organizations intending to implement green performance appraisals is to start with pilot projects in one business unit or one department before conducting a company-wide launch. Pilot projects allow the organization to learn from mistakes on a small scale and build success case studies that can be used to convince other business units. For regulators and industry associations, it is suggested to develop standardized guidelines regarding material environmental metrics for each industrial sector. Standardized guidelines will reduce the burden on companies in designing indicators from scratch and facilitate performance comparisons between companies. Further research is needed to empirically test the causal relationship between green performance appraisal systems and various dimensions of organizational culture. Longitudinal studies with an observation period of at least three years would be better able to capture the process of cultural change, which naturally requires time. Collaboration between academics, HRM practitioners, and sustainability consultants in this research will produce findings that are more relevant to real-world needs.

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