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Digital Mapping the Evolution of Green Human Resource Management: A Bibliometric Analysis Using Biblioshiny

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ABSTRACT

Green Human Resource Management has become an important research topic as organizations increasingly integrate environmental sustainability into human resource practices. This study aims to map the development of Green HRM research using bibliometric analysis. Bibliographic data were collected from the Scopus database using the keywords "green human resource management" OR "green HRM." After applying filters related to publication year, document type, language, source type, and publication stage, 1,031 journal articles published between 2019 and 2025 were included in the final dataset. The data were analyzed using Biblioshiny, the web-based interface of the bibliometrix package in RStudio. The findings show that Green HRM research has grown rapidly, with an annual growth rate of 43.89%. The dataset involved 2,913 authors, with an international co-authorship rate of 44.62%, indicating strong scholarly collaboration. The most productive source was Sustainability (Switzerland), while the most productive countries included China, Pakistan, Malaysia, India, and Indonesia. Keyword analysis shows that the field is mainly centered on green human resource management, environmental performance, sustainability, green innovation, and sustainable performance. The thematic map and co-occurrence network indicate that Green HRM research has evolved toward more specific themes related to employee green behavior, sustainability performance, green training, employee engagement, and environmental outcomes. This study contributes to the literature by providing a comprehensive bibliometric overview of Green HRM research and identifying future research directions related to sustainability-oriented HR practices, green innovation, employee behavior, and organizational environmental performance.

Keywords: Green Human Resource Management; Green HRM; sustainability; environmental performance; green innovation; employee green behavior

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INTRODUCTION

Environmental sustainability has become one of the most important strategic issues in contemporary management studies (Enciso-Alfaro & García-Sánchez, 2022; Suriyankietkaew & Petison, 2019). Organizations are increasingly expected not only to achieve economic performance, but also to demonstrate environmental responsibility through sustainable policies, resource efficiency, ethical practices, and environmentally conscious organizational behavior (Lăzăroiu et al., 2020; Zacher et al., 2022). In this context, sustainability is no longer viewed as a peripheral concern, but as an integral part of organizational strategy and long-term competitiveness. As organizations respond to environmental challenges, the role of human resource management becomes increasingly important because employees are central actors in implementing environmental policies and translating sustainability goals into daily workplace practices (Camilleri, 2017; Professor & Patil, 2024; Zacher et al., 2022).

Green Human Resource Management (Green HRM) has emerged as a key research domain that integrates environmental management with human resource management (Molina-Azorín et al., 2021; Roscoe et al., 2019). Green HRM generally refers to HRM policies, practices, and systems designed to support environmental sustainability within organizations (Ortega et al., 2025; Yong et al., 2019). These practices may include green recruitment and selection, green training and development, green performance management, green rewards, green employee involvement, and the promotion of pro environmental behavior at work (Saeed et al., 2018; Tahir et al., 2024). Through these practices, organizations can develop employees' environmental awareness, strengthen green values, and encourage behaviors that support organizational environmental goals (Saeed et al., 2018; Tahir et al., 2024).

The development of Green HRM reflects the growing recognition that environmental sustainability cannot be achieved only through technology, regulations, or corporate policies (Nguyet, 2025; Verma et al., 2025). Instead, it also requires employee participation, organizational culture, leadership commitment, and HR systems that encourage environmentally responsible behavior (Al-Swidi et al., 2021; Roscoe et al., 2019). Previous studies have shown that Green HRM can influence workplace green behavior, environmental commitment, organizational citizenship behavior for the environment, and environmental performance. Therefore, Green HRM has become an important bridge between sustainability strategy and employee-level behavior (Anwar et al., 2020; Mehrajunnisa et al., 2022).

Theoretically, Green HRM has been widely linked to several perspectives, including the Ability Motivation Opportunity framework, social exchange theory, resource-based view, and stakeholder theory (Gupta et al., 2025; Yu et al., 2020). From the Ability Motivation Opportunity perspective, Green HRM practices can enhance employees' green abilities through training, strengthen their motivation through rewards and recognition, and provide opportunities to participate in environmental initiatives (Ali et al., 2024; Pham et al., 2019). From a strategic perspective, Green HRM may also become an organizational capability that helps firms develop sustainable competitive advantage through environmentally responsible human capital.

Although Green HRM has received increasing scholarly attention, the literature has also become more diverse and complex (Anshima et al., 2024; Nadeem & Singh, 2025). Research on Green HRM has expanded across different sectors, countries, theoretical perspectives, and methodological approaches (Benevene & Buonomo, 2020; Miah et al., 2024). Some studies focus on employee green behavior, while others examine environmental performance, green innovation, organizational sustainability, leadership, psychological green climate, green commitment, and green organizational culture (Román-Niaves et al., 2025). This rapid expansion indicates that Green HRM has evolved from a relatively narrow topic into a broad and multidisciplinary research field.

However, the rapid growth of Green HRM research also creates challenges for scholars. As the number of publications increases, it becomes more difficult to identify the overall

development of the field, the most influential authors and documents, the leading journals and countries, the dominant research themes, and the emerging directions for future research (Shah et al., 2023; Xie & Lau, 2023). Traditional literature reviews can provide detailed insights into specific topics, but they may be limited in their ability to capture large-scale publication patterns and intellectual structures (Hallinger & Nguyen, 2020; Jain et al., 2021). Therefore, bibliometric analysis is needed to systematically map the scientific development of Green HRM research.

Bibliometric analysis allows researchers to examine publication trends, citation patterns, influential contributors, collaboration networks, keyword structures, thematic evolution, and emerging research areas (Yan & Wang, 2023). By using bibliometric techniques, this study can provide a comprehensive overview of how Green HRM research has developed over time and how the field is intellectually organized. In this study, Biblioshiny, the web-based interface of the bibliometrix package in RStudio, is used to analyze and visualize bibliographic data. This tool enables systematic science mapping through descriptive indicators, conceptual structure analysis, and collaboration analysis.

This study focuses on Green HRM research published between 2019 and 2025. This period is important because sustainability issues, environmental responsibility, and green organizational practices have become increasingly prominent in recent years. The search was conducted in the Scopus database using the keywords "green human resource management" OR "green HRM." After applying several inclusion criteria, including publication year, document type, language, source type, and publication stage, 1,031 Scopus-indexed journal articles were included in the final dataset.

Based on this background, this study aims to map the development of Green HRM research through bibliometric analysis. Specifically, this study seeks to answer the following research questions:

RQ1: How has Green Human Resource Management research developed from 2019 to 2025?

RQ2: Which sources, authors, documents, institutions, and countries have contributed most significantly to Green HRM research?

RQ3: What are the dominant keywords and thematic clusters in Green HRM research?

RQ4: How are collaboration patterns structured in Green HRM research?

RQ5: What emerging themes and future research directions can be identified from Green HRM literature?

This study contributes to the literature in several ways. First, it provides a comprehensive bibliometric overview of Green HRM research based on a large dataset of Scopus-indexed journal articles. Second, it identifies the most influential sources, authors, documents, affiliations, and countries in the field. Third, it maps the conceptual structure of Green HRM research through keyword analysis, thematic mapping, and trend topic analysis. Fourth, it highlights emerging themes and future research opportunities that can guide scholars in developing new studies on Green HRM and organizational sustainability.

Overall, this study is expected to offer a systematic understanding of the evolution of Green HRM research. By mapping the scientific landscape of the field, this study helps clarify how Green HRM has developed, what themes dominate the literature, and where future research may be directed. The findings are also expected to be useful for researchers, practitioners, and policymakers who are interested in strengthening the role of human resource management in supporting environmental sustainability and sustainable organizational development.

LITERATURE REVIEW

Green Human Resource Management

Green Human Resource Management, commonly referred to as Green HRM or GHRM, is a concept that integrates environmental sustainability principles into human resource management policies and practices (Kalei, 2024; Shah et al., 2023; Tahir et al., 2024). It emphasizes the role of HRM in supporting organizational environmental goals by developing employees' environmental awareness, green competencies, and pro-environmental behavior (Li & Li, 2025; Saeed et al., 2018). Green HRM is not limited to administrative HR functions; rather, it represents a strategic approach through which organizations align people management practices with environmental sustainability objectives (Nguyet, 2025; Zihan & Makhbul, 2024).

The concept of Green HRM emerged from the growing need to connect environmental management and human resource management (Mutmainah et al., 2024; Nguyet, 2025). Traditionally, environmental sustainability was often viewed as the responsibility of top management, environmental departments, or operational units (Greenwood et al., 2012). However, Green HRM literature argues that environmental sustainability also depends on employee participation, organizational culture, and HR systems that encourage environmentally responsible behavior. In this sense, Green HRM positions employees as key actors in the implementation of green organizational strategies (Chaudhary, 2019; Saeed et al., 2018).

Green HRM can be understood as a set of HR practices designed to create, maintain, and develop environmentally responsible employees (Chreif & Farmanesh, 2022; Roscoe et al., 2019). These practices include green recruitment and selection, green training and development, green performance management, green rewards and compensation, green employee involvement, and green organizational culture (Gao et al., 2025). Through these practices, organizations can encourage employees to reduce waste, save energy, support recycling, participate in environmental initiatives, and contribute to the achievement of organizational sustainability goals (Saeed et al., 2018; Tahir et al., 2024).

In the context of contemporary organizations, Green HRM has become increasingly relevant because environmental responsibility is no longer only a moral or regulatory issue, but also a strategic requirement (Bombiak, 2019). Organizations are expected to respond to stakeholder pressures, environmental regulations, climate change concerns, and growing public expectations for sustainable business practices. Therefore, Green HRM provides an important mechanism for embedding sustainability values into daily organizational routines and employee behavior (Tahir et al., 2024).

Green HRM Practices

Green HRM practices refer to specific HR activities that support environmental sustainability within organizations (Yong et al., 2019). One of the most widely discussed practices is green recruitment and selection. This practice involves attracting and selecting employees who have environmental awareness, green values, or willingness to support sustainability initiatives. By recruiting individuals who are aligned with environmental values, organizations can strengthen their internal capacity to implement green policies and practices (Jamal et al., 2021; Jamil et al., 2023).

Green training and development is another important Green HRM practice. It aims to improve employees' knowledge, skills, and awareness related to environmental issues (Gull & Idrees, 2021; Pham et al., 2019). Through green training, employees can learn how to reduce resource consumption, manage waste, use energy efficiently, and support environmental programs (Gull & Idrees, 2021; Paillé et al., 2020). Training also helps employees understand the relationship between their work roles and the organization's environmental objectives. As a result, green training can strengthen employees' ability to contribute to sustainability goals (Yafi et al., 2021).

Green performance management refers to the integration of environmental criteria into employee performance appraisal systems (Faeni et al., 2025; Kuo et al., 2022). This practice allows organizations to evaluate whether employees contribute to environmental goals, follow green procedures, and participate in sustainability initiatives. When environmental performance is included in appraisal systems, employees may become more aware that green behavior is part of their work responsibility rather than an optional activity (Portocarrero et al., 2021; Sadek & Karkoulian, 2024).

Green rewards and compensation are used to motivate employees to engage in environmentally responsible behavior. Rewards may be financial or non-financial, such as bonuses, recognition, certificates, promotion opportunities, or public appreciation for employees who actively support green initiatives. These rewards can strengthen employees' motivation to participate in environmental programs and maintain green behavior in the workplace (Odhiambo et al., 2023; Pham, Jabbour, et al., 2020).

Green employee involvement is also central to Green HRM. This practice provides employees with opportunities to participate in environmental decision-making, green teams, suggestion systems, sustainability campaigns, and workplace improvement programs (Ercantan & Eyupoglu, 2022; Jamal et al., 2021). Employee involvement is important because environmental sustainability requires active participation from all organizational members, not only formal policies from management. When employees are involved, they are more likely to feel ownership of green initiatives and contribute ideas for improving environmental performance (Jamal et al., 2021; Roscoe et al., 2019).

Overall, Green HRM practices work together as an integrated system. Green recruitment helps organizations attract employees with environmental values, green training develops green competencies, green performance management clarifies expected behavior, green rewards strengthen motivation, and green involvement provides opportunities for participation (Román-Niaves et al., 2025; Saeed et al., 2018). Therefore, Green HRM should be understood as a strategic and systematic approach rather than a set of isolated HR activities (Ahmad et al., 2025; Shaikh et al., 2025).

Theoretical Foundations of Green HRM

Several theoretical perspectives have been used to explain Green HRM. One of the most influential frameworks is the Ability Motivation Opportunity framework. From this perspective, Green HRM practices influence employee green behavior by improving employees' ability, motivation, and opportunity to act in environmentally responsible ways. Green training develops employees' green abilities, green rewards increase their motivation, and green involvement provides opportunities to participate in environmental initiatives (Pham, Thanh, et al., 2020; Román-Niaves et al., 2025). Therefore, the AMO framework helps explain how HR practices can shape employee behavior and support environmental sustainability.

Social exchange theory is also frequently used in Green HRM research. According to this perspective, employees are more likely to respond positively when they perceive that the

organization supports meaningful values and provides fair treatment. When organizations implement Green HRM practices, employees may interpret these practices as a sign that the organization cares about environmental responsibility and employee contribution. In return, employees may show stronger commitment, engagement, and voluntary green behavior (Aboramadan & Karatepe, 2021; Ari et al., 2020).

The resource-based view provides another important theoretical explanation. From this perspective, Green HRM can help organizations develop valuable, rare, inimitable, and non-substitutable human resources. Employees with green knowledge, green skills, and environmental commitment can become strategic resources that support sustainable competitive advantage. In this sense, Green HRM contributes not only to environmental outcomes, but also to organizational capability and long-term competitiveness (Delery & Roumpi, 2017; Malik et al., 2020).

Stakeholder theory is also relevant in explaining Green HRM. Organizations operate under pressure from various stakeholders, including customers, employees, governments, communities, investors, and environmental groups (Guerci et al., 2016; Marrucci et al., 2022). These stakeholders increasingly expect organizations to act responsibly toward the environment. Green HRM can be viewed as one organizational response to these stakeholder expectations because it institutionalizes environmental responsibility through HR policies and employee behavior (Guerci et al., 2016; Marrucci et al., 2022).

In addition, psychological climate and organizational culture perspectives have been used to explain the relationship between Green HRM and employee outcomes. Green HRM practices can shape employees' perceptions of a green organizational climate, where environmental values are supported, rewarded, and embedded in workplace norms. When employees perceive a strong green climate, they may be more likely to engage in both required and voluntary green behaviors (Román-Niaves et al., 2025; Sabokro et al., 2021).

Outcomes of Green HRM

Green HRM has been associated with various individual, organizational, and environmental outcomes. At the individual level, Green HRM can influence employees' environmental awareness, green commitment, green engagement, and pro-environmental behavior. Employees who receive green training, participate in green initiatives, and perceive organizational support for sustainability are more likely to demonstrate environmentally responsible behavior in the workplace (Chaudhary, 2019; Saeed et al., 2018).

One important outcome of Green HRM is employee workplace green behavior. This behavior can be divided into in-role green behavior and extra-role green behavior. In-role green behavior refers to environmentally responsible actions that are part of formal job requirements, such as following environmental procedures, saving energy, or reducing waste during work activities (Chaudhary, 2019; Dumont et al., 2017). Extra role green behavior refers to voluntary actions that go beyond formal job duties, such as encouraging colleagues to adopt green practices or proposing ideas for environmental improvement (Alzaidi & Iyanna, 2021).

Green HRM is also linked to organizational citizenship behavior for the environment. This refers to voluntary and discretionary behavior that supports organizational environmental goals. Such behavior is important because environmental sustainability often requires employees to go beyond formal rules and actively contribute to environmental initiatives (Ahmed et al., 2024; Aiswarya & Manivel, 2025). Green HRM can encourage this behavior by creating a supportive green climate and strengthening employees' identification with organizational sustainability values (Gupta & Kaur, 2024; Román-Niaves et al., 2025).

At the organizational level, Green HRM has been connected to environmental performance, sustainable performance, green innovation, and organizational sustainability. Organizations that implement Green HRM practices may be better able to reduce waste, improve energy efficiency, comply with environmental regulations, and develop environmentally friendly processes. In addition, Green HRM can support green innovation by encouraging employees to generate ideas, solve environmental problems, and contribute to sustainable product or process improvements (Aftab et al., 2022; Fang et al., 2022; Zihan & Makhbul, 2024).

Green HRM may also contribute to social sustainability. By promoting employee participation, awareness, training, and ethical responsibility, Green HRM can support a more responsible and inclusive workplace. This suggests that Green HRM is not only related to environmental outcomes, but also to broader sustainability dimensions, including employee well-being, organizational values, and long-term social responsibility (Amrutha & Geetha, 2020; Gyensare et al., 2023).

However, the outcomes of Green HRM may depend on several mediating and moderating factors. Previous studies have suggested that psychological green climate, employee engagement, green values, leadership, organizational culture, and perceived organizational support may influence the strength of the relationship between Green HRM and employee green behavior (Dumont et al., 2017; Gupta & Kaur, 2024). Therefore, future research needs to pay attention not only to whether Green HRM affects outcomes, but also to how and under what conditions these effects occur (Abualigah et al., 2022; Shafaei & Nejati, 2023).

Development of Green HRM Research

Green HRM research has developed significantly in recent years. Early studies mainly focused on defining the concept, identifying green HR practices, and proposing research agendas (Ren et al., 2018). As the field matured, scholars began to examine the relationship between Green HRM and employee-level outcomes, such as workplace green behavior, green commitment, and organizational citizenship behavior for the environment (Chaudhary, 2019; Pham et al., 2019). More recent studies have expanded the discussion toward organizational-level outcomes, including environmental performance, sustainable performance, green innovation, and competitive advantage (Aftab et al., 2022).

The literature also shows that Green HRM has become increasingly multidisciplinary. It is connected not only to HRM, but also to environmental management, sustainability, organizational behavior, strategic management, tourism, hospitality, healthcare, higher education, and supply chain management. This multidisciplinary development indicates that Green HRM is relevant across different organizational contexts and industries (Benevene & Buonomo, 2020; Efranto et al., 2025).

Despite its rapid development, the Green HRM literature remains fragmented. Studies have used different theoretical perspectives, research designs, measurement approaches, and outcome variables (Anshima et al., 2024; Benevene & Buonomo, 2020). Some studies focus on specific practices, such as green training or green rewards, while others examine Green HRM as an integrated system. Similarly, some studies emphasize employee behavior, while others examine organizational performance or sustainability outcomes. This diversity enriches the field, but it also creates a need for systematic mapping (Efranto et al., 2025).

Previous literature reviews have contributed to organizing Green HRM knowledge by identifying key practices, outcomes, and future research directions. However, as publication output continues to increase, a broader bibliometric mapping is needed to capture the scientific structure of the field. Bibliometric analysis can complement traditional literature reviews by identifying publication trends, influential authors, leading journals, productive countries, highly

cited documents, dominant keywords, collaboration networks, and thematic evolution (Judijanto et al., 2025a; Maurya & Khatri, 2025).

Therefore, this study positions bibliometric analysis as an appropriate approach to map the development of Green HRM research from 2019 to 2025. By analyzing 1,031 Scopus-indexed journal articles using Biblioshiny, this study aims to provide a comprehensive overview of the scientific landscape of Green HRM. This approach enables the study to identify not only what has been studied, but also how the field has evolved and what themes are likely to shape future research.

METHOD

Research Design

This study employed a bibliometric analysis to examine the development of Green Human Resource Management research. Bibliometric analysis was selected because it enables researchers to systematically evaluate the growth, structure, and direction of a scientific field through publication metadata (Bahuguna et al., 2022; Farrukh et al., 2021). Unlike traditional literature reviews that focus mainly on qualitative interpretation, bibliometric analysis provides quantitative evidence regarding scientific production, influential sources, productive authors, highly cited documents, institutional contributions, country productivity, collaboration patterns, and thematic development (Donthu et al., 2021).

This study used Biblioshiny, the web-based interface of the bibliometrix package in RStudio, to process and visualize the bibliographic data. Biblioshiny was considered appropriate because it allows comprehensive bibliometric mapping, including descriptive analysis, source analysis, author analysis, document analysis, country analysis, keyword analysis, thematic mapping, trend topic analysis, and collaboration network analysis. Therefore, this method is suitable for identifying both the intellectual structure and the emerging directions of Green HRM research (Aria & Cuccurullo, 2017; Moral-Munoz et al., 2020).

Data Source

The bibliographic data were collected from the Scopus database. Scopus was selected because it is one of the largest multidisciplinary academic databases and provides comprehensive metadata required for bibliometric analysis, including article titles, abstracts, keywords, author information, affiliations, source titles, citation data, and references. The use of Scopus also helps ensure that the analyzed documents are indexed in a recognized scholarly database (Baas et al., 2020; Visser et al., 2020).

The search focused on the terms “green human resource management” and “green HRM” because these terms directly represent the main concept examined in this study. The search was conducted in the title, abstract, and keyword fields to ensure that the retrieved documents were relevant to the topic of Green HRM.

Search Strategy

The search strategy was designed to obtain publications that specifically discuss Green Human Resource Management. The keywords used were “green human resource management” and “green HRM”. These two terms were combined using the Boolean operator OR in order to capture documents that use either the full term or its commonly used abbreviation.

The final search string used in Scopus was as follows:

TITLE-ABS-KEY ("green human resource management" OR "green HRM")

AND PUBYEAR > 2018 AND PUBYEAR < 2026
AND (LIMIT-TO (DOCTYPE , "ar"))
AND (LIMIT-TO (LANGUAGE , "English"))
AND (LIMIT-TO (SRCTYPE , "j"))
AND (LIMIT-TO (PUBSTAGE , "final"))

The initial search using the keywords “green human resource management” OR “green HRM” produced 1,948 documents. After limiting the publication period to 2019–2025, the number of documents was reduced to 1,556. The dataset was then limited to article as the document type, resulting in 1,093 documents. After applying the English language filter, 1,084 documents remained. The source type was then limited to journal, resulting in 1,083 documents. Finally, after limiting the publication stage to final, the final dataset consisted of 1,031 journal articles.

Table 1.
Data Screening Process

Screening Stage	Criteria Applied	Number of Documents
Initial search	“green human resource management” OR “green HRM”	1,948
Year limitation	2019–2025	1,556
Document type	Article only	1,093
Language	English only	1,084
Source type	Journal only	1,083
Publication stage	Final publication only	1,037
Final dataset	Documents analyzed using Biblioshiny	1,031

Inclusion and Exclusion Criteria

This study applied inclusion and exclusion criteria to ensure that the final dataset was relevant, consistent, and suitable for bibliometric analysis. The inclusion criteria were as follows: documents indexed in Scopus, documents related to Green Human Resource Management, publications from 2019 to 2025, journal articles, English-language publications, journal source type, and final publication stage.

Documents were excluded if they were published outside the selected period, written in languages other than English, categorized as non-article documents, published in non-journal sources, or still in press. These criteria were applied to maintain the consistency of the dataset and ensure that the analysis focused on peer-reviewed journal articles that directly discuss Green HRM.

Data Export Procedure

After the final filtering process, the bibliographic data were exported from Scopus for further analysis. The exported data included citation information, bibliographical information, abstracts, author keywords, index keywords, affiliations, references, and source information. These metadata were required to conduct bibliometric analysis in Biblioshiny.

The exported Scopus file was then imported into Biblioshiny through RStudio. After the data were imported, the dataset was checked to ensure that the bibliographic information could be processed correctly. The analysis was then conducted using several bibliometric indicators and visualization techniques available in Biblioshiny.

Data Analysis Technique

The analysis consisted of descriptive bibliometric analysis, performance analysis, conceptual structure analysis, and collaboration analysis. Descriptive bibliometric analysis was used to describe the general characteristics of the dataset, including the number of documents, sources, authors, keywords, citations, and collaboration indicators. Annual scientific production was analyzed to identify publication growth during the 2019–2025 period.

Performance analysis was used to identify the most relevant sources, most productive authors, most cited documents, most relevant affiliations, and most productive countries. These indicators were used to determine the key contributors and influential works in Green HRM research.

Conceptual structure analysis was conducted through keyword analysis, trend topic analysis, thematic map, and keyword co-occurrence network. Keyword analysis was used to identify the most frequently occurring terms in the dataset. Trend topic analysis was used to examine how research themes developed over time. The thematic map was used to classify themes based on centrality and density, while the co-occurrence network was used to visualize relationships among keywords and identify thematic clusters.

Collaboration analysis was used to examine research collaboration patterns in the field of Green HRM. This analysis can include collaboration among authors, institutions, or countries, depending on the available Biblioshiny output. Collaboration analysis is important because Green HRM is a multidisciplinary field that involves scholars from management, environmental studies, organizational behavior, sustainability, and human resource management.

Bibliometric Indicators

Several bibliometric indicators were used in this study. Publication productivity was measured through annual scientific production, most relevant sources, most productive authors, affiliations, and country scientific production. Citation impact was analyzed through most globally cited documents and average citation indicators. Collaboration was examined through co-authorship and country collaboration indicators. Conceptual development was analyzed through author keywords, index keywords, thematic map, trend topics, and keyword co-occurrence network.

The use of these indicators allowed the study to provide a comprehensive understanding of Green HRM research. Productivity indicators show how the field has grown and who has contributed most actively. Citation indicators show which documents have had the greatest influence. Collaboration indicators show how researchers and countries are connected. Conceptual indicators show the dominant and emerging themes that shape the intellectual structure of the field.

Research Workflow

The research workflow consisted of five main stages. First, the research topic and keywords were determined based on the focus of the study, namely Green Human Resource Management. Second, data were retrieved from Scopus using the search terms “green human resource management” OR “green HRM”. Third, inclusion and exclusion criteria were applied to refine the dataset based on publication year, document type, language, source type, and publication

stage. Fourth, the final dataset of 1,037 journal articles was exported from Scopus and imported into Biblioshiny. Fifth, the bibliometric results were analyzed and interpreted to identify publication trends, influential contributors, dominant themes, collaboration patterns, and future research directions.

Overall, this methodological approach provides a systematic and transparent process for mapping the development of Green HRM research. By combining Scopus data and Biblioshiny analysis, this study is able to present a comprehensive bibliometric overview of the scientific landscape of Green Human Resource Management from 2019 to 2025.

RESULTS AND DISCUSSION

Main Information of the Dataset

The main information of the dataset provides an overview of the bibliographic characteristics of Green Human Resource Management research from 2019 to 2025. As shown in Table 2, the final dataset consisted of 1,031 documents published in 349 sources. This indicates that Green HRM research has been widely disseminated across various academic journals, reflecting the interdisciplinary nature of the topic within human resource management, sustainability, organizational behavior, and environmental management.

The annual growth rate of publications was 43.89%, indicating a strong increase in scholarly attention toward Green HRM during the selected period. This growth suggests that Green HRM has become an increasingly important research area, particularly as organizations face stronger pressure to integrate environmental sustainability into human resource policies and workplace practices.

The dataset involved 2,913 authors, with an average of 3.6 co-authors per document. This shows that Green HRM research is generally collaborative rather than individually produced. In addition, the international co-authorship rate was 44.62%, indicating a relatively high level of cross-country collaboration. This finding suggests that Green HRM has become a global research concern, attracting scholars from different countries and institutional backgrounds.

The dataset also contained 2,134 author keywords, showing a high level of conceptual diversity in Green HRM research. This indicates that the field has expanded into multiple related themes, such as green training, green recruitment, employee green behavior, environmental performance, organizational sustainability, green innovation, and pro-environmental behavior. The average document age was 2.85 years, suggesting that most publications in the dataset are relatively recent. Meanwhile, the average citations per document reached 46.29, indicating that Green HRM research has received considerable academic attention and citation impact.

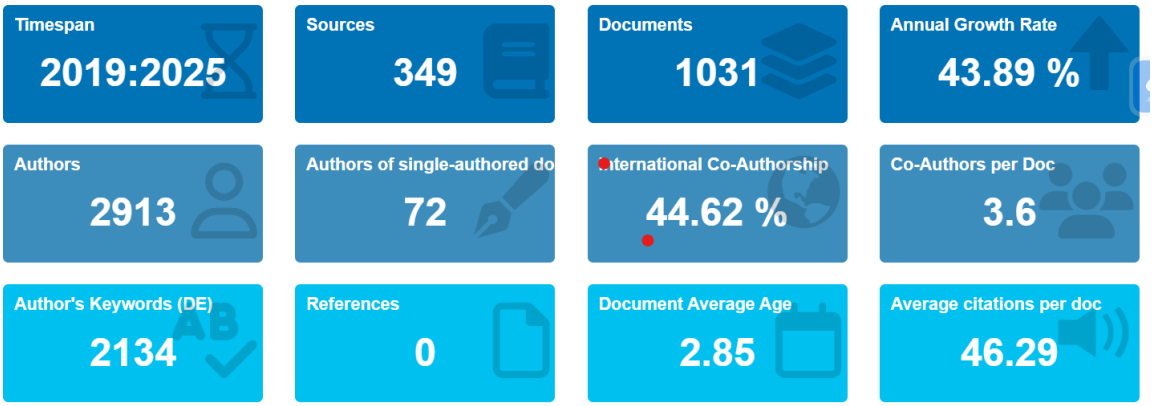


Figure 1. Main Information of the Dataset

Overall, the main information indicates that Green HRM is a rapidly growing, collaborative, and globally relevant research field. The high publication growth, large number of authors, strong international collaboration, and substantial citation impact confirm that Green HRM has developed into an important area of sustainability-oriented management research.

Annual Scientific Production

Figure 2 presents the annual scientific production of Green Human Resource Management research from 2019 to 2025. The number of publications increased consistently during the period, from 32 articles in 2019 to 284 articles in 2025. This upward trend indicates that Green HRM has received increasing scholarly attention in recent years.

The strongest growth can be seen after 2021, where publications increased from 81 articles in 2021 to 148 articles in 2022, then continued to rise to 190 articles in 2023, 228 articles in 2024, and 284 articles in 2025. This pattern suggests that Green HRM has become a rapidly developing research area, especially as sustainability and environmental responsibility become more important in organizational and human resource management studies.

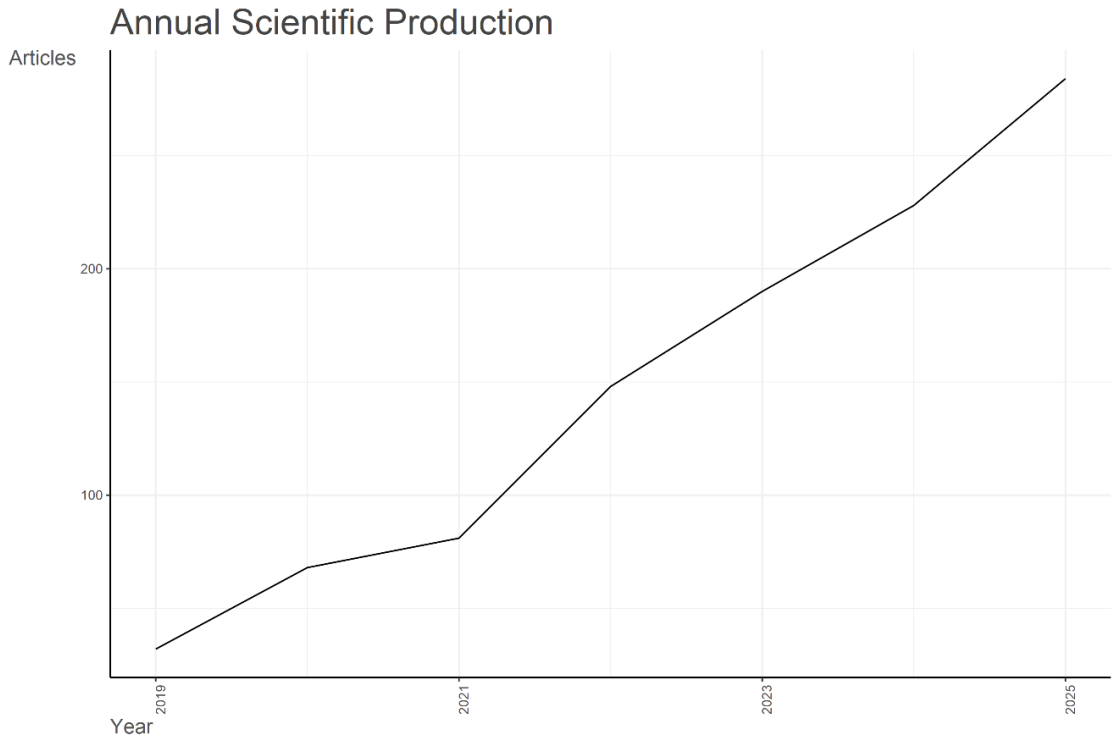


Figure 2. Annual Scientific Production of Green HRM Research

Most Relevant Sources, Authors, and Cited Documents

Figures 3–5 present the most relevant sources, authors, and globally cited documents in Green HRM research. As shown in Figure 3, Sustainability (Switzerland) was the most productive source, with 85 documents, followed by Corporate Social Responsibility and Environmental Management with 33 documents, and Journal of Cleaner Production with 32 documents. This indicates that Green HRM research is strongly connected to sustainability, environmental management, and cleaner production studies.

Figure 4 shows that Yusliza Mohd Yusoff was the most productive author, with 15 documents, followed by Nisar Qasim Ali with 13 documents and Ramayah T with 10 documents. These findings suggest that Green HRM research has been shaped by a group of active scholars, although the overall field remains broadly distributed across many contributors.

Figure 5 presents the most globally cited documents. The most cited article was Singh SK (2020), published in Technological Forecasting and Social Change, with 1,725 citations. This was followed by Saeed BB (2019) with 834 citations and Roscoe S (2019) with 815 citations. The dominance of highly cited articles from journals related to sustainability, environmental management, and cleaner production confirms that Green HRM has developed as an interdisciplinary research field linking human resource management with environmental and sustainability outcomes (Molina-Azorín et al., 2021).

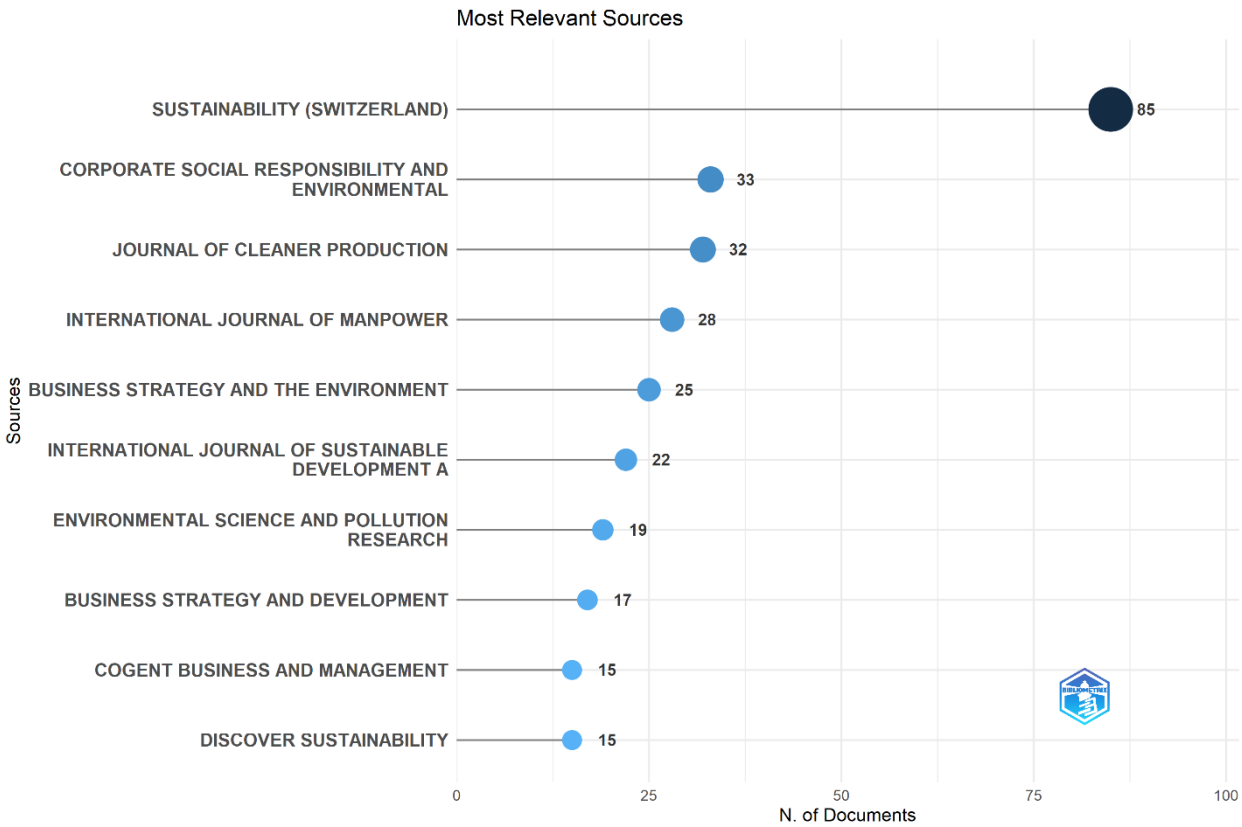


Figure 3. Most Relevant Sources

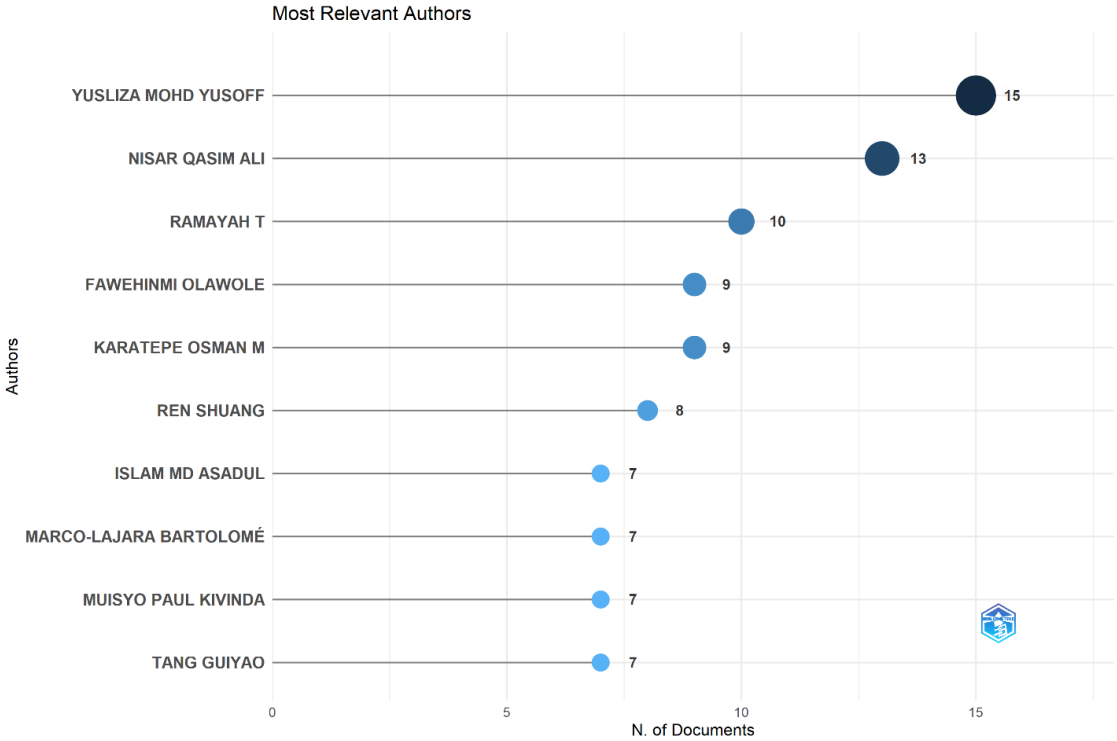


Figure 4. Most Relevant Authors

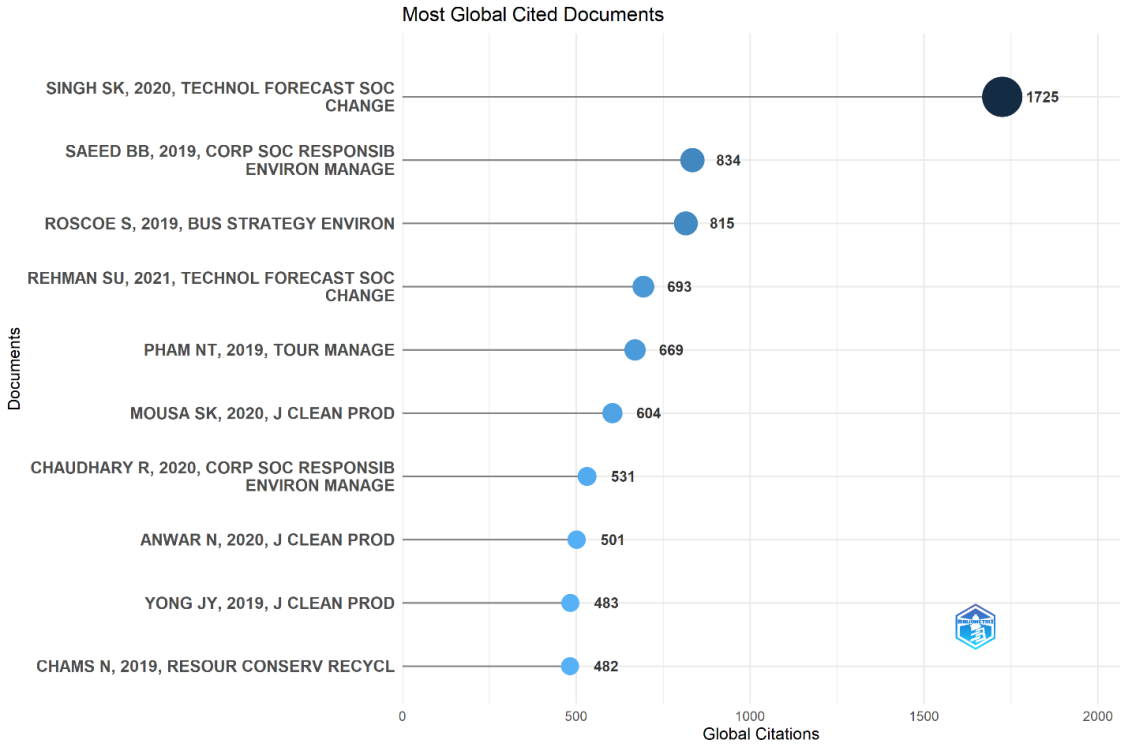


Figure 5. Most Globally Cited Documents

Most Relevant Affiliations and Country Scientific Production

Figure 6 and Table 3 present the most relevant affiliations and country scientific production in Green HRM research. As shown in Figure 6, the most productive affiliations were Universiti Malaysia Terengganu and Universiti Sains Malaysia, each with 28 articles, followed by King Faisal University with 27 articles and Jiangsu University with 24 articles. This finding indicates that institutions from Asia and the Middle East play an important role in the development of Green HRM research.

In terms of country production, China was the leading country with 431 publications, followed by Pakistan with 341, Malaysia with 280, India with 263, and Indonesia with 201. The strong contribution of Asian countries suggests that Green HRM has become a major research concern in regions where sustainability, organizational development, and environmental responsibility are increasingly emphasized (Farrukh et al., 2021).

Overall, the results show that Green HRM research is geographically concentrated in Asia, with strong contributions from China, Pakistan, Malaysia, India, and Indonesia. This pattern indicates that Green HRM is highly relevant for emerging economies and developing organizational contexts.

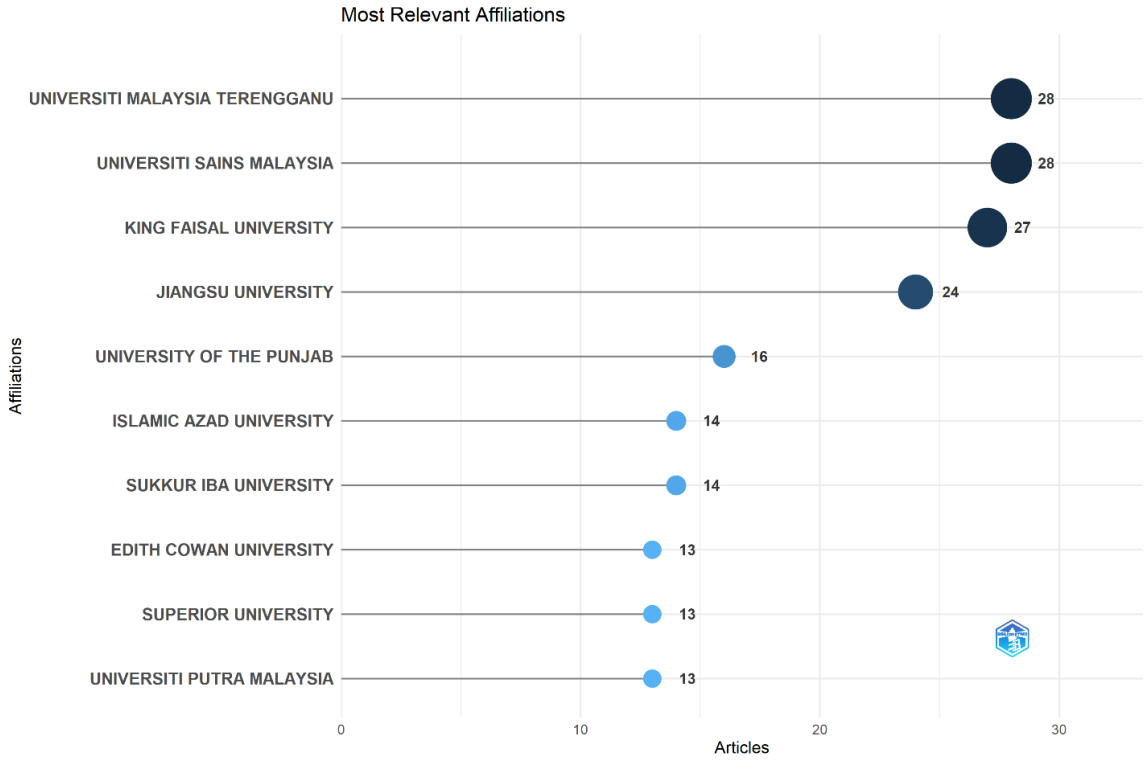


Figure 6. Most Relevant Affiliations

Table 2.
Country Scientific Production

Country	Freq
China	431
Pakistan	341
Malaysia	280
India	263
Indonesia	201
Saudi Arabia	127
Uk	96
Australia	71
Bangladesh	66
Turkey	66

Keywords, Trend Topics, and Thematic Structure

Figure 7 shows the most relevant author keywords in Green HRM research. The most dominant keyword was green human resource management with 405 occurrences, followed by green HRM with 158 occurrences, environmental performance with 149 occurrences, sustainability with 106 occurrences, and GHRM with 91 occurrences. These results indicate that the literature is strongly centered on the relationship between Green HRM, environmental performance, sustainability, and green innovation.

The trend topic analysis shows that earlier studies focused on environmental management, environmental management systems, and the hotel industry, while more recent studies have increasingly emphasized green HRM, GHRM, green innovation, CSR, and artificial intelligence. Although artificial intelligence appeared with a lower frequency, its emergence in 2025 suggests a potential new direction for future Green HRM research.

Figure 8 presents the thematic map of Green HRM research. The motor themes include sustainability, GHRM, and sustainable development, indicating that these themes are both central and well-developed. Meanwhile, green human resource management, environmental performance, and green innovation appear as basic themes, meaning that they are highly relevant to the field but still offer opportunities for further development. Niche themes include green training, pro-environmental behavior, employee engagement, and job satisfaction, showing more specialized research areas.

Figure 9 presents the keyword co-occurrence network. The network confirms that Green HRM research is organized around several interconnected clusters, mainly related to Green HRM practices, environmental performance, sustainability, green innovation, and employee green behavior. Overall, the keyword and thematic analyses show that Green HRM research has evolved from general environmental management issues toward more specific discussions of sustainability performance, employee behavior, green innovation, and emerging digital-related themes (Judijanto, Mayasari, and Nampira 2025; Miah, Szabó-Szentgróti, and Walter 2024).

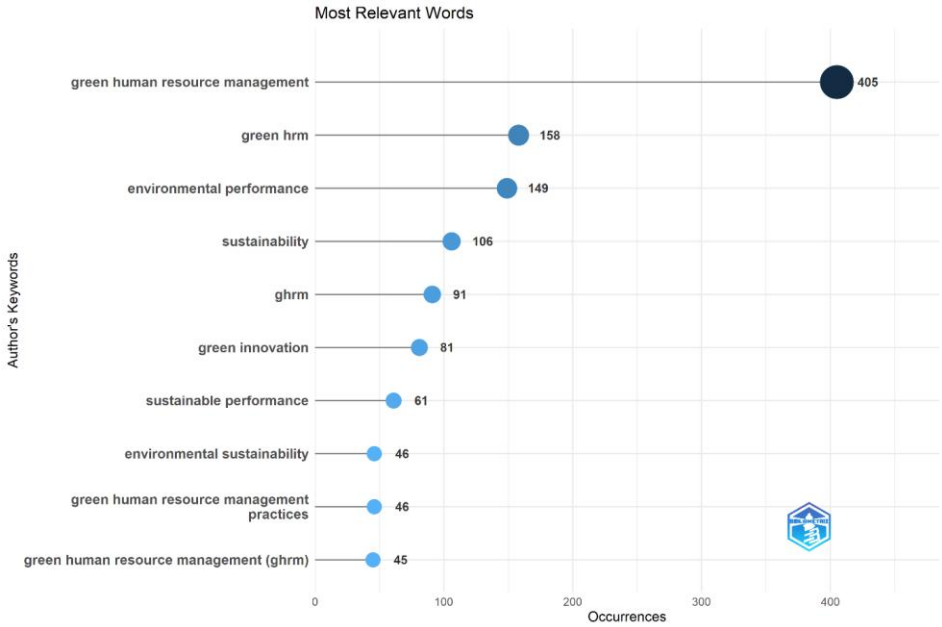


Figure 7. Most Relevant Author Keywords

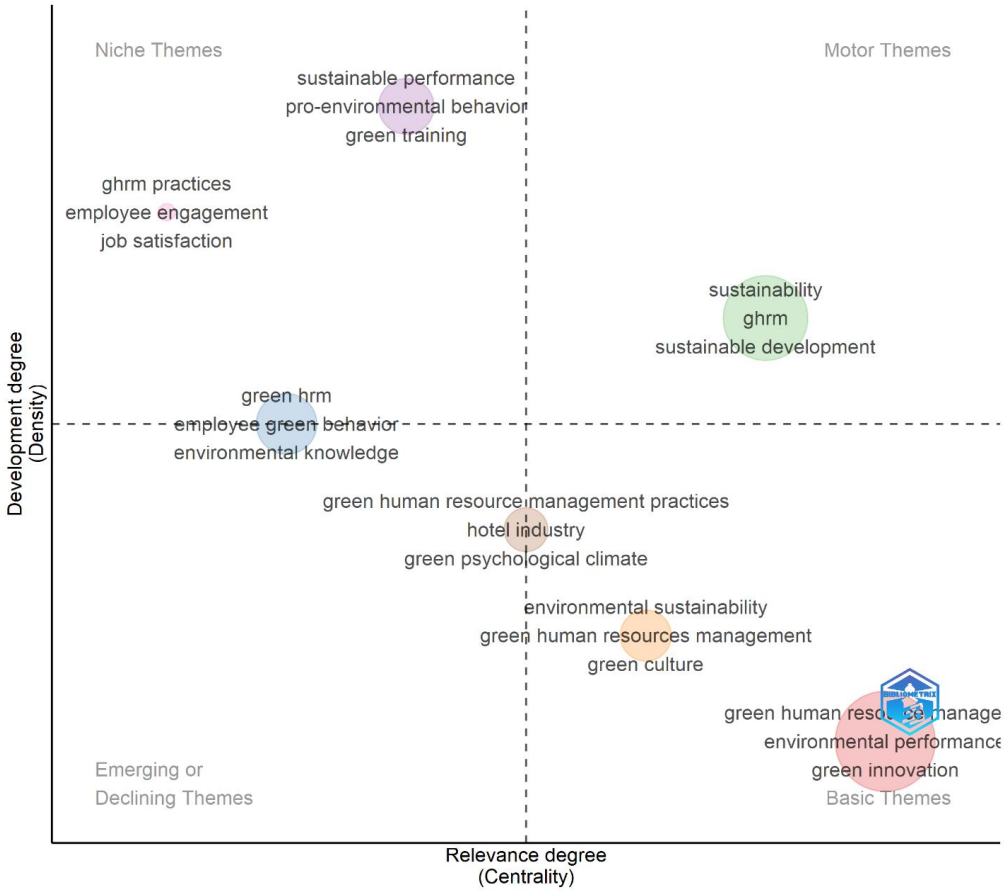


Figure 8. Thematic Map of Green HRM Research

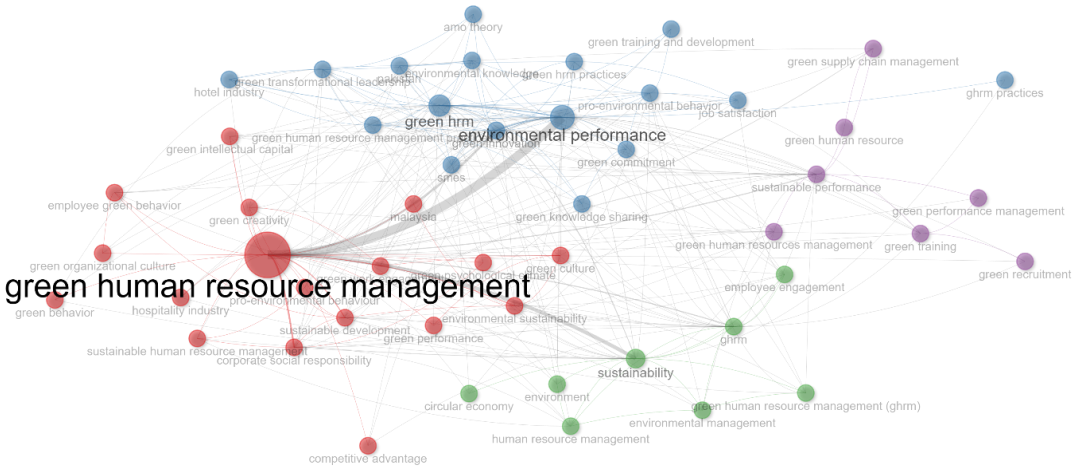


Figure 9. Keyword Co-occurrence Network

CONCLUSION

This study conducted a bibliometric analysis of Green Human Resource Management research using 1,031 Scopus-indexed journal articles published between 2019 and 2025. The analysis was performed using Biblioshiny to map publication trends, influential sources, productive authors, highly cited documents, institutional and country contributions, keyword patterns, thematic structure, and co-occurrence networks.

The findings show that Green HRM is a rapidly growing research field, with an annual growth rate of 43.89%. Annual scientific production increased consistently from 2019 to 2025, indicating that Green HRM has become an increasingly important topic in sustainability-oriented human resource management. The results also show that the field is highly collaborative, with 2,913 authors, an average of 3.6 co-authors per document, and an international co-authorship rate of 44.62%.

The most productive source was Sustainability (Switzerland), followed by journals related to corporate social responsibility, environmental management, cleaner production, and manpower studies. This indicates that Green HRM research has developed as an interdisciplinary field connecting human resource management, environmental management, sustainability, and organizational behavior. The most productive authors and affiliations show that Green HRM research is shaped by active scholars and institutions, particularly from Asian and Middle Eastern contexts.

Country scientific production shows that China, Pakistan, Malaysia, India, and Indonesia were among the most productive countries. This finding suggests that Green HRM has become a major research concern in emerging economies and developing organizational contexts. The keyword analysis further shows that the field is mainly centered on green human resource management, green HRM, environmental performance, sustainability, green innovation, and sustainable performance.

The thematic map and co-occurrence network indicate that Green HRM research has evolved from general environmental management issues toward more specific discussions of sustainability performance, employee green behavior, green innovation, green training, employee engagement, and organizational environmental outcomes. Overall, this study concludes that Green HRM is a mature yet continuously developing research field with strong relevance for organizations seeking to align human resource practices with environmental sustainability goals.

REFERENCES

Aboramadan, M., & Karatepe, O. (2021). Green human resource management, perceived green organizational support and their effects on hotel employees' behavioral outcomes. *International Journal of Contemporary Hospitality Management*. https://doi.org/10.1108/ijchm-12-2020-1440

Abualigah, A., Koburtay, T., Bourini, I., Badar, K., & Gerged, A. (2022). Towards sustainable development in the hospitality sector: Does green human resource management stimulate green creativity? A moderated mediation model. *Business Strategy and the Environment*. https://doi.org/10.1002/bse.3296

Aftab, J., Abid, N., Cucari, N., & Savastano, M. (2022). Green human resource management and environmental performance: The role of green innovation and environmental strategy in a developing country. *Business Strategy and the Environment*. https://doi.org/10.1002/bse.3219

Ahmad, S., Javed, U., Sharma, C., & Siddiqui, M. (2025). Green human resource management: Analyzing sustainable practices and organizational impact through a Word2Vec approach. *Green Technologies and Sustainability*. https://doi.org/10.1016/j.grets.2025.100224

Ahmed, Z., Khosa, M., Nguyen, N. T., Faqera, A. F. O., Ibikunle, A. K., & Raza, S. (2024). Double-edged sword effects of green HRM on employee organizational citizenship behavior for the environment: interactive effects and mediation mechanisms. *Bus. Process. Manag. J.*, *30*, 1369–1398.

https://doi.org/10.1108/bpmj-11-2023-0889
Aiswarya, U., & Manivel, K. (2025). Green Human Resource Management and OrganizationalCitizenship Behavior: The Influence of Eco-FriendlyLifestyle and Organizational Commitment. *International Journal of Accounting and Economics Studies*. https://doi.org/10.14419/vsdfbe88
Al-Swidi, A., Gelaidan, H., & Saleh, R. (2021). The joint impact of green human resource management, leadership and organizational culture on employees' green behaviour and organisational environmental performance. *Journal of Cleaner Production*, *316*, 128112. https://doi.org/10.1016/j.jclepro.2021.128112
Ali, M., Shujahat, M., Fatima, N., De Sousa Jabbour, A. B. L., Vo-Thanh, T., Salam, M. A., & Latan, H. (2024). Green HRM practices and corporate sustainability performance. *Management Decision*. https://doi.org/10.1108/md-05-2023-0787
Alzaidi, S., & Iyanna, S. (2021). Developing a conceptual model for voluntary pro-environmental behavior of employees. *Social Responsibility Journal*. https://doi.org/10.1108/srj-11-2020-0477
Amrutha, V., & Geetha, S. (2020). A systematic review on green human resource management: Implications for social sustainability. *Journal of Cleaner Production*, *247*, 119131. https://doi.org/10.1016/j.jclepro.2019.119131
Anshima, A., Bhardwaj, B., Sharma, D., & Chand, M. (2024). Ensuring sustainability through green HRM practices: a review, synthesis and research avenues. *Journal of Organizational Effectiveness: People and Performance*. https://doi.org/10.1108/joepp-10-2023-0493
Anwar, N., Mahmood, N., Yusliza, M., Ramayah, T., Faezah, J. N., & Khalid, W. (2020). Green Human Resource Management for organisational citizenship behaviour towards the environment and environmental performance on a university campus. *Journal of Cleaner Production*. https://doi.org/10.1016/j.jclepro.2020.120401
Ari, E., Karatepe, O., Rezapouraghdam, H., & Avcı, T. (2020). A Conceptual Model for Green Human Resource Management: Indicators, Differential Pathways, and Multiple Pro-Environmental Outcomes. *Sustainability*, *12*, 7089. https://doi.org/10.3390/su12177089
Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, *11*(4), 959–975. https://doi.org/10.1016/j.joi.2017.08.007
Baas, J., Schotten, M., Plume, A., Côté, G., & Karimi, R. (2020). Scopus as a curated, high-quality bibliometric data source for academic research in quantitative science studies. *Quantitative Science Studies*, *1*(1), 377 – 386. https://doi.org/10.1162/qss_a_00019
Bahuguna, P., Srivastava, R., & Tiwari, S. (2022). Two-decade journey of green human resource management research: a bibliometric analysis. *Benchmarking: An International Journal*. https://doi.org/10.1108/bij-10-2021-0619
Benevene, P., & Buonomo, I. (2020). Green Human Resource Management: An Evidence-Based Systematic Literature Review. *Sustainability*. https://doi.org/10.3390/su12155974
Bombiak, E. (2019). Green human resource management – the latest trend or strategic necessity? *Entrepreneurship and Sustainability Issues*. https://doi.org/10.9770/jesi.2019.6.4(7)
Camilleri, M. (2017). Corporate Sustainability, Social Responsibility and Environmental Management: An Introduction to Theory and Practice with Case Studies. In *Corporate Sustainability, Social Responsibility and Environmental Management*. https://doi.org/10.1007/978-3-319-46849-5
Chaudhary, R. (2019). Green Human Resource Management and Employee Green Behavior: An Empirical Analysis. *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.1827
Chreif, M., & Farmanesh, P. (2022). Applying Green Human Resource Practices toward Sustainable Workplace: A Moderated Mediation Analysis. *Sustainability*. https://doi.org/10.3390/su14159250
Delery, J., & Roumpi, D. (2017). Strategic human resource management, human capital and competitive advantage: is the field going in circles? *Human Resource Management Journal*, *27*, 1–21. https://doi.org/10.1111/1748-8583.12137
Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070
Dumont, J., Shen, J., & Deng, X. (2017). Effects of Green HRM Practices on Employee Workplace Green

Behavior: The Role of Psychological Green Climate and Employee Green Values. *Human Resource Management*, *56*, 613–627. https://doi.org/10.1002/hrm.21792

Efranto, R., Sipayung, S. N., & Amrulloh, A. B. Y. (2025). Green human resource management: a decade of evolution in practices, employee green behavior, and organizational sustainability. *Cogent Business & Management*. https://doi.org/10.1080/23311975.2025.2598686

Enciso-Alfaro, S., & García-Sánchez, I. (2022). Corporate governance and environmental sustainability: Addressing the dual theme from a bibliometric approach. *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.2403

Ercantan, O., & Eyupoglu, S. (2022). How Do Green Human Resource Management Practices Encourage Employees to Engage in Green Behavior? Perceptions of University Students as Prospective Employees. *Sustainability*. https://doi.org/10.3390/su14031718

Faeni, R. P., Feani, D. P., Pujiati, H., & Cahaya, Y. F. (2025). From Green HRM to sustainability: A study of ground handling in java with employee performance as a key link. *Annals of Human Resource Management Research*. https://doi.org/10.35912/ahrmr.v5i3.2991

Fang, L., Shi, S., Gao, J., & Li, X. (2022). The mediating role of green innovation and green culture in the relationship between green human resource management and environmental performance. *PLoS ONE*, *17*. https://doi.org/10.1371/journal.pone.0274820

Farrukh, M., Raza, A., Ansari, N., & Bhutta, U. (2021). A bibliometric reflection on the history of green human resource management research. *Management Research Review*. https://doi.org/10.1108/mrr-09-2020-0585

Gao, H., Mamun, A. Al, Masukujjaman, M., & Yang, Q. (2025). Exploring the nexus of green human resource management, leadership and organizational culture on workplace pro-environmental behavior. *Humanities and Social Sciences Communications*, *12*. https://doi.org/10.1057/s41599-025-05071-9

Greenwood, L., Rosenbeck, J., & Scott, J. (2012). *The Role of the Environmental Manager in Advancing Environmental Sustainability and Social Responsibility in the Organization*. *2*, 5. https://doi.org/10.14448/jes.02.0005

Guerci, M., Longoni, A., & Luzzini, D. (2016). Translating stakeholder pressures into environmental performance – the mediating role of green HRM practices. *The International Journal of Human Resource Management*, *27*, 262–289. https://doi.org/10.1080/09585192.2015.1065431

Gull, S., & Idrees, H. (2021). Green training and organizational efficiency: mediating role of green competencies. *European Journal of Training and Development*. https://doi.org/10.1108/ejtd-10-2020-0147

Gupta, R., Kaur, H., & Bhat, D. (2025). Green Human Resource Management, Green Organisational Citizenship Behaviour and Organisational Sustainability in the Post-Pandemic Era: An Ability Motivation Opportunity and Resource Based View Perspective. *Business Strategy & Development*. https://doi.org/10.1002/bsd2.70126

Gupta, R., & Kaur, S. (2024). A 2-1-1 multi-level perspective of understanding the relationship between green human resource management practices, green psychological climate, and green employee behavior. *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.2778

Gyensare, M., Adomako, S., & Amankwah-Amoah, J. (2023). Green HRM practices, employee well-being, and sustainable work behavior: Examining the moderating role of resource commitment. *Business Strategy and the Environment*. https://doi.org/10.1002/bse.3642

Hallinger, P., & Nguyen, V.-T. (2020). Mapping the Landscape and Structure of Research on Education for Sustainable Development: A Bibliometric Review. *Sustainability*. https://doi.org/10.3390/su12051947

Jain, J., Walia, N., Singh, S., & Jain, E. (2021). Mapping the field of behavioural biases: a literature review using bibliometric analysis. *Management Review Quarterly*, *72*, 823–855. https://doi.org/10.1007/s11301-021-00215-y

Jamal, T., Zahid, M., Martins, J., Mata, M., Rahman, H., & Mata, P. (2021). Perceived Green Human Resource Management Practices and Corporate Sustainability: Multigroup Analysis and Major Industries Perspectives. *Sustainability*. https://doi.org/10.3390/su13063045

Jamil, S., Zaman, S., Kayikci, Y., & Khan, S. (2023). The Role of Green Recruitment on Organizational

Sustainability Performance: A Study within the Context of Green Human Resource Management. *Sustainability*. https://doi.org/10.3390/su152115567

Judijanto, L., Mayasari, N., & Nampira, A. A. (2025a). A Scientometric Analysis of Green HRM Research (2000-2024) Using VOSviewer: Mapping the Intellectual Structure and Emerging Themes from Scopus. *West Science Business and Management*. https://doi.org/10.58812/wsbm.v3i02.1992

Judijanto, L., Mayasari, N., & Nampira, A. A. (2025b). A Scientometric Analysis of Green HRM Research (2000-2024) Using VOSviewer: Mapping the Intellectual Structure and Emerging Themes from Scopus Data. *West Science Business and Management*. https://doi.org/10.58812/wsbm.v3i02.1992

Kalei, A. (2024). Green Human Resource Management Practices and Environment Sustainability: From Empirical Evidence. *Journal of Business and Management Studies*. https://doi.org/10.32996/jbms.2024.6.3.19

Kuo, Y.-K., Khan, T., Islam, S. U., Abdullah, F. Z., Pradana, M., & Kaewsaeng-on, R. (2022). Impact of Green HRM Practices on Environmental Performance: The Mediating Role of Green Innovation. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.916723

Lăzăroiu, G., Ionescu, L., Andronie, M., & Dijmarescu, I. (2020). Sustainability Management and Performance in the Urban Corporate Economy: A Systematic Literature Review. *Sustainability*. https://doi.org/10.3390/su12187705

Li, Y., & Li, Y. (2025). Enhancing Pro-Environmental Behavior Through Green HRM: Mediating Roles of Green Mindfulness and Knowledge Sharing for Sustainable Outcomes. *Sustainability*. https://doi.org/10.3390/su17062411

Malik, S. Y., Cao, Y., Mughal, Y. H., Kundi, G. M., Mughal, M. H., & Ramayah, T. (2020). Pathways towards sustainability in organizations: Empirical evidence on the role of green human resource management practices and green intellectual capital. *Sustainability (Switzerland)*, *12*(8). https://doi.org/10.3390/SU12083228

Marrucci, L., Daddi, T., & Iraldo, F. (2022). Institutional and stakeholder pressures on organisational performance and green human resources management. *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.2357

Maurya, R. S., & Khatri, D. (2025). Mapping The Intellectual Landscape of Green Human Resource Management: A Bibliometric Analysis of Sustainable Organizational Practices. *International Journal of Basic and Applied Sciences*. https://doi.org/10.14419/48myrz09

Mehrajunnisa, M., Jabeen, F., Faisal, M., & Lange, T. (2022). The influence of green human resource management practices and employee green behavior on business performance in sustainability-focused organizations. *Journal of Environmental Planning and Management*, *66*, 2603–2622. https://doi.org/10.1080/09640568.2022.2074824

Miah, M., Szabó-Szentgróti, G., & Walter, V. (2024). A systematic literature review on green human resource management (GHRM): an organizational sustainability perspective. *Cogent Business & Management*, *11*. https://doi.org/10.1080/23311975.2024.2371983

Molina-Azorín, J., López-Gamero, M., Tarí, J., Pereira-Moliner, J., & Pertusa-Ortega, E. (2021). Environmental Management, Human Resource Management and Green Human Resource Management: A Literature Review. *Administrative Sciences*, *11*, 48. https://doi.org/10.3390/admsci11020048

Moral-Munoz, J., Herrera-Viedma, E., Santisteban-Espejo, A., & Cobo, M. (2020). Software tools for conducting bibliometric analysis in science: An up-to-date review. *El Profesional de La Información*. https://doi.org/10.3145/epi.2020.ene.03

Mutmainah, R. E., Lestari, N., Andriyani, A., & Darmastuti, I. (2024). Improving Environmental Performance in Corporations Using Green Human Resource Management. *Research Horizon*. https://doi.org/10.54518/rh.5.1.2025.442

Nadeem, R., & Singh, R. (2025). Charting the future of green HRM practices: insights from theories, context, characteristics and methodologies (TCCM) framework and analytical hierarchy process (AHP) analysis. *Journal of Management Development*. https://doi.org/10.1108/jmd-03-2024-0078

Nguyet, T. M. (2025). Green HRM: A New Trend in Human Resource Management Toward Sustainable Development. *International Journal of Advanced Multidisciplinary Research and Studies*. https://doi.org/10.62225/2583049x.2025.5.6.5185

Odhiambo, G. M., Waiganjo, E., & Simiyu, A. (2023). Incentivizing Employee Pro-Environmental Behaviour: Harnessing the Potential of Green Rewards. *African Journal of Empirical Research*. https://doi.org/10.51867/ajernet.4.2.60

Ortega, E., Coelho, A., & Ribeiro, N. (2025). Green Human Resource Management and ISO 14001: Toward Environmental Sustainability in Organizations. *Human Resource Development Quarterly*. https://doi.org/10.1002/hrdq.70004

Paillé, P., Valeau, P., & Renwick, D. (2020). Leveraging green human resource practices to achieve environmental sustainability. *Journal of Cleaner Production*. https://doi.org/10.1016/j.jclepro.2020.121137

Pham, N. T., Jabbour, C. J. C., Vo-Thanh, T., Huynh, T., & Santos, C. (2020). Greening hotels: does motivating hotel employees promote in-role green performance? The role of culture. *Journal of Sustainable Tourism*, *31*, 951–970. https://doi.org/10.1080/09669582.2020.1863972

Pham, N. T., Thanh, T. V., Tučková, Z., & Thuy, V. T. N. (2020). The role of green human resource management in driving hotel's environmental performance: Interaction and mediation analysis. *International Journal of Hospitality Management*. https://doi.org/10.1016/j.ijhm.2019.102392

Pham, N. T., Tučková, Z., & Phan, Q. P. T. (2019). Greening human resource management and employee commitment toward the environment: An interaction model. *Journal of Business Economics and Management*, *20*, 446–465. https://doi.org/10.3846/jbem.2019.9659

Portocarrero, F., Winkler, A.-L., & Pearce, J. (2021). Broadening Our Understanding of Human Resource Management for Improved Environmental Performance. *Business & Society*, *62*, 14–53. https://doi.org/10.1177/00076503211053250

Professor, A. K., & Patil, D. (2024). Green Hrm: Enhancing Organizational Sustainability through Employee Engagement and Eco-Friendly Practices. *Proceeding of International Seminar Enrichment of Career by Knowledge of Language and Literature*. https://doi.org/10.25139/eckll.v11i1.7695

Ren, S., Tang, G., & Jackson, S. (2018). Green human resource management research in emergence: A review and future directions. *Asia Pacific Journal of Management*, *35*, 769–803. https://doi.org/10.1007/s10490-017-9532-1

Román-Niaves, M. S., Morandini, S., Antonini, M., & Pietrantoni, L. (2025). Green Human Resource Management and Green Psychological Climate: A Scoping Review Through the AMO Framework. *Sustainability*. https://doi.org/10.3390/su17062535

Roscoe, S., Subramanian, N., Jabbour, C., & Chong, T. (2019). Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development. *Business Strategy and the Environment*. https://doi.org/10.1002/bse.2277

Sabokro, M., Masud, M., & Kayedian, A. (2021). The effect of green human resources management on corporate social responsibility, green psychological climate and employees' green behavior. *Journal of Cleaner Production*, *313*, 127963. https://doi.org/10.1016/j.jclepro.2021.127963

Sadek, K., & Karkoulian, S. (2024). Green performance appraisal impact on organizational sustainability: exploring the role of green knowledge and behavior in Lebanese firms. *Social Responsibility Journal*. https://doi.org/10.1108/srj-04-2024-0251

Saeed, B., Afsar, B., Hafeez, S., Khan, I., Tahir, M., & Afridi, M. (2018). Promoting employee's proenvironmental behavior through green human resource management practices. *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.1694

Shafaei, A., & Nejati, M. (2023). Green human resource management and employee innovative behaviour: does inclusive leadership play a role? *Personnel Review*. https://doi.org/10.1108/pr-04-2021-0239

Shah, P., Dubey, R. S., Rai, S., Renwick, D., & Misra, S. (2023). Green human resource management: A comprehensive investigation using bibliometric analysis. *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.2589

Shaikh, M. R., Ali, I., Tunio, M. S. M., & Naeem, M. (2025). Green Human Resource Management and Sustainability Performance: A Systematic Review Using PRISMA Methodology. *Journal of Management & Social Science*. https://doi.org/10.63075/80rydk30

Suriyankietkaew, S., & Petison, P. (2019). A Retrospective and Foresight: Bibliometric Review of International Research on Strategic Management for Sustainability, 1991–2019. *Sustainability*. https://doi.org/10.3390/su12010091

Tahir, A., Umer, M., Nauman, S., Abbass, K., & Song, H. (2024). Sustainable development goals and green human resource management: A comprehensive review of environmental performance. *Journal of Environmental Management*, *370*, 122495. https://doi.org/10.1016/j.jenvman.2024.122495

Verma, A., Sharma, G., & Mahendru, N. (2025). Sustainable Human Resource Management and Organizational Performance: A Systematic Literature Review on Green Human Resource Practices and Impact on Corporate Sustainability. *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.70369

Visser, M., Van Eck, N. J., & Waltman, L. (2020). Large-scale comparison of bibliographic data sources: Scopus, Web of Science, Dimensions, Crossref, and Microsoft Academic. *Quantitative Science Studies*, 1–22. https://doi.org/10.1162/qss_a_00112

Xie, H., & Lau, T. (2023). Evidence-Based Green Human Resource Management: A Systematic Literature Review. *Sustainability*. https://doi.org/10.3390/su151410941

Yafi, E., Tehseen, S., & Haider, S. (2021). Impact of Green Training on Environmental Performance through Mediating Role of Competencies and Motivation. *Sustainability*, *13*, 5624. https://doi.org/10.3390/su13105624

Yan, L., & Wang, Z. (2023). Mapping the Literature on Academic Publishing: A Bibliometric Analysis on WOS. *SAGE Open*, *13*. https://doi.org/10.1177/21582440231158562

Yong, J., Yusliza, M., Ramayah, T., Jabbour, C. J. C., Sehnem, S., & Mani, V. (2019). Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management. *Business Strategy and the Environment*. https://doi.org/10.1002/bse.2359

Yu, W., Chavez, R., Feng, M., Wong, C., & Fynes, B. (2020). Green human resource management and environmental cooperation: An ability-motivation-opportunity and contingency perspective. *International Journal of Production Economics*. https://doi.org/10.1016/j.ijpe.2019.06.013

Zacher, H., Rudolph, C., & Katz, I. (2022). Employee Green Behavior as the Core of Environmentally Sustainable Organizations. *Annual Review of Organizational Psychology and Organizational Behavior*. https://doi.org/10.1146/annurev-orgpsych-120920-050421

Zihan, W., & Makhbul, Z. K. M. (2024). Green Human Resource Management as a Catalyst for Sustainable Performance: Unveiling the Role of Green Innovations. *Sustainability*. https://doi.org/10.3390/su16041453