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Green human resource management

A systematic literature review from 2007 to 2019

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Abstract

Purpose – Green or environmental human resource management (HRM) has in recent years attracted much attention from academia and practitioners all over the world. However, a thorough analysis of green or environmental HRM has not been made so far. To address this gap, the present study provides a systematic and comprehensive literature review. The purpose of this paper is threefold: to review Green HRM literature of various scopes, approaches and contexts; to identify different focus areas in the Green HRM literature; and to propose areas for future research.

Design/methodology/approach – The paper follows a systematic literature review approach. The selected journal articles are categorized on the basis of five focus areas in the Green HRM derived from the extant literature.

Findings – Research has grown significantly over the past 12 years that has focused on Green HRM. A total of 70 articles were reviewed and most of these articles employed quantitative method and were carried out in developing countries. Based on the five focus areas identified in this literature review, the performance outcome of Green HRM at both the organizational level and individual level received the greatest attention from the researchers.

Research limitations/implications – This paper is limited to a review of academic articles obtainable from online databases, containing the words "Green human resource management", "Green HRM", "Green human resource", "Environmental HRM", "Green training" and "Environmental training" in the title. Additionally, only papers from high quality, peer-reviewed journals were evaluated. Other academic sources such as books and conference papers were not included in this study.

Originality/value – The paper presents a structural overview of 70 peer-reviewed articles published in leading academic journals from 2007 until early 2019. This review provides an increased understanding of the existing state of current research, trends and future research directions in the Green HRM discipline.

Keywords Literature review, Green human resource management, Green training, Green HRM, Environmental HRM

Paper type Literature review

1. Introduction

Countries around the world, be they developed or developing (e.g. Australia, the USA, China, Brazil), have faced a multitude of impacts from the huge demand for a more sustainability-oriented and environmentally friendly agenda; hence, the call has been made for an urgent change and the adoption of green practices. Businesses operate in a highly competitive global economy in which they must not only be efficient and deliver value, but also must be responsible, and this includes responsibility towards the environment. The intensification of environmental concerns around the globe has led companies to adopt environmental practices at an increasing rate; and such adoptions can benefit companies in becoming "green and competitive" (Jabbour *et al.*, 2012). In the pursuit of this green agenda, scholars (e.g. de Souza Freitas *et al.*, 2012; Jackson *et al.*, 2011; Renwick *et al.*, 2016) have argued that

human resource management (HRM) plays an important role. Hence, embedding green practices in HRM functions could possibly enhance the likelihood of a firm's sustainability.

The interest in Green HRM has increased in the last decade, with the recognition as one possible green management practice strategy of a company that can reduce its environmental "footprint" and make the business more sustainable. Since 2016, the importance of Green HRM research increased noticeably among scholars (Dumont *et al.*, 2016; Guerci, Longoni and Luzzini, 2016; Guerci, Montanari, Scapolan and Epifanio, 2016; Jabbour and Renwick, 2018; Yong *et al.*, 2019; Yusliza *et al.*, 2017). As a result, the study of Green HRM has increased exponentially. Growing awareness of green issues has driven HR to embrace Green HR practices with a specific focus on a paperless approach, a reduction of the carbon footprint and waste management (Ahmad, 2015). HR plays an integral role in initiating environmentally friendly activities, involving individuals as a part of green initiatives and also initiating changes in existing processes (Mishra *et al.*, 2014). Green HRM can be seen as a planned and continuous change for an organization (Sawang and Kivits, 2014).

Evidently, HRM is considered as having great potential with respect to sustainability (Jabbour and Santos, 2008). However, the effectiveness of including environmental measures in a company requires different types of contributions from organizational functions, particularly from HRM (del Brio *et al.*, 2007). According to Cohen *et al.* (2012), the HR function has a critical role to play in creating and implementing sustainable business strategies throughout an organization. The HR function can assist in formulating and achieving environmental and social goals and also balancing these goals against traditional financial performance metrics. The HR function can also serve as a partner in formulating corporate values and sustainability strategy.

Although research on Green HRM is gaining heightened attention, the focus areas for determining the connection between the disciplines vary widely. Hence, developing a holistic concept of this structure and an overview of the existing body of Green HRM research is necessary. Currently, the area suffers from a lack of comprehensive literature reviews that have investigated and analyzed the increasing body of literature in Green HRM. Hence, a comprehensive and expanded literature review on Green HRM needs to be developed. This paper, therefore, provides in-depth insights into and an analysis of Green HRM research published in leading academic journals.

The objective of this paper is to examine the Green HRM research in terms of how the field is represented along a number of aspects including journal, year, national context and research methods. In addition, the overall purpose is to systematically review the development of the extant literature focused on Green HRM to identify what research topics have addressed and where additional opportunities for future research exist. In particular, the paper addresses the following research questions:

RQ1. How has Green HRM research developed in recent times?

RQ2. How can the literature of Green HRM research be classified into different focus areas?

This paper is organized as follows: Section 2 describes the review method. Section 3 presents the findings. Section 4 presents a summary of the review and a discussion. Section 5 is the last section and includes the conclusion, the unique contributions and the recommendations of this current study and directions for future research.

2. Review method

This paper follows a systematic literature review method to analyze, summarize and draw inferences (Tranfield *et al.*, 2003) from the available literature on Green HRM. The purpose of the present study is to analyze and categorize the existing literature on Green HRM into different focus areas and to identify avenues for future research. The methodology used

in this study is based on the works of Hohenstein *et al.* (2014) and Rashman *et al.* (2009). This review approach comprises four steps and discusses time horizon, database selection, article selection and article classification.

2.1 Time horizon for the selection of papers
For the review and assessment process, the date of publication of the journal articles considered was between the beginning of 2007 and the beginning of 2019. The year 2007 was chosen as the starting point for collecting the relevant data because Unnikrishnan and Hegde (2007) benchmarked this year as one in which the importance of environmental training during the implementation of cleaner production was highlighted in the Indian industry. The beginning of 2019 was selected as the end point to include the most recent academic journal publications in light of the increase in articles that have addressed this highly significant topic.

2.2 Selection of databases
This study used several online databases to identify current and pertaining literature on Green HRM. The research was carried out in the English language and the sources of online databases were ScienceDirect, Emerald Insight, SpringerLink, Taylor & Francis, Wiley Online Library, SAGE Publications and Inderscience Publishers. While an attempt was made to include the most articles possible, the present research does not claim that the database is either complete or exhaustive in nature.

2.3 Article selection
The present study followed a systematic review procedure as summarized in Figure 1 and described in the following narrative. First, keywords were defined as search criteria in online databases. The keywords comprised "Green human resource management", "Green human resource", "Green HRM", "Environmental HRM", "Green training" and "Environmental training" in the title of the above mentioned online databases and contained in all text. Then, every article in the leading academic journals from 2007 to 2019 was considered. The preliminary result included 110 articles.

Next, the abstracts were read to evaluate the relevance of journal articles in Green HRM. Articles that seemed non-relevant to this study were eliminated to ensure consistent focus and to reduce bias. Furthermore, duplications of articles were eliminated to avoid counting a paper twice in our analysis (Rashman *et al.*, 2009). This process resulted in 70 articles for review and that were chosen based on their originality, clearly stated aims and relevance. Developing a classification scheme was the next step.

2.4 Article classifications
To structure the selected database of 70 journal publications, a bibliographical list of all publications was developed, a file was created in an Excel spreadsheet and the results were analyzed to draw inferences. Subsequently, the articles were classified into five focus areas that were dominant in the extant literature.

3. Findings
To delve further into the Green HRM studies, 70 articles were analyzed and classified into five focus areas. Table I summarizes the key findings of the 70 articles by focus area. The critical dimensions are discussed in the following sections.

3.1 Focus Area 1: concepts/model/reviews of Green HRM
Because the concept of Green HRM is relatively new, several researchers have conceptualized Green HRM, have reviewed this concept in different contexts and have
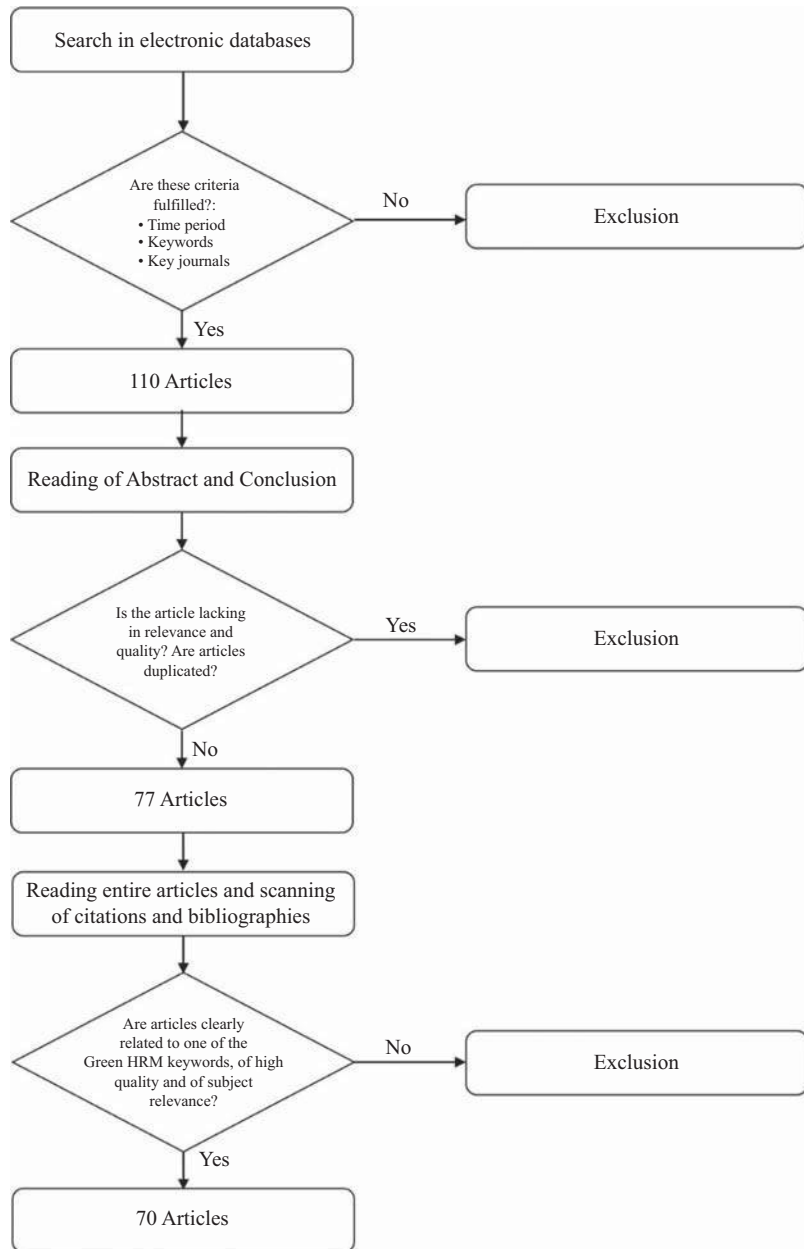
Figure 1.
Summary of article
selection process

proposed a conceptual model to understand the outcomes of Green HRM implementation for an individual and an organization.

Several researchers have identified the main attributes of Green HRM practices. For instance, Siyambalapitiya *et al.* (2018) employed face-to-face interviews with HR professionals and identified eight dimensions of Green HRM, Shah (2019) said that

Focus Area	Author(s)	Findings
Concepts/model/reviews of Green HRM	Shah (2019)	The findings revealed that Green HRM is a multidimensional construct composed of seven dimensions, namely green job design; green recruitment and selection; green training and development; green performance management; green compensation management; green health and safety; and green labour relations, which can be measured by 28 items
	Jabbour and Renwick (2018)	Discuss on the "soft and human" side of building environmentally sustainable organizations and detailing a new research agenda in Green HRM
	Mukherjee and Chandra (2018)	Green HRM has been conceptualized to influence employees' green behaviour. A conceptual framework was proposed to understand and predict employee behaviour in an organization as a whole or explicitly in a workplace
	Siyambalapitiya et al. (2018)	Eight dimensions of Green HRM were identified including Green HRM functions and practices, green recruitment, green selection, green training and development, green compensation and rewards, green performance evaluation, green employee relations and green grievances handling.
	Zaid, Bon and Jaaron (2018)	A conceptual model is developed to study the effect of Green HRM on environmental performance. Proposes a conceptual model to exhibit the relationship between Green HRM bundle practices and organization performance (i.e. environmental performance, financial performance, operational performance and social performance)
	Ren et al. (2017)	Highlights an urgent need for refined conceptualization and measurement of Green HRM and develops an integrated model of the antecedents, consequences and contingencies related to Green HRM
	Sriram and Suba (2017)	The accomplishment of Green HRM is fully based on the employee commitments. This paper also presents the positive and negative impacts of Green HRM on organization effectiveness
	Tang et al. (2017)	Green HRM includes five dimensions: green recruitment and selection, green training, green performance management, green pay and reward, and green involvement
	Jabbour and de Sousa Jabbour (2016)	Culture, teamwork and empowerment form the basis of Green supply chain management (GSCM). Internal GSCM practices and investment recovery will be the first step towards more advanced and external GSCM and will require more intense support from HRM to achieve a more sustainable supply chain
	Renwick et al. (2016)	The articles herein span green recruitment, competencies, employee participation, financial/environmental performance links and contextual issues utilizing national culture, paradox and stakeholder theories
	Tariq et al. (2016)	There exists a potential mediating effect of employee empowerment on employee motivational levels for pursuing Green HR practices
	Ahmad (2015)	Focus on various Green HR practices pursued by the organizations all over the world and, explains the simplified meaning of Green HRM. It also discussed future direction of some Green HRM functions and suggests some potentially prolific HR initiatives for Green organizations
	Chen and Wang (2013)	Green production human resource management can reduce personnel transportation and communication costs, and solve family separation issues and the problems of managing people from different cultural backgrounds
	Jabbour (2013)	A framework was proposed aiming to guide and strengthens the state-of-the-art research on environmental training
	Milliman (2013)	Sustainability requires employee dedication; HR must play a key leadership role in promoting proactive environmental activities and to provide positive economic impacts
	Renwick et al. (2013)	Understand how Green HRM practices influence employee motivation to become involved in environmental activities lags behind that of how organizations develop Green abilities and provide employees with opportunities to be involved in EM organizational efforts

(continued)

Table I.

Focus Area	Author(s)	Findings
	Jackson et al. (2011)	Present a detailed discussion on several functional HRM practices, including performance management; training, development, and learning; compensation and rewards; and organizational culture
	Muster and Schrader (2011)	Suggested "green work-life balance concept" to facilitate environmentally friendly behaviour in both life domains
	Zoogah (2011)	In processing green HRM information, managers are presumed to differ in accessibility of mental representations and the organization of relationships among them
	Jackson and Seo (2010)	Integrate strategic HRM and environmental sustainability to address a pressing real-world problem
Implementation of Green HRM	Leidner et al. (2019)	Green HRM practices are not in themselves peripheral, intermediate or embedded but shaped by contextual situations
	Gupta (2018)	Six main attributes of Green HRM practices were finalized and ranked through best worst method (BWM). Among them, green training has been considered most important variable for environmental management in organizations
	Jain and D'lima (2018)	Provide insight about the degree to which Gen Y cares about health of the planet earth and Gen Y's perception about the organizations practising green hiring practices, performance management and reward and recognition, the key factors evolved from the study
	Nobari et al. (2018)	Among the 12 identified factors, training, recruitment, and rewards are the most important ones and play an important role in the implementation of Green HRM
	Mishra (2017)	The organizations in the Indian manufacturing sector have certain existing practices of Green HRM, but these practices are neither formally organized under Green HRM initiatives nor diligently followed
	Guerci and Carollo (2016)	Encompass the main characteristics of the green HRM systems of the organizations analyzed, and a list is provided of eight HRM-related paradoxes perceived by those organizations
	Haddock-Millar et al. (2016)	Proactive environmental management, reflected through a range of operational and people-centred initiatives across the three European countries. The positioning and alignment of the environment and HR function differ amongst the subsidiaries, as does the way in which the subsidiaries choose to engage the workforce in environmental sustainability
	Dias-Angelo et al. (2014)	HRM is not fully aligned with environmental objectives. Environmental training as a HRM practice was verified in all hotels analyzed
	Mishra et al. (2014)	Identifies the best practices in Green HRM that can be applied in CPSEs in India to contribute to sustainable development
	Neto et al. (2014)	The environmental training interface for mitigating climate change is relevant for the systematic development of low-carbon products in most of the cases studied
	Unnikrishnan and Hegde (2007)	Various kinds of training were given importance during the implementation of cleaner production. The most useful training was the training imparted by in-house staff and on-the-job training. Suppliers of cleaner technologies also played an active role in training
Determinants of Green HRM adoption (organizational level)	Yong et al. (2019)	Green human capital and green relational capital influenced green HRM, while green structural capital was not significantly related to green HRM
	Obeidat et al. (2018)	Top management support and environmental orientation positively influence green HRM

(continued)

Focus Area	Author(s)	Findings
	Yusliza et al. (2017)	Green employee empowerment has a significant positive relationship with all dimensions of Green HRM practices. The added value of HR business partner role is an important aspect in ensuring the successful implementation of Green HRM practices. E-HRM was not significantly related with all dimensions of Green HRM practices
	Guerci, Longoni and Luzzini (2016)	Customer pressure is associated with all the green HRM practices considered (i.e. green hiring, green training and involvement, and green performance management and compensation), whereas regulatory pressure is associated only with green hiring. Green HRM practices mediate the relationship between stakeholder pressure and environmental performance
	Yong and Mohd-Yusoff (2016)	Strategic positioner associates positively with all green HRM practices.
	Sawang and Kivits (2014)	Change champion is positively related to green analysis and description of job position, and green rewards Senior management's environmental-related attitudes, subjective norms from stakeholders and perceived green resource readiness influenced their decision to adopt green HR initiatives
	Teixeira et al. (2012)	Organizational culture and teamwork, top management support and more technical green management practices are the factors that seem to connect and convert environmental training into more proactive green management, especially for companies in the proactive green management stage
Outcome of Green HRM adoption (organizational level)	Rangarajan and Rahm (2011)	Income, education, environmental awareness and presence of pre-existing successful environmental programs have an impact on technical and strategic human resource practices in US cities
	Pham et al. (2019)	Results indicated the direct effects of Green HRM practices on OCBE; the interaction of three Green HRM practices (training, performance management and employee involvement), which can enhance employees' voluntary green behaviour, dependent on the level of green performance management and green employee involvement; and green training is seen as a key mechanism to boost employees' voluntary green behaviour
	Silva et al. (2019)	The systematized environmental training, its phases structured to meet the organizational strategic goals of sustainability, helps to develop individual competences of environmental sustainability in the companies analyzed
	Al Kerdawy (2018)	Both Green HRM and corporate support for employee volunteering (CSEV) influence positively on adopting CSR activities. Furthermore, CSEV plays a positive moderating role in strengthening the impact of Green HRM on adopting CSR in the studied firms
	Bombiak and Marciniuk-Kluska (2018)	There is a strong positive correlation between the evaluation of the impact of individual activities within Green HRM on sustainable company development and their practical implementation
	Obeidat et al. (2018)	Green HRM has a positive impact on environmental performance. The results show a mediating effect of green HRM on the links between both top management support and internal environmental orientation, and environmental performance
	Rawashdeh (2018)	The results show a moderate implementation of Green HRM in Jordanian hospitals. There is a positive association between the Green HRM practices (i.e. Green recruitment and selection, Green training and development, and Green rewards) and environmental performance
	Yusoff et al. (2018)	Green recruitment and selection, green training and development, and green compensation have a positive relationship with environmental performance, while green performance appraisal did not have a significant relationship with environmental performance
	Zaid, Jaaron and Bon (2018)	Green HRM and green SCM have a positive effect to sustainable performance (i.e. environmental, economic and social performance) in a joint manner

(continued)

Table I.

Table I.

Focus Area	Author(s)	Findings
	Aragão and Jabbour (2017)	Environmental training produced limited accomplishments, although respondents viewed it as a source of potential improvement, which indicates a co-evolution of sustainable procurement, environmental training and environmental maturity among organizations
	Masri and Jaaron (2017)	The implementation of Green HRM practices is considered as a moderate level. A positive and significant relationship between the six Green HRM practices and environmental performance
	Nejati et al. (2017)	Green development and training, green employee empowerment, and green pay and reward have the most positive influence on GSCM. Resistance to Change have a moderating effect on the link between Green HRM (particularly green recruitment and selection) and GSCM
	Gholami et al. (2016)	Green HRM system promotes the implementation of cleaner sustainability strategy within organizations, which may positively lead to both employee's well-being and enhanced long-term organizational performance
	Guerci, Longoni and Luzzini (2016)	Green training and involvement, green performance management and compensation, are positively related to environmental performance
	Longoni et al. (2016)	Green HRM and GSCM impact on environmental and financial performance and exert those impacts in a joint fashion. GSCM plays a mediating role in the relationship between Green HRM and performance
	O'Donohue and Torugsa (2016)	Green HRM positively moderates the association between proactive environmental management and financial performance, such that a high level of Green HRM increases the financial benefits of proactive environmental management compared with low levels of Green HRM
	Pinzone et al. (2016)	"Green" HRM practices are conducive to voluntary behaviours towards the environment at the collective level. Employees' willingness to support their organization in its EM endeavour partially mediates this relationship
	Teixeira et al. (2016)	Green training tends to help firms improve their green supply chain management to cooperate with customers and implement green purchasing
	Jabbour (2015)	Environmental training is positively and significantly relates to the environmental management maturity of Brazilian companies with ISO14001
	Zibarras and Coan (2015)	Studied organizations using some key HRM practices to encourage pro-environmental behaviour in their employees but they are not use in a great extent overall
	Wagner (2013)	Benefit for work satisfaction and benefits for staff retention/recruitment are positively associated with EMS implementation. Increasing levels of EMS implementation result from higher economic benefits in the HR domain
	Carmona-Moreno et al. (2012)	Companies with a high level of environmental HR practices can benefit from the advantages in costs and differentiation derived from the implementation of pollution prevention technologies
	Jabbour (2011)	Environmental issues have not been completely inserted in the traditional practices of HRM, such as selection and financial remuneration for good environmental performance
Outcome of Green HRM adoption (individual level)	Kim et al. (2019)	Green HRM enhances employees' organizational commitment, their eco-friendly behaviour and hotels' environmental performance
	Roscoe et al. (2019)	The enablers of green organizational culture (i.e. leadership emphasis, message credibility, peer involvement and employee empowerment) positively mediate the relationship between Green HRM practices and environmental performance
	Chaudhary (2018)	Green HRM influences the job pursuit intention (JPI) of prospective employees and organizational prestige mediated the above linkage. Environmental orientation moderates the association of Green HRM with JPI

(continued)

Focus Area	Author(s)	Findings
	Luu (2018)	Training, empowerment and rewarding for pro-environmental behaviours positively related to employees' green recovery performance. Employee environmental commitment acts as a mediator. Serving culture as a moderator to strengthen the impacts of green HR practices on employee environmental commitment as well as for the effect of employee environment commitment on their green recovery performance
	Moraes et al. (2018)	Environmental training positively influences eco-efficiency; training may be suffering owing to barriers associated with empowerment and teamwork; the eco-efficiency programme of the studied company would get benefits if it provided more autonomy to employees; and the eco-efficiency programme of the studied bank could be more effective if connected with green teams
	Saeed et al. (2018)	Green HRM practices positively affected employee's pro-environmental behaviour, and pro-environmental psychological capital mediated this link. Employee's environmental knowledge moderated the effect of green HRM practices on pro-environmental behaviour
	Cheema and Javed (2017)	Green HRM as the key determinant of sustainable environment. The results also showed the partial mediation between Green HRM and CSR
	Ragas et al. (2017)	The implementation of Green HRM has an effect on an employee's lifestyle and also to their job performance
	Dumont et al. (2016)	Green HRM both directly and indirectly influenced in-role green behaviour, but only indirectly influenced extra-role green behaviour, through the mediation of psychological green climate. Individual green values moderated the effect of psychological green climate on extra-role green behaviour
	Guerci, Montanari, Scapolan and Epifanio (2016)	Support the impact of a green reputation on attracting applicants, but no impact of information on the recruitment website about company environmental policies and practices. Do not confirm the substitution effects between green recruitment practices, but indicate additive effects between green and non-green recruitment practices
	Shen et al. (2016)	Perceived green HRM influences these three non-green employee workplace outcomes (i.e. employee task performance, organizational citizenship behaviour towards the organization (OCBO) and intention to quit) through a motivational social and psychological process (i.e. organizational identification). Perceived organizational support (POS) moderates the effect of perceived green HRM on organizational identification and the indirect effect of perceived green HRM on the three employee workplace outcomes, via the mediation of organizational identification

Table I.

Green HRM was a multidimensional construct comprising seven dimensions, Tang *et al.* (2017) said that Green HRM includes five dimensions and offered insights of the implications on the individual or organizational performance.

Despite the fact that previous researchers have introduced different dimension classifications, however, five dimensions are the most widely discussed, namely, green recruitment, green selection, green training and development, green performance management, and green compensation and rewards. Besides, Jackson *et al.* (2011) presented a detailed discussion of several functional HRM practices and future research at the intersection of strategic HRM and environmental management. On the other hand, Green HRM has been conceptualized as influencing on the green behaviour of employees (Mukherjee and Chandra, 2018), organization effectiveness (Sriram and Suba, 2017), cost reduction (Chen and Wang, 2013) and environmental performance (Siyambalapitiya *et al.*, 2018).

3.2 Focus Area 2: implementation of Green HRM

Organizations are increasingly required to reduce their environmental impacts through the implementation of green initiatives in human resource practices. The implementation of Green HRM contributes to sustainable development (Mishra *et al.*, 2014) and environmental sustainability (Haddock-Millar *et al.*, 2016). Based on the analysis of the articles, most organizations have not fully aligned their HRM practices with environmental objectives (Dias-Angelo *et al.*, 2014) or the organizations have certain Green HRM practices, but these practices are neither formally organized under Green HRM initiatives nor diligently followed (Mishra, 2017). Interestingly, among all the Green HRM practices, green training or environmental training has been considered to be the most important or useful initiative. Green training is crucial in conducting environmental management in organizations (Gupta, 2018) to mitigate climate change (Neto *et al.*, 2014) and to assist in the implementation of cleaner production (Unnikrishnan and Hegde, 2007). On the other hand, Leidner *et al.* (2019) highlighted that Green HRM practices are not peripheral, intermediate or embedded but shaped by contextual situations. They also revealed that the sustainability advocates (i.e. the leader and managers) intentions do not seem to match Green HRM policy design. Hence, they recommended that practitioners need to consider contextual factors when selecting suitable Green HRM policies.

3.3 Focus Area 3: determinants of Green HRM adoption (organizational level)

Several studies have attempted to determine the influencing factors of Green HRM adoption. Based on the analysis, previous studies have only focused on the determinants on the organizational level. Several factors were identified as important in the implementation of Green HRM such as green intellectual capital (Yong *et al.*, 2019), top management support and environmental orientation (Obeidat *et al.*, 2018), green employee empowerment, HR Business Partner Role (Yusliza *et al.*, 2017), strategic HR competencies (Yong and Mohd-Yusoff, 2016), senior management's environmental-related attitudes, subjective norms from stakeholders and perceived green resource readiness (Sawang and Kivits, 2014). Moreover, Guerci, Longoni and Luzzini (2016) found that Green HRM practices acted as a mediator between stakeholder pressure and environmental performance. As discussed earlier, green training is the most important practice, Teixeira *et al.* (2012) verified that organizational culture and teamwork, top management support and more technical green management practices are the factors that seem to connect and convert environmental training into more proactive green management.

3.4 Focus Area 4: outcome of Green HRM adoption (organizational level)

Green HRM can become an important source of competitive advantage and sustainability. Companies with a high level of environmental HR practices can benefit from cost

advantages and differentiation (Carmona-Moreno *et al.*, 2012). With regard to the three pillars of sustainability, Green HRM has a positive impact on environmental performance (Guerci, Longoni and Luzzini, 2016; Longoni *et al.*, 2016; Masri and Jaaron, 2017; Obeidat *et al.*, 2018; Yusoff *et al.*, 2018; Zaid, Bon and Jaaron, 2018; Zaid, Jaaron and Bon, 2018), financial performance (Longoni *et al.*, 2016; Zaid, Jaaron and Bon, 2018) and social performance (Zaid, Jaaron and Bon, 2018). Not only that, several researchers have studied the influence of Green HRM on green supply chain management (Longoni *et al.*, 2016; Nejati *et al.*, 2017; Teixeira *et al.*, 2016). Specifically, green training is highlighted as helping firms to improve their green supply chain management to cooperate with customers and implement green purchasing (Teixeira *et al.*, 2016).

3.5 Focus Area 5: outcome of Green HRM adoption (individual level)
With regard to the individual level analysis, several outcomes of Green HRM related to employees were indicated in previous studies, among them the eco-friendly behaviour of employees (Dumont *et al.*, 2016; Kim *et al.*, 2019; Saeed *et al.*, 2018), organizational commitment (Kim *et al.*, 2019; Luu, 2018) and employee performance (Ragas *et al.*, 2017; Shen *et al.*, 2016) are those which researchers generally highlight. In addition, the adoption of Green HRM has an indirect influence on the job pursuit intention or turnover intention of the employees. For instance, Chaudhary (2018) found that Green HRM indirectly affected the job pursuit intention of prospective employees. Shen *et al.* (2016) indicated that an indirect influence of Green HRM existed on the intention to quit of employees through a motivational social and psychological process (i.e. organizational identification).

4. Summary of review and discussion
Over the past decades, research on Green HRM has received increased attention in many leading academic journals such as ScienceDirect, Emerald Insight, SpringerLink, Taylor & Francis, Wiley Online Library, SAGE Publications and Inderscience Publishers. In the following sections, the development of this body of knowledge is discussed by focus area of Green HRM literature, distribution of articles, year of publication, national context, the methodologies and the theories employed.

4.1 Focus area of Green HRM literature
Based on our analysis, the body of Green HRM literature is categorized into five focus areas. Most papers focus on "Outcome of Green HRM adoption-Organizational Level" (22 of 70 papers) and "Concepts/model/reviews of Green HRM" (20 of 70 papers). Interestingly, the focus area "Determinants of Green HRM adoption (Organizational Level)" (8 of 70 papers) received the lowest evaluation rate of the surveyed literature. Moreover, the focus area on "Outcome of Green HRM adoption" in both organizational and individual levels has shown a significant increase in recent years. The rising interest in these topics underlines the importance of incorporating an environmental perspective in HRM practices. Furthermore, this increase provides evidence for the growing strategic importance of Green HRM in attaining organizational and individual performance. This analysis suggests a movement towards more publications in the identified focus area.

4.2 Distribution of articles
The present study has reviewed 70 studies from various databases. Figure 2 shows that five journals accounted for about 40 per cent of the publications. The most frequent sources of publications were the *Journal of Cleaner Production* (10) followed by *The International Journal of Human Resource Management* (7), *Industrial and Commercial Training* (5), *Journal of Business Ethics* (3), *German Journal of Human Resource Management* (3) and others.
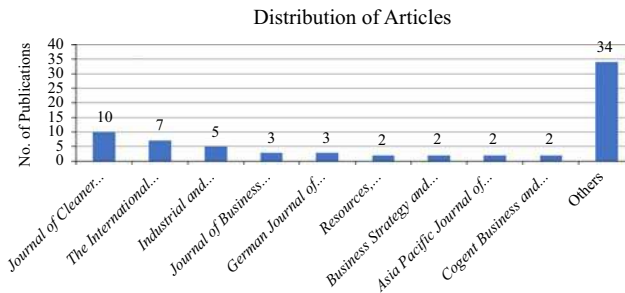
Figure 2.
Evaluation of
the 70 selected
journal articles from
2007 to 2019

Note: All the journals with less than two papers published on the
subject were classified as "other"

The fact that is apparent from Figure 2 is that Green HRM has been a subject of research
across a spectrum of journals.

4.3 Years of publication
This review of the literature began with publications for 2007, approximately the time at
which green/environmental perspective emerged in the context of HRM (e.g. Unnikrishnan
and Hegde, 2007). However, during the initial period of conception of Green HRM, the
number of publications was very few (between 2007 and 2015) as the concept of Green
HRM was new and the industry was fascinated with electronic HRM and the use of
technology in HRM.

In the recent years, due to growing environmental concerns, organizations are putting
more of an emphasis on environmental management, and the concept of Green HRM was
given its due importance. Based on Figure 3, research attention has increased from 2016 and
remains in a relatively positive trend. Many conceptual and empirical studies have been
done to fine tune the Green HRM philosophy, and there has been widespread
implementation of Green HRM in the industry. The continuous focus on this topic could
be the result of the persistent attention given to Green HRM, which has been considered a
popular academic area internationally since 2016.

4.4 National context
The present study categorized the reviewed literature into four national categories:
"Developed Country", "Developing Country", "Cross Country" and "Not Applicable" (refer to
Figure 4). The category of "Not Applicable" applied to articles that were not specific to a
particular country, and 18 articles were identified in this category. The analysis showed that
most articles were dedicated to the understanding of a specific national context, especially in
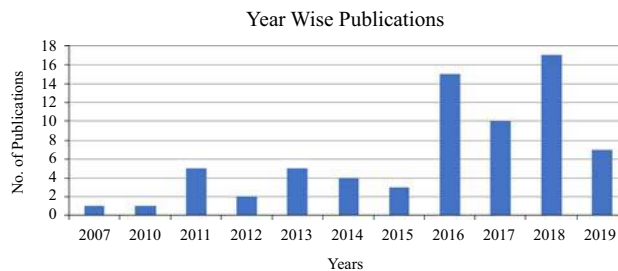
Figure 3.
Years of publication

developing countries. Brazil stands out as the most productive country by far, accounting for nine articles.

Surprisingly, only 12 studies were conducted in developed countries and two studies compared data between countries (e.g. Haddock-Millar *et al.*, 2016; Leidner *et al.*, 2019). These two studies gained insights into the implementation of Green HRM across Europe countries. For instance, Haddock-Millar *et al.* (2016) analyzed the similarities and differences in Green HRM approaches in three European subsidiaries (i.e. the UK, Germany and Sweden) of a US restaurant chain. Leidner *et al.* (2019) explored the design and implementation stage of Green HRM in European firms (i.e. the UK, the Netherlands, Germany, Belgium and France).

Interestingly, based on the analysis, although the researchers from developing countries studied the implementation, determinants and performance outcomes of Green HRM, most of the research was concerned with the performance outcome of Green HRM both at the organizational level (e.g. Al Kerdawy, 2018; Obeidat *et al.*, 2018; Pham *et al.*, 2019; Silva *et al.*, 2019) and at the individual level (e.g. Chaudhary, 2018; Kim *et al.*, 2019; Luu, 2018; Roscoe *et al.*, 2019).

Moreover, of the 12 Green HRM studies that were carried out in developed countries, only a few examined implementation (Guerci and Carollo, 2016), the determinants of Green HRM (Guerci, Longoni and Luzzini, 2016; Rangarajan and Rahm, 2011; Sawang and Kivits, 2014), and outcome of Green HRM (Guerci, Montanari, Scapolan and Epifanio, 2016). Most studies such as Bombiak and Marciniuk-Kluska (2018), Longoni *et al.* (2016), O'Donohue and Torugsa (2016) and Pinzone *et al.* (2016) focused on the performance outcomes of Green HRM at the organizational level.

Evidently, nations that are developed or developing have very competitive businesses environments. The findings presented here indicated that academicians and practitioners in these nations have contributed to research in Green HRM and have placed great emphasis on the performance outcomes of Green HRM.

4.5 Methodologies used

Green HRM research has been carried out through various types of methodology. This current study distinguished four research approaches of the surveyed journal articles, which are the conceptual, quantitative, qualitative and mixed methods. Conceptual studies deliberated the concepts, models and research gaps that have been identified from previous literature. A quantitative study is a study that empirically examines the factors affecting Green HRM adoption or the performance outcomes of Green HRM, both at the individual level and organizational level. A qualitative study provides an analysis of Green HRM through a case study, interview or observation. Studies combining both quantitative and qualitative are defined as a mixed method.
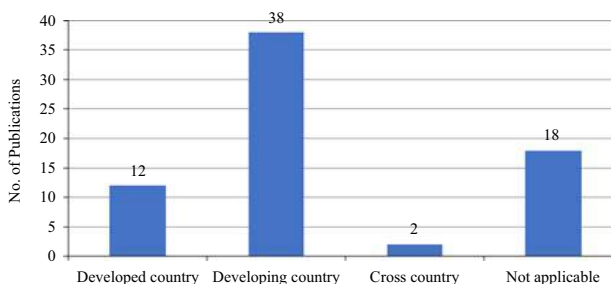
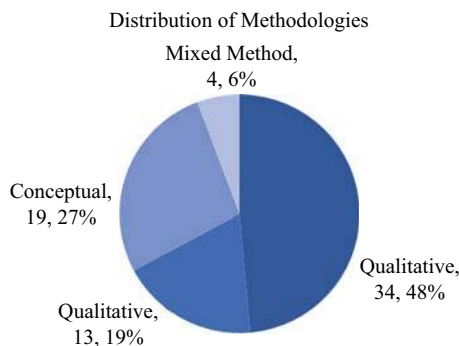Figure 4.
National context
distribution

Figure 5 shows the distribution of methodologies in Green HRM studies. The figure clearly shows that quantitative research was the primary methodology used to investigate Green HRM during the period of study (34 of 70 papers) and survey was the most popular quantitative method. Additionally, much attention has been given to the determinants and outcomes of Green HRM through quantitative analysis. Furthermore, a significant number of researchers published a conceptual paper (approximately 27 per cent).

This trend seems to indicate an emphasis on empirical research and similarly anticipate a higher proportion of qualitative/explorative research in future Green HRM academic journal publications. Based on the analysis in this current study, researchers in recent years emphasized real-time case studies in different industries to analyze the implementation of Green HRM and to seek to identify the best practices that can assist in achieving sustainable development (e.g. Aragão and Jabbour, 2017; Mishra, 2017; Nobari *et al.*, 2018; Silva *et al.*, 2019). Researchers have also used combined but the use of mixed method for Green HRM studies remains very limited.

4.6 Theory of papers

Regarding the underlying theories, 9 of the 34 quantitative papers did not apply or refer to any theory at all. In organizational level research, the resource-based view (RBV) was the most frequently applied theoretical basis. The RBV emphasizes the unique bundles of resources and capabilities that can assist in gaining sustainable competitive advantages (Barney, 1991). The argument is made that these resources must be valuable, rare, inimitable and non-substitutable to create a competitive advantage (Barney, 1991). The majority of papers that use the RBV have analyzed the outcomes of Green HRM such as competitive advantage (Carmona-Moreno *et al.*, 2012), financial performance (Longoni *et al.*, 2016; Zaid, Jaaron and Bon, 2018), environmental performance (Longoni *et al.*, 2016; Yusoff *et al.* 2018; Zaid, Jaaron and Bon, 2018) and social performance (Zaid, Jaaron and Bon, 2018) by using questionnaires.

The social identity theory is another frequently used theory in Green HRM research. This theory posits that the self-concept of an individual is tied to his/her group membership. Individuals tend to associate themselves with high-status groups to enhance their self-esteem and to achieve and maintain a positive social identity (Tajfel and Turner, 1986). Social identity theory serves as a theoretical foundation for the psychological process of employees with respect to a firm's green efforts. The Green HRM papers in this current sample that use social identity theory examine the outcomes of Green HRM from the perspectives of an individual like the organizational commitment of employees, their eco-friendly behaviour (Kim *et al.*, 2019), employee task performance, organizational citizenship behaviour towards the organization and the intention to quit (Shen *et al.*, 2016).

Figure 5.
Research methods applied in Green HRM studies

Other than these two major theories, a scattering of other theories have been applied in organizational level research such as the stakeholder theory (Guerci, Longoni and Luzzini, 2016; Wagner, 2013), the theory of planned behaviour (TPB) (Sawang and Kivits, 2014), the absorptive capacity theory (O'Donohue and Torugsa, 2016), the social exchange theory (Al Kerdawy, 2018), the ability–motivation–opportunity (AMO) theory (Pinzone *et al.*, 2016) and the intellectual capital-based view theory (Yong *et al.*, 2019). For individual level research, the AMO theory (Cheema and Javed, 2017; Moraes *et al.*, 2018; Ragas *et al.*, 2017), the signalling theory (Chaudhary, 2018; Guerci, Montanari, Scapolan and Epifanio, 2016), the supplies-values fit theory (Dumont *et al.*, 2016), the stakeholder theory (Shen *et al.*, 2016), the attribution theory (Luu, 2018) or the spillover theory (Ragas *et al.*, 2017) have been used as the theoretical foundation of the research.

5. Conclusions, unique contributions, recommendations and further research directions

The evidence from this review of reliable literature from 2007 to 2019 shows the importance of Green HRM in ensuring environmental sustainability and competitiveness in the current business world through organizational and individual involvement. This literature review contributes to the literature in the following ways. First, this review maintains an objective approach in collecting the data. Data collected were from reputable journals, which ensure a benchmark in the quality of data reviewed. Second, the categories in the classification of the literature differ from those of prior studies, offering readers a new way of looking at the literature to view and study. Third, the study presents an integrated definition of Green HRM practices.

The research articles published between 2007 and 2019 were systematically analyzed, following explicit criteria and systemic procedures. The relevant information on Green HRM literature was highlighted, underscoring its conceptualization, implementation, determinants and outcomes in both organizational and individual contexts.

For this study, two research questions are addressed. With regard to *RQ1*, the results in Figure 3 suggest that Green HRM has been subject to increasing interest since 2007, and a massive spike in Green HRM publications began in 2016 and continued until the present. This spike could have been a result of the evolution of organizations who are seeing environmental sustainability as a competitive advantage and also due to the focus of governments and non-governmental organizations on ecological matters among organizations. Furthermore, human participation at work in sustaining the environment was emphasized at the UN Sustainable Development Summit in New York in 2015, which was dubbed "post-2015 development agenda". Hence, the reason for the spike in the interest in Green HRM articles to date. Figure 2 shows that although research in Green HRM is getting popular, the topic remains relatively new.

With regard to *RQ2*, Table I shows that the literature of Green HRM reviewed mainly focused on concepts/model/reviews, which looked into the concepts/dimensions of Green HRM that authors have penned. Further, the implementation, determinants and outcomes of Green HRM within the organization setting were discussed. In the individual context, only the consequence of Green HRM adoption was mentioned. Furthermore, the categorization of Green HRM according to the national context distribution in Figure 4 shows that developing countries are leading in terms of the number of published articles on Green HRM. Figure 5 shows that the mixed method was the least utilized as only four articles of the 70 reviewed articles did so.

These answers to the questions posed for this current aim to bridge the gap between theory and practice by identifying the outcomes of research, which would assist in shaping the policies and strategies of organizations in which area to focus on to ensure a successful implementation of Green HRM practices in the organization. This is aligned with the aim of

sustainable development goals promulgated in the UN Sustainable Development Summit and the Paris climate agreement in 2015.

The findings arising from this study are a relevant contribution for researchers and practitioners interested in a more comprehensive approach to Green HRM, particularly in cases in which the conceptualization is unclear. For researchers, the first contribution is based on the issue of different conceptualizations and dimensions of Green HRM practices; this study has shown that various conceptualization created by several different authors exists. This paper contributed to the discussion of the research on Green HRM, their operational practices, and conceptualization. Notably, most studies provided different conceptual definitions and dimensions of Green HRM practices. These could pose an obstacle to the proper implementation and acceptance of Green HRM practices. Hence, these results are relevant to researchers highlighting different paths and opportunities for the advancement of research on the conceptualization of Green HRM practices.

The second contribution is in terms of the categorization of the countries in which Green HRM has been studied. Researchers should focus on developed countries, which are currently the least researched with respect to Green HRM while still expanding the research on developing countries. This is because, while research on Green HRM in developed countries is essential, a focus on developing countries is paramount. Developing countries, which comprise mostly emerging economies, tend to engage more manufacturing than developed countries and to engage in human activities in their organizations that inherently cause more damage to the eco-system.

The practice of Green HRM is important in these emerging countries because of the tendency of Green HRM to create a competitive advantage. Large-scale manufacturing activities in these countries are accompanied by an increased usage of resources like water and electricity and increased CO_2 emission dues to industrial activities. With the implementation of Green HRM, resources will be conserved and the development of the economies or human activities at work will not affect the natural eco-system or the environment as negatively. In emerging economies, such as Malaysia, effective Green HRM practices will serve vital roles in improving environmental footprints even as the size of organizations increases due to the increased workforce and labour demand in the country.

Another contribution is the use of RBV and social identity theories in the studies of Green HRM in organizational and individual contexts, respectively. The focus on the RBV theory underscores that the resources, which are unique to the organizations, are strategic to achieving a competitive advantage, while the social identity theory emphasizes the need for a person to identify with an outstanding group in society or an organization that affects their behaviour.

The findings of the study offer some practical insights into the practitioners. Organizations can better understand that Green HRM is a pivotal function in enabling green practices in other functional roles in the organization like green supply chain management. Further, to achieve a sustainable competitive advantage, an organization needs to instil Green HRM practices, leading to better environmental, financial, operational and social performance. Managers need to pay attention to the proper implementation of Green HRM practices, which are aligned with the strategic goals of an organization when resources of that organization such as electricity, water, papers and other operational materials are sustainably used. This will reduce the costs of operation, perhaps lead to incentives or tax reductions from the government and boost the reputation of an organization. All these can be achieved while at the same time, saving the environment.

Furthermore, the findings of this study show that the top management should apply the Green HRM practices based on the contextual situation, meaning that the implementation and adoption of Green HRM practices should flexible based on contextual factors like the size of the organization and functional and operational roles. Such an approach will enable

unexpected issues to be tackled as they arise at any level or function of the organization. Managers can also learn from the findings of this study to recruit employees whose values are aligned with organizational goals related to environmental sustainability, while focusing on the training needs and continuous assessments of employees focusing on ensuring their capability to work pro-environmentally and, finally, compensating them based on their environmental performance. These practices will create an organizational climate that focuses on caring about the environment, hence motivating employees to become more environmentally friendly and ensuring a smooth implementation of Green HRM practices.

Finally, the results are relevant to government and society because by implementing proper Green HRM practices in an organization, that organization will become more aware of their effects on society and see the need for the society to enjoy better air quality and a less toxic environment. An organization can collaborate with the government and NGOs in finding ways to ensure that their society is free of any negative environmental effects due to the activities of the organization. These initiatives will ensure a better quality of life for society. Additionally, an emphasis on "green" behaviour at the workplace may spillover to the home as well, when organizational pro-environmental values are transferred to employees and employees "own" these values and demonstrate them through their contributions and involvement in the process of environmental sustainability. This is an essential phase because home-based activities make significant contributions to environmental pollution.

This study offers a pathway for future research. Because a dearth of research exists on the determinants of Green HRM adoption in the individual context, future research should focus on this area to determine the role of employees in ensuring the adoption of Green HRM in an organization. Additionally, a need exists for more studies to find ways for implementing effective, flexible and efficient Green HRM practice. Such predicates could include Big Data management, managerial support and stakeholder pressure. Information is power in this era. Big Data management has become multi-disciplinary and has been used to analyze and coordinate efficient decision making in various fields such as engineering, computing and other field of studies. For instance, Li *et al.* (2015) studied the impact of Big Data on product lifecycle management, and Dubey *et al.* (2015) studied the effect of Big Data analytics on sustainable manufacturing. Seles *et al.* (2018) aimed to understand the implications that Big Data management would have in managing corporate responses to the opportunities and challenges that climate change presents that entails the consideration of environmental management in the manufacturing process. Scholars in the field of Big Data have called for more studies to explore the possible functions of Big Data in the various field of study (Agarwal and Dhar, 2014; Dutta and Bose, 2015). A critical need exists to determine the role of Big Data management in providing informed, relevant and timely data that could assist in implementing an effective Green HRM practice. Such studies could help to determine the reasons why organizations do not align HRM practices with environmental objectives.

Further, determining the consequences of Green HRM in an organization is vital, so that these initiatives will be made attractive to employers and employees alike. Because Green HRM is still relatively new, further studies are needed in organizational and individual contexts such as organizational sustainable competitiveness, work-life balance and employee green behaviour at work. Sustainable competitiveness is paramount in the dynamic market of today. Hence, studies should be carried out on the role of Green HRM in making it happen. Additionally, employees help to determine the success or failure of organizational environmental management initiatives. Because of this, a need exists to determine more ways in which Green HRM practices affect the green behaviour of employees and their work lifestyles, thus helping policy makers and top management to design Green HRM practices that encourage green behaviour at the workplace.

In terms of theories that are being used in studying Green HRM, the findings show that the applications remain limited. RBV theory was found to be the most used for organizational

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settings and social identity theory for individual settings. Hence, future studies could focus on individual contexts utilizing the TPB. This future study could look at how Green HRM practices affect intention and, then, the actual green behaviour of employees at work. This will enable policy makers to understand the mechanisms by which intention and employee green behaviours are formulated. Furthermore, theories such as the AMO theory, the natural RBV, the social exchange theory and the goal-setting theory would provide rich contributions the Green HRM field of study because they could provide a better understanding on how Green HRM practices affect the behaviour and performance of individuals.

Future studies could be based on geographical regions, which would provide a better understanding of the disparity of the research based on countries or regions. This is an important research direction, because even though developing countries have relatively the same conditions in their economies, dissimilarities exist that are based on cultural differences. Indeed, cultural context is a key consideration when studying people and organizations.

Future studies can also look at the use of the different methodologies for studies, especially mixed methodologies. This is essential to compare and contrast the outcomes of various methods. Furthermore, a mixed method provides strengths that compensate for the shortcomings of using one method of research. A mixed method provides additional information on an issue, hence providing a richer data set. Further, it helps to increase the reliability and credibility of findings through the triangulation of the diverse evidence. Although this approach may be more difficult, entail more investigation and analysis, and take more time and resources, it provides a rich research outcome that will contribute greatly to the body of knowledge. The relevance of Green HRM practices in the organization cannot be overlooked. Hence, policy makers and top management must approach it holistically and committedly to make it work efficiently for the betterment of the human race and nature.

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