




# Effect of green human resource management practices on organizational sustainability: the mediating role of environmental and employee performance

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## Abstract

The main purpose of research was to investigate the underlying strategies for enhancing “organizational sustainability” (OS). The study categorizes the existing literature, based on strategic choice theory and the attribution model, which reveals that green human resource management (GHRM) practices play a crucial role in environmental management and organizational sustainability. This study investigates the impact of GHRM practices including training and development, performance appraisal, and reward and compensation on organizational sustainability through the mediating role of environmental performance and employee performance. A survey questionnaire methodology was used for data collection; data were collected from 165 managerial personnel in the textile industrial sector of Pakistan. The findings of the study showed significant effects of GHRM practices, i.e. (training and development, performance appraisal, and reward and compensation), on Organizational Sustainability. Similarly, this study empirically investigates the distinct mediating role of environmental performance and employee’s performance between GHRM practices and organizational sustainability. The study findings support the hypothesized model of mediation. The GHRM is an innovative idea in developing countries, and additional studies are needed to identify sustainability issues and evaluate the impacts of GHRM practices in the textile and manufacturing industries in Pakistan.

**Keywords** Green performance management and appraisal · Green training and development · Green reward and compensation · Environmental performance · Employee performance · Organizational sustainability

## Introduction

Over the last few years, global concerns about the sustainability of organizations have been increased due to environmental issues (Sharma and Gupta 2015), especially after the industrial

revolution which results in environmental destruction (Charbel Jose Chiappetta Jabbour and Santos 2008). Currently, in the business world, eco-friendly product image has become an essential factor which integrates processes, technological adoption, and systems (Muster & Schrader,

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2011), the green firms have been found to be more sustainable in their practices as compared to other traditional competitors. The literature suggests that the textile industry faces diverse kinds of environment-related problems in developing countries; for this reason, organizations need to assess, monitor, and improve management-related activities (Rehman et al. 2016). In today's business world, eco-friendly products and corporate social responsibility have become an essential component integrated within the processes, technology adoption, and systems implemented in the business. Muster and Schrader (2011) found that businesses who implemented sustainable practices demonstrated a competitive advantage in cost savings and profits. Additional benefits can be achieved in protecting the environment from pollution by adopting green supply chain practices for a healthier life. The adoption of green practices in business operations provides benefits for society at large, and it shows the socially responsible side of businesses. In light of the growing environmental issues, the promotion and use of green management practices in the textile industry is essential. Studies in the literature have shown that the textile industry in developing countries faces diverse environment-related problems, and organizations must be involved in assessing, monitoring, and correcting management-related practices (Rehman et al. 2016).

Nowadays, the concept of environmental management (EM) is also involved in different domains of business, including operational management, marketing, and others. In developed countries, business organizations also took initiatives to launch a revolutionary campaigns with the slogan "green HRM (GHRM)." Moreover, GHRM practices help to increase the performance and commitment of employees to improve environmental efficiency. The GHRM approach is involved in modifying HRM culture, structure, strategies, and organizational policies toward protecting the environment. The Green HRM Approach is involved in modifying HRM culture, structure, strategies, and organizational policies for protecting the environment. So GHRM plays an essential contributing role in the sustainable development of organizations (Mandip 2011). GHRM is intended to support organizations in for the improvement environmental performance (EP) (Renwick et al. 2013). GHRM is being adopted rapidly by different organizations in order to develop an environmentally friendly organizational culture, and this will help minimize the environmental impacts in this advanced era of industrial development. It is not the responsibility of the employees of any one specific organizational department to adopt green behavior, but all departments are equally responsible for maintaining the ecological environment of the organization.

Internationally, few studies are available which have linked GHRM with organizational performance. Currently, the Pakistani industry is facing critical environmental challenges, and as a result, the Pakistani textile export sector is facing problems. Few works are available regarding the impact of

GHRM practices on the environmental performance of the Pakistani textile sector, and further studies are needed to fill this gap. In response to growing pollution, most developed economies have succeeded in endorsing environmental regulations. However, developing countries such as Pakistan face challenges in implementing environmental regulations due to factors such as limited capacity, lack of resources, and lack of consent by officials. In the twenty-first century, the key issue faced by human society is the sustainability of the environment worldwide. All nations must work to preserve the quality of natural resources, ecosystems, and diverse animal and plant species over both the long and short term, which also includes the environment for humans where they live. In the field of behavioral and social sciences, degradation of the environment, well-being of humans, and the environmental behavior have been studied over the last few decades (Dunlap et al., 2002; Becherer & Halstead, 2004; Redclift & Woodgate, 1997). However, scholars argue that only limited studies consider the role of GHRM) systems in business organizations, striving to attain environmental sustainability. Thus there is a need to integrate GHRM practices with the management of the environment. GHRM practices are basically the use of HRM policies to support the sustainable use of organizational resources for business purposes, and more importantly, to support environmental sustainability causes. GHRM initiatives "became part of wider programs of corporate social" responsibility.

Generally, international buyers get satisfaction when the client receives environmental approval from relevant international bodies for improving their environmental performance. This is crucial motivation for recommending and adopting environmentally safe production systems. The economy of Pakistan is dependent on the textile sector. the textile industry is the second largest contributor to the export income of Pakistan. Therefore, the textile and clothing industry has significant economic value for the country. However, international buyers of textile products are increasingly environmentally conscious, having more awareness about environmental issues. They expect their suppliers to be environmentally responsible. Thus, the environmental needs of international buyers have an impact on textile manufacturing firms. Furthermore, environmental problems associated with the textile industry have been recognized as a vital factor in its declining exports. These are all important reasons for conducting research on green environmental HRM practices in the textile sector of Pakistan, which is an effective way to inform and train employees regarding an environmentally safe Pakistan. Charbel Jose Chiappetta Jabbour et al. (2019) extended the state-of-the-art circular economy (CE) business model literature by including the side of humans for such kinds of problems. This target can be met by providing an actual framework of GHRM for corporations by developing a CE. The theoretical dimension of the theory of stakeholders and the "resource-based view" (RBV) are the foundations for

the research framework of this study, representing a “middle-range theory.”

The study was conducted to fulfill the following objectives:

- To evaluate the impacts of GHRM practices on organizational sustainability
- To examine the mediating role of environmental performance between GHRM practices and organizational sustainability
- To explore the mediating effects of employee performance between GHRM practices and organizational sustainability

## Literature review

Essentially, activities of human carelessness at work can contribute to ecological degradation (Ones and Dilchert 2012). The GHRM practices can be utilized to encourage workers' responsible behavior to save the environment (Cherian and Jacob 2012). It has been suggested that that GHRM practices are required to initiate greening organization (Jabbour and Kantarjian 2016; Shahriari et al. 2019). Singh et al. (2020) examined how GHRM plays a central role in developing the relationship between “green transformational leadership, green innovation,” and sustainability of the environment. They found that GHRM practices significantly influence green innovation. They also suggest that GHRM practices significantly impact the environmental sustainability. Sharma and Gupta (2015) define GHRM as using the practices of HRM to boost up the sustainability of organizational resources, that eventually help to reinforce the to environmental sustainability, and increasing employee awareness related to Environmental Performance. O'Donohue and Torugsa (2016) found that higher levels of GHRM practices are strongly associated with improved financial benefits of green practices and the overall financial performance of the organization. The GHRM structure is part of the overall program of corporate social responsibility (Sathyapriya et al. 2013). Currently, managers are required to increase awareness among individuals working for the organization (Bhatti et al. 2012). Jabbar and Abid (2014) clarify that representatives are motivated to assume an active role in eco-friendly practices when they are given monetary and non-monetary incentives.

## Organizational sustainability

The issues of sustainability have been highlighted by the business firms in the 21st century. The Corporate and green human resources departments have the potential to play a significant role in the development of a company culture of sustainability organizational Culture (Das and Kumar

Singh 2016). Administrative practices are important to follow the principles of sustainability. The HR professionals always evaluate all HR decisions from a shareholder perspective (Gholami et al. 2016). By keeping in mind the economic, social and environmental impact, organizations now need to seek broad input from their stakeholders both internally and externally (Mariappanadar 2019). Likhitkar and Verma (2017) discuss that there many forms of green activities, such as electronic filing, ride sharing, workplace flexibility, virtual selection and telephonic conferences, recycling, and constructing more energy-efficient places, that organizations can undertake for the sustainability of the organization. These types of green initiatives result in greater efficiency, minimized cost, a more satisfied workforce, and more involved employees, leading to the sustainability of the organization.

In developing countries, researchers have considered organizational as well as environmental sustainability (Bag 2019). The Business organizations should devote more effort to bring more innovation and technology to minimize environmental degradation by creating employee awareness and making products that are nontoxic to environment (Singh et al. 2020). Aggarwal and Sharma (2015) discuss the importance of “Green and Green HRM” and consider the importance, benefits, and limitations of its use for organizational sustainability. The term sustainability can be defined as “the development to meet the current needs of the people effectively without compromising the future needs of the next generations.” The commitment to organizational sustainability is very important to develop awareness among employees about environmental issues and motivate employees to face the predictable challenges in a smooth way (Das & Kumar Singh, 2016) Renwick et al. (2008) and Haddock et al. (2010) found that when organizations implement HRM strategies, that the objective of GHRM is recruitment and selection, training and development, and performance management and reward for environment sustainability. A study by Renwick et al. (2013) described the implementation of GHRM practices as a performance-based appraisal system aimed at increasing employees' awareness regarding environmental sustainability. The term “sustainability” can be defined as “development that meets the needs of the present without compromising the ability of future generations to meet their needs.” The commitment to organizational sustainability helps to develop employee respect for environmental issues and the motivation to tackle predictable challenges with ease (Das and Kumar Singh 2016) Rangarajan and Rahm (2011) found that when organizations implement green HR strategies, they clearly show current and potential employees that they have a strong corporate social agenda and value the environment and social priorities. This gives the company external prestige for prospective employees, with the firm likely to become more “appealing” to workers. As such, the social identity theory implies that

employees' perceptions of GHRM would result in employee organizational identification. Tompkins (2005) shows that organizational identification is an emotional attachment to the organization and openly demonstrates the organization's sense of pride, and is linked to the organizational commitment of employees. Employees are motivated to show positive work attitudes and behaviors to improve their own self-esteem and organizational identity. Scientific work has also shown that organizational identification is positively related to employees' performance and negatively related to employees' intention to quit (Shen et al. 2018).

## Sustainability

For many organizations, sustainability has become a key concern due to changes in the environment, regulations, and pressure from society toward social and environmental responsibility. Executives have put more emphasis on sustainability, and for many corporations, sustainability became an important part of organizational strategic goals (Chouinard et al., 2011). The sustainability of society involves the business in the context of humans, which focuses on the fair distribution of opportunities among humans and related problems of education, health, income inequality, and level of poverty (Aggerholm et al. 2011). The ultimate meaning of sustainability is that the success of any business is measured not just in terms of finance, such as profits and return on investments, but also in terms of social and environmental dimensions (Gardberg & Fombrun, 2006). The practices used by organizations, particularly those which are people-oriented, with increasing focus on green management, are important for sustainability. According to scholars, business organizations in the current scenario require a standardized plan for development that is equally favorable for all social, environmental, and economic growth (Jabbour and Kantarjian 2016; Jabbour Santos 2008). Generating solutions for challenges related to environmental and societal sustainability can be taken as a point of reference (Kuckertz & Wagner, 2010), and "the agenda of business can be moved upward by the sustainability." The human resource management department plays a key role in developing the business competency, strategies for collaboration, and capabilities which are required for the journey of an organization toward sustainability (Wirtenberg et al. 2007). GHRM has the greatest potential for integrating sustainability with the scope of the organization in pursuing success, "environmental integrity, and social equity" (de Souza Freitas et al. 2012). Sustainability principles can be embodied in HRM systems that generate and sustain the long-term economic, physical, and social well-being of an organization's workforce (Taylor et al., 2010; Charbel Jose Chiappetta Jabbour & Santos, 2008). Yusoff et al. (2015) argue that GHRM basically supports a definitive understanding of the "triple bottom line" concept, which indicates that GHRM includes human

resources which are aligned with the three main pillars of sustainability: environmental, social, and economic balance.

## Green human resource management

GHRM is the utilization of HRM strategies to promote the sustainable utilization of assets within an organization in order to achieve the goal of environmental sustainability. The term GHRM is most commonly used to describe the concerns of individuals and executives in developing approaches and practices toward greater corporate ecological planning (Shafaei et al. 2020). Green rewards can encompass the utilization of work environment and way of life benefits, extending from carbon credits to free bikes, to keep individuals in the green program, as proceeding to recognize their organization (Suharti and Sugiarto 2020). Though numerous employees frequently feel that it is not their responsibility to help the earth while they are busy working, the new workforces of millennials naturally tend to acknowledge this as they incline toward their bosses (Nagarajan 2020).

Rangarajan and Rahm (2011) found that when organizations implement GHRM strategies, they clearly show that they have a strong corporate social agenda and value the environment and the social priorities of current and prospective employees, both leading to external prestige, with the firm likely to become more "appealing" to workers. As such, the social identity theory implies that employees' perceptions of GHRM will result in employee organizational identification. Tompkins (2005) showed that organizational identification is an emotional attachment to the organization and openly demonstrates the organization's sense of pride, and is linked to employees' organizational commitment. Employees are motivated to show positive work attitudes and behaviors to improve their own self-esteem and organizational identity. Scientific studies have also shown that organizational identification is related positively to employee performance and negatively to employees' intentions to quit (Shen et al. 2018).

There is a great deal for individual employees to look for noteworthiness and self completion in their occupation. Other basic green occasions grasp limiting the measure of written words utilized in execution the executives, compensation assessments, etc. In spite of the fact that there is totally a significant measure of "greenwashing occurring in diminishing waste, there are numerous open doors here as well. However, HR is failing to go away to have an extremely significant effect on a business through the improvement of HR forms independent so the better open door is than incorporate to the green program of the business in general (Mehta and Mehta 2017).



### Green training and development

There are many organization which provide the effective training programs for the employees how to involve in green practices to eliminate or minimize the emission of environmental pollution gases, and improve the managerial and technical skills for the preservation and conservation of natural resource and help in increasing the environmental sustainability (Cook and Seith 1992). Few organizations realize the significance of green training, and development programs for organizational as well as environmental sustainability (Pradhan 2020). Now a Days the most challenging problem for business world is to sustain the economic growth with the sustainable growth of organizations (Pinzone et al. 2019). Apart from this, green training sessions also provides green education about environmental concerns to bring about changes in attitude and behavior of managerial and non managerial staff (Jeruto et al. 2017). Another challenge in today's world is to integrate financial development and improvement with sustainable development (Pinzone et al. 2019). Additionally, providing environmental education that will bring about a change in attitude among organizational management and non-administrative employees is needed within the organization (Jeruto et al. 2017). Expressing in an unexpected way, GHRM involves clear practices and strategies in regard to human resources in financial, social, and ecological mainstays of sustainability (Renwick et al. 2013). On the basis of literature following hypothesis were developed; H4: There is a significant relationship between Green Training Development And Organization Sustainability.

### Green performance management and appraisal

Green performance management and appraisal systems create awareness in employees to increase the green performance of an organization (Jackson et al. 2011). The performance appraisal (PA) includes the aspect of environmental responsibility and all the that events which ultimately responsible for the reduction of carbon emissions and address environmental concerns and policies. Organizations must adopt corporate-wide metrics to assess resource acquisition to sustain better employee performance (Tulsi and Yunho 2020). Management should reward employees on the basis of green performance Appraisal, so that the engagement and encouragement of employees would be improved toward the Green Practices (Charbel José Chiappetta Jabbour and de Sousa Jabbour 2016). The Managers should motivate the employees to share their viewpoint regarding their workplace and professional duties for the Application of Green HR Practices. the administrative staff should set goals of the upcoming year for implementation of these green ideas and performance appraisal of employees. Sharma and Gupta (2015) reported

that green performance appraisals usually measure performance in terms of quality of Green productivity.

Managers can deliver short remarks to the workers or unions about their performance in attaining environmental goals to enhance their EP (Arulrajah et al. 2015). This input will help employees in improving their perception, abilities and capability. This was noted by Govindarajulu and Daily (2004), who clarified that sharing appraisal outcomes with employees on their progress in attaining their goals is essential for employee motivation, and will help them develop their commitment to EM responsibilities. According to Harvey et al. (2013), groups can also implement an online system that allows employees to share their opinions and permits representatives to follow their personal EP and provide online information systems and reviews, giving employees a chance to participate and propose new methods for creating an eco-friendly environment. To accomplish this, Ahmad and Allen (2015) proposed that HR unions must upgrade the display examination rating framework to provide the option to rate employees on their behavior and specialized skills related to environmental sustainability. On the basis of literature review following hypothesis were developed. H7: There is a significant relationship between the Green Reward Compensation and Organizational Sustainability.

### Green reward and compensation

An organization can improve its overall performance by offering rewards to its employees (Jabbour and Kantarjian, 2016). The achievement of sustainable initiatives could be incorporated into the compensation system by providing rewards to employees for changing their behavior. In this way, the employees can be motivated to engage in eco-friendly behavior rather than inculcating negative behavior (Zoogah, 2011). With respect to the environment, awards can be applied where environmental accomplishments are achieved by employees; for example, 3M provides prizes for proposals that individual groups of workers make to support the environment and increase firm profitability (Masri & Jaaron, 2017). Furthermore, the popularity of rewards brings fulfillment to an extraordinary degree for the organization (Arulrajah et al., 2015). For this reason, it is clear that a few companies have launched the reward structures to develop appropriate employees behaviors. The rewards are categorized primarily into monetary rewards (e.g., bonuses, cash, rates) and non-monetary rewards such as giving vacations, leaves, and gifts to their employees, credit score (Renwick et al., 2013). All the rewards have a significant impact on the performance of the personnel who play a contributory role in improving environmental sustainability (Renwick et al., 2013). For this purpose, the organizations should implement green management practices by investing all possible efforts and resources to applying green practices with development/vocation profits, or

motivating eco-friendly practices, for instance, waste reuse and waste control (Jabbar & Abid, 2014). Also, it tends to be utilized to support some green innovativeness and advancement by motivating the employees to share creative green thoughts relating to their individual employment (Ahmad & Allen, 2015). On the basis of the literature review, the following hypotheses were developed. H7: There is a significant relationship between Green Reward Compensation and Organizational Sustainability.

### Environmental performance

Environmental performance defined as "the measurement of the capacity of an organization to meet environmental goals and objectives has been set out according to the organizations' environmental plan or policy." At present, different companies are executing environmentally friendly projects to gain a competitive advantage (Fraj et al. 2015). It is imagined that the significance of ecological execution is a decent chance to upgrade the organizational sustainability in a win-win situation. Over the last few years, organizations around the globe have been concentrating on different green activities and their effects on the earth (Cherian & Jacob, 2012). There is a need for green practices because the reception of green practices in organizations can result in better execution (Jackson et al., 2014). A few scholars demonstrated the cross-preparation between GHRM and green production for the achievement of environmental performance (EP) (Amui et al., 2017). They also determined that the best method for achieving environmental performance is GHRM, which motivates employees to perform their duties under the umbrella of green practices. On the basis of the literature, the following hypotheses were proposed. H2: Environmental performance mediates the significant relationship between green performance management appraisal and organizational sustainability. H5: Environmental performance mediates the significant relationship between green training and development and organizational sustainability. H8: Environmental performance mediates the significant relationship between the green reward and compensation and organizational sustainability.

### Employee performance

Measuring the environmental performance of employees in an organization is a very difficult task. Measuring workers' green job performance is one of the key features of HRM. Assessment of the inexperienced workers' performance has to be executed one-on-one as part of the overall performance assessment system of the company (Shen et al. 2018). In addition, attention to successful businesses can result in association among the fulfillment of an enterprise within the marketplace and resources of that organization. One of the theory that seeks to answer the question is resource-based view (RBV). It explains how a few groups are able to earn sufficient earnings when companies use their assets effectively (Lockett et al. 2009). In other words, RBV is basically concerned with how firms generate and preserve a competitive advantage (Ambrosini et al. 2009). The information-based total view of the company stated that expertise is the most vital resource of the company. This understanding is embedded and carried over into the organizational subculture and identity, policies, workouts, files, systems, and employee performance; this concept originates from RBV (Singh et al. 2019). Studies show that learning opportunities are highly motivated in pursuit of psychological learning (Benders 2017). Effective EM can help in integrating environmental goals and strategies into overall strategic development goals. A number of studies support the concept of HRM in promoting performance and competitive benefits (Charbel Jose Chiappetta Jabbour et al. 2012), and support HRM methods to achieve these results. Recruitment, performance and training to employees of a company's green strategy (Renwick et al. 2015), the policies of employee relations and reward systems are considered in the field of policies. However, others believe that organizations investigate the development of modern and HR practices new EM that have significant impacts on sustainability and competitive advantage (Pallavi and Bhanu 2016). The first study found that at the time when jobs have fully acquired a particular amount in their given task, they try to adapt according to the role of the work in various ways of this behavior (Mark and William 2008). H3: *Employee Performance mediates the significant*

**Table 1** Textile industry Faisalabad response rate

Sr. no.	Textile company	Sample	Responses	Responses %
1	Interloop Ltd. Faisalabad	10	10	100%
2	Bismillah Textiles Faisalabad	20	18	92%
3	MTM Faisalabad	15	13	90%
4	Kamal Textile Mills	25	20	80%
5	Gohar Textile Mills	15	10	80%
6	Other textile companies	90	80	88%
	Total	165	151	91.51%

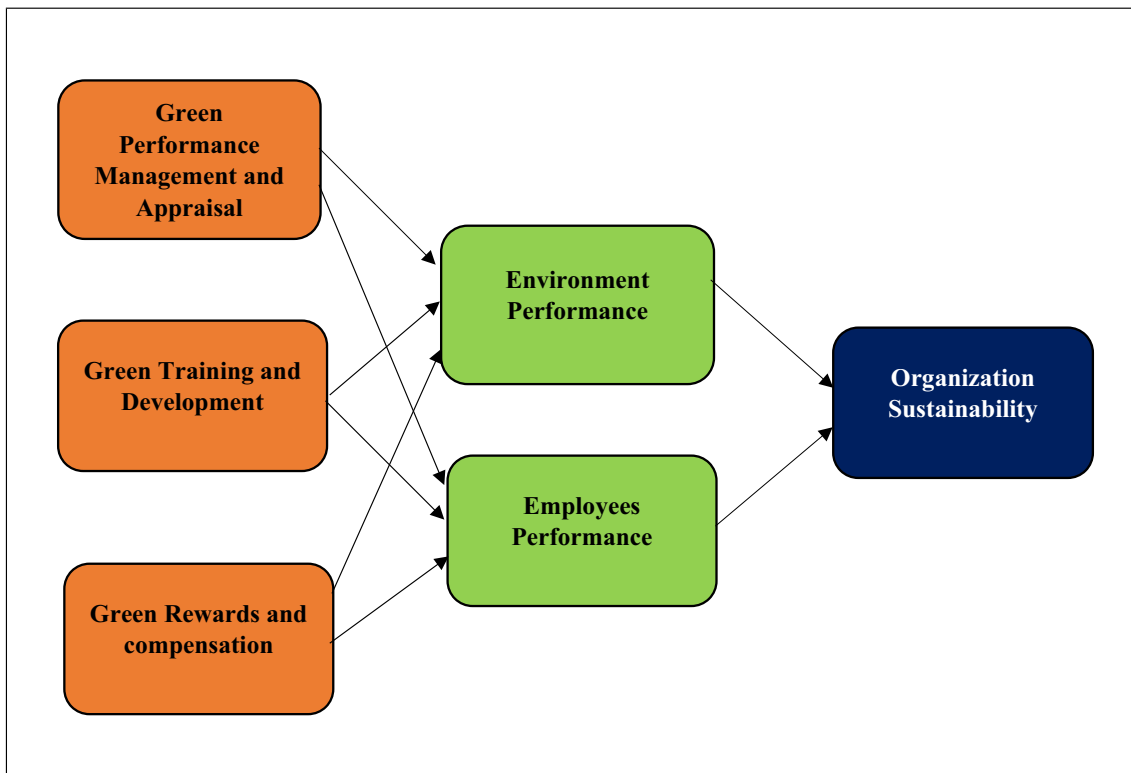


Fig. 1 Schematic diagram and theoretical model

relationship between Green performance management, appraisal, and organization sustainability. H6: Employee Performance mediates the significant relationship between Green training and development and Organizational sustainability. H9: Employee Performance mediates the significant relationship between Green Reward, Compensation, and Organization sustainability

**Theoretical framework**

In order to address environmental concerns within the textile sector, organizations must engage both industry experts and researchers to focus on creating a framework to ensure sustainable practices. Although such frameworks are currently being developed in many countries, many organizations face challenges due to a lack of GHRM experience and practical knowledge, the risk of failure, and a lack of clear objectives and proper planning. Top management reviewed their well-known approach and an active approach to implementing a systematic GHRM. However, there are barriers and challenges to achieving organizational stability. This research integrates “green human resource management” (GHRM) and “organizational sustainability” (OS). The study categorizes the existing literature based on strategic choice theory and attribution modeling to reveal that GHRM practices play a crucial role in environmental management and organizational sustainability. The study

investigates the impact of GHRM (training and development, performance appraisal, reward and compensation) practices on organizational sustainability through the mediating role of environmental performance and employee performance to achieve sustainability. The research model is shown below (Fig. 1).

**Hypotheses**

- H1:** There is a positive relationship between green performance management appraisal and organizational sustainability.
- H2:** Environmental performance mediates the significant relationship between green performance management appraisal and organizational sustainability.
- H3:** Employee performance mediates the significant relationship between green performance management appraisal and organizational sustainability.
- H4:** There is a significant relationship between green training and development and organizational sustainability.
- H5:** Environmental performance mediates the significant relationship between green training and development and organizational sustainability.
- H6:** Employee performance mediates the significant relationship between green training and development and organizational sustainability.

**Table 2** Measurement statistics of construct

Constructs	Item loading	AVE	CR	$\alpha$
Employee performance		0.542	0.855	0.788
EMP1	0.729			
EMP2	0.712			
EMP3	0.772			
EMP4	0.750			
EMP5	0.757			
Environmental performance		0.540	0.854	0.787
EP1	0.740			
EP2	0.717			
EP3	0.747			
EP4	0.726			
EP5	0.746			
Green performance management and appraisal		0.607	0.839	0.838
GPA1	0.769			
GPA2	0.774			
GPA3	0.775			
GPA4	0.788			
GPA5	0.789			
Green reward and compensation		0.741	0.814	0.815
GRC1	0.928			
GRC2	0.709			
GRC3	0.927			
Constructs	Item loading	AVE	CR	$\alpha$
Green training and development		0.545	0.795	0.790
GTD1	0.720			
GTD2	0.711			
GTD3	0.712			
GTD4	0.777			
GTD5	0.803			
Organizational sustainability		0.519	0.846	0.846
OS1	0.720			
OS2	.740			
OS3	0.726			
OS4	0.708			
OS5	0.707			
OS6	0.704			
OS7	0.736			

**Table 3** Discriminant validity

	EMP	EP	GRC	GTD	GPMA	OS
Employee performance	0.736					
Environmental performance	0.726	0.735				
Green reward and compensation	0.685	0.688	0.861			
Green training and development	0.720	.0730	0.676	0.738		
Green performance management and appraisal	0.678	0.725	0.712	0.709	0.779	
Organizational sustainability	0.704	0.709	0.703	0.737	0.721	0.720



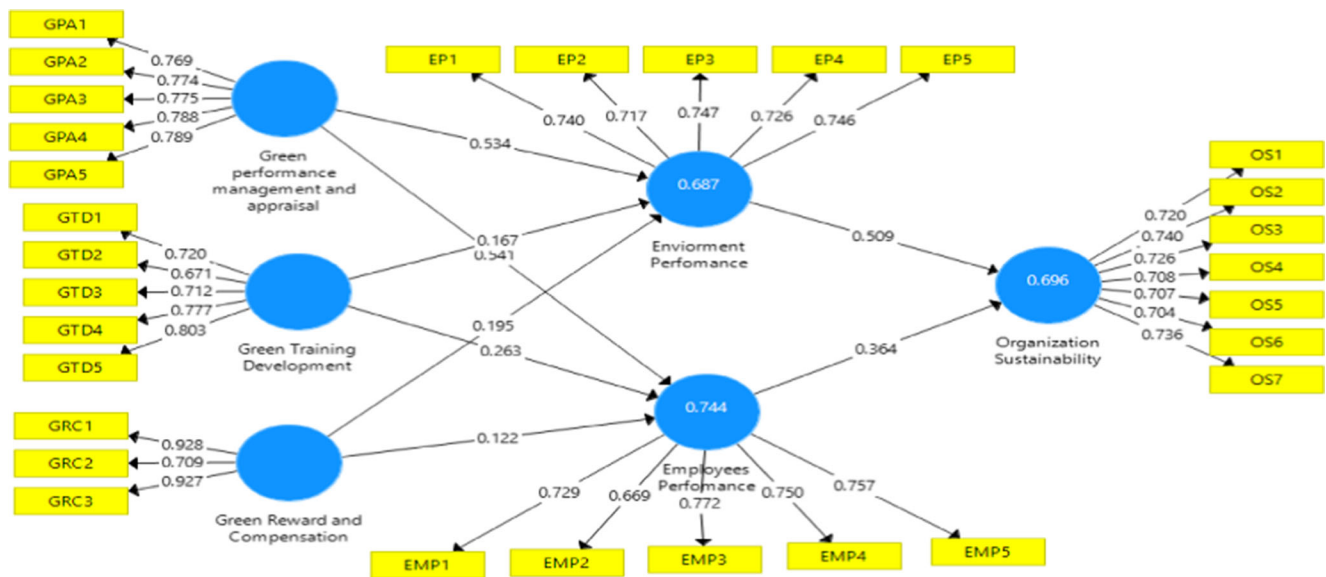


Fig. 2 PLS algorithm

- H7:** There is a significant relationship between green reward and compensation and organizational sustainability.
- H8:** Environmental performance mediates the significant relationship between the green reward and compensation and organizational sustainability.
- H9:** Employee performance mediates the significant relationship between green reward and compensation and organizational sustainability.

### Methodology

Our sample population included managerial employees of the export-oriented textile industry located in the Faisalabad and Lahore regions of Pakistan. The initial sample size was 165, and a questionnaire survey was used for data collection. The study used a quantitative research methodology rather than qualitative method. There are many ways to collect primary data, including case studies, questionnaires, and interviews. This study used convenience sampling as well as snowball sampling techniques to collect data from respondents. The textile sector is a difficult region from the perspective of

conducting a questionnaire survey, because the management is reluctant to share their information. Therefore, the survey conducted in the Lahore and Faisalabad regions, a target population was chosen which included HR managers, and a meeting was conducted with managers through an interactive session which gathered information about their experiences as a HR Manager. Questionnaire consist on 31 items, as shown in Table 2, the questionnaire were distributed Among the 165 respondents, and a total of 160 questionnaires were received back. Each organization was visited on a fixed date and time to collect the data through a structured questionnaire. The measurement of green performance appraisal included five items, green training and development consisted of five items and green reward and compensation included three items, as which is previously used by Masri (2016). Five items were used to measure environmental performance, as previously used by Masri (2016). Employee performance consisted of five measures, adopted from a previous study (Masri 2016). Organizational sustainability was measured using eight items adopted from Murillo-Luna et al. (2008). Each variable response was measured using a five-point Likert scale.

### Results and analysis

#### Measurement model

Green performance management and appraisal, green training and development, green reward and compensation, environmental performance, employee performance and organizational sustainability were examined. The reliability and

Table 4 Predictive accuracy and relevance of the model

No.	R-Squared (R <sup>2</sup> )	(Q <sup>2</sup> )
Employee performance	0.744	0.371
Environmental performance	0.687	0.341
Organizational sustainability	0.696	0.331

**Table 5** Testing hypothesis

Research model path	Original sample	Mean	SD	<i>t</i> value	<i>p</i> value
Employee Performance→ Organizational sustainability	0.364	0.370	0.071	5.103	0.000
Environmental performance→ Organizational sustainability	0.509	0.504	0.069	7.355	0.000
Green reward and compensation→ Employee performance	0.263	0.124	0.051	2.388	0.017
Green reward and compensation→ Environmental performance	0.195	0.191	0.066	2.942	0.003
Green training and development→ Environmental performance	0.122	0.266	0.078	3.377	0.001
Green training and development→ Environmental performance	0.167	0.171	0.085	1.968	0.047
Green performance management and appraisal → employee performance	0.541	0.538	0.076	7.086	0.000
Green performance management and appraisal→ Environmental performance	0.534	0.534	0.076	7.052	0.000

validity of the model was first tested using an algorithm. Consistent with our assessment of item reliability, 29 of the 31 indicators had outer loadings greater than 0.70, thus meeting the established values as shown in Table 3 and Fig. 2.

## Discriminant validity

The convergent validity and discriminant validity measures were used to determine the validity of model. The average variance extracted (AVE) and composite reliability (CR) were assessed to determine the convergent validity. All the values of AVE and CR must be greater than 0.50 and 0.70, respectively. The results confirm the convergent validity, as all values of AVE and CR meet the threshold values. The Fornell and Larcker (1981) criterion was used to test the discriminant validity of the model, in which all the diagonal values of constructs

should be greater than their correlation with other constructs. The results support the discriminant validity of the model.

A Table 4 illustrates, the square root of all the diagonal values for each construct is greater than its correlation with other constructs.

## Structural model

According to previous research, the value of *R*-squared is used to determine the predictive power of the model (Hair et al. 2011; Henseler et al. 2014). The value of *R*-squared is shown in Table 5, where 0.50 indicates 50% predictive power of the model. Hair et al. (2014), used the cross-validated redundancy  $Q^2$  test to determine the predictive relevance of the model, in which an acceptable  $Q^2$  value is one that is greater than zero. All values of  $Q^2$  are greater than zero.

**Table 6** Direct/indirect effects–mediation

Hypothesis	Relationship	Direct effects	Indirect effects	Total effects	Result
H9	GRC→ EMP→OS	$\beta = 0.139$ $t = 2.231$ $p$ value = 0.026	$\beta = .149$ $t = 3.273$ $p$ value = 0.001	$\beta = 0.288$ $t = 6.616$ $p$ value = 0.000	Partial
H7	GRC→EP→OS	$\beta = 0.069$ $t = 3.021$ $p$ value = 0.045	$\beta = 0.110$ $t = 3.118$ $p$ value = 0.002	$\beta = 0.179$ $t = 4.131$ $p$ value = 0.000	Partial
H6	GTD→EMP→OS	$\beta = 0.075$ $t = 3.0996$ $p$ value = 0.032	$\beta = 0.085$ $t = 2.595$ $p$ value = 0.010	$\beta = 0.146$ $t = 2.180$ $p$ value = 0.030	Partial
H5	GTD→EP→OS	$\beta = 0.064$ $t = 2.089$ $p$ value = 0.043	$\beta = 0.094$ $t = 1.761$ $p$ value = 0.079	$\beta = 0.158$ $t = 3.450$ $p$ value = 0.030	Partial
H3	GPMA→EMP→OS	$\beta = 0.347$ $t = 4.271$ $p$ value = 0.000	$\beta = 0.035$ $t = 1.652$ $p$ value = 0.0076	$\beta = 0.382$ $t = 7.574$ $p$ value = 0.000	Partial
H2	GPMA→EP→OS	$\beta = 0.257$ $t = 5.32$ $p$ value = 0.000	$\beta = 0.560$ $t = 7.118$ $p$ value = 0.000	$\beta = 0.819$ $t = 7.574$ $p$ value = 0.000	Partial

**Table 7** Hypothesis relationships

Hypothesis	Beta value	<i>t</i> statistic	<i>p</i> value	Decision
H <sub>1</sub>	0.468	7.739	0.000***	Supported
H <sub>2</sub>	0.534	7.052	0.000***	Supported
H <sub>3</sub>	0.541	7.086	0.000***	Supported
H <sub>4</sub>	0.180	2.844	0.005***	Supported
H <sub>5</sub>	0.160	0.1968	0.050	Supported
H <sub>6</sub>	0.263	3.377	0.001	Supported
H <sub>7</sub>	0.141	3.394	0.001	Supported
H <sub>8</sub>	0.195	2.942	0.003	Supported
H <sub>9</sub>	0.121	2.388	0.017	Supported

## Hypothesis testing

As can be seen in Table 6, the beta values for all variables show a strong and significant positive relationship between independent and dependent variables, and mediators. Employee performance significantly influences organizational sustainability ( $\beta = 0.364$ , mean 0.370, SD = 0.071,  $t = 5.103$ ,  $p = 0.000$ ), and environmental performance also significantly influences organizational sustainability ( $\beta = 0.509$ , mean 0.504, SD = 0.069,  $t = 7.755$ ,  $P = 0.000$ ). Green reward and compensation has a significant effect on employee performance ( $\beta = 0.263$ , mean, 0.124, SD = 0.051,  $t = 2.388$ ,  $P = 0.017$ ), green reward and compensation significantly influences environmental performance ( $\beta = 0.195$ , mean 0.191, SD = 0.066,  $t = 2.942$ ,  $P = 0.003$ ), green training and development has a significant effect on employee performance ( $\beta = 0.122$ , mean 0.266, SD = 0.078,  $t = 3.377$ ,  $P = 0.001$ ), and green training and development significantly affects environmental performance ( $\beta = 0.167$ , mean 0.171, SD = 0.085,  $t = 1.986$ ,  $P = 0.050$ ). Green performance management and appraisal has a significant effect on employee performance ( $\beta = 0.541$ , mean 0.538, SD = 0.076,  $t = 7.086$ ,  $P = 0.000$ ), and green performance management and appraisal significantly influences employee performance ( $\beta = 0.534$ , mean 0.534, SD = 0.076,  $t = 7.092$ ,  $P = 0.000$ ).

The results show that environmental performance mediates the link between green reward and compensation and organizational sustainability. The values of direct effects ( $\beta = 0.139$ ,  $t = 2.231$ ,  $p = 0.026$ ) and indirect effects ( $\beta = .149$ ,  $t = 3.273$ ,  $p = 0.001$ ) are both significant, which indicates that environmental performance partially mediates the impact of green reward and compensation on organizational sustainability. These findings support H9. The results indicate that employee performance partially mediates the association between green reward and compensation and organizational sustainability. The results reveal that both direct effects ( $\beta = 0.069$ ,  $t = 3.021$ ,  $p = 0.045$ ) and indirect effects ( $\beta = 0.110$ ,  $t = 3.118$ ,  $p = 0.002$ ) are significant and support H7. Environmental performance mediates the relationship between green training

and development and organizational sustainability. The results also suggest that employee performance partially mediates these effects, because the direct effect ( $\beta = 0.075$ ,  $t = 3.099$ ,  $p = 0.032$ ) and indirect effect ( $\beta = 0.085$ ,  $t = 2.295$ ,  $p = 0.010$ ) are both significant. Therefore, H6 is accepted. H5 proposed that employee performance mediates the link between green training and development and organizational sustainability. The findings support the hypothesis, as shown in Table 7. The direct effects ( $\beta = 0.064$ ,  $t = 2.089$ ,  $p = 0.043$ ) and indirect effects ( $\beta = 0.094$ ,  $t = 2.186$ ,  $p = 0.030$ ) are shown in the table.

Environmental performance mediates the relationship between green performance management and appraisal and organizational sustainability. The results show that employee performance mediates this relationship because the indirect effects ( $\beta = .035$ ,  $t = 1.652$ ,  $p = 0.0076$ ) are significant, which suggests that H3 is accepted.

Employee performance mediates the relationship between green performance management and appraisal and organizational sustainability. The findings indicate that employee performance has a significant mediating effect between green performance management and appraisal and organizational sustainability ( $\beta = 0.560$ ,  $t = 7.118$ ,  $p = 0.000$ ). The results provide support for H2.

## Discussion and conclusion

The main aim of the current investigation was to explore the effect of GHRM practices on environmental performance and employee performance as they contribute to the sustainability of the textile sector of Pakistan. The results show that green training and development has a significant but least influential effect on employee performance practices. Daily et al. (2012) conducted a study in Mexico among 220 manufacturing firms and concluded that green training and development had the strongest effect on employee performance. According to Masri and Jaaron (2017), green training and development significantly contributes to employee performance. Mishra et al. (2014) found the same results in other developing countries such as India in attaining benefits from employees through the implementation of GHRM practices. These results suggest that Pakistan should invest more in green training and development so that they can implement GHRM practices more efficiently. The findings of the current study align with those of Bai and Sarkis (2010), who argue that employee performance can be enhanced through employee training. Ahmad (2018) noted that employee training and development programs must include all types of social and environmental issues.

Daily and Huang (2001), Govindarajulu and Daily (2004), and Jackson et al. (2011) suggest that reward and compensation is helpful for successful implementation of GHRM

practices. Importantly, textile organizations have put little emphasis on the use of green reward and compensation to encourage a pro-environmental attitude among their employees. According to Fernández et al. (2003), it is difficult to successfully implement a reward system that motivates employees at all levels, because different types of incentives may be necessary for different types of employees, which poses administrative challenges regarding the resources necessary to attach rewards to individual behavior. The current study found that green performance appraisal was significantly associated with employee performance. These findings are consistent with those of previous studies suggesting that green performance appraisal has a significant impact on organizational performance.

Masri and Jaaron (2017) discussed strategic choice theory to support this relationship. Daily and Huang (2001) argued that to motivate employees, it is crucial to share the performance appraisal reports with employees to gauge their progress in achieving organizational goals. Fernández et al. (2003) suggest that it is difficult to implement a reward system that is effective for all employees. That is due to the fact that different individuals are influenced by various approaches. Therefore, this poses an issue for production businesses regarding the resources needed to attach rewards to employee motivation. This study reveals that green performance appraisal is significantly associated with employee performance. The study findings are aligned with results of previous studies in the literature, which also confirm that there is a significant relationship between green employee performance appraisal and employer performance (Masri and Jaaron 2017), and the relationship is supported by the use of strategic choice theory. Ahmad (2015) concluded that HR departments should reshape the scale of the employee performance appraisal to measure their technical and behavioral competencies related to environmental sustainability. Environmental performance mediates the relationship between green performance management and appraisal and organizational sustainability. According to the study by Renwick et al., the use of performance management in EM presents many challenges in how to measure environmental performance standards across different organizational departments. A few companies have addressed this problem by implementing corporate-wide environmental performance standards and green information system strategies that address overall environmental performance (Blessinger 2005). Green overall performance management structures can be effectively established to increase performance indicators for all areas of environmental risk (TUSDAC 2005). One challenge is that appraisal systems with environmental goals appear to be largely restricted to plant or department managers and top management and not to employees more widely (Caliskan and Esen 2019). The results show that employee overall performance significantly mediates the relationship between green performance

appraisal and organizational sustainability. These findings are supported by results reported by others (Nabi et al. n.d.). Performance management systems can establish employee performance standards to obtain the desired employee performance.

The measurement of employee contributions can help to enhance their performance (Ahmad 2015). To promote high employee performance levels, organizations should adopt enterprise-wide metrics for examining the acquisition of useful resources, usage and waste, and set up environmental management systems to devise a useful workflow (Arulrajah et al. 2015). HRM must integrate EP into PMS by setting EM objectives and duties, tracking EM behaviors, and comparing the achievement of environmental objectives using green work ratings as essential indicators of overall performance (Masri and Jaaron 2017). The current study revealed that environmental performance had a significant mediating effect on the relationship between green training and development and organizational sustainability. Other studies have similar findings. Mousa and Othman (2019) suggest that the participation and support of the top management in environmental protection activities have a significant influence on organizational sustainability. The current study also found that employee performance significantly mediates the relationship between green training and development and organizational sustainability. These findings are in line with previous studies. A study by Jabbour et al. (2013) on the Mexican manufacturing industry suggests that green training has a significant effect on EP. In the case of Pakistani manufacturers, training is considered on financial compensation (As per the the federation of Pakistan, loads for many organizations industry, and the Pakistani manufacturer uses more economically viable green training process. The findings of the study reveal that green reward and compensation has a significant relationship with employee performance. According to Zoogah (2011), if organizations focus on positive behaviors and ignore negative behaviors, and encourage environmentally friendly practices, employee performance will benefit from reward and compensation. To achieve this, reward systems must show management's commitment to employee performance while also strengthening and motivating employee environmental behaviors.

The results of the current study reveal a significant mediating effect of green environmental performance between green reward and compensation and organizational sustainability. Previous studies suggest that organizations must establish environmental management information systems and environmental audits to maintain overall performance standards (Arulrajah et al. 2015). Scholars argue that managers need to formulate green performance-



related goals and responsibilities to easily evaluate employee performance (Caliskan and Esen 2019). Many researchers have emphasized the importance of creating green teams that include the workforce in the green management staff (Jabbar and Abid 2014). However, the green team's work is used in manufacturing companies practically. It is anticipated that manufacturing organizations understanding green management methods are of value.

### Theoretical and practical contribution

Integrating the slightly distant fields of sustainability with classical management, this study makes some scientific contribution in which the authors provide a keen understanding about the sustainability of the organization. Previous studies highlight the importance of GHRM practices in hiring, training and development, reward, and appraisal in the greening of an organization and enhancing employee performance (Ramus 2002; Daily and Huang 2001; Mishra et al. 2014). In developing countries, GHRM practices are still evolving and need the attention of decision-makers. Though current research was conducted in the local context of Pakistan, the findings can be generalized more broadly, especially for developing countries, as green and sustainable management has become a global issue (Dumont et al. 2017). This study contributes to the literature in various ways. Firstly, it integrates GHRM practices, employee performance, environmental performance, and organizational sustainability in the context of developing countries. The study examines the relationship between GHRM practices and employee performance in achieving sustainable organizational performance within the textile industry. Secondly, it investigates how GHRM practices contribute to organizational sustainability through employee and environmental performance. No prior studies have explored these relationships simultaneously in the context of manufacturing industries.

2 This study provides useful insights for industrial managers in how to select GHRM for the sustainability of the organization. The study also assists managers in understanding how to effectively motivate the organization's employees toward issues regarding the environment in a more significant and positive way. This work focuses on the importance of GHRM practices in Pakistan's textile export sector. In the era of globalization, top management and human resources have the additional responsibility of implementing green practices by integrating the GHRM concept into the organization's vision and mission statement. Therefore, top management should incorporate environmental initiatives within corporate perspectives and image as reflected in their operational decisions. This study can assist and motivate management of manufacturing companies to develop and link sustainable

strategical goals with particular GHRM. This can promote deeper engagement of employees in performing sustainable environmental practices for more effective EP. The study is beneficial for green training and development, green performance management, and appraisal in the textile industry. It creates a link between GHRM and sustainability, which is crucial for the triple bottom line of the Pakistani textile industry. It is the responsibility of researchers and industrialists to create and promote a green culture among the internal customer, external customers, and all other stakeholders to protect the environment and maintain natural resources for future generations. Therefore, the findings of this study should motivate the industrialist to promote awareness of and training for their employees regarding GHRM practices, which are the need of this era. It also helps to instill a culture of rewarding employees for their green attitude, which can ultimately transform the image of Pakistani textile products and organizations in the minds of foreign buyers. This study provides an overview of a research topic for managers which is highly relevant to the integration of GHRM practices with the sustainability of the organization. It also suggests how managers can integrate sustainability into daily matters of business. Researchers and managers are invited to conduct further studies to test, change, and make improvements in these propositions as part of further research.

### Limitations of the study

Although this study is based on data collected from the textile industry in Pakistan, the findings need to be generalized to other cultures and sectors to determine sustainable organizational performance through the implementation of GHRM practices. Due to the lack of experimental investigations, additional research should be undertaken to examine how GHRM practices can help organizations produce cleaner products and reduce environmental risk. Detailed investigations of textile and other manufacturing industries are required in the context of other developing countries to enhance the generalizability of the current findings and to identify the best combination of GHRM practices required for environmental sustainability which ultimately contribute to achieving organizational sustainability.

**Data Availability** Not applicable.

### Compliance with ethical standards

**Conflict of interest** The authors confirm that there are no known conflicts of interest associated with this publication and there has been no



significant financial support for this work that could have influenced its outcome.

**Research ethics** Institutional review board approval was obtained (required for studies and series of 3 or more cases).

**Ethical statement** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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