Application of green HRM and its impact on environmental performance: a case of construction projects

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Abstract: In the recent era, environmental performance (EP) has gained the attention of academicians and practitioners. Green human resource management (GHRM) is considered very crucial as GHRM practices may help organisations to improve EP. Therefore, this research aims to investigate the impact of GHRM on EP in construction projects in Pakistan. Moreover, this study investigates the moderating effect of organisational culture (OC) on the relationship between GHRM practices and EP. Data were collected from the construction industry and structural equation modelling (SEM) through SmartPLS-3.3.5 was used to analyse the data. It is found that green recruitment (GR), green training (GT), and green compensation significantly influence EP whereas OC moderates the relationship between GR and EP but does not have any moderating effect on the relationships between GT, green compensation with EP.

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1   Introduction

As a result of climate change, there is a concern in the local government and regularity authorities regarding environmental performance (EP). Due to this, many firms are trying to improve their EP. EP is very important to obtain an eco-friendly climate within the organisations (Lundberg et al., 2009). In the past few years, the most discussed issue among common individuals and the government is the effect of HRM practices on work in organisations and their effect on EP (Renwick et al., 2016). Because of the international climate change levels, there is a need to implement green HR practices in organisations (Bangwal and Tiwary, 2015). With time, there is a big change in environmental levels, and the wastes arising from construction projects have enabled the public and private sectors to introduce procedures that aim to reduce wastage and pollution to enhance the EP of firms and society. All this has introduced the concept of green management (Cherian and Jacob, 2012). Similarly, the aim of construction projects has changed in past few years; it is now focusing on eco-friendly procedures and processes, as a requirement from the customer like cost, time, and quality. Processes have been renewed industrially and mechanically to support the environment. Specialist roles are introduced to meet these goals (Ofori, 1992).

Currently, organisations are working on increasing their profits by introducing environmental practices, for that purpose they need to implement multiple GHRM procedures (Shaban, 2019). Moreover, in 2015, United Nations (UN) launched 17 sustainable development goals (SDG) to be achieved by 2030. According to goal no. 13, UN talks about taking urgent actions to combat climate change and its impacts (United Nations, 2015). Pakistan is now dealing with unique difficulties because of environmental contamination. According to the environmental performance index (EPI) 2022, Pakistan is placed 176th out of 180 nations for EP (Wolf et al., 2022). Environmental pollution has significantly increased in 2018 as its two major cities are on the list of most polluted cities in the world (Barletta et al., 2017). These environmental challenges need to be explored from several angles to have a better understanding. This

study helps add value to this goal by investigating the impact of green human resource management (GHRM) practices on EP with the moderating role of organisational culture (OC). Long-ago EP was not included in the objectives of construction projects. The significance of the environment was only in the documents and not in the implementation. The reason being construction projects depend on multiple factors. These projects did not have much control over their outputs, which cause pollution for citizens (Ofori, 1992). The rising stress from numerous shareholders has compelled organisations to adopt eco-friendly procedures. Integration of these eco-friendly processes will help organisations to be more efficient compared to their counterparts (Darvazeh et al., 2022).

The idea of GHRM is based on the green concept associated with the safety of nature. In HR, the green procedures are there for the safety of the environment internally as well as externally. A mixture of environmental management and human resources is the need of an hour; this concept is known as GHRM (Hussain, 2018). GHRM in literal terms is turning organisational employees into green employees, to improve the EP of the organisation (Opatha and Arulrajah, 2014). Green HRM includes green recruitment (GR), i.e., hiring a candidate who knows the green HR procedures which will affect the EP within the company (Opatha and Arulrajah, 2014). Green training (GT) is the second part that shall be focused on in this study, i.e., to encourage the employees to have training regarding green behaviour and green management implementation in the organisation (Dumont, 2019). Furthermore, involving line managers in decision-making can help organisations to implement their strategic policies (Parameswaran, 2020). Green compensation (GC) is a very important tool to motivate employees through financial and non-financial benefits regarding the implementation of GHRM so that it will affect EP (Bangwal and Tiwary, 2015). A paperless environment for GHRM procedures such as recruitment, training, and compensation has a significant impact on the implementation of an eco-friendly environment, specifically in the case of a large organisations in terms of employees (Shaban, 2019).

In today's world for a sustainable environment, GHRM practices are considered a business strategy that makes a big difference in the success of businesses and acts as a competitive advantage (Chakraborty and Biswas, 2020; Yong et al., 2019a, 2019b) because human resource is one of the crucial resources in organisations who can play the most important role in going green (Hameed et al., 2020). It has been observed that the higher the strength of GHRM practices, the higher the integration of the environmental management system (EMS) within the organisations where a combination of strategic goals and environmental goals makes a great environment in an organisation (Ahmad, 2015). In the past few years, public and private sectors are in huge demand from organisations regarding EP. Which has forced firms to move from old models to new models, i.e., implementing green values in their day-to-day work (Hameed et al., 2020). Due to the depletion of natural resources, developed or developing countries, have started implementing the concept of GHRM in the most important sectors like tourism (Yusoff et al., 2018), information technology (IT) (Ojo et al., 2020), banking (Sandaruwan et al., 2020), manufacturing (Mohammad Ashraful et al., 2021), dairy (Kularathne and Rajapaksha, 2020), education (Gill et al., 2021), construction (Darvazeh et al., 2022) and many more because it is the need of an hour.

With the adoption of (GHRM) practices, a win-win situation occurs between organisations, stakeholders, and the environment (Yusoff et al., 2018). The

implementation of GHRM practices is much more in developed countries like the UK than in developing countries like Iran (Shaban, 2019), Egypt (Darvazeh et al., 2022), Pakistan (Saeed et al., 2021).

As discussed earlier, many researchers have worked on GHRM in the last few years. GHRM is based on the green activities and practices of HR team leaders. Many researchers promote these practices for the prosperity of organisations. The study shows that the most important key elements of GHRM are (GR, green selection, GT and development, green performance, and green rewards) which enhance an organisation's EP in developing countries if implemented appropriately (Usman and Mat, 2021).

2   Literature review

2.1   GR and EP

Recently, human resource management has started focusing on HRM integration with an EMS. In this scenario, theoretical and practical HRM has focused on the significance of hiring and approaching those candidates who have green behaviour to achieve EP within the organisation (Guerci et al., 2016). Recruitment highlights the relationship between candidates and the HR department. The significance of recruitment can be depicted in the process of hiring the candidate. GR is hiring those individuals who have green awareness within the organisation. These activities help to improve EP within the organisation. It focuses on the keyword environment. Candidates also prioritise organisations whose priority is an environment, which enhances the company's portfolio in front of the public as well (Ahmad, 2015). This involves environmental aspects related to the safety and health of the people. Interviews should focus on the employees who are aligned with the firm's environmental goals.

According to the study by Abiwu and Nunoo (2021), GR is the procedure where organisations onboard people who have behaviours, skills, knowledge, and awareness of EMSs. The organisations are working hard for going green by taking initiatives like making hiring processes online to minimise energy use, least use of paperwork and controlling pollution by not travelling for jobs from one place to another just for the sake to apply for a job.

The study by Gill et al. (2021) discusses that organisations like educational institutes also confirm the significant positive relationship between green human resource practices, (i.e., GR, training, onboarding, compensation and rewards) on EP with the help of eco-friendly behaviours of employees while recruiting them, providing them training for the implementation of GHRM policies and by rewarding employees who truly performs what they learn through training (i.e., GHRM practices). Eco-friendly behaviours promote pro-environmental concerns among employees. Moreover, the hotel industry is booming due to tourism and a reason to create massive environmental issues like wastage of water, energy, etc. To overcome this detrimental matter, eco-friendly services by the hotel industry are required to preserve natural resources. In this regard, Yusoff et al., 2018) figured out that there is a strong positive relationship between GR and selection, training and development and GC with EP.

Loyalty and honesty are the values that are needed to retain the employee in the organisation (Obaid and Alias, 2015). Selecting a highly skilful candidate which stays for a longer period is most difficult in the HR industry throughout the world, especially when

it comes to the environment. Commercial firms are branding themselves as nature protectors so that they can recruit those candidates who have eco-friendly behaviour and have the ability to implement green procedures (Ahmad, 2015). Whereas candidates are also preparing according to green requirements as defined internationally. Candidates prefer those organisations which are focusing on an eco-friendly environment (Aranganathan, 2018). The job description of candidates should emphasise the importance of eco-friendly factors otherwise selection of a candidate is bad for the organisation's green strategy (Rawashdeh, 2018). The selection of green candidates should be the priority of an organisation (Margaretha and Saragih, 2013).

Hence, we can say that GR has an important impact on EP.

H1 GR has a significant impact on EP.

2.2   GT and EP

Training refers to turning employees into creative employees, who have multiple skills and want to acquire more knowledge for creative solutions. An organisation's overall work can be assessed by the training programs and knowledge enhancement of its employees, as training integrates tools that are required for organisational objectives. Training plays a vital role for organisations to stay competitive in the market (Obaid and Alias, 2015). GT helps to deliver the basic knowledge of green and EP within the firm in terms of controlling waste. Regular enhancements can be done through regular pieces of training. Eco-friendly training is essential for employees' morale so that they can be engaged in environmental activities in organisations. These pieces of training give the latest skillset to employees so that they can give their best performance on the projects. Training is beneficial for employees to handle multiple situations on projects and increase their knowledge to give their best performance (Jabbar and Abid, 2015).

GT is essential to counter environmental changes and reduce waste. It is necessary for organisations to implement methodological GT programs that can be measurable so that assessments can be made efficiently (Rawashdeh, 2018). The training should be purely designed on a green basis so that the goal of these programs should be achieved (Cherian and Jacob, 2012). One thing that we need to understand is that there is a very clear relation between GT and EP in organisations. Previous studies show a positive relationship between GHRM practices and EP by showing the different effects of moderators or mediators. According to the studies (Pham et al., 2020; Yusoff et al., 2018), a positive relationship has been found between training and employee involvement in EP with a mediating effect of organisational citizenship behaviour towards the environment and employee commitment, (Anwar et al., 2020) found that GHRM has a positive relationship between organisational citizenship behaviour towards the environment (OCBE) which influences EP.

The HR department within the firms has to emphasise eco-friendly training to stay in the industry. To compete for environmental issues, training has a direct positive impact on EP because it helps to create green skills, abilities, behaviours and awareness in employees for the better implementation of GHRM practices in organisations (Yafi et al., 2021). According to Nisar et al. (2021) it is evidenced that GHRM practices contribute toward EP with the help of pro-environmental behaviour which is possible through the training of employees. Darvazeh et al. (2022) suggests that going GT is the only HR practice that helps employees to implement GHRM practices in organisations because in

developing countries, i.e., Iran, employees lack awareness and training about environmental concerns that's why developing countries are facing more environmental problems. Creating green skills, abilities, behaviours and awareness through training plays. Hence, we can say that GT has a significant impact on EP.

H2 GT has a significant impact on EP.

2.2.1 *GC and benefits and EP*

Compensation and benefits is also very important for the retention of organisational employees for a longer period. Benefits policies play a significant role in the morale building and retention of employees which results in accomplishments of organisational objectives (Bangwal and Tiwary, 2015). Benefits are related to the high morale of employees, in order to innovate the EP. Firms will be benefited if they implement compensation system practices. Employees should be awarded based on their EP. Compensation mechanisms should be built over eco-friendly goals and activities. There is a need for firms to implement benefit procedures, where benefits are given based on green activities (Sathya and JayaKrishnan, 2014). The aim of the reward system is to accomplish, control and inspire employees to work hard towards the importance of climate preservation. The GC structure is to regulate green procedures and their implementations in the organisation. Reward mechanisms should be created in a way that should promote green values in the organisation and facilitate organisations in reducing pollution (Rawashdeh, 2018). Employees who are rewarded with benefits based on their environmental problem-solving are more loyal and hard-working towards the EP of the organisation (Bangwal and Tiwary, 2015). Firms should also award good merit points to those employees who have helped the organisations to reduce waste, and implemented recycling procedures to enhance an eco-friendly environment within the organisation and on the construction site. Benefits and bonuses are the ways by which employees are acknowledged for their work. These benefits are the most essential rewards for employees in terms of their loyalty to the organisation. This will reward firms because employees will work with full loyalty and strength to acquire the firm's goal. As far as GHRM is concerned, compensation is awarded based on the EP of employees, and how they effectively implement and spread green values throughout the organisation. Multiple firms in modern days are working on compensating employees for eco-friendly activities (Sathya and JayaKrishnan, 2014). Compensation has many ways of benefiting people by using eco-friendly practices. They can be some salary bonuses, premiums, etc. or they can be non-economic benefits such as extra leaves, extra medical facilities, and rewards in any other form (Rawashdeh, 2018). Concerning HRM, compensation and benefits is a great way to improve EP within the organisation. EP improves when employees get rewards and bonuses based on efficient EP within the organisation as well as in projects (Ahmad, 2015). According to Nisar et al. (2021), authorities like managers can maintain green discipline in organisations by strictness, (i.e., fining or punishing employees) for not following the green environmental policies.

Hence, we can say that GC and benefits have a significant impact on the environment.

H3 GC and benefits has a significant impact on EP.

2.3 *Moderating effect of OC*

The decade of 1980 witnessed the rise of an organisation's cultural importance and how the respective project managers became familiar with the impact of an organisation's culture on its people and environment. This boom has led authors to find out problems related to OC (Lundberg et al., 2009). OC was first developed into an important factor during the mid-70s. Scholars gave more importance to the OC concept as it results in more financial benefits, employees' loyalty, value addition of employees in the job, and a great understanding of work, which is why OC has become an important factor all around the globe late (Bavik and Duncan, 2014). OC is related to interlinked values or beliefs, which are made through multiple factors. In order to analyse the culture of the organisation, firstly it needs to understand the importance of causes and circumstances that impact the culture of an organisation. As the nature of employees is affected by both internal and external circumstances and the character of the organisation which makes each organisation diverse from the other. OC is defined as "the characteristics of the industry and the marketplace and the diversity, size, and market position of the organization define the broad outlines of an appropriate culture" [Gordon, (1985), p.121]. OC is the values, behaviour, and beliefs possessed by an individual within the industry (Bavik and Duncan, 2014). When it comes to studying OC in a firm, there are two viewpoints, activities or operations of the organisation and pressures on the organisation on its multiple procedures (Sun, 2008). If an organisation needs to be productive, valuable, and competent, it must give importance to the culture of an organisation, as culture has an important effect on organisational operations and procedures. There is a need to understand that OC depends on human activities and beliefs rather than on functional methodologies (Sun, 2008). As said, OC has a significant impact on organisational working.

This study will help to find whether the OC moderates the relationship between (GR, GT, and GC and benefits) and EP. It will also help to check whether the moderation of OC has a positive or negative effect on the relationship between (GR, GT, and GC and benefits) and EP.

Firms with eco-friendly cultures try to modify many processes to provide solutions for a green environment. For that purpose, organisations focus on EP by making it part of their organisational objectives. It enforces the stakeholders to implement green policies. Stability in OC creates loyalty in staff members. Which should be aligned with organisational objectives for the stability of the organisation.

Since behaviours are one of the most important elements of OC, making green behaviour of employees green leadership is also mandatory for the proper implementation of GHRM practices which directly affect EP (Al-Swidi et al., 2021). To create a culture for the implementation of GHRM practices in an organisation, an ethical leadership style plays a significant role where pro-environmental behaviour is required by the employee (Ahmad et al., 2021).

H4a   OC moderates the relationship between GR and EP.

H4b   OC moderates the relationship between GT and EP.

H4c   OC moderates the relationship between GC and benefits and EP.

Figure 1 shows the conceptual model of the hypotheses. According to the above-depicted model, there are three independent variables (GR, GT, GC and benefits), one dependent variable (EP), and one moderating variable (OC).

Figure 1   Hypothesised research model
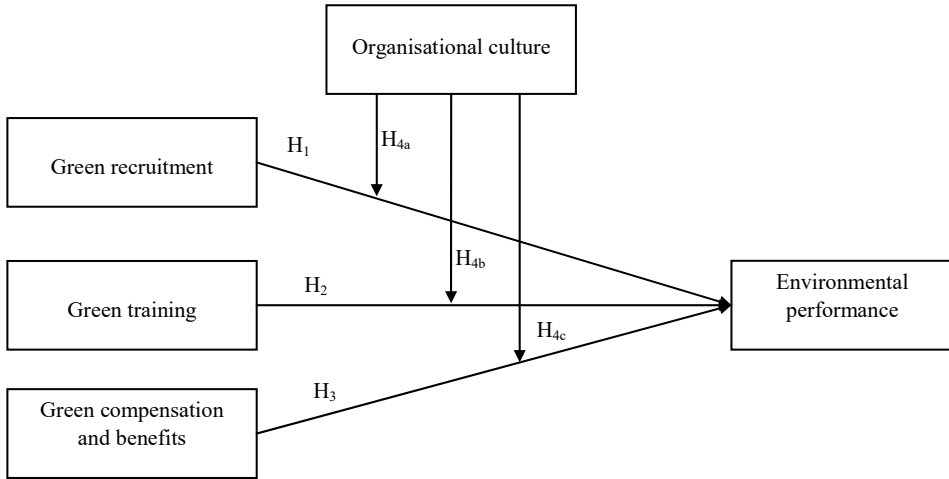
3   Methodology

The research is conducted through a structured questionnaire, which was sent to respective qualified personnel. Respondents were approached through their organisations and companies, which are registered with Pakistan Engineering Council (PEC), Pakistan. The responses were thoroughly analysed for validity and reliability of the measurement scale and after validity and reliability; hypothesis testing was done using Smart PLS-3.

3.1   Sampling

As the population of the current study is the construction industry of Pakistan, therefore a list of active construction firms was obtained from PEC. According to PEC, there are 2,939 firms registered with PEC. After getting the total population, we used a well-known and widely used sample size deriving formula for a finite population introduced by Krejcie and Morgan (1970) to determine the sample size. A simple random sampling technique was used to select the firms. As a result, 340 out of 2,939 construction firms were selected to collect data at a 5% margin of error and 95% level of confidence. To confirm that a firm is applying GHRM a screening question was asked to the respondents 'Is your firm using GHRM?' If the answer was yes, then the response was recorded for the data analysis, if the answer was 'no' then the response was discarded.

3.2   Data collection

After selecting the firms, HR professionals of the selected firms were reached out to educate them about the study objectives and there were requested to help the authors in data collection from those professionals involved in HR activities. Each firm has 3 to 4 HR professionals depending upon the size of the firm. One employee from each firm was approached personally and requested to fill out this research questionnaire. Keeping in mind the availability of respondents in each firm, about 340 questionnaires were sent of which 235 were returned. Out of 235 responses, 208 forms, yielding a response rate of 61.17% were found complete in all aspects which were finally used for data analysis of this research. The G*Power version 3.1.9.4 a priori determining the sample size tests indicated that the sample size exceeded the number needed to achieve a significant result (i.e., $n = 235$) at the power 0.801 and $\alpha = 0.05$, which is in accordance with Fritz and McKinnon's (2007) guidelines. Before research is done, a priori analyses offer an effective way to regulate statistical power (Bredenkamp, 1969; Hager, 2006) such as the time and money needed for data collection, which is not crucial. The sample size N is calculated in a priori power analysis as a function of the necessary power level $(1 - \beta)$, the predetermined level of significance, as well as the population effect size, to be observed with a likelihood $(1 - \beta)$ (Cohen, 2013).

3.3   Measurement

To measure the OC, four items scale was adopted from Deshpandé et al. (1993), three items for each of the GHRM practices, i.e., GR, GT, GC and benefits were adopted from (Bhalla and Lin, 1987). To measure EP, five items scale was adopted from Rao and Holt (2005). All the items were measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

4   Results

In general, PLS-SEM is used to measure the relationship between two or more endogenous and exogenous variables (Hair et al., 2016). PLS-SEM is a widely used technique in the social sciences due to its ability to test multiple dependent and independent variables simultaneously (Lu et al., 2015). In addition, it is also useful to test the skewed and small data samples (Hulland, 1999). Furthermore, it is often used to measure the extent to which a hypothetical structure fits the data collected (Wong, 2013). Moreover, the nature of the current study is explanatory as the current study tries to explain why and how GHRM practices impact EP. Therefore, PLS-SEM was chosen to test the hypotheses. Although Dash and Paul (2021) concluded that CB-SEM and PLS-SEM are equally effective in evaluating the structural models and provide almost the same results. Moreover, descriptive analysis was performed to find the patterns of data. Results of the descriptive analysis are shown in Appendix.

4.1 Common method bias

Common Method Bias uses a common latent factor (CLF) to apprehend the common method variance between all variables observed in the model. If there are large differences (≥ 0.200) between the two regressions weights (standardised CLF values with and without CLF values) then CLF will remain to eliminate CMB, or the model is free from common method bias if less than 2. In our study, there is not much difference between these two regression weights, which suggests that the model is free from common method bias as shown in Table 1.

Table 1   Comparison between standardised regression with CLF values and standardised regression without CLF values

Item	Estimate (with CLF)	Estimate (NO CLF)	Difference
GR1	0.602	0.767	0.165
GR2	0.737	0.878	0.141
GR3	0.654	0.814	0.16
GT1	0.727	0.833	0.106
GT2	0.692	0.788	0.096
GT3	0.69	0.765	0.075
GC1	0.618	0.798	0.18
GC2	0.799	0.833	0.034
GC3	0.759	0.893	0.134
OC1	0.732	0.888	0.156
OC2	0.794	0.893	0.099
OC3	0.654	0.778	0.124
OC4	0.712	0.769	0.057
EP1	0.786	0.875	0.089
EP2	0.675	0.759	0.084
EP3	0.642	0.759	0.117
EP4	0.714	0.83	0.116
EP5	0.618	0.771	0.153
ST1	0.614	0.813	0.199
ST2	0.556	0.718	0.162
ST3	0.779	0.814	0.035
CP1	0.675	0.862	0.187
CP2	0.685	0.807	0.122
CP3	0.75	0.829	0.079

4.2 Measurement model

The measurement model also known as the inner model was used to check the reliability and validity of constructs. The measurement model analyses the relationship between a construct and its indicators. The measurement model is assessed through reliability and validity. Reliability is a measure of internal consistency and is used to check the accuracy

of the instruments whereas validity refers to the extent to which a concept is accurately measured in a quantitative study. In short, these measures are used to check the quality of data collected.

4.3 Reliability testing

Firstly, reliability and validity were checked for the constructs used for this study. Reliability is assessed through Cronbach's alpha composite reliability (CR). Nunnally and Bernstein (1967) recommended using constructs having Cronbach's alpha value of 0.70 or greater. For this study, the values of Cronbach's alpha for all the variables are greater than 0.70 which means that there is no issue of internal consistency. Another measure of internal consistency is CR which is used to measure reliability. The values of CR between 0.60 to 0.70 are considered reasonable and are ideally acceptable if they are above 0.70 and less than 0.90 (Nunnally and Bernstein, 1994). The values of CR in this research are ranging from 0.80 to 0.84 which depicts excellent CR as mentioned in Table 2.

Table 2 Factor loadings, AVE, CR and Cronbach's alpha

Construct	Item	Outer loading	AVE	CR	Cronbach's alpha
Environmental performance	EP1	0.721	0.584	0.875	0.876
	EP2	0.783			
	EP3	0.773			
	EP4	0.713			
	EP5	0.824			
Green compensation	GC1	0.818	0.608	0.822	0.819
	GC2	0.853			
	GC3	0.655			
Green recruitment	GR1	0.726	0.555	0.789	0.790
	GR2	0.732			
	GR3	0.776			
Green training	GT1	0.903	0.674	0.859	0.852
	GT2	0.656			
	GT3	0.881			
Organisational culture	OC1	0.950	0.620	0.889	0.893
	OC2	0.784			
	OC3	0.696			
	OC4	0.752			
	OC5	0.729			

4.4   Validity testing

4.4.1   Average variance extracted (AVE)

After assessing the reliability, we checked the data for the validity of the constructs under study. First, we checked for convergent validity by assessing the AVE. According to Petter et al. (2007), convergent validity examines how well the items of a construct load or converge on their constructs. AVE values in this study for all the constructs are greater than 0.70 which is well above the line and exhibits to be superior in convergent validity.

4.4.2   Discriminant validity (DV)

DV examines the extent of differentiation between the constructs in a model (Hair et al., 2016; Haq et al., 2019). Henseler et al. (2015) introduced Heterotrait-Monotrait (HTMT) ratio to assess the DV. The authors further argued that the Fornell-Larcker criterion can measure the discriminant effectively, but it is unable to measure the lack of DV. Therefore, the DV was measured using HTMT ratios. According to Henseler et al. (2015), DV is established if the HTMT ratio is less than 0.90 and the values of variables under study are well below the threshold values. Table 3 represents HTMT ratios for all the constructs.

Table 3   HTMT ratio

| Variable	EP	GCB	GR	GT	OC
EP					
GCB	0.845				
GR	0.806	0.743			
GT	0.816	0.901	0.882		
OC	0.814	0.657	0.671	0.775	

4.5   Results of structural model

As recommended by Hair et al. (2019) and Dijkstra and Henseler (2015), reflective measurement models computed as composites were employed because whenever the structural model appears complex and entails several constructs, indicators, and interactions PLS-SEM is recommended for testing hypotheses it was done by using Smart PLS-SEM Version 3.3.5. Table 4 shows the results of hypotheses testing. Four out of six hypotheses are supported in our model. The direct path of Hypotheses 1, 2 and 3 shows that GHRM practices have a significant impact on EP and we found in comparing the direct relationships GT has a stronger relationship with EP as compared to GR and GC relationship with (EP) basing upon the path coefficients higher the coefficient stronger the relationship. Moreover, Hypothesis 4a moderation of OC in Pakistan-based construction companies positively moderates the relationship between GR and EP. However, Hypothesis 4b about moderation of OC in Pakistan-based construction companies does not moderate the relationship between GC and EP. Similarly, Hypothesis 4c about moderation of OC in Pakistan-based construction companies does not moderate the relationship between GC and EP in our study. There are several reasons behind this but mainly is organisation's priority is not EP, but their focus is on generating

more and more business and not considering environmental changes. Secondly, there is an absence of a culture that focuses on the reduction of wastage, recycling materials, controlling pollution, and efficient use of energy.

Table 4   Hypotheses results

Sr. no.	Hypothesis	Path coefficient	T statistics	P values	Effect size f^2	Hypotheses decision
H1	Green recruitment → Environmental performance	0.284	4.218	0.000	0.049	Supported
H2	Green training → Environmental performance	0.424	6.085	0.000	0.013	Supported
H3	Green compensation → Environmental performance	0.235	3.038	0.002	0.139	Supported
H4a	Green recruitment * Organisational culture → Environmental performance	0.182	2.678	0.008	0.000	Supported
H4b	Green training * Organisational culture → Environmental performance	−0.058	0.799	0.425	0.000	*Not supported*
H4c	Green compensation * Organisational culture → Environmental performance	−0.124	1.635	0.103	0.004	*Not supported*

Figure 2   Structural model
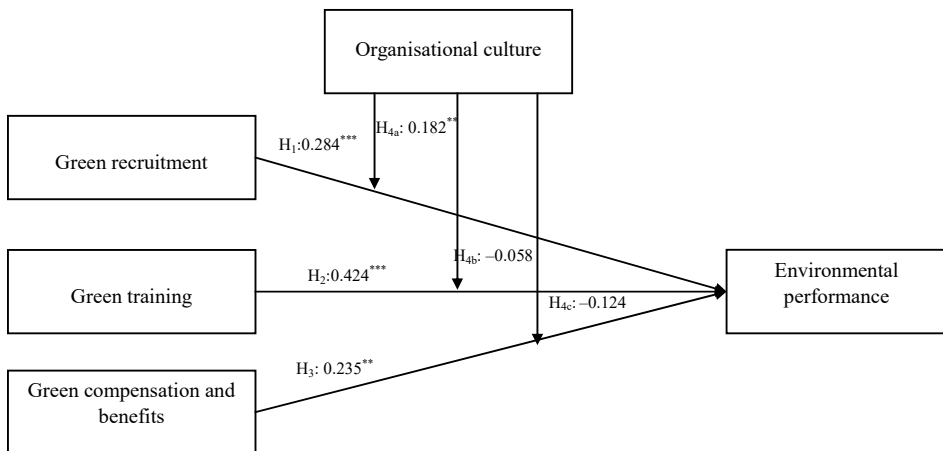
5   Discussion

In recent years, a rapid increase has been seen in the importance of human resource management's role in climate management (Renwick et al., 2016). Projects in construction companies are dependent on HRM and labor as HR is a source of many skilful people for construction organisations, in the shape of project managers, engineers, consultants, labour, etc. As a supporter of GHRM, it can be said that GHRM is the

combination of HRM and environmental management. GHRM has become an important factor of improvement in organisations. GHRM practices are considered a business strategy that makes a big difference in the success of businesses and acts as a competitive advantage (Chakraborty and Biswas, 2020; Yong et al., 2019a, 2019b) because human resource is considered as one of the crucial resources in organisations who can play the most important role in going green (Hameed et al., 2020). The implementation of the concept of GHRM has been found in almost all big sectors that play a prominent role in the betterment of the economy of any country (i.e., tourism (Yusoff et al., 2018), IT (Ojo et al., 2020), banking (Sandaruwan et al., 2020), manufacturing (Mohammad Ashraful et al., 2021), dairy (Kularathne and Rajapaksha, 2020), education (Gill et al., 2021) and many more because it is the need of an hour.

It is the responsibility of HR to innovate the objectives of HR members and other employees of the organisation by adding the GHRM factor in their job descriptions. It should make sure that these goals should be aligned with organisational policies and culture. There should be an integration of GHRM activities with HR procedures, such as hiring, training and compensation or benefits. Lastly, it can be said that introducing GHRM in organisations, will help organisations to prosper.

There are six hypotheses in this research. The study in this research paper investigates the relationship between GR, GT, GC and benefits, and its significant positive impact on EP. The results extracted from Smart PLS revealed that there is a positive relationship between GR, GT, GC and benefit and EP. The findings were consistent with hypothesis H1 in the previous studies (Abiwu and Nunoo, 2021; Gill et al., 2021; Yusoff et al., 2018; Usman and Mat, 2021; Obaid and Alias, 2015) argued that human resource is one of the crucial resources in organisations who can play the most important role in going green (Hameed et al., 2020). As per the studies, organisations hire candidates with pro-environmental behaviour which promotes EP in a way that green recruited candidates help organisations to improve the EP as they already have green awareness. The organisations are working hard for going green by taking initiatives like making hiring processes online to minimise energy use, least use of paperwork, controlling pollution by not travelling for jobs from one place to another just for the sake to apply for a job, recycling of materials, etc. Candidates will be hired based on their environmental problem-solving skills which will be cost-effective as they will not need basic training as well. GR in actuality provides a path for the organisations to implement further GHRM practices (i.e., GT, GC and rewards, etc.).

For Hypothesis H2, previous studies (Pham et al., 2020; Gill et al., 2021; Yafi et al., 2021; Nisar et al., 2021) are also aligned with our studies. The reason for being accepted is that organisations are of the view that training employees are in benefits organisations for fruitful results in long run regarding EP and it also offers a high percentage of return on investment because it helps to create green skills, abilities, pro-environmental behaviours and awareness in employees for the better implementation of GHRM practices in organisations.

The studies also argue that there is a difference between awareness and actual implementation of any behaviour in employees. Only having awareness about GHRM practices is a partial thing, (i.e., GR), training is playing a major role in the actual implementation of GHRM practices in an organisation. For employee commitment and corporate social responsibility, training and employee involvement plays a vital role in going green because it helps to create a behaviour in employees to own the things (i.e., implementation of GHRM practices).

In Hypothesis H3, the findings of the current study also confirm the findings of previous studies (Sathya and JayaKrishnan, 2014; Bangwal and Tiwary, 2015; Ahmad, 2015; Rawashdeh, 2018), that GC and benefits is rewarding employees based on their environmental problem-solving. Compensation can be in financial or non-financial form. Financial compensation includes free meals, free home pick and drops, and salary bonuses whereas non-financial benefits include monthly acknowledgments throughout the organisation, extra leaves or time offs during working hours. The concept of GC and benefits among employees plays a major role in the implementation and holding of GHRM practices in the organisation. Studies suggest that through compensation and benefits programs, employees become motivated for taking green initiatives which directly help in EP. When employees know that based on their green behaviour, the organisation is going to recognise them through financial or non-financial means it boosts the behaviour where they start giving their best in the implementation of GHRM practices by adopting the concept of corporate social behaviour (i.e., employees own the attitude of practicing GHRM concept automatically).

Hypothesis H4a was accepted, it discusses that OC moderates the relationship between GR and EP. The study (Gill et al., 2021) is aligned with our hypotheses, that it is clear that candidates with pro-environmental behaviour increase EP in organisations. Employees who have awareness about environmental issues help to create a culture in organisations where other employees can start practicing GHRM activities under their supervision or by watching them practicing GHRM activities. For GHRM practices, GR completes half of the equation. An organisation that supports the GHRM concept creates a culture where employees become aware of environmental problems and motivate them to adopt the corporate social responsibility CSR concept (Yusoff et al., 2018).

According to Hypothesis H4b, the OC moderates the relationship between GT and EP was not supported and rejected. The results of this study agree with Darvazeh et al. (2022) that in developing countries like Iran, housing is one of the major concerns but the construction sector has lack awareness and knowledge about the environmental issues. Construction companies are facing the problem that employees are not fully aware of environmental concerns and when higher authorities consider training employees about EP, they become confused that from where to start. OC helps the employees for going green but if there is no culture of training in the organisation then EP will suffer. In Pakistan, the same issue is happening that due to a lack of GT culture in construction sectors environmental fears are happening, i.e., smog, pollution, wastage of energy use, etc. In this respect training regarding EP is suggested.

In continuation of Hypothesis H4b, Hypothesis H4c, OC moderates the relationship between GC and benefits and EP was also rejected. The reason being, compensating and benefit is the next level of training employees. If organisations are unable to conduct GT regarding environmental concerns then how the concept of green compensating and rewarding employees will happen in organisations? GC and benefits is rewarding employees to adopt green practices in organisations. EP improves when employees get rewards and bonuses based on efficient EP within the organisation as well as in projects (Ahmad, 2015).

Compensation and benefits exists in the form of financial or non-financial programs through which organisations can motivate employees. If there is a culture in organisations for rewarding those employees who practice GHRM activities then EP will automatically increase. So OC strengthens EP if rewarding employees appropriately. But in Pakistan,

there is no proper implantation of GHRM practices in organisations due to a lack of awareness, training and rewarding systems. Higher authorities do not acknowledge employees who try to practice GHRM activities with little awareness because they also do not have proper knowledge about environmental issues. Creating a culture where employees will be acknowledged through financial or non-financial programs in an organisation will increase EP. But unfortunately, as per the results of this study OC does not support employees to go towards better EP due to a lack of training and no proper implementation of compensating and benefiting employees who try to implement HRM activities.

5.1   Theoretical implications

In the past, researchers have worked on GHRM and its impact on EP as well. Following are the theoretical implications that will be generated from this study: The theoretical work about GHRM was mostly done in developed countries (Yong et al., 2019a, 2019b). If we look at it in terms of underdeveloped nations, there was a big loophole. GR was the first variable used in GHRM for this study. Recently, a lot of studies have been conducted on GR by researchers concerning EP. But this research will add the fact for future research that how it impacts the EP in construction organisations, specifically for a construction project. The construction industry has not been focused on GR activities (Guerci et al., 2016). GT was to train people on their jobs on how our environment can be made eco-friendly. This research will help future researchers to explore more about GT and how its impacts EP in the construction industry in Pakistan. GC and benefits allow people to be rewarded based on their environment-friendly behaviour which will result in achieving the ultimate EP. This research study has found how compensation and benefits would benefit employees more. OC was our moderating variable which impacts the EP by working as a moderator with each respective green activity. As per our knowledge, there are studies in which stakeholder pressure, customer pressure, and human behaviour are used as moderating variables. Some studies test the impact of GHRM on EP but do not have any moderator at all (Cheema et al., 2015; Jehan et al., 2020; Luu, 2019; Halawi and Zaraket, 2018). So, this was going to enhance the body of knowledge, as this was the first time as per the researcher's understanding that organisation culture has been used as a moderating variable to check the relationship between GHRM activities and EP.

5.2   Practical implications

GR can be used practically as it is going to help organisations to hire only those candidates, who have awareness regarding the importance of an eco-friendly environment. As most of the employees employed on construction sites do not care about EP. If the hired candidates have green awareness, they will make a sure reduction in waste, recycling of material, control dust, etc. especially in the field which ultimately results in the EP of the construction site. Practically, employees can be hired via online portals in construction organisations like the hiring process was upgraded in the industries in Pakistan. GT was one of the best tools for construction companies to implement. This study can help them to train their employees on a green basis. Even if the hired employees do have not that much awareness regarding the environment, the training tool will make them environment-friendly employees. GT will help employees to participate in green activities taught during the training sessions by respective

organisations. GC and benefits was basically to reward those employees who performed well to save the environment while doing projects. Rewarding people for their EP will surely enhance the EP of the construction projects and it will also encourage the employees to work for benefit of EP. Bonuses can be rewarded to those who have done reduction in wastage of the construction projects, control dust, and recycled the materials which can be reused. OC plays a significant role in the implementation of any new idea or technology. This research will help organisations to make green human resource practices part of their culture. As the OC helps in the implementation of GHRM, which will enforce employees to have green values and behaviours. As a result, EP in construction projects will increase and ultimately enhance the overall EP of Pakistan. This will help the ultimate reduction in air and water pollution in Pakistan which was causing smog each year in the last decade.

5.3   Limitations of the study and future research

Most of the targeted population who were available on the construction site were hesitant to respond because of the lack of awareness of the term GHRM. The hiring and training process costs a lot which makes firms not follow the GHRM practices. It is noticed that most of the firms are not applying GHRM practices due to the cost factor and as a result, their employees are not playing an active role in green performance. Therefore, future research must be carried out by considering the cost to implement GHRM. Moreover, it is noticed that most firms do not reward their employees based on green performance. Hence, organisations should attach rewards to green performance to motivate employees. Another limitation of the study is OC does not support GHRM implementation significantly hence, there is a need to educate the organisations about EP and how the organisations can play their role to improve the environment. Moreover, it is suggested that more moderating variables can be included such as regulatory authorities, and market conditions on the implementation of GHRM in developed and underdeveloped countries.

5.4   Conclusions

As per the findings, the conclusion is that there is a positive impact of GC and benefits on EP. This means that organisations compensate their employees based on EP. In the same way, the impact of GR on EP has been accepted. This means that organisation's priority is to recruit candidates based on their green awareness. Similarly, the impact of GT on EP has been accepted. This means that organisation's priority is not only about generating more business, but they think of training as a benefit in long-term. As far as the moderating role of OC is concerned, results conclude that OC does not support the moderation of the relationship between GC and benefits, GT and EP. It means that organisations need to reintroduce their strategy with the addition of GHRM. They should focus on EP with economic goals as well. This will help them stay competitive in the market and will improve overall EP as well.

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Appendix

Table A1   Descriptive statistics

Item	Frequencies	Mean	Standard deviation	Excess kurtosis	Skewness
GR1	208	3.318	0.917	–0.125	–0.377
GR2	208	3.293	0.966	–0.267	–0.062
GR3	208	3.083	1.082	–0.508	–0.288
GT1	208	3.357	1.041	–0.593	–0.52
GT2	208	3.268	0.96	–0.297	–0.081
GT3	208	3.287	1.035	–0.319	–0.286
GC1	208	3.338	1.098	–0.51	–0.499
GC2	208	3.006	1.091	–0.518	–0.191
GC3	208	3.032	0.987	0.025	–0.225
OC1	208	3.223	1.026	–0.206	–0.46
OC2	208	3.465	0.955	0.14	–0.476
OC3	208	3.459	0.987	0.182	–0.706
OC4	208	3.592	0.937	0.417	–0.74
EP1	208	3.548	0.947	0.429	–0.797
EP2	208	3.468	1.077	–0.156	–0.585
EP3	208	3.382	1.181	–0.466	–0.523
EP4	208	3.261	1.054	–0.12	–0.409
EP5	208	3.325	0.966	–0.085	–0.136
ST1	208	3.242	1.043	–0.247	–0.296
ST2	208	3.459	0.913	–0.186	–0.332
ST3	208	3.49	1.013	0.226	–0.66
CP1	208	3.229	0.963	–0.08	0.042
CP2	208	3.439	0.986	–0.457	–0.373
CP3	208	3.408	1.028	–0.178	–0.388