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Relationship of environmental strategy and performance: role of green human resource management

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Abstract: In view of the increasing attention of stakeholders addressed towards environmental issues, organisations have begun to proactively adopt environment management strategies. Green human resource management (GHRM) practices serve to translate strategy into performance outcomes. The present study focuses on the relationship between proactive environmental strategy (PES) and environmental performance (EP) with GHRM as the mediator. Literature reveals that though research attention has been directed towards the adoption of proactive environmental strategy, studies focusing on the mediating role of GHRM in the relationship between PES and EP are lacking. The present study aims to fill this gap. Data was collected through a questionnaire survey conducted among the employees of the selected firms. The total sample consisted of 290 executives. Results from structural equation modelling suggested that PES had a positive effect on EP with GHRM partially mediating this relationship. Managerial implications of the study are discussed.

Keywords: proactive environmental strategy; PES; environmental performance; green human resource management; GHRM; sustainable development; environmental management.

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1 Introduction

Global concerns related to environmental issues such as greenhouse gas emissions, depletion of ozone layer, increasing levels of pollution, etc. along with stakeholder pressures have led organisations to increasingly adopt environment friendly policies and practices. Environment management activities are directed towards reducing the negative environmental impact of organisational processes, providing the competitive edge (Yang et al., 2019) while improving overall organisational performance (Yang et al., 2011) and achieving sustainability (Aragón-Correa and Sharma, 2003). Firms have the option of choosing from among various strategic options ranging from the reactive to a proactive environmental concern with the objective of minimising the negative environmental impact of business activity (Do and Nguyen, 2020). Environmental strategy involves incorporating environment issues in corporate strategy. Pursuing a proactive environmental strategy (PES) results in the alignment of organisational strategy with the dynamic, complex and uncertain business environment (Aragon-Correa and Sharma, 2003) and helps firms to adopt social and environmental initiatives. PES gives high priority to environmental issues (Bowen et al., 2011) going beyond mere compliance with environmental regulations (Sharma and Vredenburg, 1998). Hence, firms with a PES contribute voluntarily towards environmental activities with the objective of achieving competitive advantage and improved firm financial performance. Extant literature on the relationship between PES and environmental and financial performance of the firm is equivocal (Zhang et al., 2019). Studies suggest that these inconsistent findings may be in part due to the omission of crucial mediating variables (Dai et al., 2017). Green human resource management (GHRM) provide an internal approach for the implementation of PES. Since environmental management is human resource (HR) intensive (Azzone and Noci, 1998; Daily and Huang, 2001), GHRM is extremely relevant for ensuring the availability of relevant skills and capabilities for effective implementation of PES leading to improved organisational performance (Daily et al., 2012).

Transforming HRM by integrating greening into its regular HR practices such as training, recruitment, rewards, etc., promotes the implementation of organisational environmental strategy through the development of workforce capability for effectively managing environmental issues. GHRM practices promote sustainable use of organisational resources (Zoogah, 2011), enhance the brand image (Shen et al., 2016), attract better talent (Renwick et al., 2013), provide competitive ability (Yusoff and Nejati, 2017) and help in improved employee retention (Holtom et al., 2008).

Firms seek to adopt PES to improve environmental performance (EP) as well as to gain a competitive advantage (Zhu et al., 2008). The basic premise followed by firms for adopting PES is the achievement of improved organisational EP (Klassen and Whybark, 1999; Li et al., 2020). However, strong research evidence regarding improved EP is still

absent from literature (Lee and Rhee, 2007; Li et al., 2016). Ateş et al. (2012) posited that lack of attention given to a crucial mediating variable in this relationship, that is, environmental investments, is a likely explanation. Previous studies have also demonstrated the important role of environmental collaboration with suppliers (Li et al., 2020) and eco-innovation (Tsai and Liao, 2016) in the relationship between PES and EP.

According to contingency theory, both, the strategy development and its implementation are important when analysing performance outcomes (Ginsberg and Venkatraman, 1985). Environmental strategy is translated into actions through environmental investments. However, there is limited research to address the relationships between environmental strategy, environmental investments and performance outcomes. Though firms are adopting PES, this frequently does not translate into higher investment of time and money in environmental issues (Aragón-Correa and Rubio-Lopez, 2007). This may explain why PES does not always result in improved EP. The importance of the mediating role of environmental investments is explained through the contingency theory. Contingency theory views performance from a systems perspective composed of: input, process (throughput) and output. The actions or processes mediate the relationship between strategy and performance (Ginsberg and Venkatraman, 1985). Human resource management (HRM) plays an important role in supporting an organisation's strategic vision (Kim et al., 2019) through strategically aligned HRM practices. HR practices translate organisational strategy into performance through creating capabilities, skills, competencies and commitment. A review of empirical literature by Becker and Gerhart (1996) suggested a significant relationship between a firm's HRM system and its organisational performance. However, HRM, by itself, does not contribute to profits or firm financial performance. The role of HRM practices in building capabilities, competencies and commitment is important in driving organisational performance. Studies have suggested that environmental focus in HRM practices improves EP of organisations (López-Gamero et al., 2009), which in turn results in firm financial performance. Many HR practices have been used to disseminate green ideologies within the firm (Fernández et al., 2003). These include recruitment, training, rewards and so on. Therefore, we argue that PES is implemented through GHRM practices which in turn results in high EP. Through this research, we draw attention towards incorporating environmental concerns as part of organisational strategy and translate strategy into the indicators of EP. The role of GHRM practices in accomplishing the targets of EP indicates the need to integrate environmental criteria in the design and implementation of HRM practices.

Given that it is important for organisations to demonstrate environmental consciousness, it is imperative that organisations integrate greening in their day-to-day activities. For achieving high levels of EP, it is important to involve all employees in the sustainability agenda of the organisation. GHRM can lead to improved EP through the development of knowledge and capabilities of HRs. Daily et al. (2012) demonstrated that green training and empowerment leads to an improvement in EP but this improvement is further strengthened if PES and GHRM are coupled (Daily and Huang, 2001). Earlier researches (Jabbour, 2008) have focused on studying GHRM conceptually, however there is a lack of empirical evidence (Nejati et al., 2017) in the area. GHRM focuses on developing the internal capabilities of employees resulting in higher commitment and morale (Kim et al., 2019) among employees, thereby resulting in competitive advantage for the organisation (Sharma and Vrendenburg, 1998).

Hence, it is important to study the mediating role of GHRM practices in the relationship between PES and EP. The present study, therefore, seeks to understand the direct and indirect effect of PES on EP.

We begin the paper by discussing the natural resource-based view (NRBV) of the firm. Subsequently the extant literature in the field is discussed followed by methodology, results and discussion. The paper concludes with implications and limitations of the study.

2 Theoretical framework

2.1 Natural resource-based view

Research studies on environmental strategy have largely utilised the resource-based view of the firm (Ryszko, 2016). Barney (1991) initially proposed the resource-based view (RBV) of the firm which suggests that the firm's resources (tangible and intangible) contribute to a sustained competitive advantage for an organisation when they are rare, valuable, inimitable and non-substitutable. Thus, these resources have the capability to differentiate the organisation and are fundamental determinants of organisational performance (Barney, 1991). Hart (1995) suggested that the, "natural environment could create serious constraints on firms' attempt to create sustainable advantage" [Hart and Dowell, (2011), pp.1465]. Hence, the existing resource-based theory (RBT) ignored the important interaction between an organisation and its natural environment (Hart, 1995). Therefore, Hart (1995) provided an extension of RBV and proposed the NRBV by incorporating natural environment into the RBV framework. NRBV suggested that an organisation could develop competitive advantage by addressing the challenges posed by natural environment. Hart (1995) argued that NRBV could help the organisation improve its performance and foster sustainable development by implementing three interconnected strategies, i.e., pollution prevention, product stewardship and sustainable development to gain a differentiating edge.

According to Hart (1995), the initial level of PES focuses on pollution prevention in which the organisation seeks to maintain its wastes and emissions below the legal requirements. Hence, *pollution prevention strategy* is reactive in its approach (Lee and Rhee, 2007) focused on legal compliance only. This forms the lowest rung of the environmental practices pyramid. *Product stewardship strategy* focuses on redesigning products and processes by the firm to be environmental friendly. Hence, product stewardship strategy is opportunistic (Lee and Rhee, 2007) and relates to intermediate level of environmental activities. The third strategy is *sustainable development* (Hart, 1995) that is, the organisation focuses on developing clean technologies (Buysse and Verbeke, 2003). Sustainable development also refers to PES (Lee and Rhee, 2007) that aims to implement highest level of environmental activities in an organisation. Thus, environmental strategies of an organisation may transcend along a continuum from the reactive to proactive (Lee and Rhee, 2007). These are discussed in greater detail in the next section. The proactive strategy acts as an intangible resource that aims to provide new perspective to the organisation by incorporating environment friendly processes and practices. PES also demonstrates that the organisational leaders are committed to preserve the environment and adopt processes that are environment friendly. RBV states that even if resources exist in an organisation, there need to be capabilities in the

organisation to leverage those resources (Prahalad and Hamel, 1990; Teece et al., 1997). HRs provide these capabilities and become a source of sustained competitive advantage for an organisation when they are valuable, non-tradable, non-imitable and sustainable. From the perspective of NRBV, firms with PES have the capability of using their resources efficiently and design GHRM practices as an approach to implement environmental strategies (Zhao et al., 2020).

3 Conceptual background

3.1 Proactive environmental strategy

PES is the systematic approach of an organisation for addressing environmental concerns. This reflects the orientation of a firm to voluntarily implement environmental practices beyond those that are legally mandated (Sharma and Vredenburg, 1998).

As discussed already, environmental strategies differ with regard to the extent to which they are proactive towards environmental concerns (Hart, 1995). Literature (Lee and Rhee, 2007; Buysse and Verbeke, 2003; Henriques and Sadorsky, 1999; Roome, 1992) classifies different environmental strategies along a continuum ranging from reactive (legal compliance) to proactive (voluntary and strategic response). Table 1 presents different classifications of environmental strategies.

From Table 1, it is evident that as one moves through the continuum of classification of environmental strategy, the degree of proactivity and commitment to the natural environment increases (Seroka-Stolka and Fijorek, 2020). From being indifferent and non-responsive to environmental concerns, the organisation moves towards fulfilling the legal requirements. This change is gradually extended to voluntary adoption of activities for environmental protection. The proactive strategy considers environmental issues as top priority and voluntarily invests resources to fulfil environmental goals throughout the organisation.

Hence, the adoption of a particular strategy depends upon the priority that the organisation extends to environmental concerns. The organisations that demonstrate high environmental concern tend to adopt proactive strategy. On the other hand, organisations that have scant commitment for environmental issues adopt an opportunistic or reactive strategy. Thus, PES aims to implement the environmental vision, plans and processes of the organisation and seeks to fulfil its environmental goals. It also aims to move beyond environmental laws, reduce the harmful effects of organisational processes on the environment (Ateş et al., 2012) and provide a differentiating edge to the organisation against the competitors (Dai et al., 2017).

3.2 Green human resource practices

The concept of GHRM was first proposed by Wehrmeyer (1996) who edited a book titled *Greening People: Human Resources and Environmental Management*. Opatha and Arulrajah, (2014) defined GHRM as environment friendly HR practices and activities involved in the development, implementation and ongoing maintenance of a system that aims towards greening the organisation. According to Rani and Mishra (2014), green HRM refers to those practices that encourage all employees to support environmental

initiatives of the firm and improves employee commitment to environmental issues leading to green employees.

Table 1 Classification of environmental strategies

S. no.	*Author (year)*	*Classification of environmental strategies*	*Description*
1	Roome (1992)	Non-compliance strategy	The organisation does not have the capability or does not aim to change with the changing environmental standards
		Compliance strategy	Reactive legalistic response
		Compliance plus	Proactive strategic approach on environmental management
		Commercial and environmental excellence strategy	Focuses on addressing the environmental concerns as a top agenda.
		Leading edge strategy	Organisation seeks to be leader and sets example for others.
2	Henriques and Sadorsky (1999)	Reactive strategy	The organisation does not have environmental strategy in place and no support of top management.
		Defensive strategy	Legalistic environmental approach with little support of top management
		Accommodative strategy	Documented environmental plans with complete support of top management.
		Proactive strategy	Environmental issues are prioritised in the organisation.
3	Buysse and Verbeke (2003)	Reactive strategy	Organisations have end of the pipe approach to environmental issues
		Pollution prevention	Investment in employee skills related to product technologies
		Leadership strategy	Investment in organisational competencies related to research, development and strategic planning process.
4	Lee and Rhee (2007)	Reactive strategy	Low level of environmental responsiveness
		Focused strategy	Focus on implementation of environmental activities in the organisation.
		Opportunistic strategy	Environmental activities with external stakeholders are also included
		Proactive strategy	Organisations involve most advanced environmental practices and consider environmental issues in all decision areas.

Source: Seroka-Stolka and Fijorek (2020) and Lee and Rhee (2007)

Macduffie (1995) suggested that HR practices act in bundles resulting in greater impact on organisational performance. The bundle of GHRM consists of several interconnected traditional HR practices that focus on the environmental aspect and cohesively work towards organisational goal fulfilment. GHRM uses a range of HR practices, such as training, rewards, recruitment, compensation, etc. to implement the green initiatives and

environmental strategy of a firm to enhance its performance (Zhao et al., 2020). The GHRM practices are termed as green recruitment, green training and development, green performance management, green rewards, green involvement (see Table 2).

Table 2 Definitions: green human resource practices included in GHRM bundle

S. no.	*Green HR practice*	*Definition*
1	Green recruitment	It is the process which focuses on attracting new talent in the organisation by giving due importance to the environment and making environment a major element of the recruitment process (Ahmad, 2015).
2	Green training	It includes training in programs specifically designed to improve the green awareness of employee and enhancing the environmental knowledge and skills of employees (Tang et al., 2018)
3	Green performance management	Green performance management includes green goal setting wherein EP indicators are set between the employee and his supervisor
4	Green compensation	It includes providing financial benefits (awards), non-financial (praise, recognition) rewards for green performance of an employee.
5	Green involvement	It includes employee's participation in environmental management activities through formal and informal platforms to enable employees to express their opinion of environmental protection (Dubois and Dubois, 2012; Zhao et al., 2020).

Source: Authors

According to Kim et al. (2019) GHRM bundle aims at reducing waste, educating employees to conserve energy and developing environmental strategies and actions in order to improve employee satisfaction (Khurshid and Darzi, 2016), image, goodwill and EP of the organisation (Kim et al., 2019). The bundle of green practices works in accordance to RBV theory and seeks to improve employee capabilities as well as organisational image. An important consequence of GHRM is that it converts employees to green employees (Opatha and Arulrajah, 2014).

3.3 Environmental performance

EP is defined as an organisation's commitment to perform its activities in such a way such that these are aligned with care and protection of the environment (Paillé et al., 2014; Gilal et al., 2019). EP provides a means to quantify the environmental efforts of an organisation and to demonstrate to its stakeholders that the organisation is working in an acceptable manner. Chaklader and Gulati (2015) believed that the stakeholders of an organisation that is, the customers, suppliers, shareholders, employees, etc., appreciate green organisations and prefer them over other organisations. Environment legislations have also increased the awareness of managers towards EP of a firm (DiPietro et al., 2013).

The measurement of EP is a comprehensive process that includes selecting indicators, collecting and analysing data, and assessing information about EP, reporting, communicating, and periodically reviewing the process. Different authors use different measures to study EP. For instance, Lober (1996) focused on two categories of measures,

viz. process-based and outcome-based, to study EP. Process-based measures involve the focus of all the policies, training, communications, etc. on EP of the organisation while outcome-based measures includes output measures such as level of toxic emissions, hazardous spills, legal and regulatory violations, fines and penalties. Illinitch et al. (1998) introduced various measurement systems such as the corporate environmental scorecard, corporate environmental reports, etc. to study EP.

Environmental variables measuring EP were grouped into seven categories that suggested a holistic perspective to study EP (Günther et al., 2004). These categories included strategic EP (application of EMS), operational EP (water pollution index), perceived EP/scorecard (questionnaire survey), environmental rating matrices, environmental awards, environmental reporting and environmental funds.

Implementation of EP programs have helped several industries to reduce the levels of their emissions, greenhouse gas, hazardous waste, etc. (Daily et al., 2012). Increased awareness of environmental issues has led several firms to adopt programs to enhance EP of the firm (Mensah, 2006). EP has garnered significant importance for practice over the past decade (Yusoff et al., 2018). It is important for researchers and practitioners to explore the reasons why firms engage in environment programs. It has been suggested that the integration of EP programs with business strategies is likely to result in improved organisational performance and competitiveness (Melville, 2010).

4 Literature review and hypothesis development

4.1 PES and GHRM

Increasing concern for environmental issues has encouraged organisations to re-think their strategies and transform them to be more environmentally sensitive. The organisational strategy generally focuses on developing a unified, comprehensive and integrated plan that aims to achieve the basic objectives of an organisation (Glueck, 1976). Government pressure, climate change and stringent environmental rules have shifted the focus of organisational strategy to incorporate environmental concerns.

PES results in improved financial and operational performance (Ryszko, 2016), enhanced environmental reputation (Zhao et al., 2020) and reduced environmental burden (Dai et al., 2017) leading to gaining an edge over the competitors. Similarly, PES through differentiation and low cost advantage (Mulaessa and Lin, 2021; Pan et al., 2020) results in competitive advantage for the organisation. This competitive advantage can be strengthened by incorporating green HR practices in the organisation (Tsai and Liao, 2016). PES reflect a change in the organisation's functional strategy that focuses on transforming HR policies and practices in the organisation (Piwowar-Sulej, 2022). The transformation in HR practices promotes sustainable use of resources and incorporates environmental friendly initiatives into regular HR practices. Bannerjee (2002) and Li et al. (2016) stated that "proactive environmental strategies can be divided into two categories, that is: content strategies, that focus on environmental priorities and their alignment with business strategy, and process strategies that address the formulation and implementation of environmental strategies" [Zhang et al., (2019), p.1439]. According to Zhang et al. (2019), GHRM constitutes an implementation variable of PES. Hence, GHRM helps provide technical and managerial skills or capabilities to support the implementation of PES and subsequently results in improved performance (Daily et al.,

2012). GHRM practices help in achieving the environmental vision of an organisation by improving the capabilities of the employees and motivating them to engage in environmental friendly activities and encourage efficient use of organisational resources (Tang et al., 2018). According to the rationale presented by NRBV, both – the internal competitive approach and external legitimacy are important for sustained competitive advantage (Hart, 1995). GHRM provides for an important internal approach for ensuring the success of PES (Daily et al., 2012). Elements of GHRM, such as green training, performance appraisal, rewards, etc. (Jabbour et al., 2015) potentially develop valuable, rare, non-imitable and non-substitutable green HRs and predict competitive advantage. Liu and Shu (2020) demonstrated that the NRBV of an organisation along with PES enables the organisation to achieve environmental goals through environment friendly processes and technologies [Ahmad et al., (2021), p.9482]. Therefore, GHRM plays a key role in motivating employees of an organisation to adopt pro-environmental activities, and also develops capabilities to support and implement environmental strategy (Tang et al., 2018). However, literature related to the significance of GHRM practices is largely conceptual (Jabbour, 2008) pointing towards the need to generate empirical evidence to understand the importance of GHRM in implementing environmental strategy (Nejati et al., 2017). Therefore, we propose the following hypothesis:

H_1 There exist a significant positive relationship between PES and GHRM practices.

4.2 GHRM and EP

Extant research has focused on understanding the indicators of EP (Yusoff et al., 2018). Among these are, environmental disclosure in financial reporting (Al-Tuwaijri et al., 2004), corporate annual reports (Ingram and Frazier, 1980), and such other financial indicators. Yusoff et al. (2018) found that GHRM practices play an important role in driving EP of firms. Scholars have proposed that among GHRM practices, green recruitment focuses on employees with green competencies who show greater environmental skills (Zhao et al., 2020) in their work. Zibarras and Coan (2015) considered green recruitment as one of the important constituents of GHRM practices that focuses on recruiting people who are aware of their environmental impact, which results in improving the EP of the organisation (Zaid et al., 2018; Malik et al., 2021). Green training enhances employee ability for environmental protection (Zhao et al., 2020) and motivates the employee to pursue sustainability goals (Liu et al., 2014). Green training focuses on improving employee skills and commitment towards adopting a sustainable approach to work (Piwowar-Sulej, 2022). It also enhances the knowledge of the employee about methods to reduce waste and the potential negative impact of regular activities on the environment. Thus, green training helps employees in solving environmental problems more effectively (Zoogah, 2011) leading to improved organisational EP (Pham et al., 2020; Masri and Jaaron, 2017). Green performance management facilitates setting specific environment related targets in the organisation (Govindarajulu and Daily, 2004) resulting in aligning employee behaviour with organisational environmental goals and motivating employees towards better EP (Siyambalapitiya et al., 2018). Zaid et al. (2018) found that green performance management helps in improving the EP of the organisation.

Green compensation is an effective way to encourage environmental innovativeness and enthusiasm in employees. It involves providing incentives to employees for their

environmental friendly behaviour thereby enhancing employee commitment to pro environmental behaviour (Jerónimo et al., 2020). Zaid et al. (2018) and Malik et al. (2021) found that green compensation improves the EP of the organisation. Similarly, green involvement engages employees at all levels in environmental management activities (Tang et al., 2018; Dangelico, 2015) and creates awareness among employees regarding green issues (Ahmad, 2015). Thus, green involvement also leads to improved EP of the organisation (Dangelico, 2015).

All the GHRM practices work in a synergistic manner to improve the EP of an organisation (Kim et al., 2019; Zaid et al., 2018). Hence, GHRM bundle fosters environment management skills and motivation among the employees resulting in improved organisational EP (Zaid et al., 2018; Kim et al., 2019). Implementation of GHRM practices is indicative of high environmental awareness and responsibility on the part of the organisation. GHRM practices are an important strategy for enhancing the economic and environment related performance of an organisation (Yusoff et al., 2018; Qiu et al., 2020; Bhatia, 2021). Based on the above literature we propose the following hypothesis:

H_2 There exist a significant positive relationship between GHRM practices and EP of the organisation.

4.3 PES and EP

Another linkage in our framework is to study the effect of PES on EP. The definition of PES suggests that when a firm adopts PES, it also voluntarily adopts environmental management practices and other environment processes such as implementation of environmental management system, adopting ISO standards 14,001 or developing new products, etc. to address environmental concerns. These activities help in generating financial gains for the organisation through improved financial performance (Barney, 1991), operational performance (Dai et al., 2017), environmental reputation (Zhao et al., 2020) and overall organisational performance (Amado and Walczuch, 2012; Gabler et al., 2015). PES focuses on implementing pro-environmental organisational initiatives such as water conservation, emission reduction; waste reduction, recycling, etc. These activities seek to enhance environmental reputation of the organisation (Brammer and Millington, 2005), generate positive customer response, influence the employees and other stakeholders of the organisation. Collectively, these activities contribute to overall firm performance (Nguyen and Adomako, 2021). Thus, PES results in improved EP (Endrikat et al., 2014), market share, customer loyalty and organisational reputation (Agyabeng-Mensah et al., 2020; Nguyen and Adomako, 2021) ultimately leading to organisational competitive advantage. The competitive edge thus results in higher organisational performance (Chan et al., 2022). Researchers have sought to measure the role of pursuing environmental strategies in financial performance of the firm (Klassen and MacLaughlin, 1996) and found a positive relationship between proactive environmental strategies and financial performance (Koirala and Pradhan, 2020) A number of indicators have been used ranging from financial to EP indicators (Jiang et al., 2018; Sambasivan et al., 2013). Studies (Hart, 1995; Russo and Fouts, 1997) have advocated that the organisations can enhance their performance through the adoption of proactive environmental strategies however, empirical studies focusing on this relationship are sparse (Sarkis and Cordeiro, 2001; Chan et al., 2022).

On the basis of the above literature review, we propose the following hypothesis:

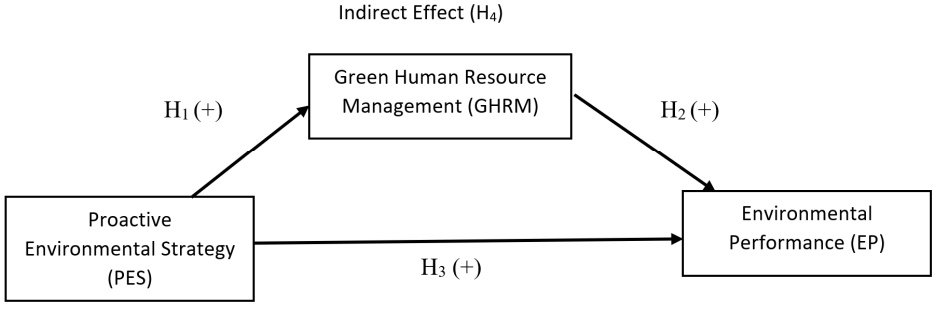
H_3 There exist a significant positive relationship between PES and EP of the organisation.

4.4 Mediating role of GHRM

PES has the capability of utilising organisational resources in a focused manner. A proactive strategy supported by the top management seeks to implement the environmental vision of the organisation, and enables the organisation to adopt green practices that help in developing the environmental concern and green capabilities of the workforce. Chan et al. (2022) demonstrated that the organisations practicing PES initiate fundamental changes in the processes of the organisation and transform them towards sustainability promoting a pro environmental culture in the organisation. These processes thereby help in improving the performance of the organisation. GHRM practices are helpful in reducing the harmful effects of the organisation on the environment resulting in improved EP of the firm. Zhao et al. (2020) argued that firms that adopt PES have the capability to use organisational resources efficiently through the adoption of green HR practices. GHRM plays an important role in implementing environmental strategies. Moreover, in accordance with RBV, green HR practices enhance the green competencies of employees. Green human capital thus acquired by firms drives organisational EP (Zhao et al., 2020). Therefore, while PES is implemented through green HRM practices, the GHRM practices, in turn, are an important determiner of EP. GHRM practices have been included in some studies as a mediator variable (O'Donohue and Torugsa, 2016). Therefore, based on the literature review presented we propose to study the following relationships (Figure 1)

H_4 Green HR practices play a mediating role in the relationship between PES and EP.

Figure 1 Research model



5 Methodology

The present study is an exploratory research carried out among organisations located in the capital city of Delhi and NCR region (India). The data was collected across firms from oil and gas, power, and consulting industries. The survey respondents were the

executives and managers from the selected firms. The sample description is provided below.

5.1 Sample description

The data for the present study was collected using convenience sampling. Data was collected through a combination of online (Google Forms) and offline (print outs) modes. 680 questionnaires were distributed among the executives of selected organisations of which 290 questionnaires were found usable with a response rate of 42.64%. Therefore, the sample size was 290. The sample description is presented in Table 3.

Table 3 Sample description

Category	*Number of respondents (N)*	*Percentage*
Gender		
Male	190	65.51%
Female	100	34.48%
Age		
Less than 35 years	177	61.03%
More than 35 years	113	38.96%
Management level		
Entry level	74	25.51%
Junior management	79	27.74%
Middle management	109	37.58%
Senior management	21	7.24%
Top management	7	2.41%

Note: N = 290

Source: Authors

5.2 Questionnaire development

5.2.1 Proactive environmental strategy

The degree of implementation of PES was measured through an adapted questionnaire based on the scales developed by González-Benito and González-Benito (2005) and Aragón-Correa (1998). The questionnaire consisted of nine statements. The respondents were asked to rate their perception about the implementation of PES in their organisation on a five point Likert scale ranging from 1 = strongly disagree (low level of perceived implementation of PES) to 5 = strongly agree (high level of perceived implementation of PES). Exploratory factor analysis (EFA) was performed and the factor loading values of the items ranged from 0.58 to 0.83.

5.2.2 Green human resource management

The extent of implementation of green HR practices was measured using an adapted scale (Jabbour, 2011; Tang et al., 2018; Guerci et al., 2016; Yusliza et al., 2017). The questionnaire consisted of 22 statements related to five green HR practices, i.e., green

recruitment (four items), green training and development (four items), green performance management (three items), green compensation (four items) and green involvement (five items).

The employees were asked to rate their perceptions regarding the extent to which green HR practices had been adopted by their organisation. The responses were obtained on a five point Likert scale ranging from 1 = strongly disagree (low level of adoption) to 5 = strongly agree (high level of adoption). Cronbach's alpha value for the overall scale was 0.954 and for each subscale the Cronbach's alpha value was 0.861(green recruitment), 0.840 (green training and development), 0.864 (green performance management), 0.834 (green compensation), 0.899 (green involvement).

EFA resulted in factor loadings ranging between 0.42–0.75. A second-order confirmatory factor analysis (CFA) was conducted in which GHRM was considered as a second-order construct to examine if the five green HR practices, that is, green recruitment, green training and development, green performance management, green compensation and green involvement – formed a single latent construct. Findings indicated an acceptable fit for GHRM construct (CMIN/DF = 2.591, CFI = 0.94, GFI = 0.87, NFI = 0.90, RMSEA = 0.07). Therefore, to create an overall GHRM construct, we used 20 items in the questionnaire.

5.2.3 Environmental performance

The questionnaire for assessing the EP was adapted from Daily et al. (2007) and Paillé et al. (2014) and consisted of 6 items. The respondents were asked to indicate their perception of the EP of their organisation on a five point Likert scale where, a response of 1 (strongly disagree), indicated low perceived EP and a response of 5 (strongly agree) indicated high level of perceived EP. The factor loadings based on EFA were found to range between 0.74–0.82.

The Cronbach's alpha value of all the three constructs was calculated and is presented in Table 4.

Table 4 Cronbach's alpha value

Construct	*Total no. of items*	*Cronbach's alpha*
Proactive environmental strategy	9	0.898
Green human resource management	20	0.954
Environmental performance	6	0.874

Source: Authors

Statements related to demographic characteristics of the respondents like age, gender, designation, work experience, etc. were also included in the questionnaire. The questionnaire used in the study is given in Appendix. The language used for questionnaire survey was English.

6 Analysis and results

The data was analysed using a two-step approach suggested by Anderson and Gerbing (1988). According to this approach, we first examined the measurement model using

CFA and assessed the convergent validity, reliability and discriminant validity. The next step included structural model testing to estimate the fit of the hypothesised model and test the mediation effect. To test the model fit, several fit indices (CFI, TLI, and RMSEA) were used which helped us to compare our proposed model to various alternative models. The values of CFI (comparative fit index), Tucker-Lewis index (TLI) should be greater than 0.9 to indicate a good fit (Hu and Bentler, 1999) while the value of root mean square error of approximation (RMSEA) should be less than 0.08 to indicate that the model fits the data properly (Hu and Bentler, 1999).

6.1 Measurement model

The discriminant validity of the scale was assessed after conducting CFA on the items of three key variables. The model fit indices (CMIN/DF = 2.056, CFI = 0.901, TLI = 0.902, RMSEA = 0.060) indicated a good fit for the model. Measurement model of the study is shown in Figure 2. Convergent validity was ascertained (Table 5) as the values of factor loadings were greater than 0.5 (Hair et al., 2010), composite reliability (CR) was greater than 0.7 (Gefen et al., 2000) and average variance extracted (AVE) was greater than 0.5 (Fornell and Lacker, 1981). Table 6 shows that the square root of each construct's AVE is higher than all its correlation coefficients with other constructs indicating that discriminant validity is established (Fornell and Lacker, 1981).

Figure 2 Measurement model (see online version for colours)

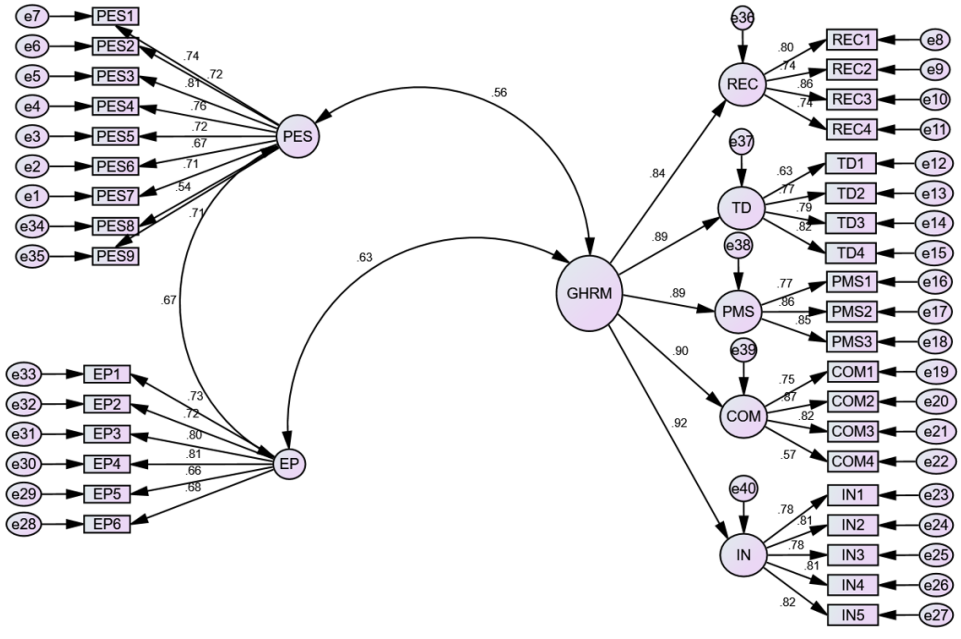


Table 5 Results of measurement model

Model construct	*Measurement item*	*Standardised factor loading*	*AVE*	*CR*	*Cronbach's alpha*
Proactive environmental strategy (first order construct)	PES1	0.72	0.507	0.902	0.898
	PES2	0.74			
	PES3	0.81			
	PES4	0.76			
	PES5	0.72			
	PES6	0.67			
	PES7	0.71			
	PES8	0.54			
	PES9	0.51			
GHRM (second order construct)	REC1	0.80	0.791	0.950	0.954
	REC2	0.74			
	REC3	0.86			
	REC4	0.74			
	TD1	0.63			
	TD2	0.77			
	TD3	0.79			
	TD4	0.82			
	PMS1	0.77			
	PMS2	0.86			
	PMS3	0.85			
	COM1	0.75			
	COM2	0.87			
	COM3	0.82			
	COM4	0.57			
	IN1	0.78			
	IN2	0.81			
	IN3	0.78			
	IN4	0.81			
	IN5	0.82			

Notes: CMIN/DF = 2.056, CFI = 0.901, TLI = 0.902, RMSEA = 0.060
Abbreviations: proactive environmental strategy (PES); green human resource management (GHRM); green recruitment (REC), green training and development (TD), green performance management (PMS), green compensation (COM), green involvement (IN), environmental Performance (EP), average variance extracted (AVE), composite reliability (CR)

Source: Authors

Table 5 Results of measurement model (continued)

Model construct	*Measurement item*	*Standardised factor loading*	*AVE*	*CR*	*Cronbach's alpha*
Environment performance (first order construct)	EP1	0.73	0.537	0.874	0.874
	EP2	0.72			
	EP3	0.80			
	EP4	0.81			
	EP5	0.66			
	EP6	0.68			

Notes: CMIN/DF = 2.056, CFI = 0.901, TLI = 0.902, RMSEA = 0.060
Abbreviations: proactive environmental strategy (PES); green human resource management (GHRM); green recruitment (REC), green training and development (TD), green performance management (PMS), green compensation (COM), green involvement (IN), environmental Performance (EP), average variance extracted (AVE), composite reliability (CR)

Source: Authors

Table 6 Model validity measures

Variable name	*CR*	*AVE*	*MSV*	*PES*	*GHRM*	*EP*
PES	0.902	0.507	0.452	*0.712*		
GHRM	0.950	0.791	0.401	0.564***	*0.890*	
EP	0.874	0.538	0.452	0.673***	0.633***	*0.733*

Notes: ***p < 0.001 GHRM stands for green human resource management, PES stands for proactive environmental strategy, EP stands for environmental performance.

Source: Authors

6.2 Common method bias

Bagozzi and Yi (1991, p.426) suggested that common method bias (CMB) in the data could be due to the measurement method rather than the construct. Therefore, in order to determine the possibility of CMB, two methods were used in the study. The first was Harman's single-factor and the second was single common latent factor analysis. Results of Harman's single-factor analysis showed that a single factor explained 41.41% of the variance. Harrison et al. (1996) suggested that if the variance explained is less than 50% then there is not much biasness in the data. In single common latent factor analysis using analysis of movement structures (AMOS), the CMB value was found to be 0.675 and the bias was found to be 45.56% (<50%, threshold value). These two tests reconfirm that our study has no concern regarding CMB.

6.3 Hypothesis testing through path analysis

Figure 2 represents the overall measurement model. Hypothesis 1 predicted that PES is positively related to GHRM. The coefficient for this path (as evident from Table 7) was positive and significant ($\beta = 0.66$, $p < 0.01$) therefore H_1 was accepted. Hypothesis 2 predicted that GHRM was positively related to EP. The coefficient for this path is also positive and significant ($\beta = 0.32$, $p < 0.01$). Therefore, H_2 is also accepted. We can also

see from the Table 7 that PES has a direct and positive effect ($\beta = 0.65$, $p < 0.01$) on EP which indicated that H_3 is also accepted.

Table 7 Results of total effects, direct effects and indirect effects

Hypothesis	*β*	*ρ value*	*Result*
PES → GHRM	0.66	<0.01	Supported
GHRM → EP	0.32	<0.01	Supported
PES → GHRM → EP (total effect)	0.65	<0.01	Supported
PES → EP (direct effect)	0.44	<0.01	Supported
PES → GHRM → EP (indirect effect)	0.21	<0.01	Supported*

Notes: PES: proactive environmental strategy; BC refers to bias corrected, 5000 bootstrap samples were requested, R^2 value for the overall model = 0.6307, $p < 0.001$.
*LL: 0.1487 and UL: 0.2689

Source: Authors

6.4 Mediation effect of GHRM

To assess the presence of mediation by GHRM, we used the technique of 5,000 sample bootstrapping method recommended by Preacher et al. (2007). This method provides a biased corrected 95% confidence interval for direct and indirect effects. It avoids the possible statistical power issues caused by asymmetric or non-normal sampling distributions (MacKinnon et al., 2004). We know that PES is positively and significantly related to GHRM and GHRM is significantly related to EP.

Also, the effect of PES on EP ($\beta = 0.65$, $p < 0.01$) was significant. However, the direct effect of PES on EP was reduced from 0.65 ($p < 0.01$) to 0.44 ($p < 0.01$) after inclusion of GHRM in the model (Table 7). In addition, the indirect effect was found to be significant ($\beta = 0.21$, LL = 0.1486, UL = 0.2710) as zero value did not lie between upper and lower limits. Since the direct effect of PES is still significant on EP with GHRM as a mediating variable therefore, this shows a partial mediation effect (Baron and Kenny, 1986). Overall, the mediation model significantly explained 63.07% ($R^2 = 0.6307$, $p < 0.001$), of the variance in EP and GHRM plays a partial mediating role between PES and EP.

The structural model thus, indicated that all the hypotheses were supported. PES and GHRM were positively related to EP and GHRM partially mediated the relationship between PES and EP.

7 Discussion and conclusions

The present study is significant in its contribution by examining PES and its relationship with EP mediated by green HR practices of the organisation. The study found a positive and significant relationship between PES and GHRM. The formulation of an environment-focused strategy by leaders and top management of the organisation enable the HR department of the organisation to become environmentally friendly. It helps in fulfilling the environmental goals of the organisation by transforming HR strategies to green HR strategies. These green strategies focus on increasing the overall capability of

the workforce and enhance employee concern about their environmental actions. Thus, we see the transformation of traditional HR practices to green HR practices focused towards environmental management activities and implementation of PES. The green practices (green recruitment, green training, green rewards, etc.) function synergistically thus forming a bundle and lead to an improvement in overall organisational performance (Yusoff and Nejati, 2017; Obeidat et al., 2018) and competitiveness (Yusoff and Nejati, 2017). These findings may be contextualised in terms of contingency theory. Hence, we find that the relationship of PES and EP is contingent on GHRM.

The study also suggests that there exists a positive relationship between GHRM practices and EP of the organisation. The findings are supported by extant literature that propose the important role of GHRM practices like green recruitment, green training and development, green performance management, etc. in improving organisational EP (Guerci et al., 2016; Zaid et al., 2018; Zhang et al., 2019; Yong et al., 2019). The green HR practices develop the capabilities of employees and transform them into non-imitable resources capable of handling the challenges posed by the environment in a unique way (NRBV) thus positioning an organisation to gain sustained competitive advantage. These practices also help address the environmental issues in a manner that enables the organisation to improve its EP resulting in long-term benefits to the organisation.

The study also demonstrated that PES has a significant, direct and positive relationship with the EP and explains 53.8% of variance in EP. It shows that the relationship of PES with EP is partially mediated through GHRM and explains 63.07% variance in EP. Zhang et al. (2019) proposed that leaders, managers and employees all have to contribute towards environmental management activities for the organisation to gain advantage from these activities. These activities shall also help the organisation to position itself uniquely and retain the best talent from the industry. The green practices thus, act as a throughput (systems perspective) in developing employee capabilities and play a partial mediating role in the relationship between PES and EP. Therefore, when leaders formulate PES, managers have to guide the employees towards performing green activities so that these activities can lead to a complete transformation of the organisation.

Do and Nguyen (2020) pointed that adoption of PES can lead to differentiation, cost leadership and competitive advantage thus helping the organisation in achieving a distinctive position in the market. In order to gain competitive advantage through PES, it is essential for firms to institutionalise GHRM practices in the organisation. These GHRM practices should focus on involving all the employees in a manner that they transform into green employees who accept personal responsibility for environment sustainability. These practices shall thus, provide a strategic advantage to the organisation through improved performance. PES ensures a focused approach of the organisation towards handling the environmental issues that aim to create rare, valuable and inimitable resources in the organisation through green practices that eventually aims to create a business advantage for the firm by improving the EP of the organisation.

7.1 Theoretical implications

The present study extends the current literature and focuses on studying the influence of PES on EP through environment related HR practices. Li et al. (2020) demonstrated the relationship between PES and EP through green supply chain integration while Alt et al. (2015) examined this relationship mediated by employee stakeholder integration. In a similar vein, Bhatia (2021) proposed that PES resulted in improved operational

performance of the organisation through green process innovation and that proactive strategy fosters green innovation in the organisation (Mulaessa and Lin, 2021). The present study confirmed this relationship by emphasising the importance of implementing environment focused practices in the organisation. The findings of the present study advances the literature by demonstrating that HR plays a critical role in implementing organisational strategy through implementation of HR practices.

Green HR practices signify the commitment of the organisation towards environment protection. Through green HR practices the capability and motivation of employees towards environmental preservation activities has the potential to be improved. Having a focused environmental strategy in the organisation makes the employees believe that the top management in the organisation is committed towards the goal of environmental sustainability. This understanding in turn, encourages greater responsibility among the employees towards the achievement of organisational environmental goals. Integrating green HR practices in day-to-day organisational practices indicates a synergistic approach towards handling environmental activities.

Do and Nguyen (2020) found that PES indicates both, differentiation and cost leadership competitive advantage. Our study stresses on the fact that implementation of green practices helps in attracting and retaining talent since GHRM practices create rare and valuable resources (RBV theory) who are environmentally concerned. These resources are hard for the competitors to imitate thus generating a competitive advantage for the organisation (Aragón-Correa and Sharma, 2003).

With limited number of resources available with the organisations, it is necessary that the organisations take measures to incorporate green HR practices towards a judicious use of resources. The present study adds to the existing literature and states that GHRM enhances the alignment of business strategy towards the achievement of EP. The findings of the study suggest that GHRM plays a partial mediating role in the relationship between PES and EP. This may be because Indian organisations have realised the importance of preserving the environment but the efforts by the HR department specifically in this direction are of recent origin. Therefore, Indian organisations are in the nascent stage of imbibing green practices. Institutionalisation of green practices in the organisational processes is still underway and therefore the effects of these practices on organisational performance are likely to emerge in due course.

7.2 Practical implications

The present study suggests that the organisations that adopt PES and GHRM practices are likely to gain a first mover advantage (Mulaessa and Lin, 2021) leading to improved EP of the organisation. The study also suggests that regular monitoring of the EP shall lessen the environmental burden of the organisation. Further, the adoption of PES by an organisation leads to an integrated and strategic approach towards environmental management activities resulting in improvement in the organisation's reputation (Zhao et al., 2020) thus enhancing the potential for EP. Integrating environment in organisational strategy communicates the commitment of the top management towards environmental concerns and ensures that the environmental management activities percolate across the organisation. For successful implementation of organisational environmental strategy, all organisational functions such as marketing, production processes, packaging, etc. need to be strategically aligned. GHRM practices play an important role in ensuring organisation-wide dissemination of environmental awareness

and pro-environmental actions. Green practices include recruiting for environmental attitude, paper free recruitment process (green recruitment), continuous employee training on environment management activities and on different working methods that shall help in energy conservation (green training). They also include green goal setting for employees (green performance management), instituting financial and non-financial employee rewards for their performance towards environment management activities, creating a mutual learning environment and involving employees in environment management activities (green involvement).

By institutionalising the environmental strategy of the firm through its HR practices, the organisation moves towards a proactive approach to environmental concerns.

Therefore, the main implication of the findings of the present study is that firms need to strive towards sustainable EP. This is made possible by organisational leaders who are committed to preserve the environment by aligning business strategy to environmental concerns across all organisational processes and functions. Following the proposition of RBV, the findings emphasise that firms can leverage HR capabilities to become a source of sustained competitive advantage by creating value, rarity and non-imitability of HRs through the adoption of GHRM practices. A PES aligned with GHRM practices over time shall reinforce a green organisational culture. A business environment where firms have equal access to financial, technological and other material resources, it is the green organisational image, culture and environmental sensitivity of the firms that act as a differentiator. Firms with a reputation of being environmentally responsible and following a proactive approach to environmental initiatives, shall have the advantage of leveraging the same for employer branding, differentiating the firm from competitors and gaining respect of external and internal stakeholders leading to long-term sustainable performance.

With the rate of environmental damage intensifying to levels of serious concern globally, expectations from all stakeholders have also increased. Accordingly, the expectations from organisations, a key stakeholder, for tackling environmental problems through improved EP are manifold. The present study, therefore, serves to provide practical insights for the industry.

7.3 Limitations

No research is without some limitations and the same is true for the present study. However, these also serve as opportunities for future research. The present research followed a quantitative approach. However, a qualitative approach through in-depth interviews is likely to provide insights on unique aspects such as the green values of the organisation or issues faced by organisations while implementing green practices in the organisation. Therefore, future studies should focus on adopting a mixed method approach and conduct in depth interviews with the employees and managers that shall provide a better perspective of the results.

It is crucial for the researchers to draw the comparison of the results among different contexts (sectors, industries, countries, etc.) since environmental decisions in organisations are specific to industry contexts. Future researchers should also focus on moderating variables such as industry, sector, age of respondents, etc. in order to better understand the factors that may influence the environmental focus among different organisations. The results of PES on organisational performance for competitive

advantage is a long-term process, therefore future researchers should consider a longitudinal research in the area.

Finally, the study considered perceptual measures to understand EP. Future studies could use case study or trend analysis and such other objective measures to study EP to go beyond perceived performance. In conclusion, however, the present study sets direction for future research and provides HR practitioners with insights on incorporating GHRM practices with HR strategy and environmental strategy. It is expected that the findings of the study will encourage integration of EP parameters in HR practices and thus set the ball moving towards greening.

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Appendix

Items of the questionnaire

Proactive environmental strategy	
PES1	Environmental issues are placed at a high priority in the organisations objectives and strategy.
PES2	In my organisation, the environmental policy is explicitly defined and documented.
PES3	In my organisation, the top management regularly measures and assesses the EP.
PES4	In my organisation, environmental reviews and internal audits are periodically conducted
PES5	In my organisation, a manager has been appointed to handle the environmental issues.
PES6	In my organisation, cleaner technology and environmental friendly processes are used/applied.
PES7	In my organisation, environmental issues are taken into account in the design and development of production methods, maintenance and logistics.
PES8	In my organisation, the suppliers and sub-contractors are required to improve environmental activities and maintain relevant environmental standards.
PES9	In my organisation, commitment to environmental protection is emphasised in marketing activities.
Green human resource management	
REC1	My organisation prefers to recruit employees who have environmental awareness
REC2	My organisation uses green employer branding to attract employees.
REC3	During the hiring process of an employee, the candidates' motivation for environmental management is considered.
REC4	My organisation considers environmental questions during every selection step (application completion, interview, etc.).
TD1	My organisation provides environmental training programs on working methods to reduce environmental degradation.
TD2	My organisation develops training programs in environment management to increase environmental awareness among employees.
TD3	My organisation provides environmental training to employees such as reduce waste, recycling, saving paper and electricity
TD4	My organisation considers environmental training as a priority when compared to other types of training.
PMS1	In my organisation every employee has specific environmental goals like reducing electricity consumption units, saving fuel by car-pooling, etc.
PMS2	My organisation assigns EP targets for every manager
PMS3	My organisation evaluates the contributions of employees to environmental management improvement.
COM1	My organisation provides cash rewards to recognise EP.
COM2	My organisation provides non-monetary incentives to recognise EP.
COM3	My organisation publicly recognises employees who contribute to environmental management improvement (prizes, honours, etc.).

Items of the questionnaire (continued)

Green human resource management	
COM4	My organisation provides variable compensation based on EP.
IN1	My organisation has a clear developmental vision to guide the employee's actions in environmental management.
IN2	My organisation has a mutual learning climate among employees for green behaviour and awareness.
IN3	My organisation has number of formal and informal communication channels to spread green culture.
`IN4	My organisation involves employees in quality improvement and problem solving on green issues.
IN5	My organisation offers practices for employees to participate in environmental management such as newsletter, suggestion schemes, problem solving groups, low carbon champions and green action teams.
Environmental performance	
EP1	In my organisation, environmental management efforts have significantly reduced waste within the production process.
EP2	In my organisation, environmental management efforts have significantly improved product quality.
EP3	Focusing on environmental management has enhanced the reputation of my organisation.
EP4	My organisation environmental efforts have led to improved organisation's performance.
EP5	The environmental efforts of my organisation have caused us to investigate alternate technologies and procedures.
EP6	My organisation has reduced the risk of environmental accidents, spills and releases.