Assessing green human resources management practices in Palestinian manufacturing context: An empirical study

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ABSTRACT

Green Human Resources Management (GHRM) refers to using Human Resources Management (HRM) practices to reinforce environmental sustainable practices and increase employee's commitment on the issues of environmental sustainability. It embraces considering concerns and values of Environmental Management (EM) in applying Human Resources (HR) initiatives generating greater efficiencies and better Environmental Performance (EP) necessary for reducing employees' carbon footprints. This paper presents an empirical assessment and measurement of impact of GHRM practices in manufacturing organizations on EP in Palestinian context. The research approach, using both qualitative and quantitative aspects, extracted six main GHRM practices used in manufacturing organizations from literature review and field data through conducting 17 semi-structured interviews with HR managers. The identified practices were green recruitment and selection, green training and development, green performance management and appraisal, green reward and compensation, green employee empowerment and participation, and green management of organizational culture. A survey instrument was then designed based on GHRM practices identified through qualitative methods, and used for data collection from 110 organizations operating in three manufacturing sectors (i.e. food, chemical, and pharmaceutical sectors) that have implemented GHRM practices at varying levels. Using a five-point Likert-type scale, these extracted practices were evaluated to find out GHRM practices with positive impact on EP. The statistical analysis revealed that the overall mean of the implementation of GHRM practices is 2.72 on a scale of 5, which is considered as a moderate level. Furthermore, the analysis confirmed that there is a statistically positive and significant relationship at a significant level ($\alpha \leq 0.05$) between the six GHRM practices and EP. A model was also developed by connecting critical practices of GHRM that can be incorporated in workplace for maximized EP. The value of this paper is the identification, prioritization, and validation of GHRM practices, which influence EP in manufacturing organizations. The presented model offers useful insights on how manufacturing organizations should strategically link their HR functions to support their EP necessary for competitive advantage.

1. Introduction

Recently, both developed and developing countries became more concerned about the importance of environmental issues and sustainable development (Sharma and Gupta, 2015), this came as a result of the industrial revolution which caused an increment in degradation of the environment (Jabbour and Santos, 2008a). These concerns generated more pressure and inculcated business and industry to develop and use green management by adopting environmentally friendly practices and products (Marcus and Fremeth, 2009; Prasad, 2013). This requires an increased organizational focus on their environmental impact, considered both from the perspective of its interaction with the firm's financial and social growth and in terms of its stand-alone virtues. To achieve this evolution, many companies seek to develop and deploy a formal Environmental Management System (EMS). Since the 1990s, EMSs have stood out as one of the most effective tools to achieve sustainable development (Chan, 2011) through integrating aspects of

Environmental Management (EM) into corporate decision-making processes (Wagner, 2013). EM has been included in many departments such as marketing, supply chain, finance and others (Soo Wee and Quazi, 2005; Rehman and Shrivastava, 2011; Mittal and Sangwan, 2014). Recently, HRM joined the green movement (Prathima and Misra, 2013). Since HRM plays a vital part in shaping organizational culture, structure, strategy, and policy development (Paauwe and Boselie, 2005; Schuler and Jackson, 2014), HR is regarded as a key player in achieving sustainable development in the organization (Mandip, 2012). In response to this, several researchers (e.g. Daily and Huang, 2001; Jackson et al., 2011; Renwick et al., 2013) directed their attention towards the relation between HRM and EM. They have emphasized the importance of employees' green activities in the workplace. This integration of EM into HRM practices is known as Green Human Resource Management (GHRM), which aims to help organizations to improve Environmental Performance (EP) through increasing positive employees' involvement and commitment towards environment (Renwick et al., 2008; Jackson et al., 2011).

However, the manufacturing sector is considered to be a source of various forms of environmental pollution in both developed and developing countries, which need its managerial activities to be critically assessed, monitored and rectified (Rehman et al., 2016). Because of the important role and effects of manufacturing sector on economic growth of nations (Szirmai and Verspagena, 2015; Marconi et al., 2016), there is an increasing need for adopting effective environmentally friendly practices that can mitigate environmental impacts of this vital sector. Adopting green practices is not limited to specific organizational department. In fact, employees in all organization's functions are equally responsible to keep their organization's environment green (Jabbour et al., 2008; Opatha and Arulrajah, 2014). Thus, managers should include their employees at all levels in the environment preservation practices. Therefore, a clear guide is needed to help HR managers in applying and developing GHRM for the improvement of EP.

Although there is an increasing extent of the substantial literature about GHRM in developed countries (Jackson and Seo, 2010; Jackson et al., 2011; Renwick et al., 2013, 2016; Ehnert et al., 2016; Jabbour and Jabbour, 2016; O'Donohue and Torugsa, 2016), there is still uncertainty about what HR practices are needed for an effective implementation of GHRM in both developed and developing countries, and how these practices can be connected and incorporated in workplace to help the organization achieve green corporate culture and maximize EP (Cherian and Jacob, 2012; Sathyapriya et al., 2013; Jabbar and Abid, 2014; Ahmad, 2015; Haddock-Millar et al., 2016); paying little attention to prioritizing and validating such practices that can operationalize activities necessary for environmental sustainability. As a result, it is expected that many manufacturing organizations fail to incorporate HR functions into their EM initiatives. The challenge is, therefore, to explore what type of GHRM practices should be linked with manufacturing organizations' EP strategies to support their green corporate culture. Emanating from this, the present research attempts to empirically assess and measure the impact of GHRM practices in manufacturing organizations on EP. The research sheds the light on the main GHRM practices used in manufacturing organizations from literature review and field data from 110 organizations operating in three Palestinian manufacturing sectors (i.e. food, chemical, and pharmaceutical sectors) that have implemented GHRM practices at varying levels. The research also establishes a correlation between GHRM practices and EP, before developing a model that connects critical practices of GHRM, which can be incorporated in workplace for improved EP.

In fact, several researchers discussed the lack of empirical studies from the manufacturing sector in the developing countries (Zhan et al., 2016; Rehman et al., 2016). The value of these studies also increases if they are carried out in a challenging environment of a developing country such as Palestine, where Palestinian manufacturing organizations are dominated by the presence of dual environmental laws (i.e. Palestinian National Authority Law and Israeli Authorities Law) in the Occupied Palestinian Territories (OPT) where majority of Palestinian manufacturers are located (Palestinian Federation of Industries, 2009). The situation in OPT is unique in the sense that Israeli Authorities dominate Palestinian internal environmental policies (Görlach et al., 2011). This has very practical implications for Palestinian manufacturing sector as manufacturers are obliged to comply with Israeli environmental policies beside those of the Palestinian National Authority.

However, in addition to the research gap identified earlier, the novelty of this study is twofold. First, this paper presents a first study of its kind in Palestine, and among very few studies exploring GHRM in the context of developing countries (See for example Jabbar and Abid (2014), Mishra et al. (2014), and Bhutto and Auranzeb (2016)). Investigating GHRM in Palestinian manufacturing sector is very relevant because of the proximity of Palestine from other developed European trade partners that play a main role in pressuring to improve EP. These neighboring developed countries also use import restrictions to encourage Palestinian manufacturers, among other manufacturers in the region, to follow environmental laws and curb environmental damages (Djoundourian, 2012). Second, despite the major impacts of political instability and movement obstacles, Palestine is an active member in a number of regional agreements on transboundary environmental issues such as water and solid waste, and has been able to secure funds from international donors to implement measures within the Occupied Territories of adopting cleaner practices and technologies that contribute to meeting international environmental priorities (EQA, 2010). These contextual challenging factors present Palestinian manufacturing sector as a unique sector when studying the adoption of GHRM practices.

The paper is organized into seven sections. The paper begins by presenting previous studies to outline the concept of GHRM and its relationship with EP. Then, the research methodology is presented; including data collection methods and respondents profile. Next, data analysis and results are explained. Based on results, the conceptual model linking various GHRM practices and EP has then been developed. This is followed by presenting conclusions and discussing results. Finally, theoretical and managerial implications are provided, and research limitations and future research work are highlighted.

2. Literature review

Inherently, human irresponsible activities at work can cause environmental degradation (Ones and Dilchert, 2012). Green HRM practices can be used to stimulate employees' responsible behavior to preserve the environment (Cherian and Jacob, 2012). Research studies about greening the organization through the relation between HRM and EM started in the 1990s, perhaps originated in 1996 through the work of Wehrmeyer (1996) who edited a book titled "Greening people: human resources and environmental management". With increasing numbers of similar studies, organizations' needs of HRM practices to implement greening initiatives became more obvious (Govindarajulu and Daily, 2004; Sudin, 2011). These needs were strengthened by studies that have discussed the positive effects of HRM to firms' EP (Schuler and Jackson, 2014; Renwick et al., 2013; Paauwe and Boselie, 2005). Another major factor that has fueled the expansion of such studies was the introduction of the famous environmental management system,

ISO14001 (Jabbour and Santos, 2008a; Chan, 2011; Jabbour and Jabbour, 2016). This was translated by the work of Jackson et al. (2011) who organized the first special issue on HRM; decisively merging the research areas of human resources and environmental/green management. Since then, studies on HRM have become more common, encouraging new empirical studies on the subject (Renwick et al., 2013). The notion of GHRM is related to the HRM function as the main driver in an organization to take up the green initiatives (Mandip, 2012; Jabbour and Jabbour, 2016; Bhutto and Auranzeb, 2016). GHRM is an offshoot of green management philosophy, policies, and practices followed by a firm for EM implementation (Patel, 2014). Sharma and Gupta (2015) defines GHRM as using HRM practices with the intention of promoting the sustainable use of resources, which will reinforce cause of environmental sustainability in general, and will increase employee awareness and commitments on the issues of environmental management in particular. The emergence of GHRM includes the extent of improving the social (i.e. work-life balance) and economic well-being (i.e. sustain profits) beside awareness toward environmental concern (i.e. reduced wastes). GHRM has actually supported the paradigmatic understanding of the concept of 'triple bottom-line'; that is to say, that GHRM involves practices aligned with the three sustainability pillars of environment, social, and economic balance (Yusoff et al., 2015) and bring the benefits to the organization in the long run (Wagner, 2013). This is congruent with the findings of O'Donohue and Torugsa (2016) who studied the association between environmental management and organizational financial performance in the Australian machinery and equipment-manufacturing sector. They found that higher levels of GHRM practices are positively linked with improved financial benefits of the proactive environmental management programs and the overall financial performance of organizations. At the same time, GHRM form part of wider program of corporate social responsibility (Sathyapriya et al., 2013). In this regard, HR managers are expected to create awareness amongst people working for the organization about how to improve EP of the organization through human behavior (Shaikh, 2012). Jabbar and Abid (2014) explain that employees are only motivated to play an active role in eco-initiatives when they are given monetary and non-monetary rewards. They have also elucidated that employees are more ready to actively support greening practices when their immediate managers show encouraging behavior to such practices. Therefore, it is important for managers to involve employees in greener activities at every step of HRM practices; once it becomes a daily activity, then it will be treated as a culture (Jabbour et al., 2008). The manufacturing of products with lower environmental impact requires the support of HRM (Govindarajulu and Daily, 2004). This have been asserted by Jabbour and Santos (2008b) who stated that superior EP outcome requires HRM practices that support the whole implementation and maintenance of EMS in the organizations.

Furthermore, Jackson and Seo (2010) asserted that companies which pay attention to the greening of human factors may be more productive, thus gaining a competitive advantage (Cherian and Jacob, 2012). In contrast, organizations not having a comprehensive program for using GHRM will have potential limitations in the effectiveness of their EP (Renwick et al., 2013). Paying attention to GHRM entail using environmentally friendly HR practices such as increasing efficiency within processes, reducing and eliminating environmental waste, and revamping HR products, tools, and procedures to bring about green behavior; resulting in greater efficiency and lower costs. These actions will generate activities such as electronic filing, ride sharing, job sharing, teleconferencing and virtual interviews, recycling, telecommuting, online training, and developing more energy-efficient office spaces (Sharma and Gupta,

2015; Sathyapriya et al., 2013). Even though many organizations are trying to effectively influence and increase employees' environmental behavior, there is a clear discrepancy between environmental policies and actual behavioral patterns of employees, especially in large organizations. Haddock-Millar et al. (2016) conducted a comparative qualitative study to investigate patterns of GHRM practices in a global food service across three European subsidiaries. Authors found that GHRM practices differ amongst the three subsidiaries as a result of changing workforce cultural patterns and strategic dimensions. This creates challenge in the HRM literature.

It is noteworthy that recent studies illustrate the cross-fertilization between EM and HRM for the achievement of EP (Jackson et al., 2011; Jabbour, 2013; Ahmad, 2015; Jabbour and Jabbour, 2016; Bhutto and Auranzeb, 2016). Daily and Huang (2001), Fernandez et al. (2003), Madsen and Ulhoi (2001) and Jabbour and Santos (2008a) emphasized the association between HR factors, such as green recruitment and selection, green training, green performance evaluation, green reward systems, green empowerment, green organizational culture management, and achieving successful EMS implementation. According to Jabbour and Jabbour (2016), the above list of GHRM practices are more tangible and may guarantee that green issues will be considered in employees' daily routine. These practices will be discussed in details below to provide an account on how organizations can transform HRM practices into green initiatives that support organizational EP.

2.1. Green recruitment and selection

Organizations need to focus on selecting and hiring an employee who support, and interested in, the environment (Renwick et al., 2013). Therefore, to increase their selection attractiveness from an increasingly environmentally aware talent (Ehnert, 2009), organizations should build an environmental reputation and images inspired by the thought that these organizations are environment responsive (Kapil, 2015a; Guerci et al., 2016). Organizations should reflect their environmental sustainability agenda on the organization's website and other public facing channels available so that candidates can clearly view the organization's greening focus (Kapil, 2015a; Arulrajah et al., 2015). This was asserted by the work of Guerci et al. (2016) who found that environmental sustainability-related intents can play a major role in attracting prospective applicants. Green recruitment ensures that new recruits understand organization's green culture and shares its environmental values (Jackson and Seo, 2010) through drawing out candidate's environmental knowledge, values and beliefs (Renwick et al., 2013). The recruitment messages should include environmental criteria (Arulrajah et al., 2015). In the job analysis phase, job description, and person specifications should clarify and emphasize on environmental aspects, green accomplishments and explain what is expected out of future green employee (Mandip, 2012; Renwick et al., 2013). However, Wehrmeyer (1996) recommends a number of measures that organizations can implement to enhance GHRM through recruitment and selection processes. First, job descriptions should include elements that emphasize the role of environmental reporting. Second, an induction program for newly recruited employees should be focused on providing information about environmental sustainability policies, values, and green goals of the organization. Third, interviews should be deigned to assess potential compatibility of candidates with the organization greening programs. This design of the interviewing process was supported by Abdull Razab et al. (2015) who stated that when interviewing potential candidates environmental-related

questions should constitute a major part of the evaluation process. In addition, Arulrajah et al. (2015) explained that organizations can improve their efforts to protect the environment through integrating environmental tasks into duties and responsibilities of each employee's job, or design environmentally concerned new jobs or positions in order to focus exclusively on EM aspects of the organizations (Opatha, 2013). During shortlisting of candidates; employees' selection process should ensure selecting environmentally committed candidates who were involved in previous related green initiatives (Jabbour, 2011). The above presented relationships have lead authors to formally articulate the following hypothesis:

H1. Green recruitment and selection positively affects EP in manufacturing organizations.

2.2. Green training and development

Environmental training stands out as one of the primary methods through which HRM develops support for EM initiatives (Daily et al., 2007; Brío et al., 2008; Jabbour, 2013). It was also the focus of early studies witnessed in 1990s that theorized human resources and environmental sustainability (Venselaar, 1995; Hale, 1995; Madsen and Ulhoi, 2001). Teixeira et al. (2012) investigated the relationship between environmental training and environmental management in Brazilian organizations. Authors revealed that these two constructs are interlinked as they evolve in the organization together. Also, Opatha and Arulrajah (2014) stated that the most significant impact towards environmental awareness among employee was through environmental training. According to authors, this type of training is responsible for creating the culture to foster the green practice in organizations. This is congruent with the findings of Sarkis et al. (2010) who explained that employees can foster EM practices through relevant environmental training. Similarly, Arulrajah et al. (2015) discussed the value of green education and training of employees in providing necessary knowledge and abilities for good EP. Employee training and development programs should include social and environmental issues at all levels (Mandip, 2012; Mehta and Chugan, 2015). According to Cherian and Jacob (2012), it is imperative to design environmental training based on training needs in order to achieve optimum environmental benefits from the training. In this context, Daily et al. (2012), in their quantitative study of investigating correlation between environmental empowerment and environmental training on EP in 220 manufacturing organizations in Mexico, discovered that environmental training of employees in more effective in influencing EP than environmental empowerment. Therefore, training, development and learning plans should include programs, workshops, and sessions to enable employees to develop and acquire knowledge in EM (Liebowitz, 2010; Prasad, 2013). Renwick et al. (2008, 2013) suggest certain green training and development practices such as training staff to produce green analysis of workspace, energy efficiency, waste management, recycling, and development of green personal skills. These were also recommended by Jackson et al. (2011). In addition, Zoogah (2011) explains that organizations should provide opportunities to engage employees in environmental problem solving projects. To achieve this goal, job rotation principles should be used in green assignments as an essential part of training and career development plans of talented green managers of the future (Wehrmeyer, 1996; Prasad, 2013). Based on this, the following hypothesis has been formulated:

H2. Green Training and development positively affects EP in manufacturing organizations.

2.3. Green performance management and appraisal

Performance Management Systems (PMS) guide employees' performance to achieve the desired EP through measuring employees' contribution to the advancement of EP (Ahmad, 2015). PMS, in this sense, ensures the effectiveness of green management work over time (Jackson et al., 2011), and protects EM initiatives against any deterioration (Epstein and Roy, 1997). In order to sustain good EP, organizations must adopt corporate-wide metrics for assessing resource acquisition, usage, and waste; establish Environmental Management Information Systems to track resource flows and environmental audits (Arulrajah et al., 2015; Jackson and Seo, 2010). For this reason, contemporary organizations today have developed corporate-wide environmental performance standards that are combined with green information systems, to evaluate EP and green performance of their employees (Marcus and Fremeth, 2009). HRM should integrate EP into PMS by setting EM objectives, responsibilities, monitoring EM behaviors, and evaluating achievement of environmental objectives by using green work rating as the key indicators of job performance (Sharma and Gupta, 2015; Kapil, 2015b). This green work rating should be included in managers' and employees' appraisals record (Ramus, 2002; Prasad, 2013; Renwick et al., 2013). Furthermore, managers must provide a regular feedback to the employees or teams about their role in achieving environmental goals to improve their EP (Arulrajah et al., 2015; Jackson et al., 2011); this feedback will help the employees to enhance their knowledge, skills and ability. This was asserted by Govindarajulu and Daily (2004) who explained that sharing appraisal results with employees on how well they are making progress toward environmental objectives is essential for employees' motivation, and will increase their engagement in EM responsibilities. It is as suggested by Harvey et al. (2013) and Kapil (2015b), organizations may also provide an online information system and audits that allow employees to track their own EP and provide an opportunity for employees to participate and suggest practical ways of making the organization greener. To achieve this, Ahmad (2015) suggested that human resources departments should redesign the performance appraisal rating system to be able to rate employees on their behavioral and technical competencies related to environmental sustainability. These relationships are articulated more formally as:

H3. Green performance management and appraisal positively affects EP in manufacturing organizations.

2.4. Green reward and compensation

Achieving goals of greening the organization can be enhanced by rewarding employees for their commitment to environmental practices (Jabbour and Santos, 2008a; Jabbour and Jabbour, 2016). In this context, EM could benefit from reward and compensation systems if it focuses on avoidance of negative behaviors and encourage the eco-friendly behavior (Zoogah, 2011). To achieve this, reward systems should be designed to mirror management's commitment to EP while reinforcing and motivating employees' pro-environmental behaviors (Daily and Huang, 2001). This management commitment will increase commitment from workers themselves by becoming more environmentally responsible and will get them more involved in eco-initiatives (Renwick et al., 2013; Daily and Huang, 2001). Calia et al. (2009) illustrated that to increase successfulness of rewards programs aiming at motivating employees' pro-environmental behavior; rewards should be connected with results of greening projects within organizations. In addition to this, the core success of recognition rewards is making them available at different levels within the organization (Arulrajah

et al., 2015). There are many types of reward practices to green skills acquisition. Rewards can be on the form of monetary-based EM rewards (e.g. bonuses, cash, premiums), non-monetary based EM rewards (e.g. sabbaticals, leave, gifts), recognition-based EM rewards (e.g. awards, dinners, publicity, external roles, daily praise), and positive rewards in EM (e.g. feedback) (Renwick et al., 2013; Opatha, 2013). All of these types of rewards value employees who contribute the most to environmental sustainability (Renwick et al., 2013) through recognizing and rewarding employees who are dedicated to achieving environmental goals, and those in the middle management who encourage their subordinates to adopt green practices (Kapil, 2015a; Arulrajah et al., 2015). Of particular importance here is the study of Ramus (2001), where the author studied the impact of practicing rewards on environmental practices implementation. It was identified, in this study, that recognition-based rewards, in the form of praise letters and plaques, had better impact on employees' commitment to environmental practices more than other types of rewards. Furthermore, organizations may use green reward management practices through linking participation in green initiatives with promotion/ career gains, or by providing incentives to encourage eco-friendly practices such as recycling and waste management (Jabbar and Abid, 2014; Prasad, 2013). Also, it can be used to encourage some green creativity and innovation by asking employees to share innovative green ideas pertaining to their individual jobs (Ahmad, 2015). This leads to formulating the following hypothesis:

H4. Green reward and compensation positively affects EP in manufacturing organizations.

2.5. Green employee empowerment and participation

As part of the EP enhancement practices, HR managers have to encourage employees to participate and initiate green and eco-friendly ideas through empowering employees (Jabbour and Santos, 2008a; Ahmad, 2015). For this purpose, HR staff can highlight the necessity to create a participative work environment to top management; where employees can disagree or negotiate with management and offer different ideas to address important issues (Liebowitz, 2010). According to Harvey et al. (2013), improving organizational mechanisms for empowerment and participation of employees in the workplace enable hearing the voice of employees to help shape environmental objectives. However, the importance of employees' empowerment and participation emanates from the fact that employees enjoy autonomy to make decisions concerning environmental problems and other issues that may emerge when implementing environmental sustainability initiatives (Daily and Huang, 2001; Daily et al., 2012). Furthermore, encouraging employee participation creates entrepreneurs within the organization who are socially or ecologically oriented (Sudin, 2011). To achieve this, employees should get involved in formulating an environmental strategy which will enable them to create and expand the requested knowledge to market green products and services (Margaretha and Saragih, 2013). Employees participation enhances a tacit knowledge inside people, which has great influence in identifying pollution sources, managing emergency circumstances, and expanding preventive solutions (Boiral and Paillé, 2012); resulting in improved EP (Renwick et al., 2013). Rothenberg (2003) studied worker participation in EM projects in a US automobile plant (i.e. NUMMI). The study revealed that employees' active participation and involvement in such projects generates significant contributions to EP. This is due to the fact that experienced employees have both technical and contextual knowledge that managers lack. The study concluded that allowing employees to provide suggestions and to be early involved in problem solving tasks is the main vehicle for enhancing workers' participation in EM initiatives. In this regard, environmental empowerment is defined as a process through which authority shares its power with employees to address environmental issues (Daily et al., 2011). This provides employees with independence to generate creative solutions to solve environmental problems and to invest the best of their abilities. In EM practices, empowered employees are more susceptible to be involved in the improvement of the environment (Govindarajulu and Daily, 2004). The majority of environmental problems cannot be related to individual projects only; the complexity of these problems requires empowered individuals who enjoy various types of competencies to implement EMS effective solutions (Daily et al., 2007; Rothenberg, 2003; Neto and Jabbour, 2010). Beside effective implementation of EM, empowered employees foster EM practices and tacit knowledge particularly when environmental problems are group-oriented within organizations (Daily et al., 2007). Based on this, the following hypothesis has been formulated:

H5. Green employee empowerment and participation positively affects EP in manufacturing organizations.

2.6. Green management of organizational culture

In addition to the above practices of GHRM, environmentally sustainable businesses can ensure continuous improvement of their EP through the initiation of a green corporate culture (Gupta and Kumar, 2013; Margaretha and Saragih, 2013). GHRM also creates a green culture if it receives an adequate support from HRM (Jabbour and Santos, 2008a; Jabbour and Jabbour, 2016). According to Mishra et al. (2014), GHRM has much wider scope than simply supporting EP in organizations; it is perceived as main driver for organizational green culture. From an environmental perspective, Harris and Crane (2002) defined the organization environmental culture as the set of assumptions, values, symbols, and organizational artifacts that reflect the desire or necessity of being an environmentally oriented organization. Also, Govindarajulu and Daily (2004) described organizational culture as a factor of either promotion or inhibition to employee's motivation and willingness to adopt responsible environmental behaviors, and to employee's participation in improvement projects for improving EP in companies (Rothenberg, 2003; Ones and Dilchert, 2012; Paillé et al., 2013; Paillé and Raineri, 2015). However, materialization of a green culture requires that employees at all levels understand the environmental values in the organization (Ahmad, 2015; Bhutto and Auranzeb, 2016). Therefore, top management should broadcast environmental programs, initiatives, and goals constantly to all employees (Ramus, 2001; Daily et al., 2007; Govindarajulu and Daily, 2004). Also, top management has to provide employees with feedback on EP in order to maintain proper values, besides reinforcing them through education and training (Fernandez et al., 2003). On the other hand, top management should define penalties for violating environmental regulations and rules (Renwick et al., 2008; Mandip, 2012). Furthermore, top management could give employees time for experimentation towards EP and making environmental improvements without excessive management intervention. This would ultimately increase their motivation towards EM (Daily and Huang, 2001; Daily et al., 2007; Govindarajulu and Daily, 2004), and will eventually promote EP innovation (Govindarajulu and Daily, 2004; Ramus, 2001; Ramus and Steger, 2000). Fernandez et al. (2003) explained that antecedents for an organizational green culture include employees' involvement in EM activities, employees training, motivation and incentives, managers' commitment to environmental issues, and the eco-centric values of employees. Authors further added that among all of

these antecedents, employee participation and involvement in EM projects is a core driver for the creation of a green culture. It is as highlighted by Daily et al. (2012) and Jabbour and Jabbour (2016), employees' empowerment constitutes an important element in creating a green culture; as it allows employees to make decisions about environmental problems whenever needed. Furthermore, Gupta and Kumar (2013) have emphasized that creating a green culture would also require the following human resources changes: First, employees should be allowed to express their thoughts on how environmental actions should be executed and implemented. Second, institutionalizing open channels of communication as part of the organization's green initiatives to encourage employees to contribute to the greening goals and will allow managers to be informed of sustainable practices. However, these relationships are articulated more formally as:

H6. Green management of organizational culture positively affects EP in manufacturing organizations.

In addition to the above six hypotheses, another hypothesis was developed to explore the relationship among the six GHRM practices. This is articulated below:

H7. The practices of GHRM are interrelated and a strong relation is available between them in manufacturing organizations.

Based on this literature review and the resulting seven hypotheses, a conceptual model is presented in Fig. 1 below. The conceptual model links the construct of EP and the presented six practices of GHRM (i.e. H1–H6), and also demonstrate potential correlations among the six GHRM practices (i.e. H7).

3. Research methodology

An exploratory research inquiry using a mixed methods approach, covering both qualitative and quantitative aspects sequentially (Creswell, 2004), has been used to empirically assess and measure the impact of GHRM practices in manufacturing organizations on EP in Palestinian context. Despite the fact that mixing qualitative and quantitative data is still not adequately addressed for research in GHRM, there is an increasing number of GHRM studies, albeit weak, that are using both qualitative and quantitative methods in the same study. See, for example, Harvey et al. (2013), and Gholami et al. (2016). In this research, adopting mixed methods approach was chosen due to two main reasons. First, mixed methods approach is particularly appropriate in revealing the underlying insights of the relationships identified within real-life operational context and to uncover additional contextual factors which potentially affect GHRM implementation in manufacturing organizations (Tashakkori and Teddlie, 1998). Second, the bi-focal lens of using qualitative data and then quantitative data in a sequential manner has a significant positive impact on informing quantitative part of a study as they are perceived as complementary to each other (Onwuegbuzie, 2005). As a first stage, an extensive review of the literature allowed for the identification of initial set of GHRM practices presented in previous studies (see, for example, Daily and Huang (2001), Fernandez et al. (2003), Madsen and Ulhoi (2001), Jabbour and Santos (2008a), Arulrajah et al. (2015), and Jabbour and Jabbour (2016)). It was deemed necessary at this stage that inputs and suggestions from practicing HR managers is necessary to confirm and update the list of initial GHRM practices identified earlier through literature reviews. For this purpose, 17 semi-structured interviews were conducted with HR managers in 17 different manufacturing organizations implementing GHRM initiatives at varying levels. All interviews were tape recorded and transcribed as soon as interviews were completed. To ensure reliability of data, a guiding protocol (Creswell, 2004) was used as a backup to direct conversation around major concepts of GHRM. Interviewees were asked diverse set of questions to fully investigate nature of implementation of GHRM practices and their involvement in EM. For example, questions asked included: 'what measures are in place to select and hire employees who are interested in greening the environment?', 'can you explain how do you train your employees to be involved in EM initiatives?', 'How do you measure your employees performance and contributions to the advancement of EP?', and 'can you explain how do you instill values of green practices among your employees?'. The completion of the qualitative data collection and analysis stage provided a comprehensive list of GHRM elements and allowed for the formulation of a number of hypothesis (see
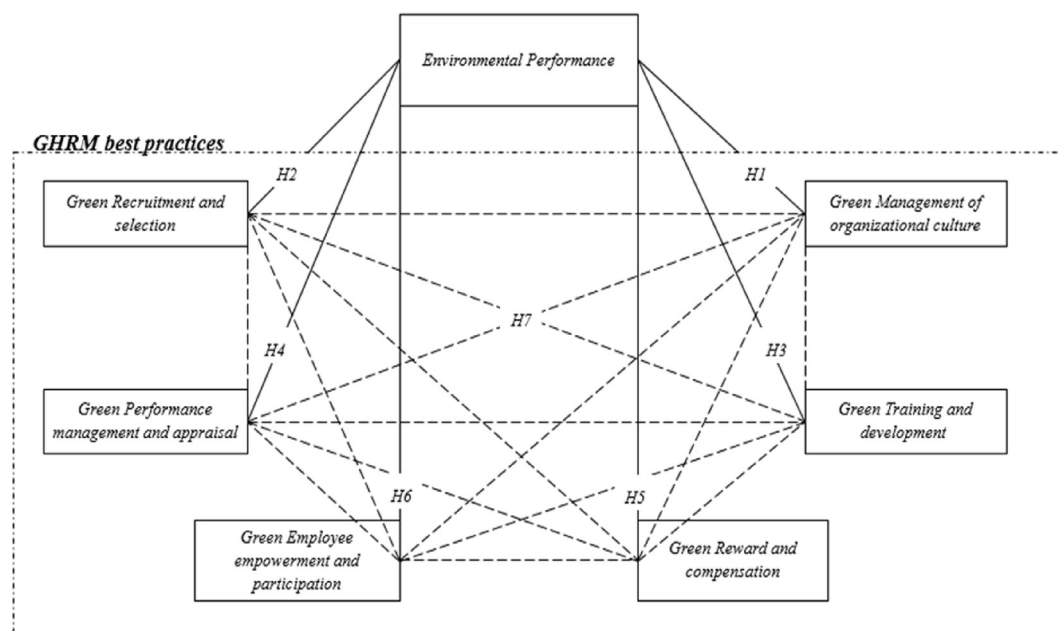

Fig. 1. Conceptual GHRM research model.

Fig. 1) representing potential relationships between GHRM practices and EP. Finally, a research instrument was developed in the form of a survey based on interrelationship of identified GHRM practices and EP from literature review. The procedure followed for developing this research instrument was supported by the work of O'Donohue and Torugsa (2016). To increase the validity and internal consistency of the survey instrument, it was pilot-tested with seven HR managers and expert practitioners before its full deployment among targeted manufacturing organizations. This pilot-testing process, as recommended by Mohtar and Rajiani (2016), provided suggestions for rearranging various items/elements of practices which were taken into consideration before its full scale usage. The instrument contained three main sections. First section included ten items collecting data that describe both the firm and the respondents' demographic information. Second section included 28 items measuring the extent of using GHRM practices. In this section, response options were grouped into six categories: (1) management of organizational culture, (2) recruitment and selection, (3) training and development, (4) performance management and appraisal, (5) reward and compensation, and (6) employee empowerment and participation. Finally, third section included eight items investigating impact of environmental commitment on firm's environmental performance.

3.1. Sampling procedure

The study population consists of manufacturing organizations from three manufacturing industrial sectors (i.e. food, chemical, and pharmaceutical manufacturers) operating in the West Bank region of OPT, where most of the Palestinian manufacturing organizations are located. This is in line with cautionary recommendations by Mohtar and Rajiani (2016) of choosing manufacturing organizations from areas where they are located the most. The Palestinian Federation of Industries was contacted to get clean information about names, details, and numbers of valid registered manufacturing organizations. Based on the database provided, the total available population of organizations was 130 organizations. However, in order to pinpoint, and then only target manufacturing organizations implementing GHRM initiatives, researchers directly contacted each organization's HR manager, or HR senior personnel in some cases, through a telephone call to inquire about availability of all or some of GHRM practices in place before electronically sending the survey. This same procedure allowed for the identification of potential candidates for the semi-structured interviews mentioned earlier. Out of the 130 manufacturing organizations available, 110 organizations (64 from food, 42 from chemical, and 4 from pharmaceutical manufacturers) expressed the availability of some or all of the GHRM practices and agreed to participate in the study. To obtain statistically representative sample size of population, Thompson formula was used. 86 responses were required to fully complete the survey. For this purpose, data were collected over a period of eight weeks via a web-based survey that has been sent through email to HR managers in all of those organizations who agreed to participate in the survey. The web-based survey provided easy and relatively quick gathering of data (Creswell, 2004). However, out of the 110 targeted manufacturing organizations implementing GHRM practices, the total number of useable returned surveys was only 90; representing a response rate of 81.81%. The respondents for the survey instrument were requested to rate each item under a five-point Likert scale (1-Not at all, 2-To a slight extent, 3-To a moderate extent, 4-To a large extent, 5-To a very large extent). This rating allowed for the identification of the extent of using GHRM practices in their respective manufacturing organizations (Roy and Khastagir, 2016). The level of GHRM practices in an organization was assessed by the average ratings of the measurement items for each measure.

4. Data analysis and results

This section illustrates the detailed analysis of the data collected through the survey instrument and highlights the outcome of correlation analysis and testifies the formulated hypotheses. The software of "Statistical Package for the Social Sciences (SPSS)", version 23 has been used in the analysis process. As a first step, the Cronbach Alpha method was used to test the internal consistency of the survey instrument. Based on the result of the Cronbach's Alpha test, refer to Table 1, the reliability of all elements of the survey is above 70%, and the total reliability of the survey is above 97% which is considered as excellent (Vogt, 1999).

4.1. Respondents' profile

Profile analysis shows that 79% of the respondents from the targeted manufacturing organizations are male while 21% only are female. Moreover, 59% of respondents work in food industry, 36% are in chemical industry and 5% in pharmaceutical industry. Additionally, the results show that 42% of respondents were HR managers, 31% were HR directors, while 19% were HR specialists, and 8% were senior HR assistants. Regarding educational level of respondents, 75% have a bachelor degree, 17% have a master degree or higher, and 8% have a diploma or below. In addition, 37% of the respondents have from 6 to less than 11 years of experience, 27% have from 2 to less than 6 years of experience and 11% have from 11 to less than 15 years of experience. Furthermore, it was found that 26% of respondents' manufacturing organizations have from 20 to 49 employees, 23% from 50 to 99 employees, and 17% from 10 to 19 employees, 14% employ less than 9 employees, 13% from 100 to 249, while only 7% employ more than 250 employees. With respect to geographical distribution of respondents' organizations (shown in Fig. 2), it was found that 36% of participating organizations are located in the city of Ramallah, 16% of the organizations are located in Nablus, 13% are located in Tulkarem, 12% are located in Hebron, 8% are located in Bethlehem, 7% are located in Jericho, 2% are located in Jenin, 2% are located in Tubas, 2% in Qalqilia, and only 2% of the companies are located in Jerusalem. Analysis also shows that 42% of organizations fully incorporated EM programs in their business operations, while the remaining 58% only have a formal plan to do that.

4.2. Prevalence of GHRM practices in manufacturing organizations

To assess GHRM practices in manufacturing organizations in Palestinian context, respondents' inputs were analyzed using descriptive analysis. Standard deviation and means of responses

Table 1
Results of Cronbach's Alpha test.

| Dimension	No. of items	Cronbach's Alpha
Management of organizational culture	5	0.867
Recruitment and selection	5	0.917
Training and development	5	0.913
Performance management and appraisal	5	0.945
Reward and compensation	3	0.944
Employee empowerment and participation	5	0.920
Environmental performance	8	0.928
Drivers of green HRM	5	0.848
Barriers of green HRM	5	0.791
Expected benefits of green HRM	6	0.884
Total	52	0.976
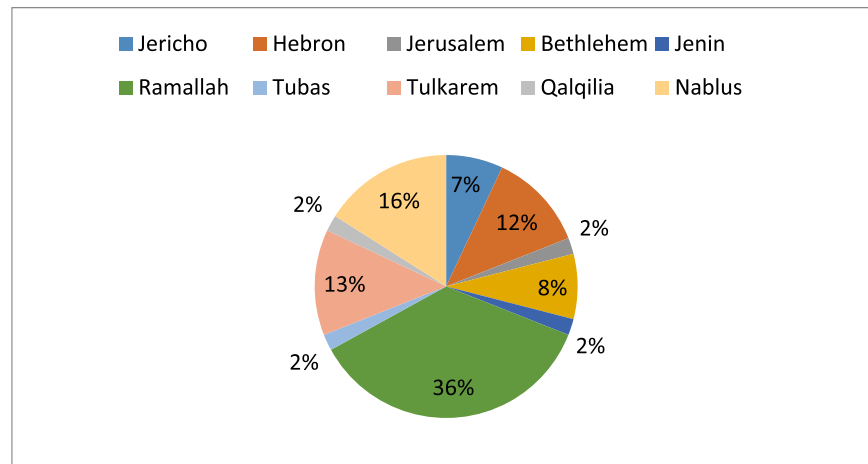
Fig. 2. Geographical distribution of respondents' organizations.

were used to identify the application degree for each GHRM practice as shown in Table 2. The use of the application degree concept reflects the level of implementing GHRM practices in the studied manufacturing organizations. As it was mentioned earlier, the respondents for the survey instrument were requested to rate each item of the survey under a five-point Likert scale (1-Not at all, 2-To a slight extent, 3-To a moderate extent, 4-To a large extent, 5-To a very large extent). The application degree of each practice was identified by classifying the response means of respondents into five degrees. These degrees were calculated by dividing the response range (i.e. 5 which corresponds to "a very large extent" minus 1 which corresponds to "not at all") by the number of levels (i.e. 5 levels) in the Likert scale used. This is represented by the following formula: $(5 - 1)/4 = 0.8$. Table 2 shows the intervals and their represented application degrees used in the research.

Table 3 demonstrates the application degree for GHRM practices in descending order. Based on the results, the total implementation of GHRM is 2.72, which is considered as a moderate level. Furthermore, Table 4 outlines the descriptive analysis of all GHRM items under their related main practices. Based on Table 4, the results show that the top four most prevalent GHRM items used in manufacturing organizations to encourage pro-environmental behavior belong to "green management of organizational culture" practice. These items are "top management support of environmental practices" with a score of 3.34, "organizational visions/mission statement include environmental concern" with a score of 3.41, "top management clarifies information and values of EM through the organization" with a score of 3.33, and "top management develops punishment systems and penalties for employees' noncompliance with EM requirements" with a score of 3.05. On the other side, the least prevalent items that have been applied in targeted manufacturing organizations are "offering non-monetary and monetary rewards based on environmental achievements" with a score of 2.36, and "environmental performance is recognized publically" with a score of 2.23 that belong to the GHRM practice of

"reward and compensation", and the items of "using teamwork to successfully manage and produce awareness of the environmental issues of the company" with a score of 2.20, and "Involving employee in formulating environmental strategy" with a score of 2.40 that belong to the GHRM practice of "green employee empowerment and participation".

4.3. Measuring environmental performance

To measure current status of targeted organization's EP, respondents were asked to rate eight EP affirmative outcomes, based on their commitment to the environmental sustainability, on a five-point Likert scale, with 5 being "Much better" and 1 being "Much worse". Table 5 presents the mean ratings and the ranking of potential EP outcomes as a result of implementing GHRM Practices in a descending order.

Based on data analysis, it is evident that "Improvement of corporate reputation" is a top environmental performance affirmative outcome in manufacturing organizations with a mean of 4.06, whereas "Increased use of renewable energy and sustainable fuels" was the lowest environmental performance affirmative outcome with a mean of 3.57.

4.4. Prevalence of GHRM practices according to different variables

This section explores the availability of potential significant differences in GHRM practices that can be attributed to the control variables of manufacturing organizations' size, existence of EMS, and the type of industrial sector. The analysis of the relationships between the GHRM practices and the three control variables was done using the bivariate analysis and developed through using one-way ANOVA test; which allows for the comparison of more than two independent groups.

As for the size of the manufacturing organizations, respondents' answers were divided into three groups according to size (measured by the number of employees) based on OECD standards and classifications (OECD, 2005). The OECD definition originates from the EU/OECD classification. It defines small organizations as those with 1–49 employees, medium-sized organizations as those with 50–249 employees, and large organizations as those with 250 employees or more. Table 6 shows that there is no statistical proof for significant differences in the degree of applying the GHRM practices of "green employee empowerment and participation", "green recruitment and selection", "green reward and

Table 2
Intervals of application degrees.

Interval	Degree
1.00–1.80	Very low
>1.80–2.60	Low
>2.60–3.40	Moderate
>3.40–4.20	High
>4.20–5.00	Very high

Table 3
Application degree for GHRM practices.

Rank	GHRM practices	Mean	Standard deviation	Application degree
1	Green management of organizational culture	3.21	0.85	Moderate
2	Green performance management and appraisal	2.77	1.03	Moderate
3	Green recruitment and selection	2.76	0.98	Moderate
4	Green training and development	2.68	0.93	Moderate
5	Green employee empowerment and participation	2.51	0.99	Low
6	Reward and compensation	2.37	1.12	Low
	Overall mean	2.72	0.89	Moderate

Table 4
Descriptive analysis of all items under their related GHRM practices.

Green management of organizational culture	Mean	Standard deviation	Recruitment and selection	Mean	Standard deviation
Top management actively support environmental practices	3.47	0.98	Job description specification includes environmental concerns	3.00	1.17
Organizational vision/mission statements include environmental concern	3.41	1.12	Environmental performance of the company attracts highly qualified employees	2.91	1.16
Top management clarify information and values of Environmental Management throughout the organization	3.33	0.96	Selecting applicants who are sufficiently aware of greening to fill job vacancies	2.70	1.11
Top management develop punishment system and penalties for noncompliance in EM	3.05	1.07	Recruitment messages include environmental behavior/commitment criteria	2.63	1.07
Team/departmental budgets cover Environmental impact	2.79	1.10	Jobs positions designed to focus exclusively on environmental management aspects of the organizations	2.58	1.14

Training and development	Mean	Standard deviation	Performance management and appraisal	Mean	Standard deviation
Providing environmental training to the organizational members to increase environmental awareness	2.80	1.13	Employees know their specific green targets, goals and responsibilities	3.03	1.17
Take into account the needs of environmental issues when training requirement analyzed	2.75	1.00	Environmental behavior/targets and Contributions to environmental management are assessed and include in Performance indicators/appraisal and recorded	2.76	1.03
Following Induction programs that emphasize environmental issues concerns	2.70	1.02	Roles of manages in achieving green outcomes included in appraisals	2.75	1.11
All training materials are available online for employee to reduce paper cost	2.58	1.17	Providing regular feedback to the employees or teams to achieve environmental goals or improve their environmental performance	2.65	1.15
Environmental training is a priority when compared to other types of company training	2.55	1.10	Corporate Incorporates environmental management objectives and targets with the performance evaluation system of the organization	2.64	1.20

Reward and compensation	Mean	Standard deviation	Employee empowerment and participation	Mean	Standard deviation
Link suggestion schemes into reward system by Introducing rewards for innovative environmental initiative/performance	2.52	1.20	Introducing green whistle-blowing and help-lines	2.88	1.15
The company offers a non-monetary and monetary rewards based on the environmental achievements (sabbatical, leave, gifts, bonuses, cash, premiums, promotion)	2.36	1.10	Providing opportunities to the employee to involve and participate in green suggestion schemes and Joint consultations for environmental issues problem solving.	2.63	1.14
Environmental performance is recognized publically (awards, dinner, and publicity)	2.23	1.25	Organization offers workshops or forums for staff to improve environmental behavior and exchange their tacit knowledge	2.45	1.19
			Involve employee in formulating environmental strategy	2.40	1.12
			Top managers use teamwork to successfully manage and produce awareness of the environmental issues of the company	2.20	1.07

compensation", and "green performance management and appraisal" where (P-value > 0.05) for all. While there are statistical differences between three sizes of organizations in the degree of applying the GHRM practices of "green management of organizational culture", "green reward and compensation", and "green training and development" where (P-value < 0.05). To understand the differences, a post hoc test was conducted to test variation between the groups. For the three GHRM practices with

Table 5
Measuring environmental performance.

Environmental performance	Mean	Standard deviation	Rank
Improvement of corporate reputation	4.06	0.75	1
Reduce emissions of toxic chemicals in air and water	3.97	0.72	2
improved product quality	3.94	0.70	3
Reduced waste and recycling of the materials during the production process	3.89	0.76	4
Improved plant performance	3.85	0.60	5
Reductions in the consumption of electric energy	3.76	0.71	6
Helped our company design/develop better products	3.75	0.66	7
Increased use of renewable energy and sustainable fuels	3.57	0.60	8

Table 6
Summarized ANOVA Test for differences among GHRM practices according to size of manufacturing organizations, existence of EMS, and type of industrial sector.

ANOVA − Among GHRM practices	Size of manufacturing organization		Existence of EMS		Type of industrial sector	
	F	Sig.	F	Sig.	F	Sig.
Green management of organizational culture	6.349	0.003[a]	4.840	0.002[a]	0.344	0.710
Green employee empowerment and participation	2.058	0.134	3.028	0.022[a]	1.329	0.270
Green recruitment and selection	2.675	0.075	3.632	0.009[a]	1.543	0.220
Green reward and compensation	5.330	0.007[a]	2.836	0.030[a]	0.797	0.454
Green performance management and appraisal	1.606	0.207	4.628	0.002[a]	0.888	0.415
Green training and development	5.766	0.049[a]	2.719	0.035[a]	3.381	0.039[a]

[a] Significant level at the 0.05.

significant statistical differences, when comparing between small and large size manufacturers, there are differences in favor of large manufacturers, and when comparing between medium and large manufacturers, there are also differences in favor of large manufacturers. However, there is no difference between small and medium manufacturers.

According to the existence of EMS at the targeted manufacturing organizations, Table 6 shows that there is a statistical difference in the degree of applying all of the GHRM practices were (P-value < 0.05). Similarly, to understand the differences, a post hoc test was conducted to test variation between the groups. For all GHRM practices when comparing between 1) EMS currently exists, 2) have plan to implement within 12 months, 3) have plan to implement in more than 12 months, and 4) have no plans to implement, there are differences in favor of "EMS currently exists". Furthermore, according to the industrial sector, Table 6 shows that there are no statistical differences between three industrial sectors of organizations (i.e. food, chemical, and pharmaceutical) in degree of applying any of the GHRM where (P-value > 0.05), except for the "green training and development" practice where (P-value < 0.05). To understand the differences, a post hoc test was conducted to test variation between the groups. It has been found that there are statistically significant differences only between food industry and chemical industry in favor of chemical industry. On the other hand, there are no differences between pharmaceutical industry and food industry, or between pharmaceutical industry and chemical industry.

4.5. Hypothesis testing

In this study, Pearson's correlation coefficient test was used to test the research hypotheses that were formulated and presented in Fig. 1. Displaying correlations of the study variables was necessary to assess the correlations between EP and the six practices of GHRM identified. This test is based on assuming the null hypothesis (Ho)

of the existence of no significant relationship between the different groups.

4.5.1. Testing correlation between GHRM practices and EP

Table 7 shows that there is a correlation between EP and the six groups of GHRM practices, where EP is collectively affected by these groups of practices since all of the P-values are below 0.05 (p < 0.05). However, these practices correlate with EP positively where the strongest correlation is with "green recruitment and selection" practice ($\rho = 0.637$), while the weakest correlation is with "green training and development" ($\rho = 0.486$). Furthermore, it is noted that the GHRM practices correlates with EP positively in a descending order; green recruitment and selection ($\rho = 0.637$), green performance management and appraisal ($\rho = 0.620$), green management of organizational culture ($\rho = 0.605$), green employee empowerment and participation ($\rho = 0.595$), green reward and compensation ($\rho = 0.574$) and green training and development ($\rho = 0.486$).

4.5.2. Testing correlation among the GHRM practices

To describe the correlations among the six groups of GHRM practices, the Pearson's correlation test was also used. Table 8 shows that GHRM practices have a significant correlation with each other since all of the P-values are below (p < 0.05). These correlations can be described as positively strong since all of the Pearson correlation coefficients is above $\rho = 0.5$. The strongest correlation is between "green recruitment and selection" and "green training and development" were ($\rho = 0.897$), on the other side, the weakest correlation is between "green employee empowerment and participation" and "green management of organizational culture" where ($\rho = 0.707$).

In general, results of the correlation test indicate a positive correlation between GHRM and EP. Therefore, the seven proposed hypotheses in the research are accepted and their results are summarized in Fig. 3.

Table 7
Correlation coefficient between GHRM practices and EP.

GHRM practices	Pearson's correlation	EP	Type of correlation
Green recruitment and selection	Correlation coefficient	**0.637**[*]	Positive
	P-value (Sig.)	0.000	
Green management of organizational culture	Correlation coefficient	**0.620**[*]	Positive
	P-value (Sig.)	0.000	
Green performance management and appraisal	Correlation coefficient	**0.605**[*]	Positive
	P-value (Sig.)	0.000	
	P-value (Sig.)	0.000	
Green employee empowerment and participation	Correlation coefficient	**0.595**[*]	Positive
	P-value (Sig.)	0.000	
Green reward and compensation	Correlation coefficient	**0.574**[*]	Positive
	P-value (Sig.)	0.000	
Green training and development	Correlation coefficient	**0.486**[*]	Positive

[*]Pearson's correlation is significant at the 0.05 level.

Table 8
Correlation coefficient among GHRM practices.

GHRM Practices	Pearson's correlation	Management of organizational culture	Recruitment and selection	Training and development	Performance management and appraisal	Reward and compensation
Green recruitment and selection	Correlation coefficient	**0.771**[*]				
	P-value (Sig.)	0.000				
Green training and development	Correlation coefficient	**0.710**[*]	**0.897**[*]			
	P-value (Sig.)	0.000	0.000			
Green performance management and appraisal	Correlation coefficient	**0.784**[*]	**0.867**[*]	**0.886**[*]		
	P-value (Sig.)	0.000	0.000	0.000		
Green reward and compensation	Correlation coefficient	**0.700**[*]	**0.803**[*]	**0.754**[*]	**0.767**[*]	
	P-value (Sig.)	0.000	0.000	0.000	0.000	
Green employee empowerment and participation	Correlation coefficient	**0.707**[*]	**0.794**[*]	**0.786**[*]	**0.798**[*]	**0.840**[*]
	P-value (Sig.)	0.000	0.000	0.000	0.000	0.000

[*] Pearson's correlation is significant at the 0.05 level.

5. Model development

Based on hypothesis testing results, a conceptual model has been developed. This model illustrates some potentially productive GHRM practices for green organizations. The model is designed to be a guide to help managers in applying GHRM in order to improve EP. As an essential step during the designing process of this model, the model has been shared with a group of HE experts to judge on its realism and flexibility. The group had one executive manager, and four HR managers from different manufacturing organizations. All of their notes have been considered and some modifications were made. Consequently, as shown in Fig. 4, the model includes the six GHRM practices arranged in four sequential stages. At the first stage, manufacturing organizations are required to develop a supportive organizational culture to guarantee a superior environmental awareness and commitment among employees via green organizational culture deployment. This can be done tentatively, as noted earlier, through adding an environmental concern to the vision and mission elements of the manufacturing organization, and through ensuring top management support, interest and commitment toward the environment. At this stage, it is important to encourage top managers to play a role model and adopt the democratic style of decision making towards EP. Furthermore, top managers should facilitate the process of disseminating EM information's and values throughout the organization. At the second stage, the manufacturing organization should be focused on hiring employees who support the environment and who are interested in protecting it via green recruitment; this will guarantee successful implementation of EM values. The green recruitment and selection activity should consider building a green reputation for the company to attract highly qualified green employees. It is essential during this process to design job specifications that attract such candidates for recruitment. However, during the process of interviewing candidates, manufacturing organizations should include elements that investigate candidates' readiness toward effective environmental behavior. At the same time, it has to make sure that it selects applicants who are sufficiently aware of environment importance to fill job vacancies.
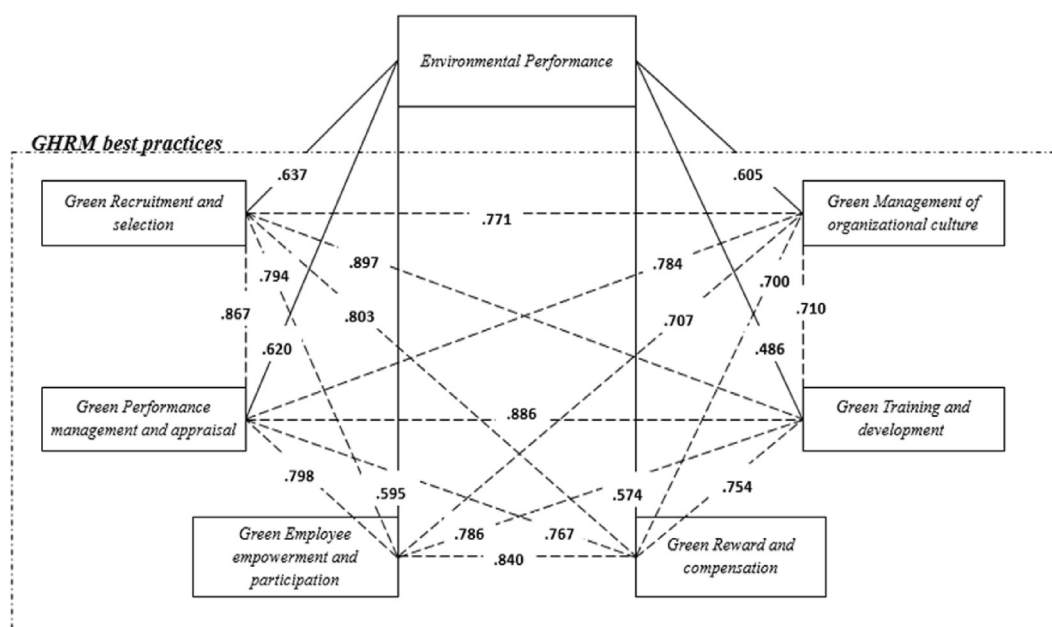
Fig. 3. Research hypothesis testing results.
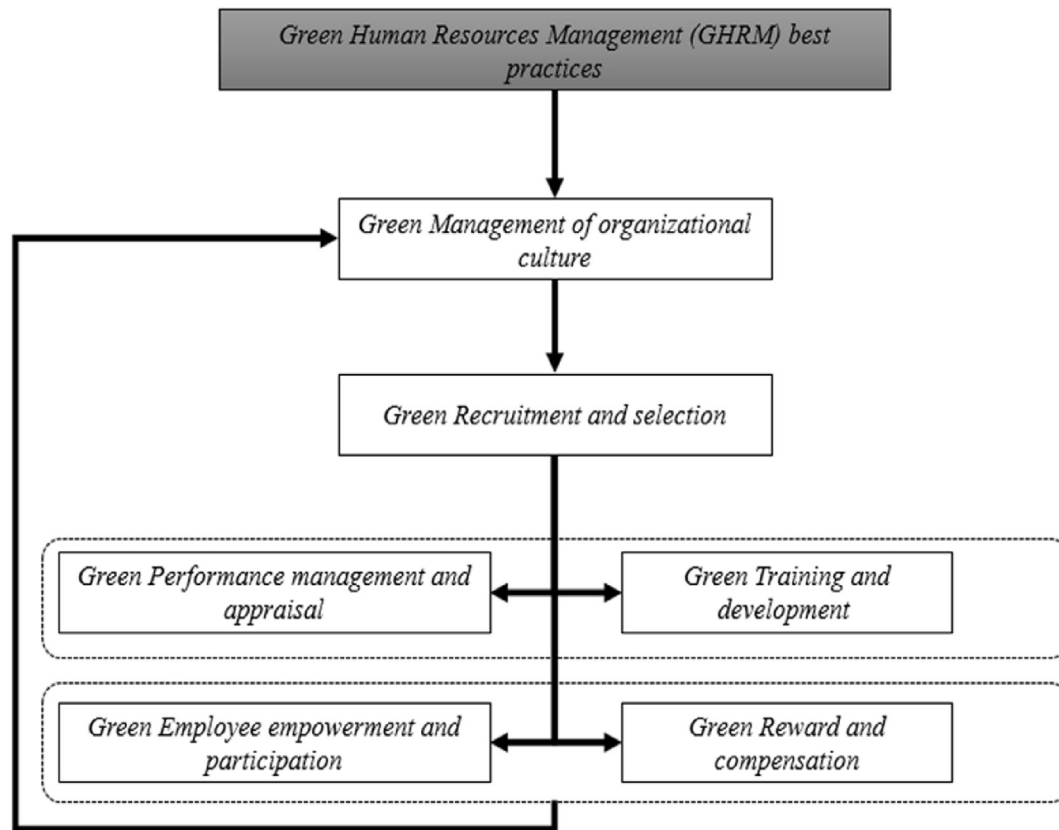
Fig. 4. Conceptual model connecting critical GHRM practices for maximized EP.

At the third stage, the manufacturing organization should keep developing employee's skills, qualifications, and awareness levels related to the environment via providing green training to the members of the organization and continuously recording and tracking their performance. Environmental training and development should focus on educating new employees about environmental issues, concerns about green culture in the company through emphasizing these issues during induction programs. On the other hand, in addition to novice employees, experienced employees should also be an essential part of future training requirements analysis. It is expected at this stage that operationalization of both green training and green performance management and appraisal systems will present EP as a priority. The model suggests that manufacturing organizations would be able to define specific green targets and objectives based on the results of performance appraisal records. At the final stage, the manufacturing organization should continue motivating employees and increase their interest in environmental issues via green rewarding and green employee empowerment. This can be done throughout linking employees' suggestions schemes for environmental innovative ideas and solutions into organizational reward system, where organizations, using monetary and non-monetary rewards, may reward employees for innovative environmental initiative and excellent EP. The manufacturing organization may also offer the opportunity to contribute to EP improvement through employee empowerment and participation. For example, employees' teamwork may participate in formulating environmental strategies to successfully manage and produce awareness of the environmental issues of the company. Also, organizations may provide opportunities to employees to be involved in Joint consultations for solving environmental issues. These six practices of the model should not be discrete. All of them are interrelated and affect each other as it was found through correlation testing. Therefore, this would suggest that a manufacturing organization should consider these practices as a continuous work.

6. Discussion and conclusion

The main objective of this research was to theorize and test the relationship between GHRM practices in manufacturing organizations and EP. Using intensive literature reviews and field data from HR managers in Palestinian manufacturing organizations, it was possible to extract six main GHRM practices. The identified practices were green recruitment and selection, green training and development, green performance management and appraisal, green reward and compensation, green employee empowerment and participation, and green management of organizational culture. Although the results revealed that the total implementation of GHRM practices is at a moderate level, the analysis confirmed that there is a statistically positive and significant relationship between the six GHRM practices and EP. It was found that the most influential practice was "green recruitment and selection", whereas the least influential practice was "green training and development". Based on these results, a model was developed by connecting critical practices of GHRM that can be incorporated in workplace for maximized EP. The presented model offers useful insights on how manufacturing organizations should strategically link their HR functions to support their EP necessary for competitive advantage. Although "green training and development" was found in this study to be the least influential practice to EP, Daily et al. (2012), in his study among 220 Mexican manufacturing organizations, found that green training, as compared to environmental empowerment,

had the strongest impact on EP. This is explainable in the Palestinian manufacturing case as training is perceived as burdensome to several organizations due to financial constraints (Palestinian Federation of Industries, 2009), and would cause Palestinian manufacturer to use more economically viable practices than green training. In fact, similar results were noticed in other developing countries such as India where organizations use cheapest GHRM practices to tap into the benefits of EP (Mishra et al., 2014). Therefore, this suggests that if Palestinian manufacturing organizations invest more in their green training programs, then they will be able to transfer their level of GHRM implementation from a moderate level to a high level. However, it is discerned that without improved green training and development for employees it may be difficult to achieve high levels of EP in the future (Daily et al., 2012).

However, findings demonstrate that the top most used practice, which increased employee commitment and awareness toward the environment, is the "green management of organizational culture". This practice focuses on top management involvement and support of the environmental protection activities, and the clarification of information and values of EM throughout the organization. The results advocate that top management is a facilitator of pro-environmental behaviors through clarifying the green framework of the organization to motivate their staff. This is in congruence with several previous studies (e.g. Govindarajulu and Daily, 2004; Ramus and Steger, 2000; Ramus, 2002; Robertson and Barling, 2013) that highlight leading role of top management in encouraging employees to engage in environmental initiatives. Top management impact was considered pivotal in manufacturing organizations because of the scope, visibility and power they have which will enable them to ensure that the same pro-environmental messages are delivered to all employees (Zibarras and Coan, 2015). It can be said, then, that placing "green management of organizational culture" as the most used GHRM practice introduces it as a priority in the Palestinian manufacturing organizations. This is similar to the findings of Jabbour (2011) in his analysis of the level of greening of HRM practices, culture, learning and teamwork in 94 Brazilian organizations, where environmental organizational culture attained maximum agreement among respondents in these organizations. However, the second most used practice was the "green performance management and appraisal", where respondents agree on the existence of an individual green assessment, the recording of its results, and predetermination of green targets, goals, and responsibilities for employees. Such a result has been considered as rare in the literature since it is present only in companies with high level of EP (Fernandez et al., 2003). Also, major studies on this topic reveal the lack of systematic practices within this practice in organizations (Fernandez et al., 2003; Govindarajulu and Daily, 2004).

Although there are very few examples of organizations that have been implementing environmental criteria in their recruitment processes in the literature (Jabbour, 2011), the practice of "green recruitment and selection" was the third most used practice at manufacturing organizations. This result highlights the fact that HR managers regard EP as a priority in their organizations. This is resembled by the role played by these HR managers during the recruitment procedures. For instance, HR managers may easily impact recruitment results and procedures by recruiting people who are potentially better prepared at protecting organizational environmental values. The results also indicated that "green training and development" was the fourth most used practice having impact on EP. This is in line with the findings of Teixeira et al. (2012) who explained that "green training is one of the most important tools to develop human resources and facilitate the transition to a more sustainable society". Despite this, the results suggest that "green recruitment and selection" is more practiced as

a tool for attracting already skilled and qualified environmental competencies in manufacturing organizations; as being more efficient and less costly than it is to organize formal training courses on environmental issues. However, employees who were trained and educated about environmental changes and policies are more likely to engage willingly in pro-environmental behaviors (Ramus, 2002). Therefore, even though the potential costs are expected, organizations need to include employees in formal education programs aimed at developing and encouraging pro-environmental behavior. It is only through providing education and training that employee can learn how to enact environmental changes and become aware of the organization's efforts toward sustainability.

Although the need for active engagement of empowered employees in green management is highlighted in several previous studies (e.g. Ramus and Steger (2000), Aragon-Correa et al. (2013); Boiral (2009)), this research shows that the GHRM practice of "green employee empowerment and participation" was used at a moderate level. This practice includes employee involvement at different levels, such as teamwork or workshops. Many researchers emphasized the importance of using green teams to involve the workforce in green management practices (Jabbour, 2011, 2013). However, green teamwork is the least used practice in this practice. Based on the fact that these methods would require more resources, both financial and administrative, to be implemented efficiently, it is predicted that manufacturing organizations perceive green management practices as expensive.

Despite the fact that the previous studies suggest that rewards and compensation can be useful for implementing GHRM (Daily and Huang, 2001; Govindarajulu and Daily, 2004; Jackson et al., 2011), it is noteworthy that findings suggest that "green reward and compensation" are not extensively used within manufacturing organizations to encourage pro-environmental behavior of employees. Fernandez et al. (2003) explain that it can be difficult to successfully implement a reward system that works for all employees. This is because individuals are motivated using different ways. Consequently, this poses a problem for manufacturing organizations concerning the resources necessary to connect rewards with individual motivation. Based on this, it is perhaps not surprising that rewards and compensation are not used to the extent as other methods especially in manufacturing organizations with large numbers of employees.

This research questioned whether the application degree of GHRM practices differs according to three independent variables of size of manufacturing organization, existence of EMS, and type of industrial sector. In recognition of size of manufacturing organization effect, Elsayed (2006) found that size of a firm determines its capability to apply appropriate environmental initiatives that enhance EP. This research indicates that manufacturing organizations size significantly influence the extent to which certain GHRM practices were used as an enabler for improving environmental behavior. Based on the results, it has been found that "green management of organizational culture", "green reward and compensation", and "green training and development" practices are more prevalent among larger organizations than small and medium organizations. Although these results support the assumption that large organizations have better resources to influence EP (Ronnenberg et al., 2011), they are different from results reported in other manufacturing environments. For example, O'Donohue and Torugsa (2016), in their study of the role of GHRM in the association between proactive environmental management and firm financial performance in small Australian manufacturing organizations, revealed that size of manufacturing organizations is not a barrier for achieving environmental sustainability, and should not constitute a concern for smaller manufacturers aiming at improving their greening programs. This can be explained by the

fact that small and medium Palestinian manufacturing counterparts lack adequate accessibility to affordable soft financing and loan guarantees necessary for investing in green projects as compared to larger manufacturing organizations in Palestine, and other manufacturers in developed countries (Palestinian Federation of Industries, 2009). Findings also demonstrate that type of industrial sector has a significant effect on the extent of implementing "green training and development" only. Implying that chemical industries tend to perform better than food and pharmaceutical industries included in this research. It can be explained that chemical industries are considered as greater pollutants; correspondingly, they are more interested in training their employees about various environmental issues. On top of that, Palestinian chemical manufacturers are suffering from fierce competition from their Israeli counterparts (Palestinian Federation of Industries, 2009); it is due to this competition that these manufacturers tend to invest more in green training of their employees to achieve competitive advantage. This is congruent to the findings of Jabbour et al. (2008) who found that competition triggers human resources practices necessary for EP. Regarding the existence of a formal EMS effect, findings demonstrate that manufacturing organizations currently implementing a formal EMS or have a, action plan for EMS tend to perform better in using GHRM practices. This is in line with the results of Massoud et al. (2011) who suggest that there are different forms for implementing EMS, where a more formal EMS is associated with a greater probability of adopting certain green human resources factors in the organization, whereas informal EMS uses these factors at a lower level, and those organizations with no EMS implement very low levels or none of green human resources related activities.

7. Theoretical and managerial implications

This study has a number of significant contributions for EP researchers and practitioners. First, it adds a relationship that is little explored and evolved in a manufacturing setup of developing countries by integrating GHRM practices and EP through a model that discusses how HR factors can provide more sustainable manufacturing organizations. Second, it extends research on EP by investigating how main GHRM practices in manufacturing organizations links with each other, and ultimately to EP. In particular, the identification of these links among GHRM and with EP specifies theoretical prioritization, and validation of GHRM practices in a manufacturing context, hence expanding our understanding of how manufacturing organizations should strategically link their HR functions to support their EP initiatives. Third, previous studies have examined GHRM and its links with EP in a single industry. For example, investigation of GHRM practices in sports centers industry (Gholami et al., 2016), comparing GHRM practices in restaurant industry (Haddock-Millar et al., 2016), and examination of HR factors and EM in aerospace industry (Daily et al., 2007). However, the diversity of participating manufacturing organizations (i.e. chemical, food, and pharmaceutical industries) in this research highlights the generalizability of results to organizations in multiple industries. Hence, this study also extends GHRM research to a more diverse set of industries.

From a practical perspective, the GHRM model presented in this study intend to give a guide for manufacturing organizations about the implementation of best practices of GHRM that affects the EP the most. Given the fact that EP is becoming one of the most prominent trends in manufacturing industries, using this model of GHRM in developing nations can enhance organizational cleaner production capabilities necessary for competing at a national and international level. Furthermore, this study can guide managers at manufacturing organizations to link environmental strategic goals

with specific practices of HRM. This linking can generate the deep engagement of employees in shaping environmental practices for a stronger EP. In addition, adopting the full set of GHRM according to priorities explored in this research helps manufacturing organizations to build an eco-advantage culture; going beyond the basics of cutting waste and operating efficiently to enclose environmental considerations into all aspects of their employees' behavior, through defining green values, practices, initiatives, and rules.

8. Limitations and future research work

Although this study is based on data collected from manufacturing organizations operating in three different manufacturing industries in Palestinian context, replicating this study in other developing countries' context will be necessary to determine the extent to which the findings can be generalized to other developing countries as well, and will allow testing this conceptual GHRM modelling attempt in different environments so as to understand how GHRM behaves in different settings. Because of the scarcity of empirical researches that address HR factors in the environmental management literature (Daily et al., 2007), it is recommended that in-depth case studies be conducted in manufacturing organizations in developing countries to gain more insight about using GHRM practices for enhanced EP. While this study provided a detailed investigation on the extent of usage of GHRM practices in manufacturing organization, other researches would be required to assess this usage of GHRM practices on the overall performance of the organization in terms of financial benefits. It would also be valuable to conduct longitudinal studies to track the evolution of EP in those manufacturing organizations gradually implementing GHRM practices to understand cleaner production trends; this would be essential for possible identification of best combinations of HR practices that affect organizational sustainability.

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