

CONCEPTUAL FRAMEWORK OF SUSTAINABLE GREEN HUMAN RESOURCE MANAGEMENT (SGHRM) AND ITS EFFECT ON SUSTAINABILITY IN GREEN BUILDING

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Abstract

Sustainable construction is expected to create long-term social values that emphasise affordability, quality, longevity, and efficiency of the products while minimising the negative impacts on the environment. The majority of the sustainable construction-related issues are employee-based issues and can be attributed to a lack of competencies, awareness, and poor employee development opportunities. Therefore, the aim of this paper is develop conceptual framework of Sustainable Green Human Resource Management (SGHRM) and its effect on Sustainability in Green Building. According to a systematic review, research on Sustainable Green Human Resource Management is indeed not only scarce but also scattered. This review uses a content analysis approach, bibliographic analysis, and analysis of top cited journals and researches in the field of Sustainable Green Human Resource Management (SGHRM) and Sustainability in Green Building which is a novel approach. According to the results of this analysis, this model can help senior managers and HR professionals to recognise the role of the GHRM concept and the importance of employee involvement in sustainability practices to minimise sustainable construction challenges and external stakeholder pressures.

Keywords: *Green Building, Human, Resource, Management and Sustainability*

1. Introduction

The construction industry plays a significant role in the economic and social development of countries in both the developing and developed world (Oke et al., 2019). However, construction activities extensively consume natural resources, such as raw materials and energy. This adversely impacts environmental health through water and air pollution, land degradation, waste material, and loss of biodiversity (IEA, 2018; UNEP, 2018; Zhang et al., 2019b). The adverse environmental impacts of construction activities are particularly evident over the past two decades, and are expected to worsen into the future, as 230 billion m² of the built-up area will be added to by 2060 (IEA, 2017).

With increasing societal awareness of the environmental impacts of construction activities, there is considerable pressure on construction professionals to innovate and implement sustainable programs to improve the environmental performance of the construction industry (Lin et al., 2017). As noted by Giesekam et al. (2016), the construction industry should articulate a vision on net-zero-emission, develop and

incorporate low carbon building materials, reuse and waste minimisation, reverse logistics and minimise greenhouse gas emissions due to construction activities.

Nevertheless, the industry still faces many challenges to fully achieve a sustainable construction paradigm. These challenges can be mainly categorised into employee-centric, government-based, and cost and time-based issues. The literature highlights that employee-centric issues, while key to improving the sustainable performance of the construction industry, have received limited attention in the academic literature (Cattell et al., 2016). This gap in the literature is problematic, as employee-centric issues are focused on equipping construction professionals with the core skills, attitudes and knowledge base needed to transition to the sustainable construction paradigm, and its implementation requires sound human resource-based solutions that are currently poorly understood (Pham et al., 2019a). The chapter initially focuses on the background of the sustainable paradigm of the construction industry and current sustainable construction practices. It helps understanding the evolution of sustainable construction practices in the last two decades and its limitations. Then, critical evaluation of literature is undertaken to identify the issues on Sustainability in Green Building. Finally, the chapter identifies the employee-related sustainability gaps and available solutions provided in past studies.

Hence, the construction industry as a key natural resource single use industry needs to shift from a traditional focus on financial and other traditional measures of success to prioritise delivering positive environmental outcomes on projects. On the other hand, the indirect environmental impact of construction work, which is higher than the direct impact, cannot be quantified (e.g. the impact on water resources and transport-related pollution) (UNEP, 2017). As such, the stakeholders have many concerns about both direct and indirect environmental impacts of construction projects; hence, they exert environmental pressure with various operational disturbances to the projects to achieve Sustainability in Green Building. Sustainable construction aims to establish and maintain the harmony between the built and natural environments by accounting for environmental well-being, human dignity, and economic equity (Oke et al., 2019).

Sustainable construction is expected to create long-term social values that emphasise affordability, quality, longevity, and efficiency of the products while minimising the negative impacts on the environment. Previous studies have provided a framework for sustainable construction and developed as a competitive advantage rather than an obligation (Gholami et al., 2016). Green building has been introduced as an end product of sustainable construction, and to follow the objectives of the above definition (Kibert, 2016). Most countries have different approaches to promoting and rating green buildings (BREEAM in the UK, the LEED program in the USA, Green Star in Australia, CASBEE in Japan and HK-BEAM in Hong Kong). A number of key sustainable practices contribute to sustainable construction including Building Information Modelling (BIM), Industrialised Building Systems (IBS), Value Management (VM), life cycle costing, design for environment, and lean construction, (Oke et al., 2019). These practices require a higher level of employee competencies, creativity, and diversified knowledge.

The key objective of effective Human Resource Management (HRM) is to motivate employees towards organisational goals and improve productivity (Chapano et al.,

2018). Therefore, an appropriate HR model will help to enhance employee engagement and commitment to environmental challenges through a focus on construction employees' major issues such as work-life balance, diversity of knowledge, sustainable image of the organisation and resource efficiency.

Green Human Resource Management (GHRM) has proved to be effective in achieving sustainability in several industries, such as manufacturing, sports, tourism and hotels. Gupta (2018) explored the effectiveness of the GHRM concept and practices in manufacturing organisations and provided a framework for managers to evaluate their sustainability performance. Kim et al. (2019) investigated the roles of eco-friendly behaviour and commitment of employees to achieve sustainable goals in the hotel industry. Furthermore, the effectiveness of GHRM policies has also been proven in the financial industry and health services industry to improve sustainability performance of the organisations with minimum environmental degradation. (Rawashdeh, 2018). Therefore, the emerging concept of GHRM has integrated environmental management and HRM to develop environment-based HR solutions in various industries with effective employee engagement and awareness.

The GHRM concept has not been applied to the construction industry, while many other industries have already demonstrated the potential strengths of this new approach. The systematic study of novel GHRM concept could help to enhance employee competencies and commitment towards sustainable activities in the labour intensive construction industry.

2. Literature Review

2.1 Sustainability and HRM

Sustainable HRM is an emerging concept within the field of human resource management, answering a call for a more intense commitment on behalf of organizations that are reporting their sustainability activities (Ehnert et al., 2016). This is explained as an organizational motivation of regenerative relationships that are mutually beneficial for internal and external stakeholders and a commitment to pursue HRM practices that are not harmful to workers, their families or communities (Ehnert et al., 2016; Mariappanadar, 2012). According to Ehnert et al. (2016), the sustainability of organizational life is measured by

“the adoption of HRM strategies and practices that enable the achievement of financial, social and ecological goals, with impact inside and outside of the organization over a long-term horizon while controlling for unintended side effects and negative feedback.” (p. 90)

They reiterate that their study is not an explanatory discourse on the theoretical concept of Sustainable HRM but a purposeful statement on its existence once organizations claim to adhere to the GRI Standards. In that line, a recent discourse of Velenturf and Jopson (2019) explains how economic outcomes are overemphasised in the circular economy and practices at present. Furthermore, they explain that global challenges demand a multidimensional resource recovery where sustainable mindset and practices are applied ecologically, economically and socially (Ehnert et al., 2016;

Velenturf & Jopson, 2019). GRI offers a framework comprised of six categories of which the last two are related to Sustainable HRM: economic, environmental, social, product responsibility, human rights and decent work (Ehnert et al., 2016). The decent work-category has adopted the International Labour Organization's (ILO) indicators of Decent Work Agenda and identifies the elements of employment, dialogue, rights and protection ("Decent work," n.d.). They particularly single out two elements of Sustainable HRM, identifying them as the complicated interrelation between HRM systems and the internal/external environments, and the recognition of multi-layered and potentially conflicting goals of human and ecological sustainability. It involves organizational commitment to mutually beneficial relationships between organizations and their employees, and more importantly, the employer-employee relationship acknowledges a shared responsibility for workers' welfare and the work-related externalities that affect it (Ehnert et al., 2016; Manuti & Giancaspro, 2019).

2.2 Greening of Human Resource Management

The construction industry is a labour intensive industry, with human resources making up the highest cost item on construction projects, at approximately 17 to 22% on a project (Stanford, 2016). Strategic Human Resource Management (SHRM) plays a vital role in construction companies through the effective alignment of labour forces towards the company's strategic goals. Wright and McMahan (1992) defined SHRM as *'the pattern of planned human resource deployments and activities intended to enable an organisation to achieve its goals.'* The main feature of SHRM is the alignment of people management practices with business strategies and contingencies to provide a competitive advantage. It also serves to reinforce organisational objectives through talent acquisition and development and performance measurement. Accordingly, HRM policies and practices focus on internal resource development to strengthen and guide the efficient allocation of internal resources within construction organisations.

A key challenge in HR theory and practice is identifying strategies to better align the triple bottom line (financial, social, and environmental) objectives of construction organisations with existing strategic HRM capabilities and frameworks (Ren et al., 2018; Renwick et al., 2016). Chams and García-Blandón (2019) revealed the link between HRM and sustainable goals of organisations highlighting three factors: employee well-being, community prosperity, and quality of work-life balance. The study noted these three factors could enhance employee responsibility, the efficiency of the organisation and resource management, and they will assist in achieving sustainable goals of the organisation. Therefore, greening HRM could focus on employees and societal well-being to satisfy the needs of the organisation and the planet.

Past studies have attempted to modify existing strategic HRM frameworks or to introduce a new framework to achieve this and to improve the green competencies, top management support, green employee empowerment, and HR business partner roles, to face strategic problems (legal requirements, social needs, and competition) related to environmental performance (Yong et al., 2019a).

Zidane and Andersen (2018) found that poor planning, poor decision making, managers' bureaucracy, competency shortages, internal administration procedures, and poor communication are the key universal factors that have a significant negative impact on sustainable construction practices. Therefore, a more employee-centric approach could minimise the identified issues and enhance the creative and productive potential of construction employees to be involved in sustainable construction activities. To improve construction organisations' environmental performance, SHRM needs to be integrated with the environmental strategies to overcome current ecological concerns (Jackson et al., 2011; Renwick et al., 2008). In this regard, many different stakeholders in construction organisations expect management to adapt existing SHRM policies, procedures, and systems to direct employee mindset to develop a new set of employee competencies, which will allow construction companies to meet their social, moral, and environmental obligations (Ismail and Hassan, 2019).

2.3 Definitions of green human resource management (GHRM)

GHRM is a novel concept that was first introduced in the early 2000s, and many definitions have evolved over the last decade. The evolution of the GHRM concept has opened many research opportunities in the construction industry. Hence, it is important to develop a comprehensive definition of GHRM to focus on the nature of human capital in the construction industry.

An initial definition was presented by Renwick et al. (2008), which describes the alignment of employee involvement and participation towards an organisation's green targets. The definition emphasised that the employee detachment of sustainable goals could have a major impact on the stability of sustainable practices. GHRM definitions have evolved over time, with authors including Dutta (2012) defining GHRM as a strategic alignment of an employee and organisational goals in a holistic view, and have highlighted the importance of green HR policies in creating an environmental management system. The development of this definition highlights 'strategic alignment' and 'holistic view' as vital perspectives. Table 2.1 summarises the definitions of GHRM under 'strategic alignment' and 'holistic view' to understand the diverse and evolving descriptions of GHRM.

3. Sustainable Performance

Sustainability in business is defined as a dynamic condition resulted from the firm's action in developing perpetual stakeholders' and shareholders' values (Hassan et al., 2016). A fundamental aspect of sustainable value is that the organization which serves the society and the environment could serve its shareholders and customers better as compared to the organization which does not (Abdullah et al., 2014). Dyllick and Muff (2016) stated that sustainability is a set of activities that help improve the earth's maintenance, protecting living beings, prolonging the valuable life of organizations, renewing biosphere, and enhancing the capabilities of society to uphold itself and manage the issues in welfare, participation in humanity and current as well as future personal freedom. Hence, sustainability represents an advanced approach in

conducting business and this is an important factor that constructively and innovatively transforms enterprises cultures. Dyllick and Muff (2016) emphasized that this kind of culture would encourage better performance and maximizes the utilization of current assets in a way that brings excellent results in terms of society, environment and the economy. The evaluation of industrial sustainability performance urges the development of appropriate framework criteria and the definition of germane indicators (Varsei et al., 2014). Numerous currently integrated frameworks that are applied in evaluating global, national or firm level sustainability were revised to recognize the appropriate aspects that should be taken into consideration when assessing the industrial sustainability (Abdul-Rashid et al., 2017).

4. Green Building

Green Building are being global recommended for their potential to improve natural resource efficiency, decrease operation costs, and create a healthier built environment for users (USGBC 2015). With the rapid development of worldwide GB markets, various GB rating systems have been created and form the basis for designing, constructing and maintaining and evaluating GB.

The adoption of green building concepts in the rapidly growing Asian markets is especially noteworthy (Chan et al. 2009). Many developing countries in Asia have witnessed major progress in green building development, for example, up until 2015, the Indian Green Building Council LEED-INDIA program saw some 664 Indian buildings achieve LEED certification (USGBC 2016). Malaysia has launched its own green building rating system — Green Building Index in 2009, which was developed based on LEED and was adapted specifically to Malaysia's tropical climate, environmental and developmental context, cultural and social needs (Chua and Oh 2011). The National Green Technology Policy, an important policy for green building development in Malaysia was also launched in 2009 (Samari et al. 2013).

Similar to the above developing Asian countries, Thailand is following the global trend in developing their green building industry on the basis of LEED (Wethyavivorn et al. 2009). After the first green building project in Thailand received certification from LEED in 2007, 165 projects have been registered with LEED until 2015 (USGBC 2016). Modified from LEED to fit Thailand's environment, Thailand's Rating of Energy and Environmental Sustainability (TREES) has also been launched as Thailand's own green building rating system by Thai Green Building Institute in 2010 (Srimalee 2014). The number of green buildings applying for TREES has risen quickly with 63 projects awarded TREES certifications since 2012. This indicates that TREES is playing a more and more important role in the green building industry of Thailand (TGBI 2015). With great growth potential in the green building market, Thailand, along with other developing countries in Asia will need strategies for delivering green buildings. This research will be useful in understanding the factors responsible for successful GB ratings.

5. Green Building in UAE

The green building in construction industry is a sector of the economy, which is responsible for planning, designing, constructing, maintaining and eventual demolition of buildings and works (Wells, 1986). It is essentially a service industry, obtaining its inputs and outputs from various sectors of the economy with which it is interrelated and interlinked, often in quite complex ways. The importance of green building in construction derives from its role in the generation of constructed physical facilities, and in employment, which in turn, play a critical and highly visible role in the process of development of a country (Salleh, 2009).

Construction encompasses all civil engineering works and all types of new building projects, as well as the maintenance and repair of existing facilities. In developing countries, as much as half of the total construction output may be in civil engineering projects, transport facilities, power projects, irrigation, drainage, water supplies, housing buildings, hospital, schools, offices, factories, hotels (Wells, 1986).

The green building in construction industry is considered one of the oldest industries organized on a project basis (Gollenbeck, 2008). Well, known examples are the Egyptian pyramids (3rd millennium B.C.) and the aqueducts carrying water to cities and industrial sites that were constructed in Rome in 312 B.C. (Gollenbeck, 2008). One thing that is common to all these historic structures is the use of both human and material resources which are planned, organized, coordinated and controlled for the sole aim of realizing the projects. It also involves a complex structure of different trades and professionals working in harmony towards the realization of the projects. The green building in construction industry is of strategic importance to any nation due to the role it plays in the economy (Gollenbeck, 2008; Jinadu, 2007). It is responsible for the provision of infrastructure and contributes to a country's Gross Domestic Product (Dada, 2012). The industry worldwide accounts for a sizeable proportion of a nation's economic activities and globally accounts for about 10% of the world economy (Freeman, 2011).

The industry can be used for the socio-economic development of developing economies (Hamilton, 2006). This is because of its unique ability to facilitate the development of a nation by providing direction for human needs, stimulating investment, and generating employment (Hamilton, 2006). In developing countries, the construction industry is a key barometer of economic performance. The green building in construction industry contributes a significant percentage of the Gross Domestic Product (GDP) of these countries and provides employment to a substantial proportion of the working population (Bohariat *et al.*, 2015).

6. Research Framework

Based on the previous discussion of findings in the literature, this research proposes a framework that attempts to investigate the relationship between GHRM practices, and components of sustainable performance with the existence of EB practices as mediating variables between GHRM practices and sustainable performance relationship. Figure 1, below illustrates the conceptual model guiding this paper

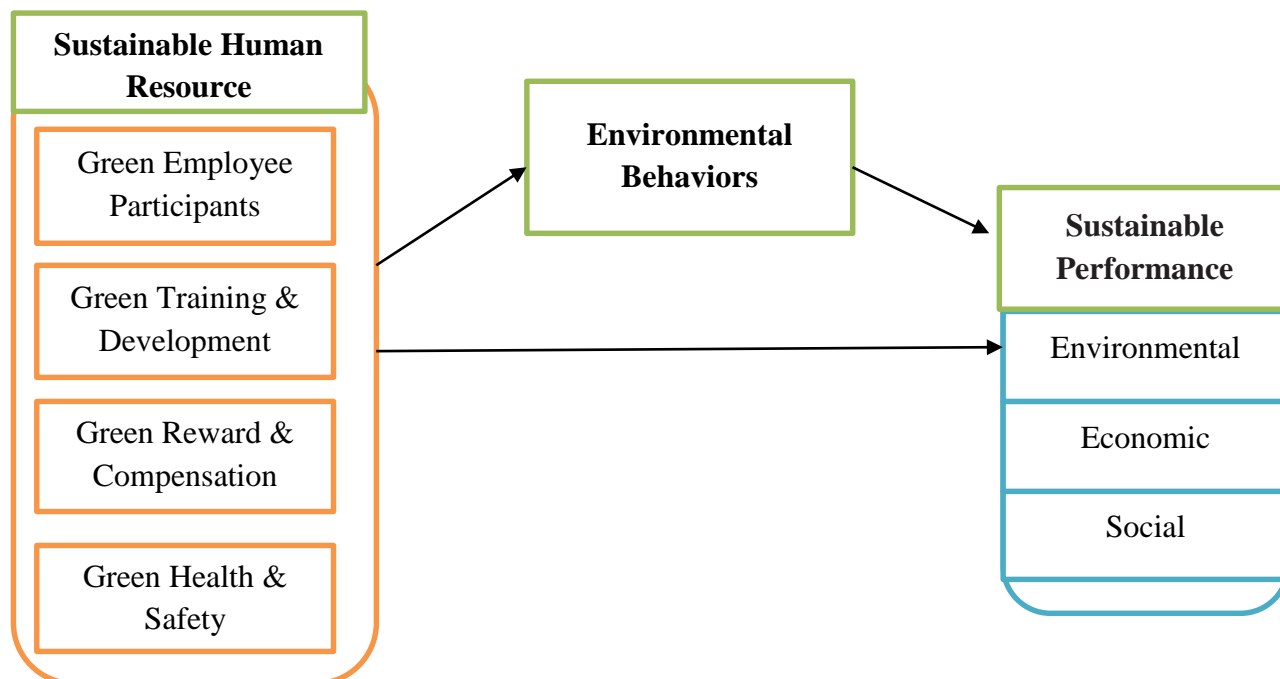


Figure 1: Conceptual framework for GHRM, Environmental Behaviours and sustainable performance

The recommended conceptual model is primarily RBV which was enunciated by Barney in 1991. Indeed, the RBV has been widely utilized to explain the relationship between HRM-EB practices and organization performance (Alfalla–Luque *et al.*, 2015; Fu *et al.*, 2013), also, to elucidate the direct effect of EB and GHRM practices on organizational performance (Longoni *et al.*, 2016). According to this theory, the valuable human capital resources are required by firms to implement effective SP which in turn leads to competitive advantage (Nejati *et al.*, 2016). Thus, the researchers argue that HRM is a critical strategic resource that has important implications for effective EB strategy implementation. In general, RBV provides theoretical lenses in understanding the relationship between GHRM bundle practices, EB practices and components of sustainable performance in which it advocates the importance of environmental practices such as strategic asset that contribute directly to better organization performance (Longoni *et al.*, 2016).

7. Impact of GHRM practices on Sustainable Performance

It is recognized that considering greener actions in every step of HRM tasks is vital, since HRM practices support the implementation and maintenance of an environmental management system, thereby assisting a company in achieving a better environmental performance (Viswanathan, 2017). Indeed, it should be noted that GHRM requires employees to be fully involved in their attempt of getting

greener(Wagner, 2013), or in other words, constantly practising green endeavours in their working area. On a similar note, this practice should also be included in recruitment, training, and compensation (Wood, 2014) in order to establish green human resources(Rani & Mishra, 2014). According to Jadhav and Mantha (2013), GHRM bundle acts as adhesive that connects various practices as a synchronous unit. The mutual benefits between organizations and workers ought to signify the sequence of consistent and internally dependable HR practices. Incorporation of practices unveils greater impact on a company's improvement and performance (Tadić & Pivac, 2014).

The current literature emphasizes that organizations can adopt appropriate HR practices to stimulate their employees in achieving the objectives of environmental sustainability (Ahmad, 2015). In regard to this, a deeper investigation should be conducted in determining the factors that engage the employees to be instilled with pro-environmental behaviour as well as to help organizations to become greener (Paillé et al., 2014). Moreover, it is crucial to note that firms cannot take further action without the support of their staff, particularly in terms of knowledge, skills, commitment, and productivity (Seeck & Diehl, 2017; Zhu et al., 2013). On top of that, GHRM strives to enhance competency, eradicate environmental damage, and restore human resource products, tools, and procedures with greater efficiency but at a lower cost. More importantly, Haddock et al., (2016) highlight the significance of putting 'greening' functions as the main factor in improving environmental performance. Furthermore, Hashmi et al., (2015) affirm that companies which implement sustainability practices associated with environmental-orientation have higher financial performance compared to those without such commitments in some environmental-oriented activity.

Indeed, GHRM plays a very important role in enriching the well-being of workers as well as enhancing environmental performance (Renwick *et al.*, 2016).According to a study conducted on German companies, there is a positive relationship between the adoption of sustainability standards and a company's accomplishments, which is moderated through a company's connection with its workers (Wolf, 2014).On top of that, the companies that are mainly concerned about having an excellent ecological operation are recommended to choose and hire workers that can be committed to handling ecological problems, particularly through the implementation of GHRM (Chiappetta *et al.*, 2017; Renwick *et al.*, 2013).

GHRM is also capable of motivating staff, a motivation which may generate foundations of competitive advantage and lead to the achievement of a superior environmental performance (Chiappetta *et al.*, 2017; Paillé *et al.*, 2014). According to Kaufman (2015), the RBV is capable of differentiating the resources utilised by organisations. Similarly, the stakeholder theory also showed that pressures from the stakeholders would have positive impact on the organizations as it will lead to effective work and better work production (Guerci *et al.*, 2016). This is believed to affect an organisation's environmental performance and ultimately improve its economic performance (Solovida *et al.*, 2017).

GHRM is essential for greening organizations (Aragón-Correa *et al.*, 2013). Firdaus and Udin (2014) stated that many firms implement GHRM both to benefit their

employees and to improve their financial performance. In addition to benefitting the environment, GHRM also positively affects the retention of the talent pool (Patel, 2014). While it is given that GHRM practices are effective in making organizations' operations green, some researchers, such as Haddock-Millar *et al.*, (2016) posit 'greening' functions as the main factors in improving financial performance. Several authors have confirmed that economic performances are driven by employee outcomes which are associated with environmentally-oriented practices such as competence, involvement, and motivation (Jabbour, 2016). Naturally, hiring environmentally-conscious workers can be appealing to an organization, since such employees can more easily be recruited for environmental activities and will be more ready to undertake environmental training to improve their skills, motivation, retention, and job-related results (Teixeira *et al.*, 2016), thereby increasing the economic performance of the organizations. It could be claimed, then, that pro-environmental initiatives are performed by means of the implementation of GHRM practices.

Previous studies on GHRM domains managed to reveal a positive relationship between GHRM practices and economic performance (O'Donohue & Torugsa, 2016). Margaretha and Saragih (2013) point out that organisations tend to adopt green sustainable business practices and aim at a greener corporate culture with the general goals of better efficiencies, decreased costs, and an altogether better atmosphere for employee engagement. Improved sales and a reduction in costs are the results of promoting a greener culture (Mehta & Chugan, 2015). To corroborate this, a large number of firms which have utilized GHRM managed to improve their profits, give better assurances for their representatives, and better economic performance for green associations (Jabbour, 2019).

8. Impact of GHRM practices and Environmental Behaviour

Nevertheless, Chaudhary (2018) mentioned that the combination of employees' environmental competencies with social needs, organisational goals, and environmental aspects are key to the success in the GHRM effort of the organisations. The 'holistic model' developed by Bombiak, (2020) integrates psychological, sociological, strategic, and green perspectives, which collectively fulfil the requirement to develop the workforce towards sustainable construction practices. As such, the current research study derived the proposed GHRM model as an extension of the holistic GHRM model proposed by Bombiak, (2020). Further, the study assessed the status quo of the relationships among four perspectives and the respective eight attributes of the proposed GHRM model. This was done by eliciting the opinion of construction professionals through an online survey (see Section 4.2.1) and then identifying the deviation of the perspectives and attributes in relation to construction companies in the developing countries. Indeed, GHRM playing a significant role in disseminating environmental ideologies and standards and offering talented and committed employees to implement environmental ideologies and standards in the foundation of an SP business development (Ahmad 2015; Jabbour 2016). For instance, Longoni *et al.*, (2016) confirm that EB practices play a mediating role between GHRM practices and environmental performance relationship. Accordingly, the fifth hypothesis postulate that:

H5: There is a relationship between GHRM practices and Environmental Behaviour

9. The Mediating Role of Environmental Behaviour between GHRM practices and Sustainable Performance

In fact, the HRM-SP mediation relationships in relations to environmental issues are scares. Recently, Jabbour (2019) called for more empirical studies on this issue. Previous empirical studies tested such relationship and showed that specific GHRM practices drive EB implementation (Dubey *et al.*, 2017; Nejatiet *al.*, 2017). For instance, Teixeira *et al.*, (2016) conduct an empirical study among Brazilian firms certified with ISO 14001 to investigate the relationships between green training which is a part of GHRM practices and GSCM practices such as green purchasing and cooperation with a customer. The study found green training have positively and significantly related to SP practices implementation. Environmental Behaviour is often regarded as an important predictive variable of environmentally friendly behavior and directly motivates environmental purchase intention, which is widely used to explain pro-environmental behavior, sustainable behavior, (Yue *et al.*, 2020). Research on environmental concern can be traced back to the 1960s. In the early years, scholars did not clearly define environmental concern, even equating environmental concern with environmental attitudes (Kopnina,2014). Some scholars believe that environmental concern is a self-evident concept, while others find it difficult to give an abstract concept of environmental concern. Thus, the concept of environmental concern is mostly an operational definition, and different research has had different operational concepts. Harrison, (2020) developed the New Ecological Paradigm (NEP) scale, which is considered to be the earliest quantitative definition of environmental concern. Thus far, environmental concern has been divided into two categories: environmental concern for specific environmental issues (e.g., attitude toward the disposal of garbage or water pollution), and environmental concern that is comprehensive and universal (views on a variety of ecological crisis issues and attitudes toward the relationship between humans and the environment). We adopted the latter definition—which considers environmental concern as a comprehensive and universal view of environmental issues—for our study.

The development of sustainable competencies and pro-environmental behaviour is key to overcome challenges to sustainable construction. Green training could provide a systematic approach to enhance environmental competencies, green attitudes, and pro-environmental behaviour (Tang *et al.*, 2018). A well-trained and environmentally aware workforce could minimise the environmental impacts of construction projects (Renwick *et al.*, 2013). Construction companies need more ecological awareness and education to establish an organisational culture that accounts for environmental practices and a positive reputation (Jabbour, 2016).

Thus, green training is the familiarisation of employees with environmental practices and encouraging them to adopt pro-environmental behaviours, which have the potential to minimise the negative impacts on construction projects (Chiappetta and Jabbour, 2016). Thus, green pay and reward systems can be potential tools to promote green behaviour. In this regard, environmental reward systems have a significant impact on employees' willingness to create eco-initiatives. For example,

DuPont in the USA practices the Environment Respect Award programme to recognise employee environmental achievements, and 3M uses a suggestion system to reward employees' environmental efforts and profitability (Renwick et al., 2013).

The green reward and compensation schemes could encourage both managers and other employees to adopt sustainable construction through incentives, and financial and non-financial recognitions could motivate employees' voluntary pro-environmental behaviour. Hence, employee participation in green initiatives can enhance efficient resource allocation/usage, minimise waste, and reduce environmental pollution on construction projects (Shi et al., 2013). Employee participation facilitates a sense of environmental ownership on projects and improves the psychological empowerment of employees at all levels, which enhances the success of environmental activities.

Hence, individual, managerial, and organisational level involvement in environmental management enhances the competitive advantage of the organisation in employing GHRM (Chams and García-Blandón, 2019). Yong et al. (2019b) highlighted that a highly efficient workforce with sustainability focus is vital to succeed in the environmental management of the company to uphold green health and safety measures. Thus, the sustainable focus of employees assists in identifying market opportunities and exploiting innovations to achieve the triple bottom line (Epstein, 2018). The sustainable focus assists to create a supportive work environment with higher employee satisfaction compared to forced implementation of sustainable construction practices. For instance, sustainable training, a systematic link between pay and sustainable goals, and a green performance management system encourages employee pro-environmental behaviour. Understanding the strong relationship between GHRM and pro-environmental behaviour is important to strengthen employee engagement and commitment and build more significant and meaningful employer-employee relationships by creating a self-motivating work environment. This will inspire 'green champions' who have specialised knowledge, are passionate, have the right attitudes, are dedicated, and will innovate to implement environmental improvements as part of a project's daily operational activities (Chams and García-Blandón, 2019).

Previous research on pre-environmental behaviour has suggested an important link between environmental responsibility and environmental concern (Chwialkowska et al., 2020). For example, Chen et al., (2018) demonstrated that people with higher environmental responsibility paid more attention to environmental problems and supported green products because they believed that human beings are responsible for the emergence of environmental problems. Yue et al, (2020) also argued that individuals with a high sense of environmental responsibility tend to focus on environmental benefits, and they tend to think that human beings are closely connected to the environment, particularly when they are responsible for the fragile ecological environment, and would be more likely to solve environmental problems. According to the argument above, a higher the environmental responsibility causes a higher degree of environmental concern.

10. Conclusion

This paper has examined the relevant literature, in order to provide a better understanding of this research area and to identify research gaps as a primary theoretical basis for the research. This chapter also reviewed the literature on GSCM, EB, and sustainable performance as well as on related areas in order to establish the relationships between the dependent, mediating and Independent variables. The next chapter will further explain and discuss the research methodology that is employed in this study.

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