

THE INFLUENCE OF GREEN INTELLECTUAL CAPITAL ON SUSTAINABILITY: MEDIATING EFFECT OF GREEN HUMAN RESOURCE MANAGEMENT

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Abstract: Managing sustainability is one of the complex tasks and significant challenges companies face. Therefore, companies must organize their human resources to gain green objectives to achieve proactive sustainability. On the other hand, investing in knowledge is critical, as knowledge management will strengthen the firm's intellectual capital. Additionally, the literature gap revealed that empirical researches associating green IC are still less than the need from growing economies, including Indonesia. This conceptual paper incorporates well-thought-on sustainability in Indonesian oil and gas companies, analysis of green intellectual capital, and mediated by green human resource management. Finally, the practical implications of this research offer a new literature review and model to assist the top management of oil and gas companies in Indonesia. It intends to understand what factors may affect both directly and indirectly and develop and improve green human resource management practices in oil and gas companies in Indonesia.

Keywords: Green intellectual capital, sustainability, green human resource management.

Introduction

According to Malik *et al.* (2021), the aim of the current study was to investigate the mediating role of organizational citizenship behavior towards the environment on the relationship between green human resources management (green recruitment and selection, green training, green rewards, and green performance evaluation). Our planet's climate has been wildly shifting in recent years. One of the factors contributing to this negative shift is tremendous economic activity with disastrous environmental consequences. In addition, environmental experts believe that ecological abuse should be taken seriously and methodically. Thus, some human actions impact our environment in valuable ways, such as CO₂ emissions from burning fossil fuels, deforestation, pouring plastics into the oceans, and millions of creatures on the verge of extinction.

Further, Dubey *et al.* (2015) explained that managing sustainability is one of the complex tasks and significant challenges companies

face. Therefore, companies must organize their human resources to gain green objectives to achieve proactive sustainability (Yusliza *et al.*, 2019). Thus, the future of human resource management is linked to sustainability (Jackson *et al.*, 2014). Moreover, the construct of green human resource management has been designed to respond to these concerns (Jabbour, 2011; Jackson *et al.*, 2011; Ahmad, 2015; Gholami *et al.*, 2016; Jabbour & Jabbour, 2016; Millar *et al.*, 2016; Renwick *et al.*, 2013, 2016; Yong & Yusoff, 2016; Yusliza *et al.*, 2017) there has been observed an increasing awareness within business communities on the significance of going green and adopting various environment management techniques. As the corporate world is going global, the business is experiencing a shift from a conventional financial structure to a modern capacity-based economy which is ready to explore green economic facets of business. Today, Green Human Resource Management (GHRM) as the fundamental necessity for the expansion the role of human resource management in response to the pursuit of

practical, environmentally sustainable business. Furthermore, Fawehinmi *et al.* (2020) and organizations have drawn on these policies to implement environmentally friendly workplace practices. The success of these practices is very much dependent on the employees and the extent of their green behavior. As such, there is a need to determine whether green behavior can be positively influenced by other variables. One of the suggested influencing variables is green Human Resource Management (HRM) argued that the degradation of the environment has also given organizations a cause for concern. On the contrary, the growing importance of green human resource management research has just been seen in the recent decade (Renwick *et al.*, 2016; Ren *et al.*, 2018; Chaudhary, 2019; Islam *et al.*, 2019; Kim *et al.*, 2019) a sequential mediation model linking GHRM with JPI through Organizational Prestige (OP).

On the other hand, investing in knowledge is critical, as knowledge management will strengthen the firm's intellectual capital.

Understanding technology, labour management, and environmental knowledge are examples of intellectual capital (Sudibyo & Sutanto, 2020). Although the value of intellectual capital and its broad ramifications have long been recognized in the literature, little is known about the nature of green intellectual capital and its consequences in today's sustainable society, where environmental issues are at the forefront. A current trend in intellectual capital research emphasizes the necessity to shift the focus from organizations to ecosystems (Asia *et al.*, 2021).

Additionally, the literature gap revealed that empirical researches associating green IC are still less than the need from growing economies, including Indonesia. Research using GHRM as mediating variable remains scarce. The research using GHRM as mediating related to the dimensions of recruitment and selection, training and development, performance appraisal and compensation, the variable of green intellectual capital, and sustainability as the variables used in this research have never been researched.

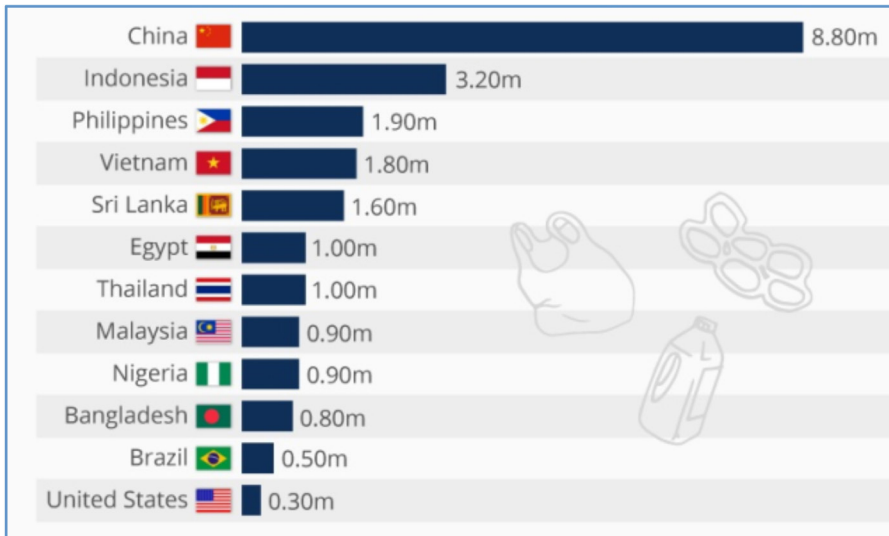


Figure 1: The countries polluting the oceans the most

Source: <https://www.condorferries.co.uk/marine-ocean-pollution-statistics-facts>, accessed 2021

According to Jambeck *et al.* (2015), Indonesia is the second-most polluting country in terms of plastic garbage in the ocean after China (Figure 1). Moreover, Dhamar *et al.* (2017) stated that plastic trash in developing countries with huge populations, such as Indonesia, requires special attention due to inadequate solid

waste management. Consequently, 0.48–1.29 million tons of plastic debris from Indonesia has made its way into the sea via the river. In addition, Alemzero *et al.* (2021) argued that offshore and oil and gas companies' activities would negatively and indirectly impact the environment. As shown in the Figure 2 below, the location is offshore, almost around Indonesia.

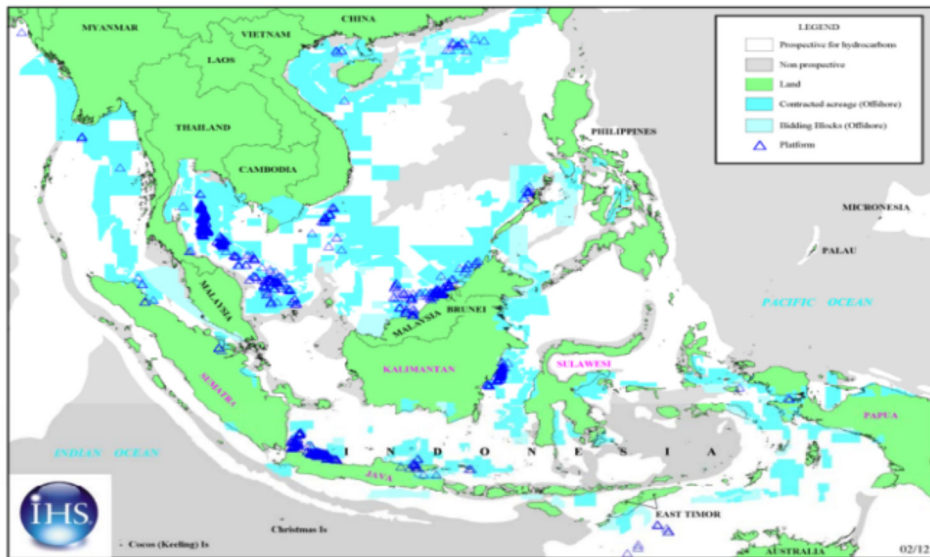


Figure 2: Offshore mining in Indonesia

Source: <http://aseanregionalforum.asean.org/wp-content/uploads/2019/03/Annex-7a-Marine-Environmental-Governance-in-Southeast-Asia-A-Review-of-Status-and-Gaps-presentation-by-Centre-for-International-Law-8th-ISM-on-MS.pdf>, accessed 2021

According to Lyons (2016), Indonesia has many pollution incidents influencing its coastlines. Another reasonable potential transboundary maritime and domestic pollution will arise from offshore activities. They will transform into transboundary pollution. Besides that, Permatasari *et al.* (2020) claimed that one issue experiencing urgency in Indonesia is air pollution, related to air pollution and carbon emissions in the Mining and Mineral Oil & Gas sectors. Consequently, varied Oil and Gas corporations face national and international laws that influence world environment-specific areas (Vinogradov, 2009; Obeidat *et al.*, 2020) as the oil and gas industry is regarded as one of the most ecologically harmful sectors (Bhatti *et*

al., 2021) i.e. Perceived Organizational Support (POS).

This research contributes to the scholars and academicians interested in researching these variables, such as green intellectual capital, sustainability, and green human resource management with the dimension of recruitment and selection, training and development, performance appraisal, and compensation. It intends to support a literature review, especially in oil and gas companies. Against the above backdrop, our paper proposes a conceptual model to explore the antecedents and outcomes of Green IC (Figure 3). The following objectives have been set for this conceptual paper based on the literature:

- (1) To find the association between green intellectual capital on sustainability.
- (2) To find the association between green intellectual capital on green human resource management.
- (3) To find the association between green human resource management on sustainability.
- (4) To find the mediating effects of green human resource management between the relationship of green intellectual capital and sustainability.

Literature Review

Sustainability

According to Jang *et al.* (2017) 218 of which were retained for final analysis (response rate: 8.7%, sustainability is based on the meaning of the verb sustainable “to maintain, nourish, or encourage a phenomenon, and/or strengthen or improve it.” The most common definition of sustainability focuses on improving people’s quality of life without compromising the environment’s or natural systems’ capabilities. The sustainability approach helps companies work towards sustainable, social, and environmental goals, emphasizing three pillars that represent the triple bottom line in a company. As Shee *et al.* (2018) this study aims to investigate supply chain integration (SCI, sustainability refers to the supply chain engaged in activities that can limit emissions and protect a company’s ecosystem.

Due to climate change, global warming, and pressure from corporations and stakeholders, Malik *et al.* (2020) stated that sustainability is receiving more and more attention in organizations, primarily from senior management, considering its importance in bringing sustainability into organizations. Khan *et al.* (2021) emphasized that the organization must go beyond legal and economic compliance and integrate economic, environmental, and social performance to improve the sustainability and sustainable development of the company. Martins *et al.* (2021) discussed the three pillars

of sustainability related to people, interests, and the planet. At the same time, environmental factors are of the utmost attention because they affect food production, CO₂ emissions, waste, and other externalities that ultimately lead to environmental pollution problems. Above all, Mousa and Othman (2020) declared that sustainability is today a global and gradually unavoidable issue in HRM.

Green Intellectual Capital

According to Chen (2008), GIC has defined as the total stock of all types of intangible assets, knowledge, capabilities, and relationships related to environmental protection or green innovation at the individual and organizational levels within a company, following global trends of strict international environmental regulations and widespread environmental consciousness among consumers, among other things. Then, Baharum and Pitt (2009) outlined that the definition of intellectual capital is to look into the function of explicit and implicit intelligence in the three components of intellectual capital and then develop ways to encourage value creation.

Maaz *et al.* (2021) propose the complete stock of intangible assets, such as knowledge, competencies, and relationships, among other things. Concerning environmental protection or green innovation on a personal and organizational level inside a corporation. As a result, companies must have Green IC since it will allow them to be more competitive and perform better (Muafi, 2021). However, according to Haldorai *et al.* (2022) and Yadiati *et al.* (2019), GIC aided businesses in adhering to strict international environmental rules and generating revenue, as well as meeting high customer expectations regarding environmental concerns.

Green Human Resource Management

According to Jabbour and Jabbour (2016), Green Human Resource Management is established by aligning Human Resource

Management practices with the goals of corporate environmental management. Similar to Fayyazi *et al.* (2015), Tang *et al.* (2018), Andjarwati *et al.* (2019), and Obeidat *et al.* (2020), Green Human Resource Management reflects a company's focus on environmental protection and includes several specific Human Resource Management practices. In addition, Renwick *et al.* (2013) argued that adopting Green Human Resource Management practices improves the attractiveness of the selection for an increasingly environmentally conscious young person.

According to Acquah *et al.* (2021) Green Human Resource Management involves introducing environmental considerations into human resource policies and practices to promote environmental friendliness among employees and achieve the company's sustainability goals. Likewise, Bombiak (2019), Ghouri *et al.* (2020), and Soomro *et al.* (2021), argued that Green Human Resource Management is an essential instrument for the implementation of sustainable development.

Green Intellectual Capital and Sustainability

Yong *et al.* (2019) emphasized that despite having sustainable and environmental aims as a top priority, a business cannot disregard rising environmental issues. The emerging notion of upstream and downstream partners can be beneficial to organizations. As a result, researching green intellectual capital is critical to achieving long-term goals. While expanding intellectual capital has highlighted the importance of sustainability and business firm beliefs, the sustainability dimension, which comprises economic, environmental, and social issues, must be integrated. Furthermore, research has shown micro-foundations significant in strategic management, such as strategy implementation, human resource contributions to routines, capabilities, and value execution. Good human capital management could improve companies' triple-bottom-line performance.

In addition, Rehman *et al.* (2021) Green Human Resource Management (GHRM)

conducted on Malaysian manufacturing firms found that all three categories of Green Human Capital (GIC), green relational capital, and green structural capital can have varying degrees of impact on economic sustainability (from stronger to weaker). Furthermore, GIC is positively associated with commercial organizations' economic, environmental, and social performance. Similar to Yusoff *et al.* (2019), Malik *et al.* (2020), and Ullah *et al.* (2021). From some previous research, the researcher offers the following proposition:

Proposition 1: Green intellectual capital positively influences sustainability

Green Intellectual Capital and Green Human Resource Management

In the past, the importance of intellectual capital has piqued people's curiosity. Nonetheless, additional research is needed to comprehend the green HRM process fully. A previous review of the literature discovered just a few research describing green intellectual capital and green HRM.

Furthermore, Haldorai *et al.* (2022) argued that HRM practices had been found to impact the development of many dimensions of intellectual capital in previous research. Strategic HRM, HRM concepts, and intellectual capital are all interconnected, and intellectual capital should be the driving force in these linkages. If firms wish to maximize their human resource effectiveness, the components of intellectual capital are interconnected, and intellectual capital should play a vital role in HRM operations. As a result, employees may have gathered environmental expertise from previous positions and can help the current organization improve environmental understanding. Therefore, the sensitivity of employees and concern for environmental issues push HR departments to foster this type of expertise. As a result, the researcher proposes the following proposition:

Proposition 2: Green intellectual capital positively influences green human resource management

Green Human Resource Management and Sustainability

Jamal *et al.* (2021) green recruitment and selection, green pay and rewards, and green employee involvement and green training and Gaafar (2021) emphasized that GHRM encourages the responsible use of all sorts of resources, which helps to advance the cause of sustainability in general and raises employee understanding of and dedication to environmental management concerns in particular. In addition, the advancement of GHRM entails addressing social (work-life balance) and economic (i.e., long-term profitability) issues. GHRM adheres to the traditional definition of the “triple bottom line,” i.e., methods that address the three fundamental components of sustainability, i.e., environmental, social, and economic balance. Ali *et al.* (2021), Tweneboa *et al.* (2022), and Zhu *et al.* (2022), this study examined the effect of green human resource management (HRM) agreed that many green researchers have looked at the many barriers to GHRM uptake and implementation.

Moreover, Amrutha and Geetha (2020), Amjad *et al.* (2021) and Malik *et al.* (2021) explored that employees get a sense of belonging and happiness as a result of the performance appraisal for green activities, resulting in a high-performing staff. It is also necessary for green employees to be motivated to improve their performance efficiency and organizational effectiveness. Such approaches to performance management align an organization’s financial aims with its social and environmental goals, providing multinational firms with long-term competitive advantages through employee empowerment and well-being. As a result,

this research asserts that green human resource management can positively impact sustainability because it is one of the critical bridges organizations can utilize to connect their aims. As a result, the following proposition:

Proposition 3: Green human resource management positively influences sustainability

The Mediating Role of Green Human Resource Management

According to Zaid (2020) growing public awareness of environmental sustainability has pressured businesses to be more environmentally friendly. Renwick *et al.* (2013) explored the modification or adaption of the HRM function to become green is vital for guaranteeing that a company has suitable green contributions from its employees. Finally, giving green chances for employees to participate in environmental concerns is frequently viewed as critical to achieving desired results. However, based on the limited empirical research (Obeidat *et al.*, 2020) that has been conducted on the mediating effects of green HRM, possible contextual elements must be considered crucial for this link to exist and serve as a prerequisite for implementing an efficient green HRM.

As a result, this research asserts that green human resource management can positively impact sustainability because it is one of the critical bridges organizations can utilize to connect their aims. As a result, the following proposition:

Proposition 4: Green human resource management positively mediates the relationship between green intellectual capital and sustainability

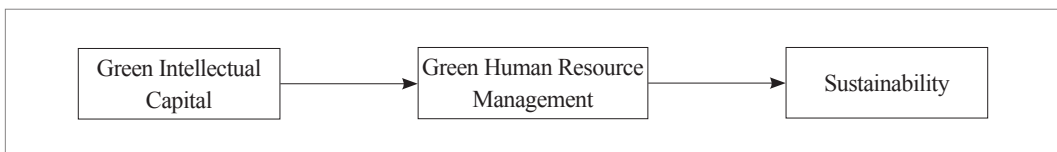


Figure 3: A proposed conceptual model

Methodology

The research paradigm in this study is positivism, with a descriptive quantitative research design. The research variables are top management support, green intellectual capital as the independent variable, and sustainability as the dependent variable. While recruitment and selection, training and development, performance appraisal, and compensation as mediating variables. The data collection technique in this research is a survey with data analysis SEM-PLS. Then, SPSS and Smart PLS as tool analysis. For population, there are 279 oil and gas companies in Indonesia to the Indonesian Ministry of Energy and Mineral Resources. Due to the organizational level study, the unit analysis in this study is oil and gas companies in Indonesia. As a result of the small sampling frame study, all companies will be included in the study. Census sampling will be employed in this study.

Conclusion

This conceptual paper incorporates well-thought-on sustainability in Indonesian oil and gas companies, analysis of green intellectual capital, and mediated by green human resource management. The study develops a conceptual framework that examines the influence of GIC on sustainability mediated by GHRM. From a decision-making perspective, this paper has practical implications for organizations concerned with Green IC. Finally, the practical implications of this research offer a new literature review and model to assist the top management of oil and gas companies in Indonesia. It intends to understand what factors may affect both directly and indirectly and develop and improve green human resource management practices in oil and gas companies in Indonesia.

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