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Implications of the Role of Green Jobs in the Development of Low-Carbon Tourism

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ABSTRACT

Afterward, the tourism sector contributes to environmental impact. Accelerating the tourism sector's role to achieve net zero carbon tourism activities for a higher quality experience is indispensable. Instead, there is a change in tourism trends that focus on developing sustainable tourism and implementing low-carbon tourism within sustainable development, resulting in green job opportunities that positively impact economics, socio-cultural, environment, and communities. Based on several previous studies, not much research has been found on the implications of the role of green jobs in developing the tourism sector in Indonesia. Qualitative literature methods such as journals, books, study reports, statistical reports, policy and regulations, and the acquisition of data and information are analyzed using the VRIO (value, rarity, imitability, and organization) approach. This will be done by identifying the issues related to low-carbon tourism and their impact on the value creation of green jobs as an enabler to support sustainable tourism, resource capacity, and competitiveness, as well as the results of the VRIO analysis to obtain strategic implications. Indonesia's low-carbon tourism sector has four key elements that can provide a sustainable competitive advantage: environmental innovation, investment in an environmentally friendly tourism industry, human resource capacity, and green skills.

KEYWORDS: Green Jobs, Implication, Low-Carbon, Tourism.

INTRODUCTION

One of the statements of the leaders' declaration at the G20 event in Bali was the commitment of the United Nations Framework Convention on Climate Change (UNFCCC) and the goals of the Paris Agreement (COP 26) to take over and attain global net zero greenhouse gas emissions or carbon neutrality (G20 Indonesia, 2022). So, that effort is demanded to facilitate an inclusive, low-carbon development pathway through green recovery conduct (G20 Indonesia, 2022). The tourism sector also has a significant part in supporting this effort. Despite its benefits to the global and national economy, the tourism industry also has the possible contribution to environmental problems, including the rising levels of greenhouse gas (GHG) emissions as access to the increasingly massive use of fossil energy (Zhu et al., 2017); failed of icing the cleanliness of destinations based on waste management inadequacy (Chaabane et al., 2019; Tsai et al., 2021); and contributes to further than 5% of global GHG emissions, with transportation account for 90%, and by 2030, a 25% increase in CO_2-emissions from tourism equated to 2016 is expected from 1,597 million tons to 1,998 million tons (Statista, 2021). Current data also showed that tourism accounts for between 5% and 8% of global GHG emissions (Economist Intelligence, 2022).

In line with those conditions, the rearmost trends in global tourist perceptions show a tendency to be more concerned about environmental sustainability. According to the European Investment Bank, 37% of Chinese people, 22% of Europeans, and 22% of Americans said they would avoid flying because of climate-change concerns (European Investment Bank, 2021). That is also nearly related to the preferences of the global community that the negative impacts of climate change can be averted by individual action; where in the survey, it was also known that 72% of European citizens, 72% of Americans, and 84% of Chinese respondents believed that their preferences and actions could contribute to the fight against climate change (European Investment Bank,

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2021). In addition, considering the latest trends, the Tourism Outlook 2023 by the Economist Intelligence Unit shows that 2023 is the right momentum to move the drivers of sustainable tourism, which aims to protect and preserve the environment and develop sustainable transportation (Economist Intelligence, 2022).

Those conditions indicate the urgency of implementing the concept of low-carbon tourism, which aims to achieve a less negative impact of tourism and a higher quality of tourist experience with low-carbon emissions and less pollution in transportation, accommodations, and attractions (Bhaktikul et al., 2021; Zhang et al., 2016). The implementation of low-carbon tourism within a sustainable development framework, the study of (Kusakabe et al., 2015), denotes that this low-carbon development income-generating green job opportunities enhances tourism and social development (Kusakabe et al., 2015). According to the International Labour Organization (ILO) description, green jobs are the creation of economically feasible and viable jobs that reduce energy and raw material consumption (evaporate economy), lessen GHG emissions (decarbonize economy), reduce waste and pollution, shield and enhance the great of the surroundings and be capable of adapt with environmental changes (International Labour Organization, 2012a). According to (Strietska-Ilina et al. et al. Jeon, 2011), this type of work requires several new skills, including (1) knowledge about regulations and resource-efficient production processes and general environmental awareness; (2) understanding of green tools and machines and green technological developments; (3) understanding sustainable (or prohibited) materials and how to produce and manage it; and (4) the production of green and environmentally friendly goods and services (Strietska-Ilina, Olga; Hofmann, Christine; Durán et al.; Jeon, 2011).

Moreover, a study (Candrea & Hertanu, 2015) shows that green jobs are accelerating the quality of ecotourism products and destinations for advanced performance in sustainable development (Candrea & Hertanu, 2015). Besides that, in the context of the circular economy, green job creation not only functions to protect and develop the natural environment but also ensures decent work for employees and shapes the environmental protection level (Sulich & Sołoducho-Pelc, 2022). Meanwhile, the study (Dewi & Maruf, 2017) shows that the invention of green jobs in Indonesia can be a solution to two problems, namely employment and environmental problems, where a green investment of 2% can create as numerous as 4,691 green jobs in the energy sector, 1,891,296 green jobs in the agricultural sector, and 2,313,479 green jobs in the forestry sector (Dewi & Maruf, 2017).
Following the issue of green jobs, at the policy level, the implementation plan of the Indonesian Government policy as set out in President Decree Number 108 the Year 2022 on the Government Work Plan of 2023 Government will generate new green jobs and reduce the negative impact of GHG emissions within the frame of enforcing a circular economy, among other things by scaling up the perpetration of sustainable tourism. Indonesia already has several tourist destinations that are considered to have applied the principles of sustainable tourism development, such as Baluran National Park, known as "Little Africa" in Java; Ujung Kulon National Park, which is known as the center of Javan Rhino conservation; Sangeh Monkey Forest in Bali; Punti Kayu Palembang; and Umbul Ponggok in Klaten-Central Java. However, the implementation of sustainable tourism in Indonesia still has challenges, starting from the human resources, cost, and technology aspects.

Likewise, the Government of Indonesia, through its Long-Term National Development Plan (RPJP) and the Long-Term National Tourism Development Plan (RIPPARNAS), emphasizes the necessity to address decent green jobs for the development of environmentally-friendly products, services, and public works for fostering a strong and sustainable tourism industry in Indonesia (International Labour Organization, 2012b). Developing Indonesia's tourist destinations can also deliver green job creation opportunities. This opportunity could be presented through the construction and elaboration of the Mandalika Special Economic Zone (SEZ). The generality of eco-green and event-based destinations where tourism facilities will assemble must be eco-green standards to increase the area's sales value (SKSG et al. dan Ekonomi Kreatif, 2021). Moreover, the study by (Owners et al., 2019) denotes that creating green jobs in Indonesia can be suited through several efforts, namely destination development, industrial development, market development, and institutional development (Owners et al., 2019).

However, based on the author's exploration of some former studies, there were few studies on the implication of the role of green jobs on the development of Indonesia's tourism sector. Due to the need for further study and literature that elaborates on green jobs in the Indonesian tourism sector, this study aims

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to identify and elaborate on a positioning perspective and a resource-based view concerning resource or capability to determine the competitive potential of the implications of green jobs role in the development of low-carbon tourism by enacting VRIO analysis. The analysis approach has several parameters: value, rarity, imitability, and organization. This paper mainly focuses on reviewing and presenting policies and relevant subjects and studies in the Indonesian context that are presently limited.

RESEARCH METHOD

This research uses a qualitative library method (Creswell et al., 2018). The data literature used in this study is secondary data derived from selected literature such as journals, books, study reports, statistical reports, and laws and regulations. Selected literature was collected within 2 (two) months from January to March 2023 by collecting related topics. These data were then analyzed using the VRIO analysis approach. VRIO, which stands for value, rarity, imitability, and organization, is an analytical instrument that integrates a positioning perspective and a resource-based view concerning a resource or qualification to determine its competitive potential. In contrast, several parameters analyze the value, rarity, imitability, and organization (Jay et al., 2020). This approach is due to the rationale that the VRIO framework provides a simple integrative structure, which helps identify research problems and understand the implications of the results of the analysis of several parameters.

Furthermore, the VRIO framework assumes that resources must be rare, limited, or unique to serve as a competitive advantage and determine whether a research problem is a resource to establish a competitive advantage that will impact resource focus and capabilities (Vargas-Hernández et al., 2020, 2021). This study uses VRIO analysis as an early step to develop a strategic plan by using strengths and weaknesses from a few indicators on Green Jobs Resource for Determining Competitive Advantage for Low-Carbon Tourism

Some of these parameters are analyzed to determine green jobs' resource capacity and competitiveness. The findings of this analysis will be used to determine the implications of the role of green jobs in the development of low-carbon tourism destinations, as well as to develop a strategic analysis to organize strategic implications and recommendations.
In detail, this research consists of three paths/technical steps, these are:

1. Identify issues related to low-carbon tourism and its relation to green jobs value creation as an enabler to support sustainable tourism through library research. In this research process, the data used in this study comes from secondary data from books, journals, articles, report documents, and laws and regulations. Related article references are filtered through scientific databases search engine tools such as Google Scholar, the Web of Sciences, and other similar pages, as well as news and articles web pages, to obtain relevant literature, data, and information.
2. Conduct resource capacity and competitiveness analysis through VRIO analysis. Through this analysis process, several parameters, including value, rarity, imitability, and organization, are analyzed qualitatively to find a more comprehensive description of strategic issues and factors that implicate low-carbon tourism development by creating green jobs.
3. Discuss the findings of the VRIO analysis in order to determine strategic implications. These implications are helpful as a preference for arranging strategic recommendations relevant to denoting the implication of green jobs' role in developing low-carbon tourism destinations.

RESULT & DISCUSSION

Identification of Green Jobs Development Resources

"ILO defines Green Jobs" as jobs that can reduce adversary impacts on the environment in the industry (Moreno-Mondéjar et al., 2021). The prospect of green jobs and green growth policies has become gradually important for various countries in recent years. It solves various problems related to environmental issues, significantly mitigating global climate change (Deschenes, 2015). Green Jobs improve energy and raw material efficiency, restrict greenhouse gas emissions, reduce waste and pollution, protect and restore ecosystems, and help people adapt to the impacts of climate change (International Labour Organization, 2016; Tănasie et al., 2022). Implementing green jobs requires special knowledge, training, skills, and experience, such as monitoring the efficiency of company resources, complying with environmental regulations, and using green technology innovations in business models and corporate strategies (European Commission, 2018).
A step forward in green jobs implementation may extend sustainable development solutions such as environmental crises or negative environmental impacts related to

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climate change adaptation and sustainable energy development (Lee, 2017). However, sustainable or renewable energy development positively impacts economic growth, particularly in countries that have established green job schemes to create jobs to achieve economic growth rates (Potrč et al., 2021; Tănasie et al., 2022). According to (Dell'Anna, 2021), the expected advantages do not only refer to reducing environmental impacts and using fossil fuels, which can lead to unfavorable environmental conditions. One of the most significant benefits is the social impact, which could manifest as accelerated, particularly in a future economic crisis.

Regarding the tourism sector, green jobs correlate to low-carbon and sustainable tourism. By promoting environmentally friendly goods, services, and public works projects, ensuring the transition of those employed in the tourism sector to a green economy, and offering support to locals in diverse tourist destinations to improve their standard of living, the context for green jobs can be developed (Reddy & Wilkes, 2015). The concept of low-carbon tourism is currently emphasizing environmental sustainability in the tourism sector, intending to reduce CO_2 emissions, create a healthy and sustainable environment (Zhu et al., 2017) through the development of low-carbon tourist attractions, the construction of low-carbon tourism facilities, the experience of tourists in protecting the surrounding environment and promoting low-carbon consumption patterns (Yu-ming, 2010). That will positively impact the increase in green jobs and support sustainable development. This impact can be generated based on the resources owned so that the implementation of green jobs can increase the competitive advantage of the tourism sector (OECD, 2017). These resources will contribute to developing low-carbon tourism to create new jobs for the surrounding community or industry (see Table 1).

Table 1. Green jobs development resources in the context of low-carbon tourism

Resources	Author	Study
Number of jobs	(Moreno-Mondéjar et al., 2021)	Circular Economy and Green Jobs
Eco-innovation	(Rutkowska & Sulich, 2020)	Green Jobs for Industry 4.0
	(Cecere & Mazzanti, 2017)	Eco-innovation in supporting the creation of green jobs in European SMEs
Investment in an Environmentally Friendly Tourism Industry	(International Labour Organization, 2012b)	Sustainable Tourism and Green Jobs for Indonesia
Social protection		
Community Building		
Stakeholders Collaboration		
Human Resources Capacity	(Battaglia et al., 2018)	Professionals and technical expertise capable of reducing the environmental impact
	(Ministry of Environment and Forestry, 2021)	Workforce transition to green jobs will require well-designed capacity-building
Green Skills	(Consoli et al., 2016)	Skills and human capital (Green Jobs vs non-green jobs)
	(Ree, 2019)	The Skills Needed for Green Jobs
Educational backgrounds	(United Nations Environment Programme, 2008)	Green jobs are generated in some sectors and economies
Green Policies		
Business Practices		

Green Jobs Development Resources Analysis: VRIO Frameworks

Applying green jobs to low-carbon tourism will benefit climate change conditions (International Labour Organization, 2007; Martinez-Fernandez et al., 2010). To achieve tourism sustainability, it must have a competitive advantage in resources owned, with the goal of green Jobs implemented in the tourism sector (Martínez et al., 2015). Low-carbon tourism will offer job creation related to waste and emission management. That requires resources

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that can significantly impact the development of low-carbon tourism (Bhaktikul et al., 2021; Can & Hongbing, 2011). Furthermore, these resources will be analyzed using VRIO Analysis to formulate strategic steps related to sustainable competitive advantages (Barney & Hesterly., 2015; Rosa et al., 2022; Vargas-Hernández et al., 2020).

VRIO analysis compiles the differentiation of competitive advantages through competitive disadvantages, competitive parities, temporary competitive advantages, and sustained competitive advantages (Barney, 2014; Lopes et al., 2018). In addition, the resources leading to the two characteristics of VRIO allow for competitive parity relative to its competitors; having three VRIO characteristics results in a temporary competitive advantage, and having four VRIO characteristics can result in a sustainable competitive advantage (Barney, 2001; Okorie et al., 2022). Thus, job creation related to green jobs must be carried out based on resources with a competitive advantage to impact tourism growth positively. Organizations that need to maximize their resources will consider having a competitive weakness. These green jobs will be able to produce sustainable economic and environmental value even though they are only temporary. If implemented correctly, they will provide maximum results in low-carbon tourism management.

Table 2. Green Jobs Resource Assessment Using the VRIO Framework in Determining Competitive Advantage for Low-Carbon Tourism

No.	Resources of Capability	Valuable	Rare	Imitability	Exploited by Organization	Competitive Implication
1.	Number of jobs	Yes	Yes	No	No	Competitive Parity
2.	**Eco-innovation**	**Yes**	**Yes**	**Yes**	**Yes**	**Sustained Competitive Advantage**
3.	**Investment in an Environmentally Friendly Tourism Industry**	**Yes**	**Yes**	**Yes**	**Yes**	**Sustained Competitive Advantage**
4.	Social protection	No	No	No	No	Competitive Disadvantages
5.	Community Building	Yes	Yes	Yes	No	Temporary Competitive Advantage
6.	Stakeholders Collaboration	Yes	Yes	No	Yes	Temporary Competitive Advantage
7.	**Human Resources Capacity**	**Yes**	**Yes**	**Yes**	**Yes**	**Sustained Competitive Advantage**
8.	**Green Skills**	**Yes**	**Yes**	**Yes**	**Yes**	**Sustained Competitive Advantage**
9.	Educational backgrounds	Yes	No	No	Yes	Competitive Parity
10.	Green Policies	Yes	No	Yes	Yes	Temporary Competitive Advantage
11.	Business Practices	No	No	No	No	Competitive Disadvantages

Resources invested in enhancing green jobs aim to ensure a competitive advantage in developing low-carbon tourism

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(Bhaktikul et al., 2021; International Labour Organization, 2013). These advantages have positive implications for the environmental sustainability of tourism destinations and for maintaining sustainable businesses (Su, 2019). The competitive implications of green jobs in the tourism sector include promoting national tourism policies to create productive jobs regarding freedom, equality, human dignity, decent work, workers' rights, and social protection. The context of low-carbon tourism development impacts the use of natural resources and resources to support the economy and the environment. As such, competitive advantages related to creating Green Jobs in the context of low-carbon tourism must be able to maintain the stability and sustainability of this growth (Anbumozhi & Kawai, 2015). Resources that may lead to sustainable competitive advantage due to implementing the VRIO framework include eco-innovation, investment in the green tourism industry, human resources capacity, and green skills.

Workforce competencies and skills are needed to support the Green Jobs work scheme to enhance low-carbon tourism (International Labour Organization, 2011; Martinez-Fernandez et al., 2010; Sarkar, 2013). Human resources capacity influences the achievement of sustainable tourism growth. How can economic, social, and environmental frameworks be optimized or combined to support the development of low-carbon tourism? It benefits creating new jobs that support possibilities (Cecere & Mazzanti, 2017; OECD, 2013). Applying green innovations can improve the combination of human resources and technology that can mitigate the impacts of climate change. Implementing this competitive advantage and investment in the tourism industry, which will lead to green tourism, should be supported (Dimoska & Trimcev, 2012). This large-scale investment program will help improve human resources skills and use green technology in the conditions of tourism destinations.

Strategic Implications

The sustainable competitive advantage of green jobs in developing low-carbon tourism refers to the long-term benefits a business or region can achieve by creating jobs in the sustainable tourism sector. By investing in green jobs and low-carbon tourism, the region can position itself as a leader in sustainable tourism, attract more environmentally conscious tourists, and ultimately appreciate a sustained competitive advantage. According to our analysis using the VRIO framework, Indonesia's low-carbon tourism sector possesses four key elements that can provide sustained competitive advantage: eco-innovation, investment in an environmentally friendly tourism industry, human resource capacity, and green skills. Eco-innovation develops and implements environmentally friendly and sustainable products, services, and technologies. Eco-innovation in tourism aims to promote sustainable tourism practices, protect natural and cultural resources, and support local communities while giving passengers a delightful and memorable experience.

The implementation of eco-innovations in the tourism industry has led to the emergence of various sustainable tourism initiatives. According to (Alonso-Almeida et al., 2016), eco-innovations are crucial for restaurants and hotels, particularly in areas like energy, recycling, water management, interior design, and engineering projects. These initiatives include 1) green accommodations, such as hotels, resorts, and lodges that adhere to environmentally friendly practices; 2) eco-tourism activities, including nature-based and wildlife tours, responsible wildlife watching, and conservation efforts; 3) sustainable transportation, utilizing electric vehicles, bike rental, and other environmentally conscious modes of transport; 4) sustainable food and beverage practices, which involve the sourcing of local and organic foods, reduction of food waste, and conservation of water resources in food production; and 5) sustainable destination management as resumed by (Sharma et al., 2020).

For instance, Lake Toba Tourism Authority (BPODT) and PT PLN have agreed to work together to make Lake Toba a more environmentally friendly tourist destination. They will sign a partnership for a service called Renewable Energy Certificate (REC) at the BPODT office. Lake Toba, through BPODT, is a top tourist destination and will use PLN's REC service for the Toba Caldera Resort area. This service makes it easier for customers to recognize the benefits of using environmentally friendly energy without spending more money on new infrastructure (Badan et al., 2022). If we want to improve tourism, investing in eco-friendly tourism is essential. This investment helps communities grow economically and create jobs, but it takes work to do so sustainably. However, because the tourism investment process is complex and involves diverse stakeholders with different backgrounds and operational and planning perspectives, it takes work to effectively apply sustainability principles to tourism investments. According to (Shihata Elzek et al., 2020),

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Egyptian tourism businesses have implemented sustainable tourism investment policies, focusing on energy efficiency, water management, waste management, biodiversity protection, and cultural heritage preservation. They found that Egyptian ecolodges were most likely to adopt sustainable tourism investment policies, while travel agencies, airlines, restaurants, and bazaars were less likely to do so.

Sustainable investment is crucial to promoting a greener and more sustainable future. Sustainable investment should focus on two key areas: eco-innovation and human resource development. "Eco-innovation" refers to developing and implementing new and improved technologies, products, and services that reduce negative environmental impacts. On the other hand, human resource development involves training and educating workers to acquire new skills and knowledge, particularly in sustainable practices and technology. Implementing sustainable investment in these two areas is vital for many reasons. First, eco-innovation reduces the industry's environmental impact and promotes the development of more sustainable products and services. That helps protect the environment and preserve natural resources for future generations. Second, human resource development investments give workers the skills and knowledge necessary to work in industries that promote sustainability. That will help create more sustainable jobs and provide workers with the skills necessary to drive future eco-innovation and sustainable development.

Furthermore, sustainable investment should act as an enabler for the creation of green jobs and green skills. Green jobs promote sustainable development and contribute to the reduction of adverse environmental impacts. On the other hand, green skills are the knowledge and abilities necessary to work in industries that promote sustainability. By investing in eco-innovation and human resource development, policymakers can create the conditions necessary for creating green jobs and developing green skills. Human resource capacity is also crucial for the development of low-carbon tourism. That includes training and developing employees with green skills, such as knowledge of sustainable practices, eco-friendly products, and services. By having a workforce with green skills, a business can ensure the efficient and effective implementation of sustainable practices in the tourism industry. That benefits the environment, enhances the overall customer experience, and contributes to the business's bottom line.

On the other hand, integrating a green orientation into the curricula of tourism-related programs in higher education or Technical and Vocational Education and Training (TVET) is a critical step toward ensuring the industry is sustainable and environmentally responsible (Maclean et al., 2018). The importance of sustainability and green skills should be incorporated into the TVET curriculum to produce a workforce that is not only skilled but also environmentally aware. Integrating green skills into the TVET curriculum is crucial for the preservation of sustainability and for overcoming the challenges posed by rapid growth in the country (Kamis et al., 2018). To prepare students for careers in the tourism and hospitality industry, colleges and universities in the country must include green skills and sustainability as part of their curricula. That can be achieved by offering a specific course focused on these topics. Green skills are essential for the growth of the low-carbon tourism industry, as they provide the knowledge and expertise necessary to implement and manage sustainable practices. That includes a range of skills, such as energy efficiency, waste reduction, and sustainable product development. Green skills training can help businesses stay ahead of the competition, as they provide a competitive advantage through improved customer satisfaction and reduced operating costs.

Contrary to popular belief, green skills in the hospitality industry do not necessarily require specific knowledge of ecological or chemical substances (Next et al. Alliance, 2019). Green skills encompass a wide range of practices and knowledge, including minimizing energy and water consumption, managing waste and wastewater, recycling and composting, protecting biodiversity, promoting sustainable forms of transport, and promoting environmentally friendly activities and products. Additionally, having knowledge of climate change and its impact on the environment is also considered a critical aspect of green skills. These skills benefit the hotel and guests, nature, destinations, and other stakeholders by minimizing negative impacts on hotel operations and promoting sustainable practices. That implies the need for policymakers to prepare policies for the implementation of green jobs and green skills. They need more information about effective policies to increase investment and support destinations to become more sustainable. Factors influencing investment decisions include return on investment potential, ease of business, legal and regulatory frameworks, tourism strategies, market data, investment promotion, human resources capacity, and

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responsible business and green growth initiatives.

CONCLUSIONS

Green jobs and green skills are crucial for the development of low-carbon tourism. Eco-innovation, investment in the environmentally friendly tourism industry, human resources capacity, and green skills provide sustained competitive advantages for businesses in the low-carbon tourism sector. By investing in these areas, a region can position itself as a leader in sustainable tourism and enjoy long-term benefits, such as increased customer loyalty, reduced operating costs, and a positive reputation as a sustainable tourism destination. As the demand for green technologies, goods, and services grows, so does the need for individuals with the skills and knowledge to develop, produce, and market these products and services. By investing in low-carbon tourism, a country can position itself as a leader in sustainable economic development and create new job opportunities for its citizens. While no single model for low-carbon tourism can be applied universally, all countries can adopt this approach to achieve more sustainable and inclusive economic development. The benefits of low-carbon tourism, such as increased productivity, innovation, and job creation, make it an attractive option for countries looking to balance economic growth with environmental protection.

The author realizes that the results of this research analysis are still immature, so further research needs to be carried out, especially from the quantitative aspect, for example, about the economic impact of developing green jobs in the tourism sector.

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