Blue Economy in Malaysia: An Endeavour of Achieving the Sustainable Development Goals (SDGs)

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Abstract
A wide range of services provided by coasts and oceans, directly and indirectly, contribute to economic activity and growth on a global scale. Under a blue economy, various international organizations promote sustainable coastal and oceanic development, including the United Nations and the Asia-Pacific Economic Cooperation (APEC), and some East Asian economies. More than a third of all research focusing on the blue economy focus on its conception, emphasizing the importance of ocean ecosystem services and ocean governance. However, little research has been done on the Malaysian context of the blue economy and its relevance to the Malaysian government's efforts to achieve the Sustainable Development Goals (SDGs). This qualitative study applied a content analysis approach for data collection and the analysis was presented descriptively. The results of the study found that the Malaysian blue economy concept is in line with six goals highlighted in the SDGs as goal 1 - No Poverty; Goal 2 - Zero Hunger; Goal 9- Industry, Innovation and Infrastructure; Goal 14 - Life Below Water; Goal 15- Climate Change; and Goal 17 - Partnership for the Goals. This study adds to the current literature by investigating the blue economy in the Malaysian context. This conceptual paper will assist policymakers in identifying the primary driving reasons underlying the expansion of Malaysian blue economy activities. This will assist in focusing on policy interventions.
Keywords: Blue Economy, Coastal, Malaysian Economy, Oceans, Sustainable Development Goals

Introduction

Malaysia is one of the most successful emerging countries globally because of the peace it enjoys. In the past, Malaysia was referred to as the "Asian Tiger" because of its strong economic foundation. But the state-run economy at the time was more conventional. According to Sarwar (2022), the conventional economic growth model can positively impact

the country. Still, it can also harm the environment and natural resources. At the end of 2020, the Covid-19 pandemic hit the world, impacted health, and weakened the world economy. This situation is also due to the lockdown measures implemented by the impacted countries. The total or partial lockdown implemented by governments worldwide means that most economic operations were halted until the pandemic was contained.

At first, the economic stresses were brought on by China's near-total economic isolation. It became increasingly difficult for ASEAN countries like Malaysia and Thailand to keep up with the global economy as the pandemic spread swiftly worldwide (Ridzuan & Abd Rahman, 2021). Since Malaysia relies largely on maritime industries, Masha and Menhat et al (2021) argue that the epidemic would devastate citizens. Covid-19, according to Nandy et al (2022), teaches us numerous lessons, one of which is that now is the moment to act to ensure a long-term future. Green and blue economies are thus a relatively new field that all countries worldwide are embarking on since they can sustain both the environment and the economy.

It has become imperative to implement green economy development strategies and shift from traditional economic development models to a green economy because of their harmful impact on the environment (Ali et al., 2021). Over the past four decades, the exponential rise in the global human population has come at a higher cost to the natural environment. There will be an estimated 9 billion people on the planet by 2050, according to Mohanty et al (2015), which is 1.5 times the current population. In the past, governments have used conventional economic growth models that have improved living standards while depleting the natural resource base and contributing to higher emissions of greenhouse gases (Khoshnava et al., 2019). It has become increasingly commonplace for countries worldwide to hasten their transition to a green economy to combat the disastrous effects of climate change, particularly the United States, the European Union, and China.

Like the green economy, the blue economy is a relatively new idea that focuses on the wise use of ocean resources to drive economic development. Fishing, trade, and tourism are part of this long-term usage of ocean resources (Sarwar, 2022). In Malaysia, as in most nations, ocean management is divided among several different government departments. With no vast oceans, strategy, or government institution responsible for such policy, coastal and ocean challenges have arisen (Othman et al., 2011). Consequently, there is an urgent need for research on the blue economy, particularly in the Malaysian context, to analyze how the notion of the blue economy has been implemented in Malaysia.

According to Bhattacharya & Dash (2021), most studies on the blue economy address its conceptualization, emphasizing the need to valuation ocean ecosystem services and the role of ocean governance. However, little study has examined the blue economy in the Malaysian context and its relationship with the Malaysian government's endeavors to achieve the Sustainable Development Goals (SDG.s); the present study addresses this gap. Policymakers, investors, and governments will benefit from this research by better understanding the current state of Malaysia's blue economy and how it relates to the UN. Sustainable Development Goals (SDGs). It is hoped that this study's findings will aid researchers in their efforts to understand this topic better.

The following is the flow of this paper: At the outset, this paper introduces the notions of a Green and Blue Economy. Though this study focuses on the blue economy, it is necessary to discuss the green economy because the two economic models are interconnected. Next, it focuses on Malaysia's application of the blue economy. The following section will examine the link between the blue economy and the Sustainable Development Goals. The final section of this report will include the conclusion and recommendations. Peer-reviewed studies,

government reports, and other sources of information are used in this study to evaluate current and future initiatives for sustainability.

Green and Blue Economy Concept

Green and blue economies go hand in hand. The term "green economy" refers to an economic system whose primary goal is to prevent environmental harm while fostering long-term prosperity for society and the planet. In the Rio+20 discussions, the term "green economy" refers to a paradigm shift in economic development. Ocean and coastal zone development and management are increasingly referred to as a "green economy" or "green development paradigm" by international society. The blue and green economies are separated as part of the United Nations Environment Program (UNEP) and other international organizations. They advocate low-carbon and resource-efficient marine fishing, tourism, and renewable energy businesses (UNEP et al., 2012). In this sense, the green economy might favor land-based economic development. Developing a sustainable economy is a critical component of the blue economy. However, the ocean is a primary focus instead of land.

Green Economy

Researchers and governments worldwide are paying close attention to the green economy, which is becoming increasingly vital as climate change worsens (Mastini et al., 2021). Global warming, air pollution, water pollution, and biodiversity loss are caused by economic development based on depleting natural resources like coal and their byproducts. The sustainability of this "brown economy" is heavily questioned and criticized in light of these environmental problems (Sakhuja, 2015). The green economy has been widely used to deal with climate change challenges and mitigation issues for several decades (UNEP, 2011). Using a low-carbon economics model, the idea aims to reduce pollution and emissions while reducing energy consumption. This benefit improves human well-being (Ali et al., 2021). According to this, sustainable development entails reusing natural resources while minimizing the associated environmental hazards and expenses (Golden et al., 2017). Environmental dangers and ecological scarcities are reduced while human well-being and social fairness are increased, according to the UNEP's definition of a "green economy" (UNEP, 2010).

It was characterized by Sinha et al. (2020) as an economy with minimal carbon footprints, efficient use of resources, and equity. According to Yu et al. (2021), economics investigates and analyses environmental issues such as pollution and climate change. According to various research, green growth can boost the economy by promoting environmental safety and employment creation (Iqbal et al., 2020). Ecological, social, and economic sustainability are all included in the green economy definition (Ali et al., 2021). Developing a green economy is making the most efficient use of a country's natural resources in the long term (Ali et al., 2021).

There is a growing interest in the green economy all across the world. Apart from being recognized by world organizations and governments, it has gained much academic interest (Ali et al., 2021). Most of the previous research has focused on raising public awareness of the importance of a green economy for reducing energy use, developing the market for green products, creating new jobs, and eradicating poverty (Huang et al., 2021; Jiang et al., 2020). According to research, the green economy is better at solving today's social and environmental issues, such as improving human well-being, caring for social equity, avoiding natural resource depletion, controlling environmental risks, and dealing with the challenge posed by climate change (Tomaselli et al., 2021; Merino-Saum et al., 2020).

Green economy efforts can alleviate these issues by focusing on effective strategies to limit energy importation. Energy security can be improved by more significant usage of renewable energy sources in the green economy. The health benefits of green economy efforts are closely linked to pollution reduction and the enhancement of the natural environment. Sustainable transportation policies that reduce pollution are good examples of this (Smith, 2007). Natural resources such as landscapes, lakes, rivers, and mountains should be managed to preserve or enhance their value as part of the green economy (Ali et al., 2021). As a result, the term "green economy" can describe economic operations that strive to increase the country's economic growth while also considering environmental considerations. We can maintain biodiversity and natural resources for future generations by adopting a green economic approach to solving the central problem of climate change. Human health can benefit from economics since it can minimize environmental pollutants. South Korea, China, and the EU have all been forerunners in implementing green economy policies in the recent decade. Between 2009 and 2015, South Korea implemented a five-year development plan that allocated significant investments to green initiatives (Mathews, 2012). On the other hand, Europe 2020 and the Resource Efficient Roadmap incorporate green economic efforts (Mazza & Brink, 2012).

Malaysia is also one of the countries that supports the aspirations of developing a green economic model to reduce the effects of climate change. Sustainable development has been a priority for the Malaysian government since its inception, as evidenced by landmark programs such as the National Energy Policy, National Depletion Policy, Four Fuels Diversity Policy, and the Five Fuels Diversity Policy. The new economic model and National Green Technology Policy, both of which were implemented in 2009, are significant public policies for promoting the growth of the country's green economy. Malaysia is now attempting to reduce the intensity of greenhouse gas emissions by 45 percent by 2030. Green technology has been acknowledged as a catalyst for sustainable economic growth as part of the Sustainable Development Goals. Despite the government's and other stakeholders' efforts to raise awareness of the green economy, the general public's understanding is still lacking.

Blue Economy

Agriculture, forestry, and other land-based industries make up a large portion of the green economy. There is a pressing need for governments worldwide to diversify their economies, particularly in the oceans, where shipping, minerals, oil, and renewable energy are all major industries. The concept of a "blue economy" is not a new one. Fisheries, for example, have long been a part of the ocean-based blue economy and play an essential role in both food security and the national economy. Because land-based agriculture cannot meet global food production targets, academics have turned their attention to sources other than the green economy, such as the seas, which they say are a massive repository of natural resources.

The water on Earth accounts for more than two-thirds of the planet's total surface area. They represent a new way of looking at the economy, which contains enormous potential for growth, employment, and new ideas. An estimated US$1.5 trillion is generated annually by the ocean, according to the Organization for Economic Cooperation and Development (OECD), and this might more than quadruple by 2030. One-third of the overall value of ocean-based industries comes from offshore oil and gas, with the other two-thirds coming from marine and coastal tourism, marine equipment, and port facilities (MIDA, 2021). The health of the planet's oceans and the long-term viability of their development cannot be overstated.

It is essential to all life on Earth because it produces oxygen, absorbs carbon dioxide, recycles nutrients, and regulates the climate and temperature on a global scale. It is possible to attain key sustainable goals of eliminating hunger and poverty by relying on ocean resources, which provide food and income to a large section of the global population. In addition to covering two-thirds of the planet's surface, the ocean provides around 40% of the world's population with food and water. The exploitation of natural resources, such as food, energy, and highways for global trade, has been shown throughout history as the bedrock of economic development and global trade at local, national, and global scales (recreation). The importance of seawater and its economic impact on the world economy cannot be overstated (Choudhary et al., 2021).

Choudhary et al (2021) argue that as land-based resources are rapidly depleting, oceans offer a solution and boost a sustainable environment and economy. The oceans span seventy percent of the planet's surface, tying people from all over the world together (Qi, 2022). Many coastal countries are beginning to embrace the idea of a "blue economy," built on ocean-related sectors in recognition of the enormous potential of oceans as a significant sink of atmospheric CO2, a source of rich biodiversity, and a source of energy (wind, wave, tidal, thermal, and biomass) (Bennett et al., 2019).

Maritime transport and coastal tourism, two of the blue economy's burgeoning sectors, benefit developing countries the most (Wenhai et al., 2019). When the United Nations Environment Program (UNEP) launched "Green economy in the Blue world" in 2012, it declared that the marine environment was an essential component for an urgently required paradigm shift in the bio-economy known as the blue economy (UNEP et al., 2012). This year's United Nations Conference on Sustainable Development (UNCSD) has played a significant role in developing the phrase "blue economy" and its accompanying ideals, both before and during the conference (Silver et al., 2015).

Malaysia's Investment Development Authority (MIDA) 2021 describes the blue economy as "the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while conserving the health of the ocean ecosystem." These include marine biotechnology and bioprospecting, fisheries, maritime transportation; aquaculture; offshore renewable energy; seabed extraction; and marine biotechnology and biotechnology (World Bank, 2017). Economic activities in and around oceans, seas, and coastal areas are referred to as the "blue economy" by the European Commission (2020). To better "human well-being and social fairness while dramatically decreasing environmental risk and ecological scarcities," the UNCTAD describes the blue economy as an ocean economy (UNCTAD, 2014, p. 2).

Rio+20 summit failed to establish an agreement about the "blue economy." Still, it was popularised, and the UN mainly dealt with its existence, use, and foundational principles; therefore, problematic it as an opposite paradigm to that of the "green economy" (UN, 2014). The concept of a "blue economy" has gained traction in recent years because it emphasizes the importance of harnessing the ocean's economic potential while protecting it for future generations. Sustainable marine economic growth is at the heart of the "blue economy." It's a new way of thinking about development. The goal is to grow the marine economy while also safeguarding the marine ecology to achieve long-term resource sustainability. All activities that utilize and sustainably protect coastal and marine resources are included in this concept (Wenhai et al., 2019).

Modern environmental study is increasingly using the phrase "blue economy." The idea is to investigate ocean-based development possibilities while still protecting the ecosystem

(Lee et al., 2021). Emerging concepts like the blue economy have been called new approaches to ocean governance. They refer to policies that attempt to support ocean-based commercial activity while simultaneously improving economic, social, and environmental consequences (Silver et al., 2015). Many governments have turned to the blue economy as an economic policy tool.

From a rising understanding of the importance of the seas to national economies and the need to safeguard them, the blue economy and its dynamic economic paradigm, blue growth, have arisen (Winder & Le Heron, 2017; Garland et al., 2019). Since the blue economy and how it corresponds to long-term sustainability goals cannot be interpreted in a single way, different ocean economy sectors should play varied roles in realizing blue economy ideals (Voyer et al., 2018; Lee et al., 2020; Barbesgaard, 2018). Blue economy foundations emphasize the goal of balancing sustainable socioeconomic development opportunities with the preservation of aquatic systems' health (Keen et al., 2018). Concepts such as this advocate for environmentally sound and socially just development while also drawing attention to oceans' vast untapped economic potential (Voyer et al., 2021). Sustainable development relies on the employment of tools to reduce pollution in aquatic systems, and the blue economy is one such tool (Bosma & Verdegem, 2011; Mulazzani & Malorgio, 2017).

In recent decades, the blue economy and its sustainability have developed as an essential study topic and a term among policymakers worldwide. Since the United Nations Conference on Sustainable Development in 2012, the concept of a "blue economy" has been explored in high-level policy forums (Ayilu et al., 2022). This concept was first introduced to the world's attention at the Rio +20 meeting, which Pacific Island leaders hosted. Global ocean governance discourse has been increasingly dominated since then by the term "blue economy," as well as terminology like "Sustainable Ocean Economy" and "Blue Growth" (Mulazzani and Malorgio, 2017).

It is estimated that the oceans span two-thirds of the globe's surface, making them the most significant ecosystems. These ecosystems are essential for human and planetary well-being (Alharthi & Hanif, 2020). One billion people and millions of species rely on the oceans for food, habitat, and protection from the consequences of climate change (Parletta, 2019). The world's most profitable biological systems are found on the coasts and seas, and they may be harnessed to boost financial and economic growth (Voyer & van Leeuwen, 2019).

If these resources are handled sustainably, they will have good economic and environmental repercussions (Singh, 2019). Thus, progress in the blue economy might favorably benefit a country's economic growth if looked after efficiently (Eikeset et al., 2018). Scholars and international organizations believe that the blue economy is sustained by three factors, namely, the expansion of the marine economy (Behnam, 2012), the innovative development of the economy, and coping with the global water issue (McGlade et al., 2012).

Kathijotes (2013) suggested that the fundamental purpose of the blue economy model is to tackle the issues that generate environmental concerns and transfer resources from scarcity to abundance. It is vital to emphasize that seas are reaching a tipping point on several fronts, from over-fishing and marine pollution to coastal erosion exacerbated by climate change. Healthy oceans generate jobs and food, fuel economic growth, and preserve the globe from overheating (Mulazzani et al., 2016).

Australia considers that the blue economy includes existing and rising marine sectors and regards the value of the marine industry as the value of the blue economy. India regards the blue economy as economic activities reliant on the marine habitat or seabed. The mounting threat of anthropocentric climate change has heightened global lobbying for more

effective ocean governance and the transition to blue economy prescriptions (Bennett, 2018; Voyer et al., 2018). (Bennett, 2018; Voyer et al., 2018). Ocean industries are quickly expanding in size and space (Jouffray et al., 2020), and current projections anticipate up to US$22 trillion in enhanced revenues from the ocean economy by 2050 (Konar & Ding, 2020).

The blue economy may stimulate entrepreneurship to achieve sustainability, enhancing engagement with entrepreneurs and boosting the United Nations Sustainable Development Goals (Islam & Shamsuddoha, 2018; Costa et al., 2019). By adopting the blue economy concepts, companies can analyze the environmental impacts caused by industrial and residential wastewater (Bramati, 2016) and identify its effects, such as the environmental degradation of water ecosystems: corals, fish, and water pollution; it is possible to develop a proactive strategy to establish environmental and social management in coral reefs, which may improve the health of the marine ecosystem and attract additional tourism (Dimopoulos et al., 2019; Hampton & Jeyacheya, 2020).

Blue economy principles are also being used by the marine energy and oil/gas industries to ensure that their processes are monitored and minimized in environmental and economic implications (Hartung & Kiss, 2014; Wright, 2014). Other sectors also adopt the blue economy, such as enhancing economic activity in fishing communities to reduce environmental pollution (Chen et al., 2017). One of the most essential and significant segments of the world economy is tourism, which includes a significant portion of naval and coastal tourism, vital to the economies of many countries, developed and developing alike (Schmutter et al., 2017). This sector is responsible for more than 6 million jobs and a global growth rate of around 3.5 percent, making it an essential part of tourism (Brumbaugh & Patil, 2017). The majority of tourist attractions are located around the coast (Schmutter et al., 2017).

Blue Economy in Malaysia
Malaysia is one of the developing marine countries due to its physical location. As a coastal nation, Malaysia sits at the crossroads of the Indian and Pacific Oceans, making it a vital link in the global supply chain. Food, trade, transportation, and tourism all rely heavily on the water for their livelihoods in Malaysia. Natural resources from Malaysia's marine environment, including mangroves, coral reefs, and seagrass, contribute considerably to the country's sustainable development. It has been estimated that Malaysia's blue economy will contribute up to 23% of the country's GDP by 2022 (Zaideen & Ramli, 2022). According to official Malaysian reports, Malaysia's blue economy is a work in progress and on pace to become one of the country's most important economic engines. As a result, the concept of a blue economy was incorporated into the 12th Malaysian Development Plan, which was developed in consultation with relevant ministries and organizations.

The maritime industry is critical to the development of Malaysia's economy. Transport, tourism, shipbuilding and repair, and port services are all possible sources of income that might be supported by Malaysia's waters (Kaur, 2014). Malaysia's gross domestic product is 40 percent of this industry, with 15 percent coming from oil and gas and 9.4 percent coming from fisheries, according to (Hamzah, 2019). Tourism and other maritime-related industries accounted for the rest of the proportion. Shipping, shipbuilding, ship repair, port services, oil and gas, fisheries, naval defense, and other law enforcement agencies are the most economically significant maritime industries.

A specific strategy relating to the blue economy in an Integrated Management Approach is considered essential to developing the ocean economy and maintaining environmental sustainability. Many areas of the ocean economy have already established policies, but a

comprehensive plan to support the sector's success has yet to be developed. A new policy, the National Marine litter policy and action plan 2021-2030, has been introduced by MIMA and the Ministry of Environment and Water in Malaysia to examine more thoroughly the activities that must be taken to address the issue of litter in the ocean.

The environment is harmed by excessive fishing activity and fishing tactics. Invasive species and the degradation of biodiversity are just some of these activities effects on marine ecosystems. In addition, it was discovered that the effects of pollution on Mangrove forests, which serve as breeding sites, nurseries, and critical food sources for fish, shrimp, and a variety of invertebrates, had virtually destroyed or damaged them for development (Kaur, 2022). Significant input control strategies, such as zoning systems, inshore fishing permit moratoriums, and fishing gear limits have been established throughout the last four decades to achieve optimum fishing effort in coastal fisheries. Due to international agreements to promote sustainable fishing practices in the Straits of Malacca, the legal framework governing Malaysian fisheries has been molded mainly by these protocols since 1980. With the help of UNCLOS and the Food and Agriculture Organization, Malaysia's Department of Fisheries (DOFM) was established to build efficient management plans and strategies in compliance with their respective rights and obligations (FAO; Ahmad, 2015). Based on vessel type, gear, and marine conservation zones, new zoning and licensing procedures were implemented by Malaysia's Fisheries Act of 1985 to restore severely reduced demersal fish supplies and inshore areas (Kaur, 2014). As a result of overfishing, the Department of Fisheries and Marine Resources (DOFM) instituted a new fishing zoning system in 1982 to protect the interests of commercial trawlers and artisanal fishers (Alam et al., 2002). New zoning regulations limit fishing vessels from operating in a specific fishing zone.

According to Wong & Yong (2020), Malaysia drafted many policies to minimize excess fishing capacity under the FAO International Plan of Action for the Management of Fishing Capacity (IPOA-capacity). To encourage anglers to shift their vessels to further offshore and less-exploited fisheries, DOFM employed a maintained licensing moratorium for coastal fisheries and an escape strategy for trawlers weighing less than forty tonnes (Ahmad, 2015). Finally, the Malaysian Maritime Enforcement Agency (MMEA) was founded to combat illegal, unreported, and unregulated fishing. Destructive fishing gear (e.g., pair trawl nets, push nets, or beam trawl nets) is prohibited in local fisheries to safeguard delicate ecosystems (Kaur, 2014). To add to these advantages, Malaysia offers a wide range of coastal habitats and ecoregional features such as mangrove forests, wetlands, coral reefs, and seagrass beds that help restore the ecosystem and allow fishers to continue using these resources in the long term without harming it.

Mangroves are a special kind of natural environment that protects the shoreline and supports a wide range of coastal wildlife and fisheries (Faridah-Hanum et al., 2019). Due to their prevalence along coastlines, mangrove forests account for 0.5% of their land surface. Many marine and terrestrial animals depend on mangrove forests for food and habitat, sediments, and suspended materials. Because some people find the mangrove tree's outward appearance unappealing, they believe that it doesn't need to be protected. With an estimated size of 640,000 hectares of mangrove, Malaysia is home to the fifth-largest mangrove forest in the world.

There are also coral reefs in the Straits of Malacca, and they're concentrated in the Payar and Sembilan groups of islands in Kedah and Perak, respectively (Gopinath & Puvanesuri, 2006). Coral reefs protect coastlines from wave action and tropical storms and provide natural habitats and refuge for various marine life. However, pollution is a significant

obstacle to protecting maritime habitats. Although no serious contamination has been found in the Kuala Perlis River mouth, a relatively high concentration of heavy metals (arsenic, lead, and zinc) has been found (Shaari et al., 2018); acceptable levels of heavy metals have been found in sediment along the Langat estuaries in Selangor (Mokhtar et al., 2015); and arsenic and copper have been found in most sampling stations along the Malacca coast, exceeding (Looi et al., 2013).

The Department of Environment (DOE) has found that shipping and port operations and offshore oil and gas exploration are responsible for most maritime pollution. Since 1978, the Straits of Malacca, the world's second-busiest waterway, has seen 476 maritime accidents and 144 significant oil spill occurrences. Response strategies mandated for all offshore oil and gas operators in Malaysia have kept the country's oil spills from becoming a significant problem (Wong & Yong, 2020). Malaysia's fishing sector, marine ecosystems, and IUU fishing all require more stringent control. More effective management and enforcement methods are needed to regulate fishing capacity and refine incompatible legal frameworks so that IUU. Fisheries can be reduced (Kawamura & Siriraksophon, 2014).

Over the last half-century, global plastic output has risen from 1.5 million tonnes in the 1950s to 359 million tonnes in 2018 (Maghsodian et al., 2020). It is anticipated that by 2050, there will be as many plastics in the ocean as marine species due to a growth in demand for plastic and a lack of complete recycling (Auta et al., 2017). Plastic production is on the rise worldwide, which leads to an increase in plastic garbage entering the oceans. In the tourism and fishing industries, direct and indirect costs are connected with cleaning up litter and removing scattered plastics from shorelines and waters.

The disposal of industrial waste in Malaysia is generally not subject to stringent rules and enforcement mechanisms. As a result of mangrove trees for aquaculture and tourism, coastal natural ecosystems have been threatened. The multi-million ringgit Malaysian cockle breeding sector was on the verge of bankruptcy when cockle production dropped from 100,000 tonnes in 2005 to 16,000 tonnes in 2015 because of pollution (Spykerman, 2016).

Tun Dr. Mahathir Mohamad, Malaysian Prime Minister, made this statement at the Langkawi International Maritime and Aerospace Exhibition (LIMA) 2019 in Langkawi, Malaysia (Kamaruddin, 2019). Malaysia is a proponent of a development strategy that balances economic growth with environmental protection. Despite the encouragement of such a development approach, the challenges ahead for safeguarding and conserving Malaysia's entire biodiversity remain substantial. As a result, the 12th Malaysian Plan (2021–2025) emphasizes this, focusing on the development of the blue economy (Kaur, 2020). The government's efforts to implement a policy known as the blue economic blueprint are outlined in the 12th Malaysia Plan. The Prime Minister's Office of Malaysia (PMO), 2021) will introduce the policy to establish the direction of sustainable development of coastal and maritime areas.

The Relationship Between the Blue Economy and Sustainable Development Goals

Following the expiration of the Millennium Development Goals (MDGs) timeline in 2015, governments worldwide re-united under the Sustainable Development Goals (SDGs). As pioneered by the UN 2030 Agenda, the SDGs are fundamentally distinct from the MDGs plan. They urge greater dynamism in the face of current and future global challenges that are more relevant and pressing in the post-2015 era. The SDGs programs contain poverty eradication as a primary goal, but the 17 goals and 169 targets outline a broader agenda that includes environmental, social, and economic sustainability (Mustun, 2022). There have been

calls to ensure that the advancement of the blue economy is consistent with other sustainability policies in place, such as the globally mandated SDGs, to promote the circumstances required for the sustainable use of natural resources (Sarker et al., 2018).

Goal 1 - No Poverty

The blue economy has been identified as a significant source of employment. Some of the world's most important economic activities are carried out at sea and provide job and career prospects. Malaysia depends considerably on the oceans to enable its trade while providing many economic prospects to the coastal areas. Malaysia is home to the Strait of Malacca, one of the world's most vital shipping routes. More than 80,000 ships pass through these sea channels annually, transporting an estimated 25% of the world's traded products, making it one of the busiest international shipping lanes (Menhat et al., 2021).

The fisheries industry creates jobs and offers food sources of protein, and it also contributes to the economy of Malaysia both locally and internationally (Solaymani & Kari, 2014). As a significant source of income, employment, and food security for the poor, fishing is particularly vital in homes with poor farmland quality (Martin et al., 2013). On the East Coast of Malaysia, Yeo et al. (2007) found that more than 80% of the husbands of the fishermen had no paid employment, and on average, more than 70% of the household income was from fishing. Fishermen in Malaysia and those in other developing countries frequently find themselves on the verge of poverty. Most live in rural locations with little access to even the most necessities (Solaymani & Kari, 2014). The Malaysian government has implemented a monthly stipend of RM300 and a fuel subsidy program for small-scale fishermen (SSFM) to reduce poverty. According to several local studies, these attempts to aid the fishermen in their fight against poverty have been successful (Samah & Shaffril, 2018). Ramli et al (2013) stated that, on average, more than one-third of SSFM can earn more than RM900 in a month.

Goal 2 - Zero Hunger

A wide range of commodities and services from marine and coastal ecosystems are crucial to human well-being and livelihoods, guaranteeing food, cultural identity, jobs, and income creation (Wyatt et al., 2017). With more than seven billion people, a third of whom live within a 100-kilometre radius of the coast, and a variety of human activities, such as fishing and offshore industries, that exert cumulative pressure on the environment, it is not easy to ensure that the oceans are used sustainably (Yáez-Arancibia et al., 2013).

There is a pressing need to address food security on a global scale. The availability of high-quality seafood is crucial for ensuring a stable food supply. Aquaculture yielded 90.9 million tonnes in 2016, compared to catch fisheries that produced 80 million tonnes in 2016 (The State of World Fisheries and Aquaculture (SOFIA), 2018). 90% of the ocean's food originates from coastal habitats (FAO, 2018). Researchers in east coast Malaysia found that fishing provided 70% of households' income (Solaymani & Kari, 2014). In addition, island people in Malaysia have relied solely on fishing as revenue and sustenance (Islam et al., 2017). Many people worldwide rely on small-scale fisheries as a source of protein and omega-3 fatty acids and micronutrients like vitamins and minerals. More than a billion people rely on it as a source of protein. In the absence of commercial fishing, they would have to rely on more expensive sources of nutrition (Saleem Mustafa et al., 2019).

Goal 9- Industry, Innovation and Infrastructure

Malaysia has used the concept of innovation to support the marine sector. Innovation is needed to maximize the development of the fisheries and aquaculture industry, improve port and shipping management, gas, oil, and mineral exploration, and develop renewable energy sources such as marine energy. Among the marine energy sources that are thought to have the potential to replace conventional energy sources are wave energy and tidal Energy (Mokhtar, 2020). With expanding urbanization and rapid industrialization, Malaysia's energy demand is predicted to rise. With expanding urbanization and rapid industrialization in a developing country like Malaysia, energy demand is likely to climb. Currently, energy production is dependent primarily on fossil fuels, but soon, fossil fuels will not be sustainable due to the depletion of existing reserves and their impact on the environment. Meanwhile, wave energy is an environmentally benign and fastest-growing renewable energy source for future sustainable electrical power generation. Wave energy can create electric power all over the year. As Malaysia has a total coastline of 4,675 kilometres, there is significant potential for the exploitation of wave energy in Malaysia, especially along the coast and the islands (Samrat et al., 2014).

Goal 14 - Life Below Water

Proponents of the blue economy have also increasingly related the notion to the United Nation's Sustainability Development Goal 14 (Lee et al., 2020), despite SDG14 itself not expressly utilizing the phrase "blue economy" (Louey, 2022). Blue economy necessitates compliance with Sustainable Development Goal 14, with the attribute focusing on conserving and sustainably using the oceans, seas, and marine resources. Meeting SDG14 (life below water) is commonly considered crucial for the blue economy but cannot be regarded in isolation from interconnected goals (Lee et al., 2020; Singh et al., 2018). The core is to realize social-economic development and the dynamic balance of resources and the environment.

Goal 15- Climate Change

Climate change is one of the most pressing social, environmental, and economic issues. Nature's intrinsic trait of variability predisposes to climate change, but human-induced activities have increased this effect and subsequently dramatized the repercussions all over the planet (Mustun, 2022). Due to global warming and climate change, Malaysia's coastline is also at risk of rising sea levels (Rashidi et al., 2021). Solving this issue in the water is complicated because the repercussions of climate change will be widespread, unpredictable, and challenging to access (Hameed et al., 2013). Many people believe that climate change harms animals, ecosystems, human activities, and infrastructures that rely on them and that this trend will continue (Comte et al., 2019). Sea level rise, acidification, rising sea surface temperatures, more frequent and intense severe events, and changes in ocean currents and nutrient cycles will all affect marine and coastal ecosystems (Ragen et al., 2008; Sowman & Raemaekers, 2018). The search for an improved understanding of climate impacts and vulnerabilities will aid in developing better management and adaptation plans (Okey et al., 2015).

Communities that rely on the commodities and services offered by these ecosystems face new problems in an area already under increasing pressure from other anthropogenic stressors, such as climate change (Ragen et al., 2008; Sowman & Raemaekers, 2018). Fish populations may experience geographical and temporal variability due to climate change, which will impact fisheries and the industries that depend on them (Shaffril et al., 2019).

Coastal and marine tourism could face a crisis if the number of visitors declines due to sea-level rise, extreme events, coastal erosion, and precipitation, all affected by climate change.

Goal 17 - Partnership for the Goals

To effectively manage ocean resources and provide benefits for all in the region, the blue economy is a transboundary issue that must be addressed collaboratively at the regional and sub-regional levels. Efforts to develop a blue economy necessitate global collaboration. ASEAN recognizes the Blue Economy's growing importance and the various opinions on the topic. ASEAN also emphasized the importance of reaching a shared understanding of the Blue Economy and identifying the breadth of cooperation and activities that the ASEAN Member States are willing to undertake jointly and with foreign partners. All ASEAN countries are committed to investigating collaboration in the Blue Economy in marine environmental protection, illegal, unreported, and unregulated (IUU) fishing, and the protection of marine and coastal ecosystems. All ASEAN countries agreed to explore cooperation on the Blue Economy in areas such as marine environmental protection; Illegal, Unreported, and Unregulated (IUU) fishing; marine and coastal ecosystems protection; sustainable aquaculture, and fishing practices (ASEAN, 2021). Currently, the focus on Blue Economy concepts is prioritized by many nations and has received focus for all oceans and bodies of water worldwide (Silver et al., 2015). Within the Indian Ocean, groups such as the Indian Ocean Rim Association (IORA) aim to facilitate international cooperation and multinational action to improve capabilities in the region (Sakhuja, 2015).

Conclusion

Blue and green economies share a foundation in ecological modernization thinking, whereby economic growth and environmental protection can go hand-in-hand by incorporating environmental issues into markets. The blue economy can be seen as a new iteration of the passive revolution facilitated by the green economy, in which the hegemony of capitalism is further embedded into the oceans.

A blue economy can contribute significantly to the growth of an economy if a country's blue resources are mapped and appropriately integrated within a robust institutional framework and based on concrete policies and research. The sustainable management of ocean resources requires collaboration across nation-states. This will help us understand the concept of the blue economy and its importance in promoting economic growth, meeting SDGs, and improving people's livelihoods by ensuring food security. Still, it requires solid political commitments, concrete research, societal awareness, and positive attitudes. This study concludes that Malaysia can potentially implement a blue economy that will lead to economic growth.

So far, a comprehensive and integrated policy for the success of the blue economy is still lacking, even though most sectors of the ocean economy in the country already have their policies. Specific policies related to the blue economy that use an integrated management approach are necessary. All sectors in the ocean, such as sea transport, sea-based tourism, ports, and so on, can work together to support efforts towards uplifting the blue economy sector and sustainable development. Malaysians' understanding of the blue economy is still low, hating the government's efforts to support global aspirations toward sustainable economic development. In this case, it is less sensible if the government is blamed simply without the people themselves realizing that they have never even complied with the policies introduced by the government.

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