

Key Messages:

- Malaysia's ocean-related economic activities contributed about 23% to its gross domestic product (GDP) in 2015. The significant contribution of the ocean-related economy includes offshore production of crude petroleum and natural gas, fishing and aquaculture, marine transport, and tourism.
- Malaysia emphasises the importance of the blue economy in its Twelfth Malaysia Plan, 2021–2025 (Priority Area B and Strategy B1), which defines the blue economy as better managing marine resources for sustainable development that improves human well-being and social equity while significantly reducing environmental risk and ecological degradation.
- The effective development of Malaysia's blue economy faces various challenges, including the absence of a comprehensive national ocean policy and marine spatial plan, overlapping jurisdiction amongst government agencies, a shortage of labour and resources, inadequate logistical support and technologies, lack of data and technical expertise, lack of an agency that is fully responsible for managing maritime affairs, and the division of power between federal and state governments, which creates uncertainty and disputes in enforcing maritime environmental laws and policies.
- To develop and manage Malaysia's blue economy effectively, a systematic approach that analyses the gaps and weaknesses in infrastructure and infostructure, intellectual capital, integrity systems, incentives, institutions, interaction, and internationalisation is necessary. This should be complemented by appropriate monitoring and evaluation approaches and mechanisms, such as media campaigns, data collection and analysis, a central authority for ocean governance, and the use of information and communication technologies to provide timely and accurate information.

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Malaysia's Blue Economy: Position, Initiatives, and Challenges

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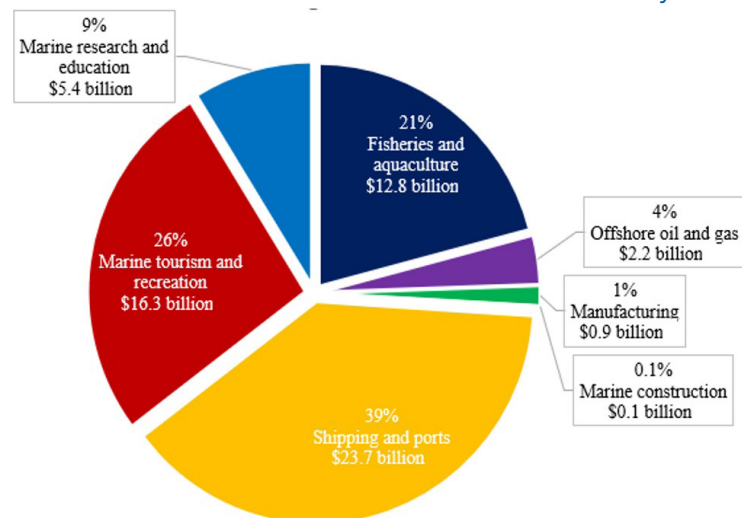
Malaysia leverages the economic activities in and around its oceans, seas, and coastal areas, as its maritime space is double the country's land area. The marine-based or blue economy contributes about 23% of Malaysia's GDP. Realising the importance of the blue economy led Malaysian policymakers to incorporate the concept of the blue economy in the Twelfth Malaysia Plan, which was developed in consultation with relevant ministries and organisations. Although the blue economy has been identified as a key area of growth for Malaysia, its development faces numerous challenges such as the absence of a comprehensive national ocean policy and marine spatial plan, overlapping jurisdiction amongst government agencies, and shortage of labour. Thus, a systematic approach is necessary to analyse the gaps in the '8i-ecosystem' to ensure the effective development and management of Malaysia's blue economy. To ensure that the initiatives for the blue economy in Malaysia are on track and delivering the intended outcomes, appropriate monitoring and evaluation approaches and mechanisms must be in place.

Blue Economy in Malaysia

Malaysia has a special connection with the ocean as its marine area is larger than its land area. The country's total land area is 329,750 square kilometres (km²), while the marine territory, including the exclusive economic zone, occupies some 450,000 km² of the sea. The coastline of Malaysia, including East and West Malaysia and more than 870 islands, stretches about 4,675 kilometres (CIA, n.d.). Malaysia also has a rich mangrove ecosystem covering 7,097 m², diverse coral reefs stretching over 3,600 m², and extensive diversity of habitats and complexity of the marine ecosystem. Malaysians should fully use the comparative advantages of the abundance of marine resources by intensifying various economic activities related to the ocean, including marine living and non-living resources, industry, tourism, transportation, and logistics. Figure 1 shows the sectoral contribution towards the blue economy in 2015.

In 2015, ocean-related economic activities contributed about 23% to the gross domestic product (GDP) of Malaysia (PEMSEA, 2021).

Figure 1: Sectoral Contribution Towards the Blue Economy in Malaysia



Source: Author, based on PEMSEA (2021).

The significant contribution of the ocean-related economy included the offshore production of crude petroleum and natural gas, fishing and aquaculture, marine transport, and tourism. The shipping and ports sector contributed the most (39%) to the blue economy, followed by the fisheries and aquaculture sector. The fisheries sector contributed 11% to the GDP of the agricultural sector and 0.8% to the total GDP, with fisheries contributing 0.5% while aquaculture contributed 0.3% (Department of Fisheries, 2021). Meanwhile, in 2021, out of 1.75 million tons of fish production worth RM14.8 billion, capture fisheries made up 76% and aquaculture 24%. Malaysia broadly defines the blue economy as economic activities in and around oceans, seas, and coastal areas. The emphasis of the blue economy, clearly spelt out in the Twelfth Malaysia Plan, 2021-2025 under Priority Area B and Strategy B1, defines the blue economy as better management of marine resources for sustainable development that improves human well-being and social equity while significantly reducing environmental risk and ecological degradation.

Blue Economy Initiatives and Actions in Malaysia

Although Malaysia lacks a comprehensive plan for the development of its blue economy, by understanding its benefits, Malaysian policymakers have incorporated the concept of the blue economy in the Twelfth Malaysia Plan, which was developed in consultation with relevant ministries and organisations (Ridzuan et al., 2022). In Malaysia, as in most nations, ocean management is divided amongst several government departments. With no vast oceans, strategy, or government institution responsible for such policy, coastal and ocean challenges have arisen. However, various policies

have been initiated to focus on each sector of the blue economy (Academy of Sciences Malaysia, 2022).

Several policies are related to the fisheries and aquaculture sector, e.g. the National Agrofood Policy, 2021–2030 (NAP 2.0), which was launched to focus on efforts to improve the country's food security. The NAP 2.0 is a continuation of the NAP 2011–2020, which increased agri-food's contribution to GDP by 6.8% annually from 2011 through industrial transformation. Moreover, the Malaysian government launched the National Blue Ocean Strategy in 2009, which aims to develop and promote sustainable growth of the fisheries and aquaculture industries. In addition, one of the strategies of the National Eco Tourism Plan, 2016–2025 is repositioning marine protected areas in Malaysia as ecotourism destinations that champion the conservation and management of marine and terrestrial resources. This reduces the pressure on marine resources, especially coral reefs, due to unsustainable tourism development and irresponsible tourist behaviour during diving and snorkelling activities.

In addition, Malaysia has implemented several policies and made significant achievements in the shipping sector, positioning itself as a key player in the regional and global maritime industry. For example, the Malaysian Shipbuilding/Ship Repair Industry Strategic Plan 2020 was created to steer the development of the Shipbuilding and Ship Repairing industry and push Malaysia towards becoming a high-income developed nation. Furthermore, marine biotechnology in Malaysia is regulated by several policies such as the National Biotechnology Policy, which aims to promote the development and commercialisation of biotechnology products and services in Malaysia, including those derived from marine resources. Additionally, the Malaysian government established the Institute of Marine

Biotechnology to support the growth of the marine biotechnology industry in the country. Meanwhile, to promote the development of the renewable ocean energy sector, Malaysia is exploring the potential of wave and tidal energy to generate electricity. For waste disposal management, the Maritime Institute of Malaysia and the Ministry of Environment and Water introduced a new policy – the National Marine Litter Policy and Action Plan, 2021–2030 – which thoroughly examines the activities that must be taken to address the issue of litter in the ocean.

Challenges of the Blue Economy in Malaysia

The implementation of the blue economy in Malaysia faces several challenges, as outlined by several Malaysian ministries and departments:¹

- (i) The absence of a comprehensive national ocean policy and marine spatial plan to guide sustainable development of ocean-based industries.
- (ii) Shortage of labour and resources to effectively enforce the rules and regulations as well as to manage and protect the coastal and marine areas.
- (iii) Overlapping jurisdiction across agencies, leading to governance gaps.
- (iv) Lack of data and technical expertise to carry out an in-depth analysis.
- (v) Inadequate logistical support and technologies, which may limit the reach and impact of ocean management efforts.
- (vi) Lack of a designated department to manage maritime affairs and legislation holistically.
- (vii) Division of power between federal and state governments, which leads to uncertainty and disputes in effectively legislating and enforcing marine environmental laws and policies.

Possible Enablers of the Blue Economy in Malaysia

The blue economy is a complex network that interconnects various economic, environmental, and social sectors. A systematic approach to addressing the weaknesses and problems in the existing ocean and coastal economy is crucial for its effective development and management. According to the Academy of Sciences Malaysia, all gaps in the '8i' components need to be addressed thoroughly for the strategies to be successful.² The 8i components refer to:

- (i) Infrastructure – major upgrades to its infrastructure, including roads and shoreline barriers, to meet current and future needs. Newly constructed infrastructure should allow for the adoption of advanced technologies such as cell towers and high-speed cables.
- (ii) Infostructure – the adoption of cutting-edge digital and Industry 4.0 technologies will be the key enabler for the efficient management of marine resources and decision-making. This should be supported by digital infrastructure with a data collection and sharing culture.
- (iii) Intellectual capital – individual talent improvement, including both general and specialised skills and competencies, help to cultivate a culture of knowledge. To overcome the talent shortage, collaboration between industry and academia is needed to align educational programmes with industry needs.
- (iv) Integrity systems – governing bodies play a vital role in facilitating the flow of information and enabling the implementation of policies that increase efficiency and maximise economic value for all stakeholders. It is necessary to establish systematic methods for policy creation, implementation, monitoring, and reporting policies to ensure transparency and effective policy implementation.
- (v) Incentives – government incentives will spur local innovations within the sector while ensuring sustainable management of marine resources. To overcome the high costs that hinder the growth of some sectors, the government should consider assistance via fiscal and non-fiscal support.
- (vi) Institutions – the quality of institutional leadership and that of organisations play a crucial role in transforming the blue economy sector to become more knowledge-driven, technologically advanced, and environmentally friendly while leading the sustainable development of the blue economy.
- (vii) Interaction – the success of the blue economy sector can also be defined by how successfully the stakeholders cooperate and collaborate. Through citizen participation and the creation of creative solutions, this platform also encourages discussions of problems and ideas, offers chances for stakeholder empowerment, and fosters a more inclusive blue economy.
- (viii) Internationalisation – strong international connections are crucial and include two-way technology and knowledge sharing, joint research programmes, global funding schemes, and training programmes to enhance

¹ Please refer to George (2019) for a more detailed explanation.

² Please refer to Academy of Sciences Malaysia (2022) for a detailed explanation of the 8i Innovation Framework.

local innovative capabilities. This can help local institutions and firms adhere to global best practices and standards to improve production efficiency.

Monitoring and Evaluation Approches

Malaysia is focusing on developing its blue economy as it recognises its potential to create jobs, protect marine resources, and drive economic growth. However, to ensure that these efforts are on track and delivering the intended outcomes, appropriate monitoring and evaluation approaches are required. According to a report by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), several mechanisms can be used to strengthen the blue economy sector. First, increasing awareness about the importance of ocean health can be done through education and outreach programmes and other forms of communication. Second, collecting and analysing relevant data on blue economy-related issues and trends (Kaur, 2016) are critical for monitoring progress and making informed decisions. This information can help identify areas for improvement and guide future decision-making. Third, having a central authority for ocean governance is essential in coordinating efforts from multiple agencies and stakeholders to ensure the effective protection and management of oceans in a sustainable manner. Finally, using information and communication technologies can provide timely and accurate information for monitoring and evaluation. These technologies can help to overcome challenges associated with data collection and analysis while providing valuable insights into the state of the blue economy.

Policy Recommendations

1. Establish a national ocean policy and responsible agency that manages maritime affairs and legislation holistically. The agency should facilitate the flow of information and enable the implementation of policies and strategies that increase efficiency and maximise economic value for all stakeholders in the blue economy sector.
2. Upgrade the infrastructure and infostructure of the blue economy to meet current needs by adopting cutting-edge digital technologies and Industry 4.0 technologies to ensure a future-proof industry.

3. Establish a central data hub that will address gaps, overlaps, and issues, thus creating opportunities for data-driven solutions for blue economy industries in Malaysia.
4. Provide government incentives, including fiscal and non-fiscal support, to spur local innovations within the blue economy sector while ensuring sustainable management of marine resources through government assistance in market stimulation policies, matching grants, green tax exemptions, and subsidies for technology adoption and collaborative research fundings.

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