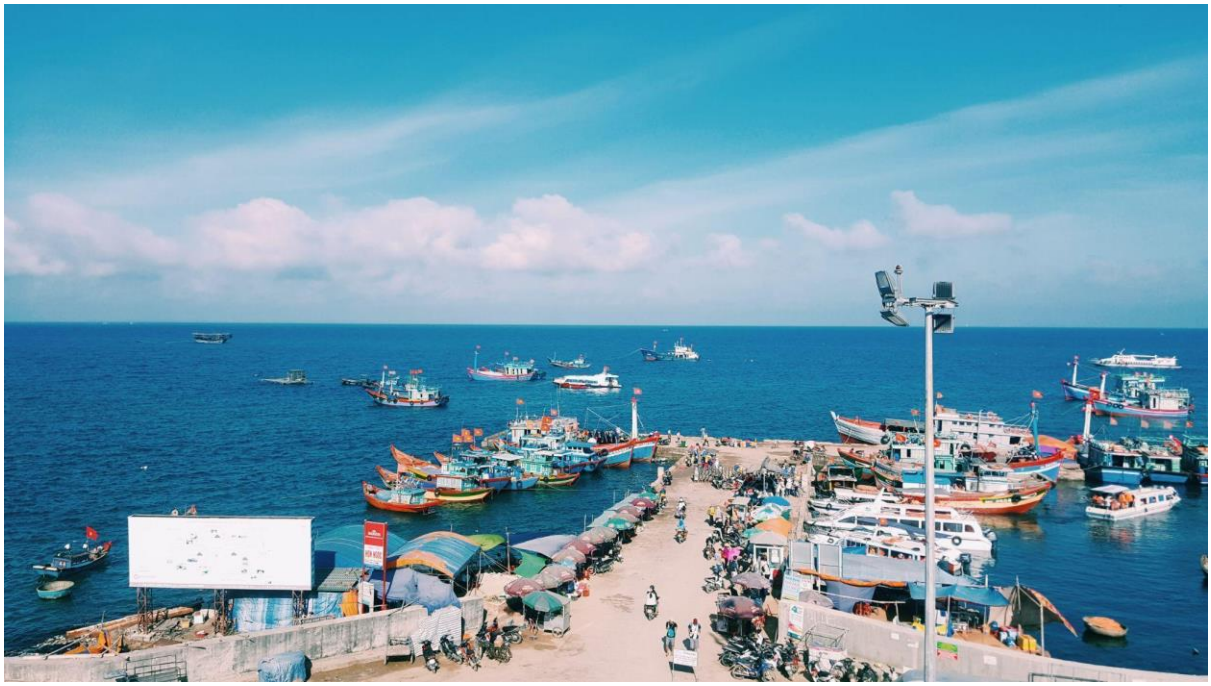

Activities around a boat dock in Ly Son, Viet Nam
Image by Tuan Thanh Cao

ASEAN BLUE ECONOMY FRAMEWORK

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1. Context

The design of a blue economy has been championed across the globe as a mechanism for social, economic, and environmental development through the sustainable exploitation of oceans and inland water resources. It advocates for the development and conservation of oceans, seas, marine and coastal ecosystems, inland freshwater resources,[1] as well as the recognition of threats to these resources (e.g., plastic pollution). The 'blue' of the blue economy concept includes recognition that the productivity of healthy freshwater and ocean ecosystems is a pathway for marine and freshwater-based economies and can ensure that islands and other coastal countries, as well as land-locked States, benefit from their resources. It takes a source-to-sea approach[2], recognising the interconnected nature of waterways and systems. It also requires an integrated, holistic and participatory approach that includes sustainable use and management of blue economy resources for societal and economic progress in a diverse ASEAN.

The Association of Southeast Asian Nations (ASEAN) views the blue economy as a multifaceted, cross-cutting concept; its leaders committed to promoting it through the ASEAN Leaders' Declaration on the Blue Economy, which was adopted at the 38th and 39th ASEAN Summit in October 2021 and have tasked the ASEAN Coordinating Council (ACC) to oversee the overall implementation of this Declaration and explore and develop modalities for cooperation on the Blue Economy.[3]

Currently, ASEAN's concept of a Blue Economy still lacks the concept of value creation, inclusiveness, and sustainability aspects in order to support the SDGs. Therefore, redefinition of the blue economy concept is the key for ASEAN to adapt to future economic and environmental challenges and would not only recognise the concept and scope of the blue economy for ASEAN but also upgrade and upscale the existing visions of the blue economy. Given that the oceans, lakes, deltas, and rivers have bound the Southeast Asian countries together, so a successful implementation of blue economy requires a collaborative effort of ASEAN Member States (AMS) to achieve more prosperous, inclusive, and sustainable development.

1.1 Definition

ASEAN defines the Blue Economy is an integrated, holistic, cross-sectoral, and cross-stakeholder approach that creates value-added and value-chain of resources from oceans, seas, and fresh water in inclusive and sustainable way, making the blue economy the new engine for ASEAN's future economic growth. The ASEAN Blue Economy covers upstream-downstream sectors, serving as an accelerator of the conventional marine sector such as fisheries, aquaculture, fish-only processing, and tourism and a catalyst for emerging

[1] Regarding inland freshwater, federal and states territory might be affected in developing the blue economy. The study takes into account river and basin-related agreements, such as the 1957 Mekong River Agreement, the 1971 Ramsar Convention, the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, and the 1997 United Nations Convention on Non-Navigational Uses of International Watercourses.

[2] The source-to-sea approach directly addresses the linkages amongst land, water, deltas, estuaries, coasts, nearshores, and ocean ecosystems in support of holistic natural resources management and economic development.

[3] ASEAN (2021), ASEAN Leaders' Declaration on the Blue Economy, 26 October, https://asean.org/asean-leaders-declaration-on-the-blue-economy/

sectors such as renewable energy, biotechnology, and marine and freshwater-based research and education as well as other emerging sectors from aquatic resources.

1.2 Scope of the ASEAN Blue Economy Framework

The ASEAN Blue Economy Framework (the Framework) affirms the ASEAN commitment to regional cooperation on the blue economy, advancing its priorities to facilitate value creation, resilience, inclusivity, and sustainability. Furthermore, the framework supports the ASEAN Community Vision 2025, other ongoing work on ASEAN Carbon Neutrality Strategy, and ASEAN Regional Action Plan for Combating Marine Debris in the ASEAN Member States (2021–2025) while aligning, with the United Nations Transforming Our World: The 2030 Agenda 2030 for Sustainable Development, Sustainable Development Goals (SDGs)[4], and other international commitments such as various agreements under the World Trade Organization (WTO).

The Framework expanded the reference of blue economy under the ASEAN Leaders' Declaration on the Blue Economy,[5] which encompasses inland freshwater, taking into consideration the landlocked area, province, country, and region. It also reaffirms the 1982 United Nations Convention on the Law of the Sea (UNCLOS) which sets out the legal framework within which all activities in the oceans and seas must be carried out and is of strategic importance as the basis for national, regional, and global action and cooperation in the marine sector. Also, in line with one of the objectives of the ASEAN Outlook on the Indo-Pacific for implementing existing and exploring other ASEAN priority areas of cooperation, including maritime cooperation, connectivity, the Sustainable Development Goals (SDGs), economic and other possible areas of cooperation, the Framework promotes collaboration and cooperation while envisages ASEAN Centrality as the underlying principle for promoting cooperation in the Indo-Pacific region.

The Framework also advances the ASEAN ambition to develop an inclusive, equitable, and sustainable blue economy, making the region a significant contributor to economic growth and prosperity. It is indeed an ambitious vision, building on the strengths of existing ASEAN initiatives, which identifies priority areas for action, principles to guide decisions, and enablers to accelerate the realisation of a blue economy in the region. The Framework is intended to move from the current sectoral approach to a multilateral, integrated, and participatory approach at multiple levels in ASEAN. As such, developing a framework needs a whole-government approach that ensures effective implementation of ASEAN Blue Economy, with a focus on the economic aspects.

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[4] SDG 1: No Poverty; SDG 2: Zero Hunger; SDG 5: Gender Equality; SDG 6: Clean Water and Sanitation; SDG 8: Decent Work and Economic Growth; SDG 9: Industry, Innovation, and Infrastructure; SDG 10: Reduced Inequality; SDG 11: Sustainable Cities and Communities; SDG 12: Responsible Consumption and Production; SDG 13: Climate Action; SDG 14: Life below Water; SDG 16: Peace and Strong Institutions; and SDG 17: Partnerships to Achieve the Goal.

[5] ASEAN Leaders' Declaration on the Blue Economy, p.2: "*the Blue Economy for ASEAN refers to the sustainable, resilient and inclusive use, governance, management and conservation of oceans, seas as well as marine and coastal resources and ecosystems for economic growth across various sector such as fishery, aquaculture, maritime transport, renewable energy, tourism, climate change, and research and development while improving human well-being and social equity".*

2. ASEAN Blue Economy Vision

ASEAN's Blue Economy Vision emphasises value creation by advancing sustainable practices that promote sustainable and inclusive economic and social development related to marine and freshwater activities and livelihoods, contributing to ASEAN economic integration efforts, economic growth, and sustainable development. By leveraging the potential of the blue economy, ASEAN envisions a new engine for growth that is socially, economically, and environmentally sustainable.

3. Objectives of the ASEAN Blue Economy Framework

The Framework intends to guide ASEAN blue economy initiatives while encouraging regional integration and cooperation and strengthening AMS' capacity to maximise the sustainable use of aquatic spaces The Framework would serve as the reference document on Blue Economy in ASEAN, with possibilities of having regular review mechanism. It is not intended to replace existing policy mechanisms nor instil punitive measures.

In accordance with international laws, including the UN Charter; 1982 UN Convention on the Law of the Sea (UNCLOS); other relevant UN treaties and conventions, including those of the International Maritime Organization; ASEAN Charter; relevant ASEAN treaties and agreements; as well as ASEAN shared values, norms, and principles. More specifically, the framework's objectives are to:

1) ensure a cross-sectoral and cross-stakeholder approach, creating a value chain, supporting inclusiveness, and ensuring sustainability to make the blue economy a new engine for ASEAN future economic growth;
2) develop a common understanding on the blue economy; provide a foundation for regional actions relevant to the blue economy to maximise the economic potential of ASEAN's ocean and inland water resources; and foster collaborative actions and/or cooperation in areas such as marine and coastal ecosystem protection; combatting illegal, unreported, and unregulated fishing; sustainable aquaculture and fishing practices; marine industrial development; food, water, and energy security; trade and connectivity; security and safety of navigation; marine and freshwater science; aquatic based energy; blue governance and management; biotechnology; data statistics and data analytics; livelihood, adaptation to and mitigation of climate change; and innovation, with a view to supporting sustainable economic growth and prosperity; and
3) serve as a non-binding reference document for continuous engagement and conversations on the blue economy amongst AMS and between ASEAN and its partners.

4. Advantages of a Blue Economy Framework in ASEAN

The framework can be a significant driver of economic growth, social inclusivity, and environmental sustainability in the region. Supporting the ASEAN economic integration agenda, the Framework presents the following benefits:

1) **Boosted sustainable economic growth**. Maximises the use of marine and freshwater resources – especially in aquaculture, fisheries, renewable energy production, transport, and tourism – to create new sources of economic growth for ASEAN.
2) **Catalysed emerging sectors.** Encourages emerging sectors in the blue economy, such as marine biotechnology, marine bioprospecting, and aquatic data analytics.
3) **Fostered inclusivity.** Emphasises inclusivity, seeking to ensure that the benefits of the blue economy are shared amongst all stakeholders, including small-scale fishers and other marginalised communities.
4) **Ensured sustainability while pursuing economic objectives.** Recognises the importance of aquatic waste management, sustainability, and responsible use of marine and freshwater resources, taking into account environmental considerations such as climate change and ecosystem health, acknowledging the negative consequences that unsustainable practices may have on the blue economy and exacerbating climate change.
5) **Adapted to and mitigated climate change and its impacts.** Helps develop sectors that provide critical ecosystem services such as nurseries and habitats, for a diverse range of marine and freshwater biodiversity; coastal protection; carbon sequestration; and protection of coral reefs and other marine and freshwater resources, – freshwater resource including those with potential for climate-change adaption – to increase resilience against negative climate-change effects.
6) **Facilitated cross-sector collaboration and cooperation.** Necessitates stakeholders across sectors to collaborate and cooperate, creating a more integrated and cohesive ASEAN region to sustainably maximise the use of its seas and inland waters.

To fully realise these benefits, however, it is important for AMS to reach a common understanding of the blue economy and to identify the potential for cooperation.

5. ASEAN Blue Economy Framework Overview

To achieve the objectives outlined in Section 3, the framework is structured around three areas (Figure):

(1) guiding principles for implementation of a blue economy in ASEAN,
(2) blue strategies on which AMS should focus, and
(3) enablers that accelerate blue economy development and growth.

Figure 1. ASEAN Blue Economy Framework

6. Guiding Principles for Implementation

The principles guide decisions and actions related to the development and implementation of a blue economy in ASEAN, including adjusting existing activities in which this may not be sustainable to support continued growth and developing new opportunities. The guiding principles for implementation must respect ASEAN Member States laws and regulations.

Principle 1: Value Creation

Value creation emphasises the need to generate economic value while responsibly utilising ocean and inland water resources. Adopting circular economy approaches can play a significant role in delivering this principle by promoting the sharing, reusing, repairing, renovating, and recycling of existing products and materials. Value creation in the context of intra- and interregional trade further entails ensuring value chain development in AMS by lowering trade barriers to promote economic growth, but without placing undue detriment to the marine and freshwater environment[6]. AMS can retain this value while efficiently and effectively using ocean and inland water resources, such as

[6] T. Haimbala (2019), *Sustainable Growth through Value Chain Development in the Blue Economy: A Case Study of the Port of Walvis Bay,* dissertation, Malmö: World Maritime University.

through sustainable recirculating aquaculture systems, seaweed farming for climate-change adaptation and mitigation, blue biotechnology advancements, aquatic data services, and marine spatial planning.

Principle 2: Inclusivity

Inclusivity is a principle that stresses the importance of ensuring that all stakeholders – including businesses, like micro, small and medium enterprises (MSMEs), small-scale fishers, and local and coastal communities – have access to the benefits of sustainable ocean and inland water resource utilisation. By engaging and including stakeholders in decision-making processes, the blue economy will benefit from the cross-sectoral knowledge and expertise and ensures that economic benefits are distributed equitably. Inclusivity can also help build social cohesion, foster sustainable development, and improve the overall resilience of local and coastal communities, particularly when good regulatory practices are applied. The planning and implementation of the blue economy in ASEAN will utilise a holistic approach to break down siloed sectoral thinking and to foster cross-sector, cross-industry, and international cooperation towards sustainable ocean and inland water resource use.

Principle 3: Sustainability

Sustainability encompasses environmental and social sustainability. Environmental sustainability focuses on ensuring that the use of coastal, marine, and freshwater resources offers effective protection of the marine environment from harmful effects and ecosystem degradation while pursuing blue economy activities. This includes stewardship by governments and local communities to prevent, reduce, and control pollution of the coastal, freshwater and marine environment; mitigate the impacts of climate change; and protect biodiversity.

Meanwhile, social sustainability focuses on ensuring that the benefits of sustainable aquatic resource use are distributed equitably and that the needs of present and future generations are considered. This comprises promoting decent work, ensuring fair income distribution, and respecting the cultural and social values of local and coastal communities. Developing the blue economy also considers the well-being of local communities and underserved communities that cover women and children. As such, the environmental and social sustainability impacts of all investments, activities, and projects need to be addressed prior to commencement to ensure that no adverse effects on the social and natural capital underpin the blue economy's ability to function.

7. Blue Economy Strategies

The ASEAN Blue Economy Framework is based on three strategies outlined below.

Blue Strategy 1: Blue Conservation Management

ASEAN needs a common platform with standardised data and metrics for assessing its marine ecosystems[7] which is necessary for science-based marine policymaking. The impact of pollution on upstream ecosystems affects downstream ecosystems in coastal areas and in the marine environment, so a holistic and integrated marine ecosystem management policy is needed. It is also necessary to integrate complex economic, social, and environmental aspects and dimensions with a source to sea approach to achieve sustainable development. Management policies and systems must consider the allocation of water between the needs of the sector and downstream/upstream users, ensure reliable delivery and adequate water quality, and protect people and the environment from harm and ecosystem degradation. By implementing a comprehensive approach to environmental and social sustainability, ASEAN can ensure that its blue economy has a positive impact on communities while preserving the health of marine ecosystems. Potential pilot activities are identified in Annex II. This strategy is centred around three development areas:

I. **Implementing a neutral carbon balance from aquatic and coastal- based activities.** Implementing a neutral carbon balance in the context of the blue economy is closely aligned with the goals of the Paris Agreement and nationally determined contributions. This can be undertaken by assessing emissions, carbon sequestration, and applying blue carbon in line with nationally determined contributions to support blue growth. Blue and renewable energy development must be prioritised over fossil fuel-based energy.
II. **Promoting sustainable use of natural resources, ecological health, and combatting pollution.** This can occur through improved use of marine spatial planning, ecosystem services valuation to understand the economic value of healthy ecosystems, and encouragement of natural capital investment to drive blue growth. Chemical and plastic pollution in watersheds and shared marine spaces must be identified (i.e. hydrocarbon, chemical, plastic, and biological) and as well as polluting sources and outfalls.
III. **Increasing resilience and strengthening disaster risk management**. This includes ensuring that sufficient nature-based solutions[8] are applied to protect coastal environments, communities, and valuable natural resources. It requires investments in climate and disaster risk readiness capacities in early warning mechanisms, planning, and management; detailed development of mechanisms for identification, assessment, and monitoring of disaster risks, including data and information management; and standardised instruments and tools to facilitate disaster risk reduction and risk governance in blue economy sectors.

[7] A marine ecosystem is any marine environment, from pond to ocean, in which plants and animals interact with the chemical and physical features of the environment. See United Nation Environment Programme (UNEP), Marine Ecosystem, https://leap.unep.org/knowledge/glossary/marine-ecosystem.

[8] Includes the sustainable management and restoration of ecosystems (e.g., forests, grasslands, mangroves, and wetlands) that protect, filter, store, and regulate water, carbon, and biodiversity.

Blue Strategy 2: Blue Science, Technology, and Innovation

This strategy focuses on leveraging technological advancement for the development of sectors relevant to the Blue Economy. This includes the use of marine and freshwater science, data, and technological innovations that can enhance blue economy value chain efficiency, traceability, and resilience and facilitate trade in ASEAN (e.g. digital platforms, mobile devices, big data and analytics, blockchain, artificial intelligence, and machine learning) while recognising the different levels of technology development in AMS. Value chain efficiency ensures that the maximum potential value of blue economy value chains is realised by optimising the use of resources and limiting wastage, accelerating the engine of economic development across ASEAN. With supporting policies, technological innovations also have the potential to incentivise companies to adopt blue economy principles along value chains, thus making them more sustainable and ultimately contributing to the growth of the blue economy. Technological innovations can further harness the opportunity to reduce AMS digital gaps, thus bringing everyone to an equal playing field and contributing to the development of a more enabling environment for spontaneous blue growth. Potential pilot activities are identified in Annex III. This strategy is centred around the following areas:

I. **Addressing technology and digital gaps amongst AMS**. This can include the development and deployment of digital platforms that enable better coordination and cooperation amongst AMS. This could include digital platforms for sharing data on fish stocks, marine pollution, or weather patterns, as well as communication tools for coordinating responses to environmental disasters or illegal fishing. A starting point is to map technological and digital capacity constraints amongst AMS.
II. **Improving value chain efficiency using technological innovations.** This can occur by using digital technologies, like blockchain, to streamline supply chain management and to ensure greater transparency and traceability in the seafood industry.
III. **Developing technology policy frameworks.** These must respect AMS national laws, regulations, and related policies, as well as existing international law such as UNCLOS. Such policy frameworks should support environmentally and socially sustainable use and deployment of emerging technologies. This could include policies around the use of artificial intelligence or robotics in marine conservation, or regulations around the use of biotechnology in aquaculture. Clear policies and guidelines could ensure that they can be deployed to maximise their potential benefits and minimise any potential risks or negative impacts.
IV. **Encouraging and synergising ASEAN think tanks or research centres.** These research centres will drive research, innovation, and understanding of the blue economy concept, as well as the ASEAN blue economy agenda. They should be synergised and coordinated to ensure meaningful and non-duplicative research.

Blue Strategy 3: Blue Priority Sectors

Regionally, ASEAN-level progress in utilising the blue economy as a new epicentre for growth requires national capacity and goodwill to move forward. Thus, Blue Strategy 3 focuses on enhancing national blue economy potential by uplifting and harnessing the opportunities in traditional sectors and creating the right conditions for emerging sectors to flourish. Emerging sectors – such as renewable blue energy (i.e. offshore wind turbine,

floating solar, tidal and deep thermal energy), desalination, and biotechnology and bioprospecting – should be encouraged. Traditional sectors should be reinforced, such as sustainable fishing practices; sustainable aquaculture; tourism and heritage conservation; aquatic transport and services, as well as green ports. The coordination of national blue economy priority sectors amongst AMS, as appropriate, will help develop their capacities and encourage their contribution to regional blue economy initiatives.

This strategy is centred around six key areas:

I. **Defining the blue economy's fields of application and key areas, and providing a coherent definition**. This helps resolve recurring and one-off problems, improves existing scenarios, and develops new ways to value blue potential.
II. **Increasing the knowledge of blue potential and associated constraints.** Expanding the existing knowledge base surrounding blue assets as well as challenges associated with their sustainable use will improve the degree to which they can be leveraged for blue growth. For example, national blue accounting of natural resources will facilitate opportunities for development as well as the optimal use of blue assets. Further knowledge will help refine the transition of value chains to circular economy principles, improving the efficiency of value chains cross-sectorally and ensuring the simultaneous development of sectors across ASEAN.
III. **Supporting marine spatial planning.** This will facilitate improved management of resources and cross-sector collaboration, ensuring inclusiveness, organising dialogues, developing collective actions, reinforcing public–private partnerships, ensuring that decision-makers and actors possess the necessary expertise and tools, and allowing for periodic and timely evaluations of the progress made.
IV. **Ensuring communication.** This is key amongst AMS, sector stakeholders, and governance structures, as it will benefit ASEAN by encouraging dialogue, the recognition of blue development projects (and their progress), and the dissemination of knowledge and best practices, which will facilitate blue growth cross-sectorally. Communication amongst different stakeholders will help identify development opportunities across various sectors, resulting in spontaneous blue growth. The establishment of transparent communication structures will raise awareness of blue development goals and projects within ASEAN as well as increase the visibility of ASEAN on the global stage in terms of blue growth and development.
V. **Developing and encouraging sustainable blue financing mechanisms.** Sustainable financing mechanisms will contribute to blue growth by accelerating the development of blue economy projects, stimulating investment into integrated and holistic blue approaches, and incentivising sustainable resource use and a transition to a more sustainable and inclusive economy with wider economic benefits. The development and use of sustainable financing mechanisms can be facilitated by the establishment of regional blue financing mechanisms or schemes i.e. ASEAN Taxonomy for Sustainable Finance. The approach should ensure that existing financial mechanisms can also be harnessed, ensuring no duplication of financial efforts.
VI. **Stimulating traditional and emerging sectoral growth.** The specific potential actions for the blue economy sectors are presented in Annex IV.

The six initiatives complement each other and put people. and the environment at the centre of the blue economy development model, which is essential to secure the long-term

sustainability of any blue economy activity. They are cross-sectoral and require collective investment.

8. Blue Enablers

The blue economy relies on several enabling elements to ensure an inclusive and sustainable model that encourages investment. As such, the following enablers should be in place to support an ASEAN blue economy:

(1) Infrastructure

Realising the potential of the blue economy requires the development of modern and efficient physical infrastructure, such as ports, harbours, jetties, and coastal and riverbank protection structures. Such infrastructure will help to improve connectivity and facilitate the movement of goods and services, enhance the efficiency of supply chains, and reduce transaction costs. It will also support the growth of related industries, such as shipbuilding and repair, and contribute to the creation of jobs and economic opportunities in communities. Thus, investment in physical infrastructure – also by utilising and repurposing existing infrastructure – is critical to enabling the blue economy.

Governments and the private sector must work together to finance infrastructure projects that support sustainable aquatic resource use and economic growth. Infrastructure development and cooperation/capacity building are intertwined in shaping the inclusivity and effectiveness of the blue economy. Modern infrastructure creates opportunities for improved connectivity, facilitating cooperation among different stakeholders, businesses, and communities. In parallel, capacity-building efforts empower individuals and organizations to fully utilize the new infrastructure, unlocking investment potential and ensuring equitable access to economic opportunities.

(2) **Institutional setting**

In the context of international (UNCLOS for instance), regional and national law, policy frameworks, governance structure, and institutional mechanisms are needed to generate the right institutional environment for the transition to a blue economy in ASEAN. Being a cross-cutting concept that involves many different sectors, blue economy requires coordination to ensure that activities are sustainable and mutually reinforcing.

Given that there is no existing ASEAN Sectoral Body handling blue economy issues holistically, an existing or a new task force could be identified to the implementation of the ASEAN Blue Economy Framework. The task force may also conduct regular consultations with stakeholders and relevant Sectoral Bodies, and provide updates to other relevant platforms, such as the coordinating conferences. Simultaneously, investing in non-physical infrastructure can help establish institutional mechanisms for inter-sectoral coordination, such as marine spatial planning, integrated coastal zone management, etc. The institutional setting plays a pivotal role in fostering cooperation and capacity building. Effective governance structures and policies bring together stakeholders from different sectors and regions, encouraging collaborative efforts in the blue economy. By facilitating coordination and information sharing, these institutional mechanisms create a conducive environment

for capacity-building programs. In turn, skilled workers equipped with proper knowledge can better contribute to and benefit from the blue economy's growth under a well-organized institutional framework.

(3) Cooperation and capacity building

A skilled workforce that is equipped with the necessary knowledge and competencies is necessary to support the shift in thinking needed for the blue economy. Capacity-building programmes can include technical and vocational training, education, and on-the-job training to help workers to acquire the skills needed for employment in various blue economy sectors. In addition, skills enhancement can help promote innovation, efficiency, and productivity in the blue economy, comprising training in emerging technologies, such as aquaponics or renewable energy, or the development of soft skills, such as entrepreneurship and leadership, to support the growth of micro, small and medium-sized enterprises. Therefore, investment in capacity building and skills enhancement programmes for the blue economy should be featured in the work planning of governments, the private sector, and civil society organisations.

A skilled and well-trained workforce will attract sustainable investment and finance in the blue economy. Investors seek stable and capable human capital to drive innovative and profitable ventures. Capacity-building programs, therefore, enhance the sector's appeal to investors by cultivating a pool of talented individuals capable of leveraging emerging technologies and implementing sustainable practices. The availability of a skilled workforce makes the blue economy more attractive to impact investors and financial institutions, increasing the flow of funds towards environmentally and socially responsible projects.

(4) Sustainable investment and finance

The environment for investment and financing should be prioritised to ensure that a blue economy transition is well supported and will not be dependent on development assistanceor short-lived projects. Sustainable investment and financing, such as blue and transition bonds and loans, and impact investment funds can incentivise sustainable resource use, promote the conservation and restoration of marine ecosystems, and support the growth of small and medium-sized enterprises. Additionally, innovative sustainable financing mechanisms, such as blended finance, can also be deployed to enhance bankability and scale in the financing of blue economy projects.

Sustainable investment and finance play a role in accelerating infrastructure development for the blue economy. By channelling funds into projects that prioritize environmental conservation and community development, sustainable financing mechanisms can expedite the creation of modern infrastructure required for various blue economy activities. In turn, well-planned and sustainable infrastructure enhances the sector's attractiveness to impact investors, creating a positive feedback loop that fosters further investment in the blue economy.

9. Moving Forward

Aligned with the SDGs, the Framework reinforces the commitment to international sustainability goals and is in line with the strategic vision of the ASEAN Outlook of the Indo-Pacific, which promotes ASEAN centrality for more open, transparent, and inclusive regional cooperation for development. The Framework will both be anchored in international law, including UNCLOS, and complement existing cooperation frameworks, with the spirit of good governance, respect for sovereignty, non-intervention, equality, mutual respect, mutual trust, and mutual benefit. It will also provide the blueprint for blue economic development, create a foundation for future initiatives, and enable effective governance structures at both the national and regional levels. Thus, in order to support the effective implementation of the Framework through the institutional settings, the need of establishing a dedicated task force responsible for blue economy should be considered. As a complementary action, a regular review mechanism of the framework should be developed to adapt to changing future priorities and development venues of AMS, ASEAN, and the ASEAN region. By promoting cooperation and coordination amongst AMS, the Framework will affirm the ASEAN commitment to integrated and sustainable development, positioning the region as a dynamic hub for sustainable resource management and a new engine for growth in the region.

ANNEXES

Annex I: Blue Economy as the New Engine for Growth for ASEAN

ASEAN Blue Economy Framework (the Framework) aims to harness the wealth of the region's natural resources, maximising growth potential from within ASEAN. Through the Framework, ASEAN intends to sustainably use many of the region's underutilised and/or unutilised resources to stimulate the economies of ASEAN Member States (AMS).

The adoption of the Framework will improve the economic status of AMS as well as transform the ASEAN region into a global leader in the sustainable use of natural resources. Harnessing ASEAN's natural capital potential is a challenging endeavour given that the region's natural resources stretch across national borders. The same dilemma, however, helps foster improved regional cooperation and integration, facilitating AMS to collectively tackle the region's economic challenges. Contributing to developing a coherent blue economy approach and policy direction across AMS, the Framework will unlock new sources of economic development for the region.

Annex II: Indicative Conservation Management Pilot Activities for Blue Strategy 1

Develop a common platform for assessing marine ecosystems. ASEAN could develop a common platform for assessing marine ecosystems across the region. This platform could include indices for assessing the health of marine ecosystems and provide important information for science-based marine policymaking.

Implement integrated marine ecosystem management policies. To ensure the sustainability of marine ecosystems, ASEAN could implement integrated marine ecosystem management policies that consider the complex economic, social, and environmental aspects of the region. These policies could also consider the allocation of water between the needs of the sector and downstream/upstream users, ensure reliable delivery and adequate water quality, and protect people and the environment from harm and ecosystem degradation.

Restore degraded marine ecosystems. ASEAN could implement pilot projects to restore degraded marine ecosystems in the region. For example, efforts could be made to restore mangrove forests that have been degraded by coastal aquaculture. These projects could help improve the health of marine ecosystems and support sustainable economic development in the region.

Build capacity for marine conservation. ASEAN could invest in capacity-building programmes to enhance the knowledge and skills of stakeholders in the region on marine conservation. This could include training programmes for marine conservationists, local communities, and government officials on sustainable marine management practices and monitoring the health of marine ecosystems.

Evaluate ecosystems. ASEAN governments, nongovernmental organisations (NGOs), and research institutions could collaborate in conducting regular evaluations of the health of coral reef ecosystems in the region. This project would use standardised monitoring methods to assess the condition of coral reefs and to identify areas that are at risk of degradation or collapse. The results would be used to inform policy and management decisions to protect and restore these important marine ecosystems. For example, the data collected could be used to develop new regulations on fishing practices and coastal development to reduce pressures on coral reefs.

Characterise pollution. A project could be developed to test remote-sensing technologies to monitor and characterise marine litter in the region. The project would use satellite imagery and machine-learning algorithms to identify and to track plastic debris and other forms of litter in the region's river, coastlines, and seas. This information could be used to inform policy decisions on waste management and to reduce the flow of plastic waste into the marine environment. For example, the data could be used to identify sources of plastic pollution and to develop initiatives to reduce waste generation at the source. Existing projects along these lines include the United Nations Environmental Programme Countermeasure II, and synergies with this should be explored. Also, consider a joint database for plastic marine litter in the region could be set up for AMS to share information and to update data.

Identify climate and disaster risks. A project could be developed to test a coastal risk assessment framework that incorporates multiple climate-change scenarios and adaptation measures. The Framework could be applied to a specific coastal region in ASEAN to assess the potential impacts of climate change and natural disasters, such as sea-level rise, storm surges, tsunamis, earthquakes, and volcanic eruptions, among others and to identify the most effective adaptation strategies to minimise these impacts. For

example, the Framework could be applied to a coastal community in Indonesia to identify adaptation measures such as beach nourishment or building protective structures and to assess the feasibility and costs of implementing them.

Establish marine protected areas. A project could be created to establish a network of marine protected areas in the Sulu-Sulawesi Seascape; Coral Triangle initiatives on coral reefs, fisheries, and food security; and other protected areas in ASEAN. The project could involve collaboration amongst governments, NGOs, and local communities to identify priority areas for protection and to establish marine protected areas with appropriate management measures in place in accordance with relevant international law, frameworks and processes, such as the UNCLOS. The project would also include efforts to engage local communities in management and monitoring as well as initiatives to promote sustainable livelihoods that reduce pressures on marine resources. For example, the project could involve developing ecotourism initiatives that support marine protected area management and provide economic opportunities for local communities. In addition, the Framework would contribute to maintain ecosystem health and to encourage sustainable use of conservation areas through implementing good practices, improving community-based management, and encouraging coastal ecosystem and habitat rehabilitation and coastal disaster mitigation.

Create a seafarers' rights, safety, and well-being taskforce. Many ASEAN citizens are employed as seafarers around the world. Their rights, safety, and well-being are often threatened by the harsh realities of unequal and sometimes illegal working conditions. The establishment of a rights monitoring and enforcement body could contribute to supporting the realisation of ASEAN citizens' rights and contribute to the creation of soft law mechanisms (i.e., codes of practice) applicable to AMS with the support of relevant industries (e.g., armatures and fishing) and partners (e.g. unions and NGOs).

Foster safe and just fisheries. The fishery sector is key to the ASEAN region and requires creation of a safe and just environment taking into consideration of various related conventions under International Labour Organization (ILO) to which AMS are parties. The creation of a soft law mechanism in collaboration with industry representatives is welcomed.

Enable marine spatial planning and integrated coastal zone management. Marine spatial planning and integrated coastal zone management are crucial enablers for the blue economy in ASEAN, providing a development basis for policy frameworks and institutions. They coordinate marine spatial use across sectors, which is essential as the blue economy involves many different sectors such as fisheries, renewable energy, shipping, and tourism. By ensuring that activities are sustainable and mutually reinforcing, marine spatial planning and integrated coastal zone management help establish institutional mechanisms for inter-sectoral coordination on blue economy issues.. Moreover, their roles, as supportive policies and regulations promoting sustainable resource use, can align the interests of different sectors, enabling effective coordination across sectors, maximising synergies, and promoting inclusive and sustainable growth in the blue economy.

Encourage sustainable, just, and equitable tourism. Sustainable tourism has been at the forefront of ASEAN development and participates in its global image. With yet untapped potential in numerous regions, a sustainable, just, and equitable agenda for the next generation of tourism could be developed along the lines of its human rights integration, with a specific code of practice that could be developed in collaboration with

ILO and the UN World Tourism Organization (UNWTO) as well as professional business associations.

Annex III: Indicative Pilot Activities for Blue Strategy 2

Ocean mapping. Create detailed maps of the seafloor and underwater habitats using advanced sonar and imaging technologies to support ocean exploration, navigation, and resource management.

Aquatic robotics. Design and test new underwater robotic systems, including autonomous vehicles and remotely operated vehicles (ROVs), to facilitate exploration, surveying, and monitoring of the ocean and its resources.

Ocean data analytics. Develop new tools and platforms for collecting, analysing, and sharing ocean-related data, including the development of an ocean accounts framework in ASEAN Member States (AMS), to support better decision-making for the blue economy, including forecasting, risk assessment, and resource management.

Regional data synthesis. Create a regional data platform that synthesises data from different sources, such as fishery statistics, ocean sensors, and satellite imagery. This platform could provide a more comprehensive understanding of the region's marine resources, helping inform sustainable resource management and investment decisions.

Blockchain technology. Explore the use of blockchain technology to increase transparency and traceability in the seafood supply chain. By tracking the movement of seafood from harvest to plate, blockchain could help prevent illegal, unreported, and unregulated fishing practices as well as increase consumer trust in sustainably sourced seafood.

Blockchain-based platform. Leverage blockchain technology to create a secure, decentralised platform for tracking the progress of blue growth commitments made by AMS. The platform could be used to collect data on key indicators related to sustainability and blue growth, such as aquaculture production, fish stocks, and ocean health. By using blockchain technology, the platform would ensure the integrity and transparency of data, while also providing a mechanism for verifying the accuracy of reported information.

Regional database of experts and institutions. Develop a collective database of relevant institutions and experts working on blue economy issues in AMS. The database could include information on research institutions, universities, nongovernmental organisations, and other organisations working on issues such as ocean conservation, sustainable fisheries, and aquaculture development. The database could be used to facilitate collaboration and knowledge sharing amongst organisations working on similar issues as well as to identify gaps in research and capacity building.

Digital platform for mobilising capital. Create a digital platform to connect investors with blue economy initiatives in AMS. The platform could be used to showcase investment opportunities related to aquaculture, ocean conservation, and sustainable fisheries and to provide investors with key information on the potential returns and social and environmental impacts of their investments. This can also include exchange of best practices and lessons learned amongst investors and entrepreneurs working in the blue economy space.

Annex IV: Indicative Sector Pilot Activities for Blue Strategy 3

Sectors	Pilot Activities
Sustainable fishery	1. Develop small-scale fisheries while minimising the negative impacts on the environment. 2. Promote conservation and sustainable management of aquatic resources by better informing and involving fishers in decision-making processes. 3. Promote an inclusive blue value chain with a strong focus on quality improvement and achieving responsible and equitable fish trade and marketing. 4. Ensure security on board for fishing embarkations, and create safe working conditions and security. 5. Strengthen resilience and reduce vulnerability to climate change. 6. Pursue the prevention of illegal, unreported, and unregulated fishing in line with ASEAN Leaders' Declaration on the Blue Economy.
Sustainable aquaculture	1. Attract and promote private–public partnership (PPP) investment for aquaculture to realise the full potential of fish farming. 2. Engage in the production of endemic species. 3. Develop hydronic aquaculture systems. 4. Accelerate the development of aquaculture fish-processing capacities. 5. Empower women and youth in aquaculture. 6. Promote sustainable aquaculture practices by developing guidelines for environmentally friendly and socially responsible aquaculture practices. These guidelines could include measures to reduce pollution from aquaculture ponds and to protect the health of marine ecosystems.
Marine and coastal tourism and cultural natural heritage conservation	1. Enhance access to finance and business support services for micro, small and medium-scale operators, and facilitate the entrance of new, local entrepreneurs in the tourism sector. 2. Assess the environmental and social impact of the tourism sector, and establish initiatives to address

	potential negative impacts, including on the preservation of cultural natural heritage. 3. Strengthen the marketing of coastal, freshwater, and marine tourism sectors in countries where terrestrial, wildlife-based tourism currently dominates.
Maritime transport and green ports	1. Adopt best practices of ASEAN Member States (AMS) where possible for the development of green ports. 2. Ensure fair sea freight rates and other transport costs. 3. Develop transport corridors. 4. Promote good governance of the sector. 5. Develop shipbuilding industry aiming for job creation, with compliance to ESG standards. 6. Use of more efficient technology and less reliance on fossil fuel. 7. Ensure security and safety in the maritime and lake areas.
Renewable and non-renewable energy	1. Consider exploring the possibility of conducting technical studies to assess areas of high potential for renewable blue energy. 2. Increase access to financing and promote investment in renewable blue energy. 3. Strengthen national and regional energy resiliency planning and coordination, such as oil spill contingency plans.
Mineral extraction industries	1. Map the seabed and lake beds. 2. Reform unsustainable financial mechanisms, and create a conducive financing environment to help industries' transition to a blue economy. 3. Increase knowledge of deep seabed, coastal, and seawater mineral resources. 4. Develop policy frameworks to accelerate the transfer and application of blue economy technologies. 5. Develop environmental impact assessment guidelines. 6. Promote the application of innovative industries. 7. Create innovative industry databases and support tools.

Desalination	1. Promote PPPs for the development of reverse osmosis desalination. 2. Develop integrated desalination–salt production systems. 3. Build small desalination plants in remote coastal areas.
Marine biotechnology and bioprospecting	1. Develop a policy framework to accelerate the transfer and application of blue biotechnologies. 2. Promote the application of innovative industries. 3. Create innovative industry databases and support tools. 4. Ensure the establishment of PPPs to run bioprospecting surveys and missions.