FINANCING THE BLUE ECONOMY

Investments in Sustainable Blue Small-Medium Enterprises and Projects in Asia and the Pacific

APRIL 2022

UNDP

Poverty-Environment Action
for Sustainable Development Goals

UN environment programme

ADB

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Foreword

While our understanding of the ocean's properties is still limited, we know it is the planet's largest carbon sink. And marine ecosystems such as coral reefs, mangroves, seagrass meadows, and salt marshes, along with seaweed production sites, effectively sequester carbon dioxide. The High Level Panel for a Sustainable Ocean Economy estimates that ocean-based mitigation options could reduce greenhouse gas emissions by nearly 4 billion tonnes of carbon dioxide equivalent per year by 2030 and by more than 11 billion tonnes annually by 2050—exceeding current emissions from all coal-fired power plants worldwide.[1]

Investing in the sustainable blue economy is thus critical to the survival of our world and humanity—and has accordingly been prominently placed on the global agenda to help achieve the objectives of the Paris Agreement and the Sustainable Development Goals (SDGs), particularly SDG 14: Life Below Water. Progress on this front, as on so many others, has been curtailed significantly by the COVID-19 pandemic. Trillions of dollars are needed to preserve marine ecosystems; decarbonize ports and the global shipping fleet; produce new, sustainable, nutritious forms of food, seaweed, phytoplankton and other forms of aquaculture; and invest in offshore energy and other ocean-based renewable energy technologies.

But where will this funding come from? And how can it be best invested? Those are the questions this knowledge product tackles in the context of the developing countries of Asia and the Pacific and their small and medium-sized enterprises (SMEs).

This report, and its associated knowledge web portal, is a knowledge product prepared within the framework of a collaborative effort between the Asian Development Bank (ADB) and Poverty-Environment Action for Sustainable Development Goals, a joint initiative of the United Nations Development Programme and the United Nations Environment Programme. This partnership creates a unique and vital synergy. ADB has been a leader in putting the health of the ocean at the heart of sustainable agendas through its $5 billion Action Plan for Healthy Oceans and Sustainable Blue Economies. The Action Plan's Oceans Financing Initiative has already deployed $2.4 billion of capital to projects supporting this objective, and ADB recently issued a novel blue bond to attract institutional capital to the cause. For its part, Poverty-Environment Action works at the nexus of poverty, gender, and the environment, promoting an integrated, sustainable approach

[1] O. Hoegh-Guldberg et al. 2019. "The Ocean as a Solution to Climate Change: Five Opportunities for Action." Report. Washington, DC: World Resources Institute.

to development that brings poverty, gender, environment, and climate objectives into national and subnational plans, policies, budgets, and public and private finance.

These combined strengths and perspectives are embodied in this knowledge product, which complements and builds on previous and ongoing ADB efforts by looking at new financing possibilities for the blue economy space—specifically for the SMEs that are on the front lines of addressing ocean health, community needs, and climate risk.

This report finds that the blue financing gap—the gap that needs to be closed to achieve the sustainable transition of the blue economy—is most effectively resolved by supporting local actors. This approach is in line with traditional ADB initiatives that support an enabling environment through infrastructure development, as well as Poverty-Environment Action efforts to align finance and investment with poverty, environment, and climate objectives. The goal is to support the actors that will benefit from infrastructure, and further support their development and operations through additional sources of financing.

SMEs—those with annual revenues of less than $10 million—dominate their respective local and country economies. Yet the SME landscape is fragmented and lacks access to capital, making them the "missing middle" in sustainable blue economy development. This knowledge product takes aim at this problem. It proposes SME sector priorities in the blue economy, analyzes the financing gap, presents tools and resources to better understand how to develop new financial connections between international capital and local actors, and recommends the establishment of a new blended finance platform—SME BlueImpact Asia—to fill the estimated up to $2 trillion SME blue economy financing gap in developing Asia.

Addressing the blue financing gap needs every bit of support it can get; it is hoped that this new platform will be successful and that the research presented here will give new insights to financiers, development institutions, and local actors on how to develop new financing relationships to support the health of the ocean.

Acknowledgments

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The team, led by D. Michael Adams, President, Ocean Assets Institute, included Nicola Lei Ravello, Founder and Managing Director of White Stag Investing; Asad Maken, Public Finance and Governance Specialist, UNDP; and Rhadika Lal, SDG Finance Policy Advisor and Team Lead, UNDP Bangkok Regional Hub. Invaluable support and collaboration were provided by Junkyu Lee, Chief of the ADB Financial Sector Group; Qingfeng Zhang, Chief of the ADB Rural Development and Food Security (Agriculture) Thematic Group, and the Environment Thematic Group; with guidance from Deborah Robertson, Environment Specialist, SDCC, and inputs from Melissa Walsh, SDCC consultant and Program Manager for the ADB Oceans Financing Initiative. The document also benefited from significant peer reviewer inputs and feedback from xxx.

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Abbreviations

ADB	Asian Development Bank
COBSEA	Coordinating Body on the Seas of East Asia
DMC	developing member country
NGO	nongovernmental organization
PEMSEA	Partnerships in Environmental Management for the Seas of East Asia
PNA	Parties to the Nauru Agreement
SDG	Sustainable Development Goal
SIDS	small island developing states
SMEs	small and medium-sized enterprises
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

Executive Summary

This report summarizes opportunities and presents potential solutions for mobilizing and aligning investment for a sustainable blue economy in Asia and the Pacific. It quantifies the financing gaps involved and outlines strategies to realize a sustainable blue economy. Improving environmental sustainability can improve livelihoods and gender equality, among other Sustainable Development Goal (SDG) objectives. It supports and builds on existing initiatives within the Asian Development Bank (ADB), Poverty-Environment Action for the SDGs, the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), regional and maritime groups, and national programs.

This report consists of five sections and is complemented, supplemented, and completed by three sets of files located on a web-based knowledge portal; these can be accessed through the hyperlinks provided throughout the text. This web-based repository of underlying data and information will facilitate updating, allowing the provision of the most accurate and current government, multilateral bank, and industry standards, principles, and guides.

Section 2: Blue Economy Priorities. Defining and measuring the blue economy helps stakeholders and decision makers set priorities for development as well as for the protection of marine resources. The blue economy for ADB developing member countries (DMCs) is defined as comprising 16 market segments in three focus areas. Not all of these market segments offer similar opportunities either for development priorities or for each DMC. To determine their relative significance—and thereby maximize the impact of development capital by ensuring that financing serves as many sustainable objectives as possible—the blue economy market segments were assessed against (1) sustainable development criteria and (2) criteria indicating their relevance to specific countries. This analysis found the priority segments to be marine and river ecosystems; aquaculture, mariculture, and algaculture; marine energy segments; non-point source pollution management and wastewater management; and green ports and shipping. Every blue economy segment has standards and metrics that are used to establish, finance, and monitor project performance. The matrix developed for this knowledge product can be used by different stakeholders to identify and locate the appropriate standard for any given blue economy segment or sustainability issue. The matrix is a valuable tool that matches and makes accessible all metrics for each blue economy segment and each stakeholder.

Section 3: Blue Economy Finance Gaps. The original research that underlies this section estimates the capital requirements for each of the blue economy segments and in

terms of each DMC to achieve sustainability goals by 2030. A summary calculation puts the total blue finance gap for the Asia and Pacific region at $5.5 trillion. However, gaps vary widely by market segment, as do the calculations and assumptions. Beginning with low-investment market segments such as marine and river ecosystems and coastal resilience will enable capitalizing on early successes. Establishing blended finance structures and enhancing the regulatory environment for blue economy sectors such as resilient ports, green ports, and marine offshore wind renewable energy will attract private investors and allow their full potential to be unlocked as well. Concurrently, all partners should collaborate to prevent pollution from reaching the ocean in the first place.

The investment amounts required may appear considerable, but the blue economy is full of synergies and trickle-down impact potential that can go a long way toward closing the financing gap to sustainability. It is the opportunity to exploit these synergies that provides the rationale for the present joint cooperation between ADB and Poverty-Environment Action.

Section 4: Blue Economy Investors. This section looks at how to attract the private capital—the investors—needed to fill the blue economy finance gaps delineated in section 3. There are many different types of investors (private investors; insurers; infrastructure investors; venture capitalists; global financiers; environmental, social, and governance (ESG)/impact investors; corporate investors, etc.) that could finance these gaps, a broad range of factors influencing why they each might want to do so (time horizon, risk return, liquidity, asset class, location, co-investors, sustainability features of the investments, etc.), and a wide variety of tools and mechanisms they could use to make their blue economy investments.

An important role is seen for blended finance—especially in lower-return, sovereign-backed infrastructure projects—to compensate for emerging market risk by public capital sources offering loan guarantees, first-loss facilities, and other de-risking tools. For higher-return and impact-oriented investors, however, SMEs continue to offer the most opportunities. Surveys show increasing demand for private equity opportunities in Asia and the Pacific. For high-growth market segments (e.g., aquaculture, marine digital technologies), blended finance is generally not required to attract private capital. For natural capital projects and market segments facing higher structural risks (such as fishing), de-risking is often necessary to raise sufficient long-term capital aligned with sustainability goals. These examples illustrate the breadth of challenges facing blue SME opportunities in the region.

It is critical to understand the different needs and preferences of all investor types, as each can play a role in the blue economy, especially in blended finance transactions. Knowing these needs and preferences will naturally lead to matchmaking between different blue market segments and investors. Knowing these needs and preferences will allow the right investors to be targeted through the creation of appropriate investment vehicles, such as funds, bonds, and project financing structures—which will significantly improve the bankability of projects. And knowing these needs and preferences will enable entities ranging from Poverty-Environment Action, UNEP, UNDP, and regional

intergovernmental governance framework to tailor initiatives that support the integration of poverty and environment into private investor and banking operations.

Section 5: Recommendations and Next Steps. This section provides clear, prescriptive recommendations for moving forward in funding the blue economy, based on this report's analysis of the investments needed and the investors available to make them. It provides concise roadmaps for future and further action by all major stakeholder groups: financiers, governments, industry, development banks, donors, coordinating bodies, and other partners. Specifically, it covers the following: (1) policy recommendations for financiers, (2) enabling conditions to be provided by governments, (3) the SME BlueImpact Asia platform and current SME investment opportunities, and (4) action steps for coordination for all stakeholders.

The SME BlueImpact Asia platform is the culmination of these actions and the linchpin connecting them. Its goal is to identify, support, and finance blue SMEs that have a positive impact on the marine environment and coastal communities in the region. SME BlueImpact Asia is the starting point to solve the estimated $2 trillion blue SME finance gap for the region, with a target of cofunding $1.5 billion across more than 250 blue SMEs by 2030.

The SME BlueImpact Asia pipeline will also be used to enrich the portfolio of ADB and national blue bonds, ADB Ventures, the ASEAN Green Catalytic Finance Facility, and other regional finance initiatives. It will feature a service arm and an investment arm. Candidates have been identified to manage these two arms. Also identified are four blue SME investment opportunities. Each opportunity highlights the potential roles development banks and funders can play to mobilize sustainable investment from the private sector, which can be replicated and therefore scaled throughout the blue economy. These and many other projects will be available on the SME BlueImpact Asia platform:

The SME BlueImpact Asia platform will play a critical role in growing the blue economy, as this section has amply demonstrated. Its impact will be amplified by the efforts of ADB and its partner organizations—notably Poverty-Environment Action, UNDP, and UNEP—matched by technical assistance and funding from private financiers and industry.

SECTION 1

Introduction

In Asia and the Pacific, the ocean ecosystem has employed, fed, powered, and transported the region's teeming coastal millions for centuries in what can be called a **blue economy**.

The region's preeminence on the seas is clear. Its seafood complex employs 60 million people, and 80 percent of global fish production (wild catch and aquaculture) is based in Asia. Shipping, dominated by Asian fleets and shipyards, powers over 80 percent of global trade. Ports are gateways for development and maritime innovation (17 of the world's 20 largest ports are based in Asia), with the Maritime Silk Road of the People's Republic of China boosting the fortunes of smaller ports. Marine and offshore renewable energy is growing from a nascent to mainstream clean power source. Beyond cultural heritage and its role as our life-support system, the ocean is a primary source of economic value for the region. And, it is becoming increasingly evident, any efforts at reducing poverty and broadening economic inclusion will further bolster the blue economy.

A Two-Pronged Challenge

Employment across blue economy sectors, especially by small and medium-sized enterprises (SMEs), is the lifeblood of coastal communities. Yet decades of mismanagement, exploitation, and pollution have damaged marine ecosystems. Traditional fisheries and aquaculture are suffering from contamination, climate change, and overfishing. Plastic plagues tourism and marine health. Agricultural, industrial, and sanitary effluents harm marine ecosystems and communities. Climate change batters coastlines with rising seas and storm intensity.

These disrupted marine ecosystems have created economic losses and threatened human health. Worse still, the COVID-19 pandemic and the lockdowns put in place to control it have imperiled the blue economy and coastal communities in and around the region, as well as hampering progress toward—and financing of—the Sustainable Development Goals (SDGs).[1] The case is undeniably strong for better managing ocean resources with a long-term perspective. The challenges and risks must be addressed

[1] In 2020, private sector SDG investments to developing countries fell by more than one-third, hindering SDG progress made since 2015 (UNCTAD, *Investment Trends Monitor*, April 2021).

with a **comprehensive blue economy strategy** that engages finance, science, governments, and industry.

As for SMEs, they represent 90 percent of the main economy in the region and employ 70 percent of the region's population. Although SMEs are active in all blue sectors, they currently lack any direct finance and support. Encouraging and funding their sustainable agendas would therefore drive the sustainable transition of the blue economy from its core, promoting widespread adoption of sustainable practices across the entire economy. But while large public projects are well supported by governments, the Asian Development Bank (ADB), and other development finance institutions, local SMEs do not have direct access to this type of financing. Even local banks are reluctant to lend to SMEs because of their typically insufficient collateral and credit history.

This is the set of interwoven issues that the present knowledge product, **Financing the Blue Economy: Investments in Sustainable Blue Small-Medium Enterprises and Projects in Asia and the Pacific**, sets out to address.[2] Its resources are aimed at the developing countries in Asia and the Pacific that are ADB developing member countries (DMCs) and Member States of the United Nations (UN) with direct blue economy exposure, with coastlines on either the Pacific or Indian Ocean (table 1.1).

Table 1.1 Countries Covered by This Knowledge Product, by ADB Region

Pacific		South-East Asia	South Asia	East Asia
Cook Islands (C) Federated States of Micronesia (A) Fiji (C) Kiribati (A) Marshall Islands (A) Nauru (A) Niue (A) Palau (B)	Papua New Guinea (B) Philippines (C) Samoa (A) Solomon Islands (A) Timor-Leste (B) Tonga (A) Tuvalu (A) Vanuatu (A)	Cambodia (A) Indonesia (C) Malaysia (C) Lao People's Democratic Republic (A) Thailand (C) Viet Nam (C)	Bangladesh (B) India (B) Maldives (A) Myanmar (A) Pakistan (B) Sri Lanka (C)	People's Republic of China (C)

Source: ADB, 2019, "Operations Manual Policies and Procedures."

Note: Letters in parentheses refer to ADB lending group categorization. Group A = concessional assistance–only countries; Group B = ordinary capital resource (OCR) blend countries; Group C = regular OCR-only countries.

The Need

A systemic approach is needed for SME funding. The overall blue financing gap for the 29 countries covered by this report is estimated at $5.5 trillion, with SMEs comprising as much as half of that total. If blue SMEs cannot gain access to blended finance, coastal communities cannot be engaged in protecting the marine ecosystems upon which the region's prosperity—and the global climate—depend. SMEs therefore need to

[2] This knowledge product includes the present report and the associated knowledge web portal.

be aggregated and de-risked in order to gain access to capital. Funding large public sustainable infrastructure projects to support the development of economies also remains essential.

Global demand for sustainable private sector investments is strong. The blue economy may thus attract new sources of capital to the region by creating bankable projects and well-structured investment vehicles. ADB is in a unique position to leverage the region's blue assets by integrating them into its lending strategies.

A substantial portion of the blue financing gap could be met by a blended finance platform for SMEs. The report therefore proposes the **SME BlueImpact Asia** platform, modeled after Europe's successful BlueInvest platform,[3] to identify and aggregate bankable SME projects for matched public-private funding. This self-sustaining investment platform would fund impactful blue enterprises, in full recognition of the importance of the blue economy to livelihoods in developing Asia and the Pacific.

Purpose and Context of the Knowledge Product

This report summarizes opportunities and presents potential solutions for mobilizing and aligning investment for a sustainable blue economy in Asia and the Pacific. It quantifies the financing gaps involved and outlines strategies to realize a sustainable blue economy. Improving environmental sustainability can improve livelihoods and gender equality, among other SDG objectives. The urgency for policy makers to make this connection in the wake of the COVID-19 pandemic, along with an integrated response of environmental and economic measures to be undertaken, is articulated in a recent article by the Poverty-Environment Action joint initiative of the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP).[4] The number of people living in extreme poverty has increased by 17 percent, triggering a "perfect storm" of reduced financial resources and increased destruction of the environment as poor communities and unconstrained industries cope with survival.

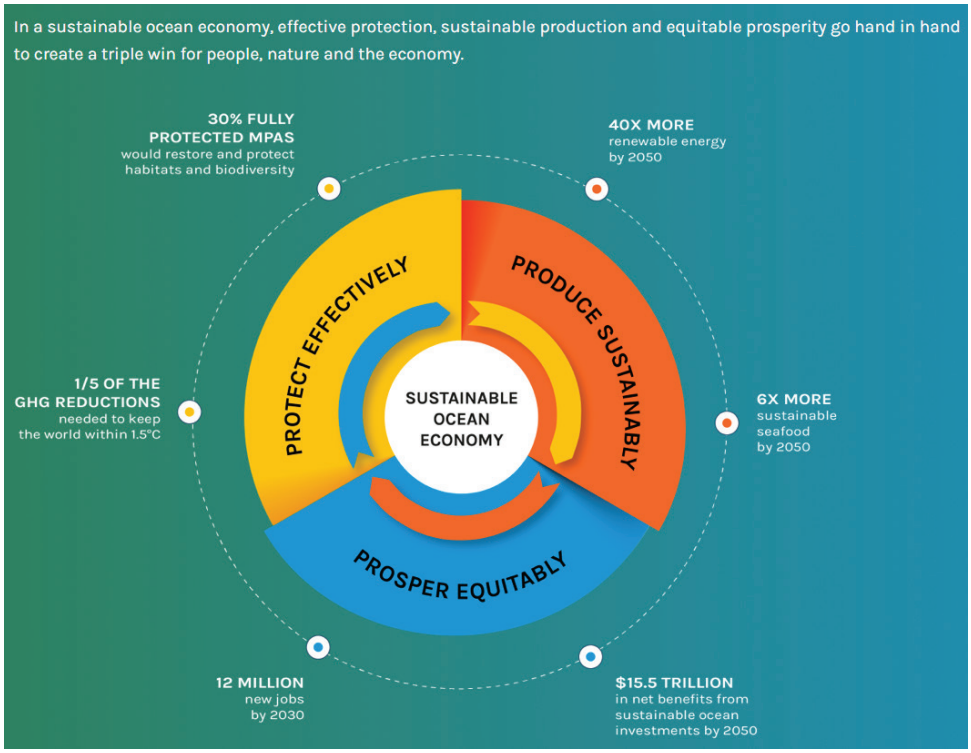
The present report supports and builds on existing initiatives within ADB, Poverty-Environment Action, UNDP, UNEP, regional and maritime groups, and national programs. The most relevant of these are described below. All of these initiatives, and the recommendations presented in this report, are informed by the 2030 aspirations set out by the High-Level Panel for a Sustainable Ocean Economy (figure 1.1).[5]

[3] BlueInvest, operated by the European Union's Maritime Forum, is one example of a regional accelerator on which SME BlueImpact Asia is based. Other examples include the Atlantic Smart Ports Blue Acceleration Network, Canada's B4 Change Accelerator, the Port of Seattle's Maritime Blue Accelerator, and the World Port Accelerator Port XL Accelerator.

[4] Andreas Antoniades, Alexander S. Antonarakis, Jonathan Gilman, Isabell Kempf, Anne Juepner, and Kerstin Stendahl, The Poverty–Inequality–Environment Frontier in the Age of Crises *Journal of Sustainable Development* 29 (3): 481–84.

[5] The High Level Panel for a Sustainable Ocean Economy is a coalition of governments and international organizations that aims to put sustainability at the heart of the ocean and showcases how its well-being is necessary to address any other sustainable objectives. The panel includes major actors like the United States, Canada, Mexico, Australia, Norway, and other coastal

Figure 1.1 2030 Goals for a Sustainable Ocean Economy



Source: High Level Panel for a Sustainable Ocean Economy.

- **ADB's Action Plan for Healthy Oceans and Sustainable Blue Economies** represents a commitment to raise $5 billion for ocean health and the blue economy, inclusive of ADB and partner resources.[6] The initiative focuses on four themes: (1) creating inclusive livelihoods and business opportunities in sustainable tourism and fisheries; (2) protecting and restoring coastal and marine ecosystems and key rivers; (3) reducing land-based sources of marine pollution, including plastics, wastewater, and agricultural runoff; and (4) improving sustainability in port and coastal infrastructure development. By targeting the right challenges, ADB will unlock market gridlocks, develop a range of blue economy opportunities and catalyze private sector participation.

- **ADB's Oceans Financing Initiative** supports the Action Plan by increasing the amount and efficacy of financial capital invested in healthy oceans and sustainable blue economies. Its six objectives are to (1) define standards and metrics for ocean investments, (2) develop a pipeline of bankable ocean projects, (3) support development of innovate financial instruments, (4) mobilize public and private capital for ocean health and sustainable blue economies, (5) align taxes and subsidies with ocean health and sustainable blue economies, and (6) enhance ocean finance capacity in Asia and the Pacific. In addressing Objective 1, ADB created the Ocean Finance Framework to define the eligibility

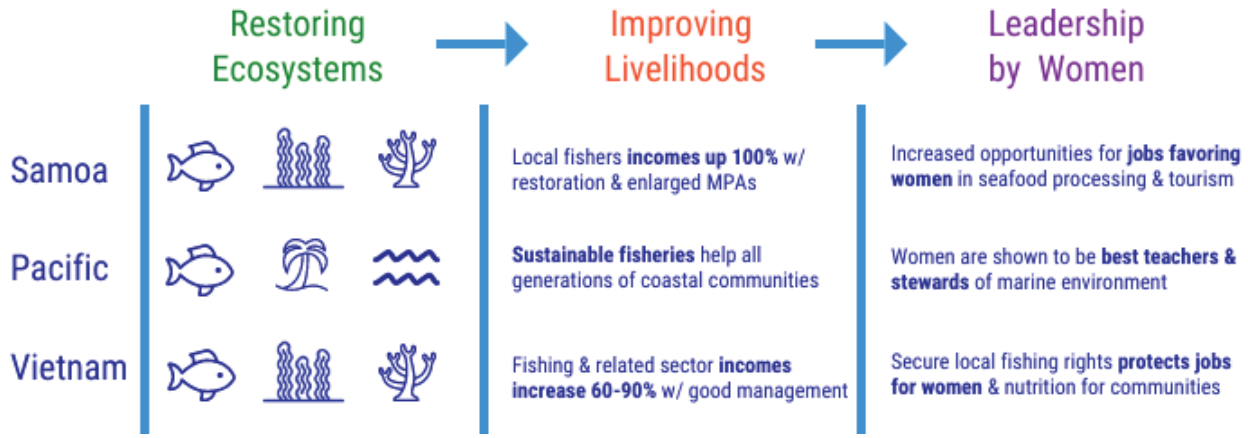
countries. It recently launched an action plan to raise the ambition of sustainable oceans solutions and offer them technical and financial assistance.

[6] ADB, ADB Launches $5 Billion Healthy Oceans Action Plan (2018).

of blue economy investments and establish guidance for tracking and reporting for the ADB ocean portfolio.

- The joint **UNDP-UNEP Poverty-Environment Action for Sustainable Development Goals** is a global program for the four-year period 2018–2022. Poverty-Environment Action builds on the deep experience of the UNDP–UNEP Poverty-Environment Initiative, which pioneered integrated approaches to mainstreaming poverty-environment linkages in national development planning and budgeting processes. In addition, Poverty-Environment Action draws on the tools and experience of UNEP's and UNDP's blue economy–related work. In collaborating with ADB on this knowledge product, Poverty-Environment Action is integrating poverty, environment and gender dimensions into the ADB initiatives noted above (see figure 1.2). It has a variety of tools to assist stakeholders that can be applied in a blue economy context including budget tagging; climate public expenditure reviews; gender-responsive climate change budget guidance; A Handbook to Strengthen Planning and Budgeting Processes; and case studies in the Philippines, Indonesia, and other DMCs.

Figure 1.2 Poverty-Environment Action Cases in Asian Blue Economy Development



- **UNEP Finance Initiative's Sustainable Blue Economy Finance Principles** were unveiled in 2018, providing a framework for financing a sustainable ocean economy.[7] The principles were developed by the European Commission, WWF, the World Resources Institute, and the European Investment Bank. Today, this platform brings together financial institutions to work with scientists, corporations, and civil society to direct the flow of capital toward activities that directly contribute to SDG 14 (Life Below Water), including through a biennial Regional Roundtable for Sustainable Finance in Asia. In early 2021, the UNEP Finance Initiative released two influential reports supporting the Sustainable Blue Economy Finance Principles: The Rising Tide and Turning the Tide.

[7] UNEP Finance Initiative, UNEP FI's Sustainable Blue Economy Finance Principles (SBEFP) (2018).

Knowledge Product Organization

This report consists of five sections and is complemented, supplemented, and completed by three sets of files located on a web-based knowledge portal; these can be accessed through the hyperlinks provided throughout the text. This web-based repository of underlying data and information will facilitate updating, allowing the provision of the most accurate and current government, multilateral bank, and industry standards, principles, and guides.

The remaining four sections are as follows:

- **Section 2** delineates and prioritizes blue economy areas of focus and the specific market segments of the blue economy; it also introduces a comprehensive suite of references and metrics linked to all existing sustainability standards for all blue economy market segments.

- **Section 3** computes sustainable investment gaps by market segment to offer a better sense of the financing needed and the depth of opportunities available.

- **Section 4** presents an overview of the different types of financial and corporate investors, focusing on their preferences and current appetite for blue economy projects in Asia and the Pacific. It offers a toolbox of financial mechanisms to best attract the right kind of investor to any given project, widening financing options to support development finance in the space.

- **Section 5** offers a set of policy recommendations to improve the economics of the blue economy and concrete investment propositions to kick-start a new wave of sustainable investments. Its primary recommendation is development of SME BlueImpact Asia, a platform aimed at institutionalizing the connection between private markets and blue economy SMEs.

The material on the knowledge web portal is as follows:

- **Tables.** Data, in-depth analysis, and best practice guidance covering all aspects outlined in the report are provided in PDF format. Assumptions are clearly stated, allowing different stakeholders to change parameters according to their needs.

- **Reports, commentaries, and guidance.** For further reference, the complete set of data and information researched in preparing this knowledge product is provided in PDF format. These materials should be particularly valuable for those wishing to see the full depth of information used to reach conclusions and to validate and test other assumptions.

- **Dossiers.** Investment analysis is provided in PowerPoint format for three bankable blue SME projects, two potential private sector fund managers, and the SME BlueImpact Asia platform. The full investment dossiers may be accessed only with the permission of ADB and UNDP-UNEP.

SECTION 2

Blue Economy Priorities

Defining and measuring the blue economy helps stakeholders and decision makers set priorities for development as well as for the protection of marine resources. In its Ocean Finance Framework,[1] ADB has identified focus areas and associated market segments of the blue economy. Based on this and previous classifying work by the ADB Oceans Financing Initiative,[2] the blue economy for ADB DMCs is defined as comprising 16 market segments in three focus areas (table 2.1).

Not all of these market segments offer similar opportunities either for development priorities or for each DMC. To determine their relative significance—and thereby maximize the impact of development capital by ensuring that financing serves as many sustainable objectives as possible—the blue economy market segments were assessed against (1) sustainable development criteria and (2) criteria indicating their relevance to specific countries. These analyses are discussed in the next two subsections. The final subsection acknowledges the complexities entailed in blue economy investment; to this end, it presents a highly useful summary matrix of all the criteria, standards, and metrics associated with the blue economy market segments.

Sustainable Development Analysis

Each market segment was assessed against a set of impact and financial criteria drawn from ADB and Poverty-Environment Action priorities. Each segment was scored as high, medium, or low with regard to the following eight items:

The Blue Market Segments Heatmap shows the sustainable development criteria scores for all 16 segments. Defining the Boundaries: Methodology explains how the segments were scored.

- Relevance to the ADB Action Plan for Healthy Oceans and Sustainable Blue Economies
- Positive social impacts on poverty, gender, and health
- Positive environmental impacts
- Potential for market scalability
- Capacity for innovation and growth
- Ability to benefit from regional governance frameworks
- Opportunity for SMEs
- Capacity to attract private investment

[1] ADB, "ADB Ocean Finance Framework," internal document (2021).

[2] ADB, Explainer: The Role of Ocean Finance in Transitioning to a Blue Economy in Asia and the Pacific (2020).

Table 2.1 Blue Economy Focus Areas, Market Segments, and Objectives

Focus Area	Market Segment	Objective
Ecosystem and natural resource management	Marine and river ecosystems	Sustainably manage, conserve, or restore the health and resilience of coastal, marine, and river ecosystems
	Fishing	Improve environmental sustainability and socioeconomic benefits derived from seafood value chains
	Fisheries	
	Seafood processing and distribution	
	Aquaculture and mariculture	
	Algaculture	
Pollution control	Solid waste management	Reduce marine debris and impacts to marine life, coastal livelihoods, and human health
	Resource efficiency and circular economy	
	Non-point source pollution management	Reduce pollution (nutrients, sediments, chemicals) of coastal and/or marine environments
	Wastewater management	Reduce volume and damage to coastal and/or marine environment from wastewater pollution
Sustainable development and infrastructure	Coastal and marine tourism	Improve environmental, economic, social, and cultural sustainability of coastal and marine tourism
	Coastal resilience	Enhance resilience of coastal communities to damage from natural hazards and climate change impacts
	Community infrastructure	Improve coastal community infrastructure to enhance amenity, recreational, and cultural values
	Green ports and shipping	Increase sustainability of maritime infrastructure and transport
	Marine offshore wind renewable energy	Increase marine renewable power to ADB DMC communities and enterprises
	Marine tidal, wave, geothermal renewable energy	

Overall, every market segment is relevant to ADB's **Healthy Oceans Action Plan**, and most have positive **social** and **environmental impacts**. Most also have strong **innovation and growth** potential. Ability to **benefit from regional governance** varies, suggesting political interventions will be needed to improve the economics of these spaces. The segments generally provide **opportunities for SMEs**, with the exceptions of wastewater management and some of the sustainable development and infrastructure segments. Capacity to attract **private sector investment** also varies, suggesting the need for blended financing tools to improve project bankability in the ecosystem and natural resource management and pollution control focus areas. Each market segment includes a range of SME blue economy projects that are bankable, scalable, and replicable across Asia, some examples of which are showcased in section 5.

The assessment yielded a blue score for each segment, indicating that some segments are more promising than others in terms of their investment potential.

The analysis delved deeper, referencing sustainability objectives by ISIC (International Standard Industrial Classification of Economic Activities) code, geographic limitations,

See the individual market segment analyses for further explication of these conclusions:

Marine and River Ecosystems

Fishing and Fisheries

Seafood Processing and Distribution

Aquaculture and Mariculture

Algaculture

Pollution Control **(covers solid waste management, resource efficiency and circular economy, non-point source pollution management, and wastewater management)**

Coastal and Marine Tourism

Coastal Resilience

Community Infrastructure

Green Ports and Shipping

Marine Renewable Energy **(covers marine offshore wind renewable energy and marine tidal, wave, geothermal renewable energy)**

primary SDGs and SDG targets supported, and primary ADB operational priorities supported. Examples of private and public investments by segment were also provided.

Based on their scores and the in-depth analysis conducted, the following are the priority segments for achieving maximum impact on the social (gender, poverty, health) and environmental agendas of ADB and UNDP-UNEP. All of these hold a high potential for innovation, regulatory collaboration, local employment, and private investment.

- **Marine and river ecosystems** are of the highest priority, and their restoration should be targeted as much as possible to unlock natural regenerative processes and trigger positive feedback loops that will greatly benefit all the other segments.

- **Aquaculture, mariculture,** and **algaculture** are the most promising spaces in terms of economic benefits and in terms of feeding a growing population. These segments have the potential to be financially sustainable and should be further encouraged to initiate rapid growth. **Fishing and fisheries**, however, face the twin pressures of overfishing and climate change. Scale is possible by aggregating regional fishery management schemes coordinating sustainable quota policies; but key policy safeguards are needed to attract investors: secure tenure, predictable quotas, sustainability certifications on sourcing, and labor/community impacts. Nominal prices are expected to increase during 2020–2030, driven by increased incomes, production, and distribution channels.

- Marine energy segments can serve the energy needs of the region and should be focused on. **Marine offshore wind** is now a mainstream technology and is growing most rapidly in Asia. **Tidal and other marine power sources** are ready for larger-scale development.

- Pollution control depends on scaling technologies that prevent, collect, and recycle waste from land and sea sources. **Non-point source pollution management** and **wastewater management** are often overlooked as an area of investment, but readily lend themselves to innovation and efficiency measures that can be highly attractive for all stakeholders.

- **Green ports and shipping**, a market segment dominated by Asia, are the twin engines of global trade and local connectivity, benefiting from digital technologies[3] and global regulations that speed the shift to sustainability. Further, ports and green infrastructure are favored by Maritime Silk Road and green investment.

[3] Digital technologies are transforming all blue economy industries; some examples include blockchain apps (especially for fishers, fish farmers, seaweed farmers), which provide traceability, quality control, aggregation for direct sales to large buyers, immediate payment, and increased income shares to local producers; logistics software that improves port functionality, shipping efficiency, supply chain efficiency, increases direct sales from local producers, and lowers inventory demands; shipping software that enables improved fuel efficiency, route selection, and competitive pricing for local shippers; energy software that enables clean energy delivery to coastal hotels, ports and municipalities; and fishing software that enables reduced by-catch, and compliance with sustainable certification programs and quota management systems.

These priority market segments should be further evaluated in light of long-term trends, including COVID-19. Certainly, the economic slowdown resulting from the COVID-19 pandemic has significantly cut into SME markets, and disrupted supply chains and staff availability. In particular, tourism faces a historic challenge in recovering from the collapse of international travel due to COVID-19; structural deficiencies portend contraction and losses, although eco-tourism holds some answers. One general conclusion about all market segments, regardless of their blue economy status, is that extractive and unsustainable industries face multiple challenges, and that economic growth favors those on the right side of sustainability.

Country/Region Analysis

The relevance of and opportunities in each segment were measured across the 29 target DMCs. This was done by assessing each country on a high-medium-low scale for each segment and deriving a country blue score. Thus, for the coastal and marine tourism segment, the assessment determined if this was a key industry in the particular country or had a moderate or small impact on that country's economy. Several segments were assessed in terms of whether they represented major or minor needs for a given country.

The analysis found that the **ecosystem and natural resource management** focal area and the **coastal and marine tourism** and **coastal resilience** market segments present opportunities that are relevant to each country. This is not surprising, given the importance of the ocean to coastal communities. The **pollution control** focus area and the **green ports and shipping** market segment are more relevant to large countries.

Based on their blue scores, the countries with the greatest potential in terms of blue economy investment opportunities and sustainability are **India**, **Thailand**, **Vietnam**, the **People's Republic of China**, the **Philippines**, **Indonesia**, **Malaysia**, and **Pakistan**. It should be noted that the criteria favor larger countries due to their more developed infrastructure, as opposed to small island developing states (SIDS). However, the latter depend more on the blue economy and may have niche advantages. For example, artisanal fishing and aquaculture products often command premium prices and sustainability labels, as do eco-tourism resorts as compared to larger establishments. These examples underscore the importance of supporting SMEs to finance sustainability throughout the blue economy. Also, for the country rankings, sector weights may be calculated by priority level. It is necessary to consider both country and sector blue economy analyses to gain an accurate picture.

See the Country Priority Heatmap for country scores by market segment.

Individual countries were analyzed rather than regions, which gave some countries a higher score than would a regional approach. For example, some SIDS are Parties to the Nauru Agreement,[4] giving them a higher ranking on the seafood value chain sector than

[4] The Parties to the Nauru Agreement (PNA) control the world's largest sustainable tuna purse seine fishery. PNA members are Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands, and Tuvalu. Source: PNA, The Parties to the Nauru Agreement.

they would have otherwise. In scoring the countries on a regional basis, however, the Pacific region has a lower score than either Southeast Asia or South Asia. This implies that the Pacific region should aggregate resources and projects to attract investment, achieve scale, and compete effectively with the other regions.

Blue Economy Metrics

See Blue Economy Metrics for a summary matrix of criteria, standards, and metrics by market segment.

See Guide to Blue Economy Metrics for guidance in using the matrix.

This subsection—and its associated matrix on the knowledge web portal—drills deeper into the blue economy segments discussed above so decision makers and stakeholders can better understand what is entailed in developing a sustainable, bankable project in a given market segment.

Every blue economy segment has standards and metrics that are used to establish, finance, and monitor project performance. The matrix developed for this knowledge product can be used by different stakeholders to identify and locate the appropriate standard for any given blue economy segment or sustainability issue. Stakeholders may also use the standards to showcase the potential benefits and risks of a particular blue economy project. These benefits can then be leveraged to increase their bankability to environmental, social, and governance investors. These global standards apply to the entire range of projects: SMEs, ecosystems, and infrastructure.

Not surprisingly, the matrix shows that established market segments such as **fishing**, **aquaculture**, **solid waste management**, and **green ports and shipping** have the most comprehensive sets of associated standards. Emerging market segments such as **algaculture**, **marine and river ecosystems**, **marine energy**, and **coastal resilience** have few formal standards. For these segments, the matrix links to case studies as a source of best practice guidance. Project developers are urged to familiarize themselves with all metrics in order to attract private investors, minimize operational risks, and increase the bankability of their projects.

Many financial and industry leaders actively seek environmental and community benefits in order to comply with their new sustainable investment mandates or as a new source of value for their portfolios. The tools and guidance in the matrix aim to help create bankable and sustainable blue economy projects. The monitoring, reporting, and verification process also requires standard referencing. Because of the linkages among standards, even across segments, it is important to consider the full combination of case studies and metrics from finance, industry, and policy sources together with SDG, ADB, and Poverty-Environment Action targets. The matrix is a valuable tool that matches and makes accessible all metrics for each blue economy segment and each stakeholder.

SECTION 3

Blue Economy Finance Gaps

Section 2 has established the priority blue economy segments, the ones that will generate the "most bang for the buck." This section looks at how many "bucks" are needed: what precisely is the blue economy finance gap?

The original research that underlies this section estimates the capital requirements for each of the blue economy segments and in terms of each DMC to achieve sustainability goals by 2030. **A summary calculation puts the total blue finance gap for the Asia and Pacific region at $5.5 trillion.** However, gaps vary widely by market segment, as do the calculations and assumptions, as discussed below. On a regional basis (table 3.1), the largest gaps are in South Asia ($2.3 trillion), Southeast Asia ($2.1 trillion), and the Pacific ($1.1 trillion). The breakdowns provided by market segment and DMC in the knowledge web portal resources not only provide an idea of what resources are needed to meet the SDGs, but also the depth of opportunities in each segment and country to make the transition to a sustainable blue economy.

This section describes the methodology and assumptions used to determine and prioritize financing gaps, presents highlights of the finance gap analysis by market segment, and preliminarily indicates some ways in which these gaps could be addressed.

Measuring the Gap

The blue financing gap is here defined as the financing needed to transition to a sustainable blue economy and meet the SDGs. This financing can be seen as a pipeline of investments necessary to achieve sustainable practices across the space—and presents a range of opportunities for private investors (see box 3.1). To quantify these levels, the investments necessary to achieve the SDGs in any given market segment up to 2030 were calculated, and any capital already committed to this end (from either the private or the public sector) was identified. The difference between these two amounts was defined as the financing gap for that market segment. This estimate provides a measure of what remains to be achieved and how much more resources are needed to reach a sustainable blue economy.

For most market segments, gap analysis data are derived as an estimated percentage of GDP based on references or production statistics, and then converted to monetary data. For example, if estimates indicate that fixing the water and sanitation infrastructure of a

Table 3.1 Finance Gap by Region: Investments Needed by 2030 to Meet the SDGs (million $)

Themes	Segments	Pacific	SE Asia	South Asia	Totals	Blue Economy Score
Ecosystem and Natural Resource Management	Marine & River Ecosystems	121	44	51	216	23
	Fishing	22	200	2,001	1,427	15
	Fisheries	14	-27	28	15	15
	Seafood Processing & Distributions	930	4,775	3,429	9,134	19
	Aquaculture & Algaculture	1,001	9,782	9,843	20,626	23
Pollution Control	Solid Waste Management	80,500	145,000	47,400	272,900	17
	Resource Efficiency And Circular Economy	9,000	58,600	69,900	137,500	20
	Non-point Source Pollution Management	26,300	87,100	463,800	577,200	21
	Wastewater Management	13,900	97,000	150,400	261,300	23
Sustainable Coastal and Marine Development	Coastal and Marine Tourism	1,776	1,396	773	3,945	14
	Coastal Resilience	1,700	3,600	6,340	11,640	23
	Resilient Ports	881,000	1,510,000	1,280,000	3,671,000	22
	Green Ports	8,858	63,641	22,086	94,585	22
	Green Shipping	2,171	5,649	5,532	13,352	22
	Marine Offshore Wind Renewable Energy	25,200	151,800	235,900	412,900	22
	Marine Tidal, Wave, Geothermal Renewable Energy	100	500	800	1,400	22
	Total	**1,052,593**	**2,139,060**	**2,298,283**	**5,489,140**	

Note: Community infrastructure market segment is included in resilient ports and tourism infrastructure. Some market segments have been reframed from the categorization in table 2.1 because investment costs were either grouped or split. Resilient ports, which includes the community infrastructure market segment, is accorded its own category so as to assess the amount needed for ports' adaptation to climate change; this is not the same segment as green ports, which focuses on sustainable and green technologies within the port complex.

given country may require an investment equal to 15 percent of its GDP, that information is used to calculate the sector gap, which then easily yields the country and sector totals for the region.[1] Using a percentage of GDP is preferable, since percentages may not change much (until major investments are made) whereas GDP figures change every year. Science-based data such as the Ocean Health Index were used to show the current health and likely future state of many blue economy natural capital market segments.[2] Lastly, and perhaps most importantly, industry and investor data were used to identify the cost of desired investments in Asia's maritime market segments, thus clearly linking the analysis to a guide for pipeline development.

Full methodologies and assumptions can be found in the market segment analyses on the knowledge web portal; see Finance Gap by Market Segments - Consolidated.

Prioritizing the Gaps

To make the blue economy finance gap analysis meaningful and, ultimately, relevant for SME investment purposes, the estimates need to be examined in light of the priorities identified in section 2. In this way, those segments with the highest relevance to ADB and Poverty-Environment Action priorities can be targeted, as the investment landscape is highly nuanced. For example, some market segments have low financing needs and

[1] For example, estimates were used from the Food and Agriculture Organization of the United Nations as to how much of a nation's GDP is invested in sustainable agriculture. Those estimates were then translated into absolute terms for the GDP of a given country.

[2] The Ocean Health Index measures key elements from all dimensions of the ocean's health to guide decision makers toward sustainable use of the ocean.

Box 3.1 Why Invest in the SDGs?

Often, the investments financing SDG projects are seen as dead costs; this is a misconception. The economy needs to come to terms with planetary boundaries, and transitioning to sustainability is the sole path to undertake to avoid market, social, and ecological collapse from the effects of climate change and biodiversity loss. These investments, while unavoidable, represent business opportunities for the private sector to participate in the transition. A clear example is financing adaptation to resilient ports in the Pacific, as this has become an imperative for their survival. These investments thus become growth opportunities for any private investor willing to participate in this effort. Investors can be further incentivized when attractive financial structures are put in place, such as—depending on the market segment—investment guarantees, sustainability-linked loans, or climate insurance. Which tools are better suited to which segments is further discussed in section 4.

high relevance; others have high financing needs and high relevance. These priorities should not be rank ordered, as efforts are needed across the entire space, as delineated in box 3.1. However, understanding these differences across market segments can help in prioritizing first efforts and capitalizing on first successes to trigger more interest down the road. Additionally, the economics of the various segments require different types of support and prioritization; this is further elaborated on in the next subsection.

The heatmap in table 3.1 provides an at-a-glance impression of the landscape: how much is needed and where best to target preliminary efforts. It presents the financing gaps for each market segment across Asia's subregions,[3] and the blue economy scores derived from the market segment sustainable development analysis in section 2. The table provides an overview of how much resources must be unlocked to reroute a given segment and subregion onto a sustainable path. It also shows how relevant a given market segment is to the general goals of the blue economy as delineated by ADB and Poverty-Environment Action.

Note that these financing gaps are rough estimates, enabling a general approximation of the depth of each space and their relative differences. This approach allows for the rapid identification and monetization of investment needs and helps in defining a priority list for implementation. The methodology applied and its findings as reported here do not constitute an academic approach, which would typically aim for more precision in its estimations.

Beginning with low-investment market segments such as **marine and river ecosystems** and **coastal resilience** will enable capitalizing on early successes. Establishing

[3] Investment gaps were grouped across subregions to present a clear view of the main challenges across the region and because little granularity was available for every country.

blended finance structures and enhancing the regulatory environment for blue economy sectors such as **resilient ports**, **green ports**, and **marine offshore wind renewable energy** will attract private investors and allow their full potential to be unlocked as well. Concurrently, all partners should collaborate to prevent pollution from reaching the ocean in the first place.

Highlights of the Analysis

There is considerable variation in investment needs across the blue economy focal areas and market segments. Some segments have greater needs in reaching sustainability than others; they thus represent the areas with the greatest potential for sustainable investment and will need to attract the largest pools of capital. Of those segments with the highest financing needs, **resilient ports** tops the list, as it faces existential threats from rising seas and storms.[4] **Non-point source pollution management** comes second; the financing gap here represents the amount needed to put agriculture on a sustainable path in the Asia-Pacific region and thereby reduce the volume of harmful effluents that end up in the ocean. **Marine offshore wind renewable energy** comes third; the financing gap in this market segment represents the investment needed to realize the full potential of this technology in the DMCs, in line with what is being done in Europe and the People's Republic of China. Insurance gaps are not taken into consideration in this analysis, but are equally significant, especially in the case of coastal and port resilience.[5]

Lower investment needs do not necessarily mean that a market segment should be accorded a lower investment priority, however. For example, the investment needs for **marine and river ecosystems** are small compared to the potential gains they would trigger for social and environmental goals. These ecosystems support many other blue economy market segments with vital functions, such as the following:

- Mangroves provide natural barriers for **coastal resilience**.
- Natural fertilization contributes to **non-point source pollution management**.
- Healthy reefs promote **coastal and marine tourism**.
- Healthy fish stocks and breeding grounds enhance **fisheries**.
- Water filtration aids in **wastewater management**.

A relatively modest investment in marine and river ecosystems will bring significant value to the environment and the economy; this is evidenced in table 3.1, where an investment of $216 million is associated with a high blue economy score. The same logic applies to **coastal resilience**, which also has a high blue economy score and a relatively low financing gap of $11 billion. Because rising seas threaten the very survival of some island nations in the Pacific, addressing coastal resilience benefits not just multiple

[4] This analysis distinguishes between resilient ports and green ports as two distinct investment needs. The former involves infrastructure and engineering challenges; the latter entails renewable energy and wastewater innovation. The data available allowed for such granularity.

[5] The insurance industry refers to a protection gap—the amount of uninsured damages due to disaster events. In 2019 alone, economic losses due to natural hazards amounted to $232 billion, yet only $71 billion were indemnified by various types of insurance products and solutions.

market segments, but DMCs' entire economies. Both marine and river ecosystems and coastal resilience can easily be supported by direct investments from insurance companies, as the protection they offer against climate casualties is in line with the insurers' business. **Aquaculture** is another promising market segment, with a high blue economy score and investment needs of $20 billion. For this segment, guarantees and start-up acceleration could generate substantial growth and meet several SDGs simultaneously (food, water, and oceans).

Other market segments—**green ports**, **green shipping**, **marine offshore wind renewable energy**—are specific to the blue economy and need special attention. They have high blue economy scores and investment levels ranging from $1.4 billion to $412 billion. Their potential for scalability makes them a rich investment opportunity for the global community of investors. **Offshore wind** has particular potential, given its proven implementation in Europe, its increasingly favorable economics, and its ability to provide clean energy as well as sanctuary spaces for fisheries. Catalytic funders, such as multilateral development banks and other development partners, could foster loan syndication to attract private creditors' capital to the segment, as in the case of Ørsted in Taipei, China.[6] **Green** and **resilient ports** could be a source of opportunities for infrastructure investors; **green shipping** could be sponsored by corporations desiring carbon-free supply chains. This sort of matchmaking between sectors and different types of investors is further developed in section 4.

Pollution control is the focus area with the greatest scalability potential on average. Investment needs in its market segments range from $137 billion to $577 billion; however, their investment economics are quite favorable and would not require much ADB support. For example, large consulting firms such as McKinsey & Company and Boston Consulting Group are investing in **resource efficiency and circular economy** as profitable sustainable practices in supply-chain management. On the other hand, the **solid waste management** market segment suffers from international policy deadlocks, as waste knows no frontier along rivers and coastlines. Multilateral development banks and other development partners need to continue their efforts to provide inputs for regional governmental policies helping to break the impasse. Grant-based technical assistance is required to increase awareness of the interdependence of ecosystems and the need for investments in well-designed projects to address issues of impact beyond borders at the regional level. Finally, **non-point source pollution management** and **wastewater management** have significant market depth for infrastructure investment and could find strong support from multilateral development banks and other development partners aiming to meet their sector-specific sustainable finance objectives in line with those of the Healthy Oceans Action Plan. This kind of synergy is further discussed in the next subsection.

The best approach lies in taking a comprehensive view of the blue economy landscape, **targeting each market segment with a tailored solution to attract different sources of finance from different interests and investors**. Focusing on the

[6] See Ørsted Signs Guaranteed Green Loan Facility for Greater Changhua Projects, press release (20 June 2019); Ørsted has been ranked as the world's most sustainable energy company.

entirety of the landscape and connecting each segment with a new source of capital allows as much resources as possible to be redirected to the blue economy and its transition to sustainability. It is akin to rerouting all the underground pipes of a city so as much water as possible can flow through and reach all citizens. This type of investor–market segment matchmaking is the focus of section 4.

Addressing the Gap through Synergies and Collaborations

The investment amounts required may appear considerable, but the blue economy is full of synergies and trickle-down impact potential that can go a long way toward closing the financing gap to sustainability. It is the opportunity to exploit these synergies that provides the rationale for the present joint cooperation between ADB and Poverty-Environment Action.

To begin with, synergies between sector and thematic operations targeted under ADB's Strategy 2030 Key Operational Priorities will significantly contribute to the **Healthy Oceans Action Plan** and other ADB initiatives. For example, most effluents in non-point source pollution are saline, chemical, or organic in nature, sourced from unsustainable agricultural and industrial practices. The efforts under ADB's Rural Development and Food Security (Agriculture) operations to bring this segment onto a sustainable path supports the Healthy Oceans Action Plan by reducing the contaminated water that goes from watersheds to the ocean. The same argument pertains to ADB water sector operations for water and wastewater infrastructure investments and reducing their respective pollution. The framework discussed here adds blue benefits to sustainable agriculture and water projects, which increase their attractiveness to financiers and environmental stakeholders. This kind of support to other sectors and thematic groups can be part of the comprehensive action described above.

Similar collaboration potential exists at the nexus of water and energy by improving efficiency and reducing waste. Promoting **marine energy** and decarbonization of **shipping** improves the quality of ocean water, because carbon emissions drive ocean acidification. The resulting loss of plankton, at the base of the ocean food chain, is expected to cost the world $1.2 trillion in natural capital per year until 2100.[7] Cooperation across ADB departments and with other stakeholders is beneficial in pursuing financing synergies and enabling regulatory frameworks and tracking the benefits of collaboration. The active participation of UNDP and UNEP, along with the Coordinating Body on the Seas of East Asia (COBSEA), signals a vast potential to leverage blue economy finance.

Global initiatives provide useful models. Europe, for example, is promoting **green ports** as maritime accelerators, leveraging their strategic position across all blue sectors and promoting benefits from the local to the national level. In America and Australia, regenerative agriculture is shifting from a focus on harvest yield to restoring crop and

[7] Source: *The Economist*, The Known Unknowns of Plastic Pollution (3 March 2018).

ecosystem quality—a practice that has proved profitable in the long term. Investing in such initiatives, and scaling up programs like the Sustainable Rice Platform,[8] can go a long way toward helping close blue financing gaps due to their exponential potential. These exemplify the kinds of investments ADB and Poverty-Environment Action seek to promote through their partnership to achieve economic and environmental benefits.

[8] The platform is a joint initiative by UNEP and the International Rice Research Institute, an agricultural research and training organization headquartered in Los Baños, Laguna, in the Philippines and with offices in 17 countries employing about 1,300 staff members.

SECTION 4

Blue Economy Investors

Blue economy projects compete with all other sectors for capital from the universe of investors. This section looks at **how to attract the private capital—the investors—needed to fill the blue economy finance gaps** delineated in section 3. There are many different types of investors (private investors; insurers; infrastructure investors; venture capitalists; global financiers; environmental, social, and governance (ESG)/impact investors; corporate investors, etc.) that could finance these gaps, a broad range of factors influencing why they each might want to do so (time horizon, risk return, liquidity, asset class, location, co-investors, sustainability features of the investments, etc.), and a wide variety of tools and mechanisms they could use to make their blue economy investments.

Offering the right kind of product tailored to specific investor preferences will maximize the inflows brought to finance the sustainable transition of the blue economy space. The information presented in this section is geared to thus **leveraging investor interest**; it will help developers and financiers prepare bankable projects and appropriate financial instruments. Further, it will naturally lead to matchmaking between different blue segments and investors. This sort of tailored matchmaking between the different blue benefits of the different market segments with the different investors' appetites will enable bridge building between the Blue Economy and the global financial community.

See Guide to Investors – Matchmaking on the knowledge web portal for a summary connecting the most appropriate investors to different blue economy focus areas and market segments.

The section begins with a brief **overview of the current market environment** to gain a better understanding of investors' appetite for new investments. This information is drawn from several recent investor and financier surveys. Next, the **landscape of investors** is summarized to understand their different appetites when it comes to blue opportunities and benefits, highlighting in particular corporate investors. Building on this understanding of the complexities and difference in investors' needs, the final section looks at how to map and **match investors** to the various blue economy market segments of most interest to them through a set of financial tools.

All segments of capital markets and maritime industries are considered in this section. Real-world examples of relevant and innovative blue economy financing tools are presented throughout.

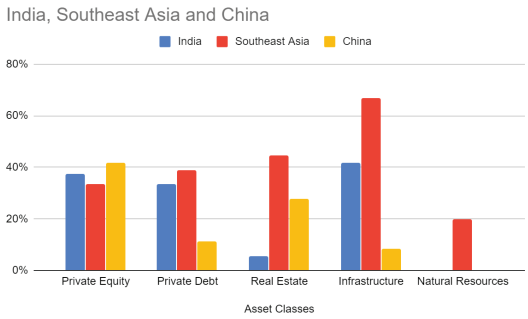
Investor Perspectives

Preqin, the private equity research firm, surveyed more than 500 investors during the COVID-19 pandemic in June 2020, and again in February 2021, regarding plans for infrastructure, private equity and debt, real estate, and hedge funds.[1] Notwithstanding an estimated 5 percent contraction of global GDP in 2020, a majority of investors foresaw no change in allocations over the long-term; only 10 percent of investors expected to reduce their allocations. Preqin's February 2021 update continued to be surprisingly bullish. Note, however, that these data are dominated by allocations to developed markets and did not anticipate the multiple waves of the pandemic; this is evident in the 2021 updates to the baseline 2020 survey data from multiple sources. Following are relevant findings from the Preqin survey.

Private equity, debt and infrastructure are the most important asset classes for the blue economy. Investors favoring these assets will increase their investments over the next year; this is a positive sign for the blue economy in the region. However, natural resource investments (both unsustainable ones in fossil fuels/mining and sustainable ones in sustainable agriculture/timber) will receive less capital since the commodity outlook remains negative and regulatory interest is growing. But rising seafood demand, for instance, should support increased opportunities, tempered by COVID-19 impacts such as slower restaurant and resort sales.

Investors remain bullish on Asia-Pacific. Importantly, infrastructure investors are most positive toward Southeast Asia. Many note that the Belt and Road Initiative (including the Maritime Silk Road) of the People's Republic of China is driving investment opportunities in the region (see figure 4.1). For ports and the urban/coastal infrastructure on which the blue economy depends, this finding is encouraging. The landscape is also supported by ADB's forecast of $26 trillion needed by 2030 for the region's infrastructure; this includes infrastructure that could support the blue economy.

Figure 4.1 Investor Allocations to ADB Regions



Source: Preqin 2020.

For blue economy investments, the UNEP Financing Initiative's October 2020 survey for the Sustainable Blue Economy Finance Principles is highly relevant. Over 100 **financiers responded with their views and plans for the blue economy investments**. Major risks they perceived included climate change, ecosystem loss, and regulatory changes. They cited the following preferred financial instruments: corporate, trade, and project finance; working capital loans; insurance; guarantees; and, increasingly, green bonds. In terms of significant nonfinancial considerations, the respondents cited climate change, government support, and the role of new technologies in reducing impact and solving environmental problems.

[1] Preqin, Global Private Equity and Venture Capital Report (2021).

Responsible Investor's 2019 Blue Economy Investment report identified **three major hurdles for institutional investors**: lack of investment-grade projects, internal expertise, and offerings by asset managers. Although first movers in specialty blue economy finance themes are creating model funds and impact projects, more progress needs to be made in overcoming these obstacles. New blended finance facilities like the Global Coral Reef Fund are showing the way by raising private capital with the support of philanthropic and governmental finances to support coral redevelopment.[2]

According to the Global Impact Investor Network (GIIN), the **impact universe** in 2020 comprises 1,720 investors with investable assets of $715 billion. Key findings from the GIIN 2020 survey follow:

- **Emerging markets allocation:** 60 percent of capital
- **East and Southeast Asia allocations:** Over $900 billion
- **South Asia:** $800 billion

These findings are very positive for the blue economy, and every segment can potentially attract this capital by advertising its blue benefits. Impact investors differentiate by type of impact—i.e., social or environmental returns. The Blue Economy Metrics presented in section 2 helps frame blue projects and their benefits by key metrics to attract this source of financing.

This shift in investors' preference for impact can be an additional source of financing in the region. However, emerging market risks—such as undeveloped supply chains, unsecure legal tenure, and political regime changes—are deterrents that keep impact investing at only 2 percent of global investment activity.[3] Reducing these risks is the task of multilateral banks, development finance institutions, and philanthropic entities, using tools such as blended finance, infrastructure investment, insurance, enabling conditions, and financing platforms for SMEs.

WaterEquity is an example of a successful blended finance structure, where the fund successfully managed to attract credit and equity investors to finance microloans in emerging markets for people's own water infrastructure. Water Equity is a fund manager in the water space, with a series of funds that de-risk and aggregate portfolios for private investors. It offered a "senior tranche" to credit investors, at lower rates but with higher financial security; equity investors could participate in a "junior tranche," which is riskier but more attractive financially. This example shows how multiple sources of private financing can be obtained to support development when provided with the right opportunity.

An important role is seen for **blended finance**—especially in lower-return, sovereign-backed infrastructure projects—to compensate for emerging market risk by public capital sources offering loan guarantees, first-loss facilities, and other de-risking tools. For higher-return and impact-oriented investors, however, **SMEs continue to offer the most opportunities**. Surveys show increasing demand for private equity opportunities in Asia and the Pacific. For high-growth market segments (e.g., aquaculture, marine digital technologies), blended finance is generally not required to attract private capital. For natural capital projects and market

[2] See Gina Gambetta, A Deep Dive into Investing in the Blue Economy, Responsible Investor blog post (15 October 2020).

[3] UNDP, SDG Investor Platform.

segments facing higher structural risks (such as fishing), de-risking is often necessary to raise sufficient long-term capital aligned with sustainability goals. These examples illustrate the breadth of challenges facing blue SME opportunities in the region.

Investor Types and Preferences

The universe of investors can be broken down into two main types: financial and corporate investors. Both sources may further sustainability goals, but need to be understood and approached differently.

See Investor Interest in the Asia-Pacific Blue Economy on the knowledge web portal.

Financial investors include private equity investors, private debt investors, insurers, and venture capitalists. Table 4.1 maps the financial community, summarizing its specific types and preferences. Capital from financial investors is essentially passive, as they act as limited partners in funds and investors in bonds.

Table 4.1 Understanding the Financial Community

Type	Summary	Preferred Vehicles	Time Horizon
Pension funds	Invest on behalf of policyholders to pay future benefits	Green bonds and infrastructure funds; face risk and liquidity constraints	10–30 years
Insurance companies	Invest premium payments from policyholders to fund future claims	Green bonds, project and infrastructure funds; also sell risk management tools	10–30 years (for life insurance–based)
Sovereign wealth funds	Invest national savings from economy	Green bonds, loans, projects, infrastructure funds	Any
Commercial banks	Lend to small and large businesses	Loans, some green bonds and projects	3–10 years
Investment banks	Invest in/arrange large transactions	Any transaction required by institutions	Any
Private equity firms	Invest client capital in private companies	Own funds or direct deals	3–5 years (average)
Wealth managers	Invest client capital in funds and markets	Listed securities and funds	1–5 years (average

Corporate investors, on the other hand, seek a measure of control over a given operation, with a majority stake or wholly-owned investment. Corporate investors, such as multinational companies investing in local projects in their supply chains, are often first movers in riskier sectors and developing countries, as they have the resources to control risk and a strategic interest in partnering with SMEs and governments.

Corporations can also be sources of financing for the region. Unlike their financial counterparts, companies usually take an active role in managing projects in the blue economy, with

One key form of collaboration between corporate investors and governments is **public-private partnerships (PPPs)**, wherein a government entity typically gives a private sector entity license to build or operate an infrastructure or to support it financially. Such partnerships are mutually beneficial for both sides, in that the government gains best business practices from the private sector, and the company gains a new investment opportunity.

a range of equity interest from 10 to 100 percent. This type of investor can be greatly incentivized by initiatives in the region and can contribute heavily to achievement of the SDGs. Large industry players collaborate with SMEs through joint ventures, direct equity stakes, and two-way technology transfers.

See Corporate Interest in the Asia-Pacific Blue Economy on the knowledge web portal.

Table 4.2 summarizes the different types of corporate investors, their respective preferences for sustainability, and their respective advantages and disadvantages. Note that there is an important distinction between public and private corporations. Public companies have much more to answer to in the public sphere and may therefore be more inclined to respond to or promote new sustainable initiatives, therefore providing finance for them. Private companies, on the other hand, tend to pursue their own agendas, but can nonetheless be a partner or a source of financing for projects that align with their interests. State-owned entities, conglomerates, utilities, and nonprofits are complex organizations with their own values, structures, and agendas; similarly, they can be a source of financing if a project aligns with their preferences. Research into their preferences is advised to determine their interest and to develop a financing relationship; the objective is to understand how and why they would invest in a sustainable blue project.

Table 4.2 Understanding Corporate Investors

Type	Summary	Direct Investment Advantages	Direct Investment Disadvantages
Publicly listed	Invest on behalf of public shareholders	Higher visibility makes for higher ESG accountability; easier to engage for sustainability *For all types:* Provide growth, jobs, technology with varying levels of host nation equity participation	Pressure to meet quarterly/annual earnings goals means that sustainability may be sacrificed for short-term gain *For all types:* May repatriate all profits rather than reinvest and hire locally
Privately held	Invest on behalf of limited partners and debt financiers	Longer investment horizon; may pursue sustainability, free of short-term shareholder pressures	Less public visibility may mean less responsiveness to sustainability and engagement campaigns
State-owned	Invest sovereign capital to achieve national goals	National goals and values may be compatible with the host-investee state, making for a reliable partner	National goals may not be compatible; military-strategic goals may be top priority
Single industry	Active in only one industry	Deep expertise to share with companies in host state	May seek to dominate with vertical (value chain) and horizontal (regional) acquisitions
Conglomerate	Active in multiple industries	Multiple sector investments/servicing under one primary counterparty; may be easier to manage	Influence/control of multiple sectors may risk loss of economic sovereignty by host state
Utility	Infrastructure services	Provide essential services/expertise without large capital investment by host nation	Risk loss of economic sovereignty in strategic areas
Nonprofit	Mission-driven organization	Provide technical expertise aligned with host goals	Goals/values not aligned; lack of technology transfer

Corporate Investment Mechanisms

There are seven mechanisms with which corporations invest in the blue economy. These types of investments can become financial vectors for development banks to leverage on and bridge more resources to the blue economy. By understanding all the different corporate interests in blue benefits, a bank can design financial mechanisms and policy measures that succeed in attracting maritime industry resources. Following is a brief summary of these mechanisms, with proposed actions for development banks and impact investors.

Strategic ventures. Companies partner directly with start-ups and other innovators to gain access to new technologies at a lower cost, in exchange for operational and market support. Corporate investments in blue venture capital funds give them an inside view of a portfolio of potential game changers. There are several ways development banks can promote blue investment through this vector. One is to be a deal maker by connecting investors and corporations in priority sectors. Another is to provide default guarantees or credit-default swaps on venture capital investments, off-taking the risk through first-loss protection for a small or null premium.

Corporate social responsibility (CSR) investments. Companies invest in environmental or social projects to increase their reputational capital and goodwill in society. These investments are increasingly being made along a company's supply chain from a strategic and coherent perspective. An example is the staple food company Mars is investing in coral reef restoration to provide sanctuaries for tuna, which is one of the main resources in its supply chain of pet foods.[4] Development banks can increase companies' awareness of the benefits of nature-based solutions and payments for ecosystem services. This financial vector is particularly suited for **ecosystem and natural resource management** market segments.

Offsetting externalities. Companies invest in positive impact projects to compensate for their externalities, and thereby increase their reputational capital. One such strategy is to buy licensed carbon-offsetting contracts to become carbon neutral. The blue economy offers significant opportunities in this regard with mangroves, seaweed farms, and seagrass forests being five times more effective at sequestering carbon than forests. Development banks could license and issue blue carbon certificates and quantify their benefits on several dimensions: carbon sequestration, water filtration,

Nature-based solutions (NBS) refer to the sustainable management and use of nature for tackling socio-environmental challenges. They tend to be low cost and effective, and thus may be extremely attractive from an operational investment point of view. **Payments for ecosystem services (PES)** are incentives offered to farmers, fishers, or landowners in exchange for managing their land or marine assets to provide some sort of ecological service.

Carbon credits are a novel financial instrument that monetizes the carbon sequestration capacity of a natural area (land or sea) and sells it to a corporation or financial institution that wants to compensate for its carbon emissions or increase its reputation. These credits provide new sources of financing to project developers for nature conservation and protection. They are widely promoted as an instrumental tool for achieving the sustainable transition of the global economy and transfer resources to developing countries to invest in their natural capital. Blue carbon refers to carbon credits that are specific to the sea, such as mangroves, salt marshes, or seaweeds. They are a nascent part of the market, but their fivefold sequestration capacity makes them a powerful resource to combat climate change and increase revenues to conservation finance.

[4] Mars, Taking Responsibility to Rebuild Coral Reefs (2019).

and coastal protection. This financial vector is particularly suited for **ecosystem and natural resource management** market segments.

Efficiency expenditures. Companies invest in blue economy–linked projects to increase the efficiency of their supply chains—for example, a company can invest in a decentralized water treatment unit to reduce its factory's pollution and reuse its water. Development banks can supplement foreign direct investment to sponsor the adoption of such new technologies, thereby giving a boost in the market for wider adoption. Banks can also create sustainably linked loans to companies in relevant market segments to finance these expenditures—for example, with covenants or coupons based on water quality. Such loans make interest payments dependent on project impact and thereby incentivize companies to improve the sustainability of their operations over the long term. Companies are discouraged from adopting short-term, cost-cutting perspectives, and the loan arrangement serves as quality insurance to improve counterparty risk for the issuer. This financial vector is particularly suited for **pollution control** market segments.

What are blue bonds? Large projects and national strategies focused on blue economy sectors may be financed in global bond markets with blue bonds, a recent derivation of green bonds covering marine assets. From a sustainable finance perspective, there is no distinction between green and blue bonds. ADB adheres to the voluntary Green Bond Principles (GBP) and is a signatory to the Sustainable Blue Economy Finance Principles. Other issuers may choose to be certified by the Climate Bonds Initiative, which recently published the only bond standards presently available for the blue economy. All standards underscore the importance of achieving positive environmental impacts and providing transparency to investors. Major blue themes include climate, energy, coastal resilience, and maritime industries. Insurance and catalytic finance features are often included in green and blue bonds. Issuers are usually sovereigns, multilateral banks, and large infrastructure projects. The most common practice today is for green bond issues to include blue economy projects; pure blue bonds are smaller in number and size. As investor awareness of ocean issues and opportunities increases, more blue and green/blue bonds are expected.

Expansion expenditures. Companies invest in blue economy–linked projects to increase the integrity and diversity of their supply chains. For example, a seafood processor can invest in a marine-protected area to ensure the sustainability of its fish resources. Development banks can finance and originate the project financing as well as gather a consortium of interested parties to expand these projects. As with other investment vectors, development banks can offer attractive financing, loan guarantees, and philanthropically sponsored issuance to finance these projects at lower costs and improve the creditworthiness of DMC companies. This financial vector is particularly suited for **energy** market segments within the **sustainable development and infrastructure** focal area for companies seeking to gain energy independence as well as the **green ports** market segment for companies' energy and pollution expenditures.

Collective initiatives. Companies often participate in sustainable coalitions for brand awareness and reputational capital. Such coalitions can be a source of exchange and advice on new practices; the Ellen MacArthur Foundation, a sustainability leader, provides expertise on water efficiency, for example.[5] Development banks can support these initiatives and bring weight to their mission—not only with capital but with influence on national policy and infrastructure decisions. They can also design sustainability-linked loans and impact bonds (including blue bonds) with metrics based on

[5] Ellen MacArthur Foundation, Water and the Circular Economy (2018).

circular efficiency in an effort to push for adoption. This mechanism can be applied to all market segments across the blue economy.

Concessionary capital. When economics are not aligned, companies may benefit by following concessionary funding of target projects where risk is reduced in order to achieve impact goals. For example, the World Bank has announced a program to assist shipping owners with concessionary finance to adopt cleaner fuels as the maritime sector seeks to decarbonize.[6] Similarly, development banks and philanthropic partners may cofinance high-impact projects that corporations then join and scale up. Development banks can use this vehicle to target the most pressing areas for ocean health and reduce risk for corporate partners.

The above discussion underscores how **sustainable objectives often coincide with business interests**. This synergy can be leveraged by development institutions to increase financing to SDG achievement. For example, sustainable and corporate objectives may be linked through regional and global initiatives—such as Poverty-Environment Action and the Sustainable Blue Economy Finance Initiative—that seek to alleviate poverty, increase opportunities for women, and restore the marine environment.

Table 4.3 gives examples of such cases for poverty, gender, and environmental considerations, and shows a company can gain reputation, increase its sales, and reduce its regulatory risks when participating in the common good. Development institutions should seek to better leverage these synergies and to create tailor-made mechanisms as described above to increase financing to sustainable projects in the blue economy.

Table 4.3 Aligning Corporate Actions with Poverty, Equity, and Sustainability Goals

Common Good Goal	Corporate Action
Alleviate **poverty** with opportunities for the poorest in DMC communities	Improve reputation and community support by employing poorer workers in seafood processing, aquaculture, tourism, ecosystem management, energy, and waste management utilities
Promote **gender equality** as the missing piece in both sustainable development and climate action	Increase sales by designing products and servicing to meet the needs/budgets of women in DMCs, as they make the majority of purchasing decisions for home-based needs, from seafood to energy
Protect the **environment** with nature-based development solutions and marine conservation	Reduce costs, regulatory, climate, and community risks by developing nature-based solutions to production, climate resilience, and community needs

[6] World Bank, Charting a Course for Decarbonizing Maritime Transport (2021).

Investor Matchmaking

Fostering the blue economy is predicated on two principles: obtaining the needed financing from investors, and ensuring this funding is used to meet sustainable objectives. The key to maintaining this balance between commerce and compassion, between bankability and sustainability, between greed and need, and between short- and long-term thinking is **understanding participant needs and preferences**.

It is critical to understand the different needs and preferences of all investor types, as each can play a role in the blue economy, especially in blended finance transactions. Knowing these needs and preferences will naturally lead to matchmaking between different blue market segments and investors. Knowing these needs and preferences will allow the right investors to be targeted through the creation of appropriate investment vehicles, such as funds, bonds, and project financing structures—which will significantly improve the bankability of projects. And knowing these needs and preferences will enable entities ranging from Poverty-Environment Action, UNEP, UNDP, and regional intergovernmental governance frameworks such as the Association of Southeast Asian Nations (ASEAN), the Regional Seas Programmes,[7] the Pacific Regional Environment Programme (SPREP), and the South Asia Co-operative Environment Programme (SACEP) to tailor initiatives that support the integration of poverty and environment into private investor and banking operations.

See Guide to Investors – Matchmaking on the knowledge web portal

The tool developed in this research, a Guide to Investors – Matchmaking, connects each blue market segment with funding mechanisms and investor types. These pairs can be seen as building financial bridges between the global investor community and the individual market segments of the blue economy. Given the dominance of SMEs across the economic landscape and their influence on community decisions, it is vital to **integrate impact goals in local business projects and their sustainable agendas**. In this way, the region will achieve widespread prosperity without the systemic risks of collapsing fisheries, polluted seas, eroding coastlines, and endangered coastal communities.

While there are many sources of private sector finance to be unlocked, project developers and public financiers must begin with the end in mind: **aligning the project with the most appropriate private sector investors and corresponding financing vehicles**. In this regard, the recent issuance of blue bonds from the Seychelles, the Nordic-Baltic countries, and ADB illustrates a growing trend in using thematic investments by multilateral development banks and governments to attract financing for managing natural resources. These sorts of initiatives are to be emphasized and further explored in light of the growing interest of corporate and traditional investors in participating in sustainable projects.

[7] The Regional Seas Conventions and Action Plans provide intergovernmental frameworks to address the degradation of the oceans and seas at a regional level and cover the North-West Pacific, North East Pacific, Pacific East Asian, and South Asian regions.

SECTION 5

Recommendations and Next Steps

This section provides clear, prescriptive recommendations for moving forward in funding the blue economy, based on this report's analysis of the investments needed and the investors available to make them. It provides concise roadmaps for future and further action by all major stakeholder groups: financiers, governments, industry, development banks, donors, coordinating bodies, and other partners. Specifically, it covers the following:

- Policy recommendations for financiers
- Enabling conditions to be provided by governments
- The SME BlueImpact Asia platform and current SME investment opportunities
- Action steps for coordination for all stakeholders

The **SME BlueImpact Asia** platform is the culmination of these actions and the linchpin connecting them. Its goal is to identify, support, and finance blue SMEs that have a positive impact on the marine environment and coastal communities in the region. SME BlueImpact Asia is the starting point to solve the estimated $2 trillion blue SME finance gap for the region, with a target of cofunding $1.5 billion across more than 250 blue SMEs by 2030.

Policy Recommendations for Financiers

Policy frameworks are needed to support enterprises and investments in the sustainable blue economy. For a global overview of actions needed by ocean financiers, the UNEP Financing Initiative's recent publication Turning the Tide: How to Finance and Ocean Recovery is an excellent resource. To supplement and underpin the UNEP guidelines, the present research has created guidance for financiers to develop **stronger policy frameworks**.

Enabling Conditions

Structural inefficiencies in the blue economy often prevent private capital from being part of the solution. This is true, for example, for the solid waste management sector where the economics of recycling are not yet attractive and are also subject to different national laws across a supply chain. Such circumstances make the investment case in

new solutions difficult for companies and their investors to undertake on their own. Governments play a large role in tackling these types of barriers. Specifically, governments can create an enabling environment for blue economy public and private financing by putting the following six conditions in place:

- **Corporate governance.** Investors will go where corporate governance (the rules, practices, and processes used to manage a company) supports integrity and secure investments. The elements of good corporate governance include the following:

  - Independent directors
  - Audited financial statements
  - Adherence to the rule of law
  - No tolerance of fraud or corruption, including bribery
  - Adherence to best practice standards
  - Accountability and transparency to regulators and investors

  The International Finance Corporation notes that national and industry policies supporting good governance have succeeded in attracting needed investment.[1]

- **Compliance and standards.** Each blue economy market segment is governed by a set of international standards developed by industry, finance, and governments. Governments must defer to these standards, insisting on compliance from projects and companies within their jurisdiction. Furthermore, regulations and standards are dynamic, as new industries (e.g., algaculture), new technologies (e.g., alternative fuels), and emerging pathways (e.g., climate) shape the blue economy. Governments and regional initiatives need to stay ahead of these changes by promoting a culture of best practice and transparency.

- **Jurisdiction and enforcement.** In spite of the dynamic landscape, private investors often cite the need for a stable and consistent regulatory environment. Enforcement requires public investment in personnel and technical assets. Consistent enforcement of sustainable fishing, for instance, requires science-based quotas, secure tenure, and active policing against illegal fishing. This suite of measures protects the entire seafood supply chain so public and private investor interests, as well as local community welfare, are safeguarded. A good example of this is the Parties to the Nauru Agreement (PNA) Vessel Day Scheme which sets a total allowable effort limit on the number of days fishing vessels can be licensed to fish in PNA exclusive economic zones in a year. Each country is allocated a share of the total allowable effort for use in its zone each year, and countries may trade days to maintain annual targets. Policing the vast exclusive economic zones of island states for compliance can be facilitated by regional cooperation, satellite monitoring, and initiatives such as Global Fishing Watch.

The Guide to Policy Recommendations on the knowledge web portal is a helpful tool for policymakers seeking to support blue growth with favorable regulatory, tax, and infrastructure environments.

See Blue Economy Metrics for a summary matrix of criteria, standards, and metrics by market segment.

[1] International Finance Corporation, Attracting Investment Facilitated by Good Corporate Governance in Mongolia (2017).

- **Property rights and secure tenure.** Local business owners and foreign investors need assurance that their property rights cannot be violated by political decisions or unfair business practices. Secure tenure, for example, is required for local fishermen to access fisheries, according to science-based quotas.[2] Although priority should be given to local businesses (for property rights, business licenses, and quotas), foreign investors and companies also need the assurance that their investments are secure.

- **Supporting sustainable infrastructure.** This is both a prerequisite for investment and a private capital opportunity in itself. Private investors (especially infrastructure funds) seek projects that have been de-risked by an appropriate level of public or bilateral funding, proper governance, and ownership rights. For instance, the transition to green ports—with assets owned by governments—often requires blended finance to attract private investment to capital expenditures for clean onshore power, waste management, and digital upgrades. Blended finance may take the form of direct subsidies, concessional or preferential loans, and loss guarantees.[3] Infrastructure cooperation is needed between governments and ADB departments (e.g., for energy, agriculture, transportation, and water). Governments will look to development bank/institution regional leadership and to regional initiatives such as Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) and COBSEA to support their development agendas. All actions should be informed by the guidance provided in this report.

- **Concessionary finance.** National and regional development banks must place blue economy opportunities on the agenda, given the positive impact for communities, resource management, and economic development. For high-impact, traditional market segments such as fishing and tourism, concessionary finance is needed to speed the transition to sustainable practices. For technology-led market segments like aquaculture and mariculture, marine energy, and green shipping, public finance is needed for pilot projects and to bring the cost structure to parity with traditional but unsustainable practices. In both cases, **private investors will follow when public finance reduces the risk profile of these essential blue economy investments**. Blended finance vehicles drive an increasing percentage of investments in the developing world and for each of the SDGs.[4]

[2] Environmental Defense Fund, Prince of Wales's International Sustainability Unit, and 50in10, Towards Investment in Sustainable Fisheries: A Framework for Financing the Transition (2016).

[3] Global Maritime Forum, First Wave: Blueprint for Commercial-Scale Zero-Emission Pilots (2020).

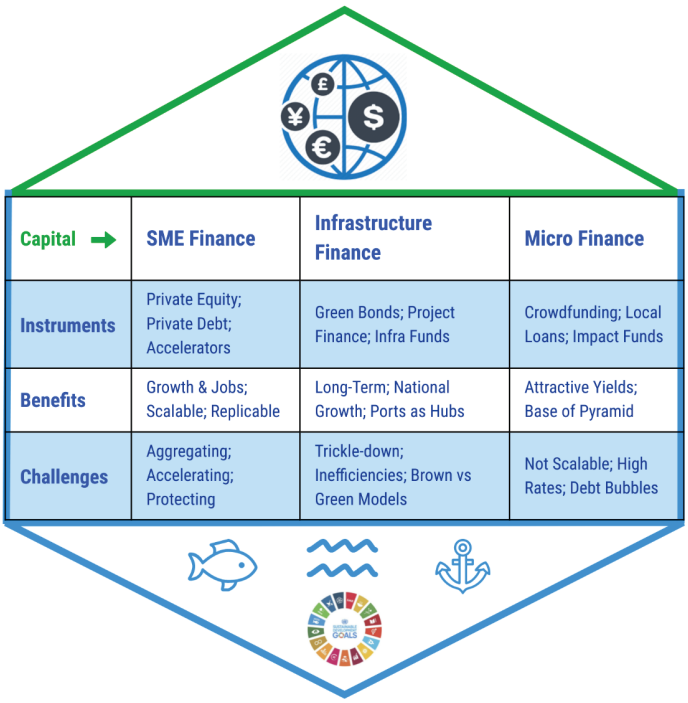
[4] For more on this, see the Convergence website; Convergence is a global network for blended finance.

SME BlueImpact Asia

SME BlueImpact Asia is an envisaged platform to leverage public, philanthropic, and private capital to fill the $2 trillion SME and natural capital financing gap in developing Asia's blue economy. This report recommends launching a pilot to prove the concept and activate the key features. SME BlueImpact Asia embraces all regions and all blue economy market segments—a better approach than making an early bet on a single segment or country.

Why SMEs? Capital comes to developing countries seeking three major themes: growth SMEs, infrastructure/sovereign projects, and microfinance lending. The dominant instruments, along with benefits and challenges, are summarized in figure 5.1. Relative to infrastructure and microfinance, SMEs offer vital benefits and a range of financial instruments, yet lack the aggregating platforms of the other two major avenues of development finance. Further, most opportunities for jobs, growth, and gender equality—regardless of market segment or region—are driven by SMEs rather than infrastructure projects.[5]

Figure 5.1 Competing for Development Capital



In 2019, the European Commission studied blue economy challenges and opportunities, identifying barriers to sustainable growth for key private stakeholders.[6] The Commission concluded that the central importance of SMEs, and their relative lack of finance,

[5] International Labour Organization, Small Businesses and Self-Employed Provide Most Jobs Worldwide (2019).

[6] European Commission, The EU Blue Economy Report: 2019 (2019).

requires a dedicated SME financing platform to support blue growth. Consequently, BlueInvest was established, with funding and support from the European Investment Fund (EIF) and the European Investment Bank (EIB).[7]

How will it work? Building a pipeline of eligible projects is the first step to creating an effective platform. A format and process for such a pipeline is under development, integrating SDGs and other key metrics from finance, industry, and policy sources. Private investors generally perceive emerging market risk, especially for private enterprises, as being higher than most other investment categories.[8] Even for high-growth market segments such as those identified in section 2, investors face structural risks in emerging markets, including property rights, legal uncertainty, currency risk, and the rule of law.

The success of the Action Plan for Healthy Oceans and Sustainable Blue Economies requires a dedicated platform for blue SMEs across the region with catalytic capital, pipeline development, and private investor engagement. The SME BlueImpact Asia pipeline will also be used to enrich the portfolio of ADB and national blue bonds, ADB Ventures, the ASEAN Green Catalytic Finance Facility, and other regional finance initiatives.

Following the BlueInvest model, SME BlueImpact Asia will have two arms:

- **Service arm.** A managed service provider will be hired to launch and manage all aspects of the platform, reporting to the founding organizations to ensure alignment with financial and sustainability goals. By Year 3, after a pilot period of two years, the managed service provider is expected to be self-sustaining, with all program costs covered by revenue sharing in the investment program and platform memberships. Features and activities of the service arm include the following.
  - **Pipeline development** comprises (1) establishing partnerships with deal sources (fund managers, industry groups, ports, maritime clusters, regional initiatives and local governments), and (2) following a process of financial discipline and impact criteria.
  - **Investment readiness** is the goal of a program of coaching and mentoring by financial and industry experts.
  - **Investor engagement** on behalf of approved SMEs, including aggregating projects in custom portfolios and vehicles to scale.
  - **Screening fund managers** helps further due diligence, prior to allocating funds on a matching basis, thereby leveraging private capital markets.

[7] From the BlueInvest website: "As of 2021, rather than continuing with its grants scheme, the European Commission is blending EMFAF contributions from InvestEU and EIF/EIB aiming to leverage upwards of €100 million a year in the period 2021–2027. Matched by other funds from intermediaries such as Venture Capital Funds this could result in up to EUR 2,7 billion of risk finance to be offered to the market and to be invested in into innovative and sustainable blue economy companies."

[8] Steve Rocco, Investors Are Finally Waking Up to the SDGs, But Risk Remains the Elephant in the Room Geneva Solutions blog post (1 February 2021).

- **SME pitch events** enable selected SMEs to make presentations to qualified investors, primarily in virtual events.
- **Community forum** brings blue finance stakeholders together to share experiences, contacts, and opportunities.
- **Digital platform management** to ensure the platform reaches all stakeholders across the region.

- **Investment arm.** Following the European model, SME BlueImpact Asia may feature either a fund of funds (FoF) or holding company structure to leverage catalytic capital by hiring specialty fund managers to execute blue SME investment strategies on a 1:1 matching capital basis.[9] ADB, or a consortium of development financiers, may fund either approach, set the allocation criteria, and monitor the underlying managers. These two approaches are profiled in table 5.1, with pros and cons of each according to SMEs, investors, and ADB and other catalytic funders. Finding the best alignment between these three stakeholders is the key to success, enabling the scaling of the SME BlueImpact Asia platform. Over time, the average ratio of catalytic funds to total funds using blended finance in developing countries is 4:1.[10] Investments from the SME BlueImpact Asia platform may start with a 1:1 ratio, then grow to 4:1 as fund managers in the program raise more capital with positive returns after Year 3.

How will this vehicle be managed? To determine the opportunity set of Asian-based fund managers in blue themes, a selection process was initiated. Two managers met strict criteria and have confirmed their interest in discussing support for a SME BlueImpact Asia fund of funds or holding company structure.

- August One is a successful early-stage investor that also manages Singapore's maritime accelerator. The firm is therefore a candidate to manage an equity allocation on a matched basis with its own investor network. August One also has expertise running an accelerator program, which it may include to support a blue SME portfolio.
- Funding Societies is the leading fintech platform lending to Southeast Asian SMEs, effectively filling the lending gap to SMEs in the region. Its track record since 2015 proves the value of its credit process and reassures private investors. For blue SMEs seeking short-term loans and trade finance—especially in times of COVID-19 recovery—Funding Societies is a manager with unique qualities for the credit needs of blue SMEs.

The knowledge web portal provides track records for August One and Funding Societies, along with their qualifications and proposed approaches.

[9] The European Commission concluded that the blue SME funding gap can only be filled by engaging private fund managers under a blended finance platform. Ninety 90 percent of the annual financing needs for SDG targets must come from private sources, and SDG 14 is the least funded of the 17 SDGs.

[10] Convergence, Blended Finance.

Table 5.1 Pros and Cons of SME BlueImpact Asia Vehicles

Pros and Cons	Holding Company	Fund of Funds
Description	Offshore entity to hold assets selected by ADB-led committee, managed by BlueImpact managed service provider (pipeline, etc.) and regulated advisor (fintech platform best for SME loans)	ADB allocates to qualified private equity funds on 1:1 matching basis for Asia BlueImpact SME positions (Model: EIF's BlueInvest FoF)
Operating partners	• Credit manager choice: Funding Societies • Equity Manager choice: AugustOne.	Manager may be ADB or external manager with requisite skills
SME pros	• Good alignment with SME financial plans due to flexible holding period • Best rates possible due to de-risking and portfolio economies • Filling void of SME finance	• SMEs receive equity funding from regional managers, limited by fund terms • Favors high-growth tech winners
SME cons	Must commit to readiness program and credit checks (same as for direct deals)	• Possible misalignment due to 4-year holding • Most Asian SMEs are not tech winners • Affordable loans needed
Investor pros	• Alignment of Investors-SMEs • Tax-efficient jurisdiction • Best for investors that will not buy other funds • Highly scalable: potential to list on exchange	For private equity fund managers, allocation by ADB comes with terms for portfolio selection and matching capital
Investor cons	• Some investors prefer funds (lockups 8–10 years) • Offer liquidity provision after Year 4, or sale to new or current investor	Fewer investors are reached by this structure (only clients of selected fund managers)
ADB as catalyst pros	• Control: Lead investment committee and governance • Leverage with catalytic funding. • Quick implementation • Reference: Encourage Capital - Pescador Holdings	• ADB decides allocations, governance, terms • For BlueInvest Europe, EIF is pari-passu investor providing no blended finance
ADB as catalyst cons	None; optimal way to ensure desired impacts, scalability, and returns thru flexible, aligned structure	Time to: • Identify enough specialty managers • Negotiate investment and matching criteria • Loss of alignment with SMEs

Examples of SME BlueImpact Asia Investment Opportunities

Following a call for applications to blue SMEs based in DMCs, 15 applicants were screened against financial, ADB, and Poverty-Environment Action metrics. The goal was to identify four scalable and replicable SME-based projects with merit on both sustainability and financial criteria. The projects had to be deemed bankable, targeting social and environmental impacts, and currently engaged in a financial round (raising less than $10 million). The four finalists cover a variety of blue economy market segments:

seafood processing, sustainable marine parks, seaweed production, and blockchain technology supporting the seaweed industry.

Short summaries of the four selected blue SME investment opportunities follow. Each opportunity highlights the potential roles development banks and funders can play to mobilize sustainable investment from the private sector, which can be replicated and therefore scaled throughout the blue economy. These and many other projects will be available on the SME BlueImpact Asia platform:

- **MARI Oceans.** This scalable, high-impact seaweed-growing business is managed by experienced impact business manager Asia Affinity. Seaweed is a high-growth segment of the aquaculture industry (projected to grow from $20 million to $85 million in the next five years) with many uses: food, fertilizer, health care, fuel, and pollution control. It is also carbon-negative (like mangroves) and provides jobs and nutrition for coastal communities without depleting fisheries or creating harmful waste streams. MARI Oceans is an Indonesian seaweed cooperative with four pilot sites that are currently engaging hundreds of farmers. The business model is scalable in Indonesia and replicable across Asia.

  See the MARI Oceans Investment Dossier on the knowledge web portal.

- **Sea Green.** This innovative firm, also developed by Asia Affinity, provides a holistic approach to commercial infrastructure for the entire seaweed value chain. Sea Green's 's blockchain solution enables full traceability and product management while increasing farmer incomes by aggregation for direct sales. Additional features of this project include mangrove restoration, blue carbon, microfinance/insurance for farming communities and waste-to-energy at the local level. Sea Green's technology is not only scalable globally but also horizontally, with potential applications for multitrophic aquaculture.

  See the SeaGreen Investment Dossier on the knowledge web portal.

- **Meliomar.** This Philippine subsidiary of global seafood producer BlueYou Group is building Asia's first carbon-neutral seafood processing plant. Sustainable sourcing from local aquaculture and fisheries is at the heart of this community-based project. By integrating sustainability in all aspects, the business model is cost competitive and supports growing demand as restaurants and resorts reopen. Furthermore, certified seafood products are required by retailers worldwide. All stages of the value chain—seafood sourcing, ecosystem management, good jobs for women, clean power for the plant, packaging, and waste management—make Meliomar a model for sustainable growth in the $400 billion seafood industry.

  See the Meliomar Investment Dossier on the knowledge web portal.

- **BlueFinance Philippines.** This bankable ecosystem project is led by veteran marine organization BlueFinance and the Blue Alliance consortium of local communities, nongovernmental organizations, and scientific groups. The project protects and restores nine marine protected areas in the Philippines, generating revenues from fee-based access to areas. It features protection of coral reefs, mangroves, and fisheries. This is a new model for natural capital preservation, sustainable tourism, and inclusiveness—with a potential to be replicated across 1,000 marine protected areas in the region. BlueFinance has a track record of success with this business model in the Caribbean and Pacific. The project confirms

  See the BlueFinance Philippines Investment Dossier on the knowledge web portal.

the observations made earlier in this report, namely that marine ecosystems can be restored and protected with relatively low investment, which generates substantial benefits to the environment and income streams for communities. Impact investors will find this attractive, especially if supported by a loan guarantee and an implementation grant. In the future, this and other projects from the SME BlueImpact Asia pipeline may be included in blue bond portfolios and vehicles like the Global Fund for Coral Reefs. For now, the opportunity is timely to showcase a sustainable ecosystem model and boost ecotourism as the region continues to face the twin challenges of pandemic recovery and climate change.

Action Steps for Coordination

Establishment of the SME BlueImpact Asia platform creates a high-impact opportunity for the various present and potential stakeholders in Asia's blue economy to coordinate, collaborate, innovate, participate, and share and support. Development banks, UN agencies, regional groups such as COBSEA, and finance and industry stakeholders can all benefit from such enhanced collaboration and thereby help achieve blue economy goals. With SME BlueImpact Asia in place:

- ADB port and coastal infrastructure programs benefit from the support of local SMEs.
- SIDS and coastal nations benefit from cofinance of SME-based resilience strategies.
- COBSEA and other regional initiatives benefit from the SME pipeline.
- Maritime clusters and industries benefit from participation in the SME readiness programs.

Ten steps are recommended to enhance stakeholder coordination:

1. **Sharing knowledge and contacts.** SME BlueImpact Asia's online platform is designed to receive and share knowledge from all stakeholders. Periodic webinars and pitch events will be planned to further stimulate sharing of research and projects. SME BlueImpact Asia also facilitates matchmaking and exchanges between government, industry, and financial institutions.

2. **Aggregating investments.** To attract private capital and scale up opportunities, projects must be grouped together in investment vehicles whenever possible. The starting point for this process is the standardized information and readiness program featured on the SME BlueImpact platform. Financial institutions of all kinds will use the platform to collaborate in portfolio construction and investment offerings.

3. **Pipeline development.** Maritime clusters, accelerators, industry groups, financial institutions, and governments will receive regular calls for projects from SME

BlueImpact Asia. Agreements with pipeline partners will be forged. This is an attractive opportunity to showcase innovations and accelerate the sustainability transition of local enterprises. The common complaint that there are not enough bankable blue economy projects is actually an issue of visibility and organization across multiple sectors and countries, partly solved by SME BlueImpact Asia.

4. **Due diligence.** Projects and SMEs can be screened across three sets of criteria: governance, environment/social, and financial. (Further due diligence prior to investment is the responsibility of interested parties.) SME BlueImpact Asia enables investors to identify projects worth considering because they meet these basic criteria. Stakeholders may share notes to speed up the process and collaborate on portfolio structuring.

5. **Supporting SMEs and projects.** Project managers often need assistance from the wide variety of skill sets offered by SME BlueImpact Asia stakeholders: technical, marketing, legal, financial, and human resources. SME BlueImpact Asia provides this capability as a referral source to project managers, which also enables stakeholders to collaborate across countries and sectors in ways they may not have previously.

6. **Enabling conditions.** A precondition of sustainable blue growth is a supportive regulatory environment, complemented by fiscal and industry policies. Governments need to act in concert to present a united front to industry and financiers.

7. **Tax/fiscal coordination.** A key enabling condition is the tax and fiscal regime of each nation, especially with regard to sustainable development. Incentives may be given with tax policy and national spending. Counterproductive subsidies that encourage overfishing and extractive and fossil fuel industries must be ended. It is optimal for regions to coordinate their fiscal policies and make a concerted offer to industry that supports only sustainable development.

8. **Research and development (R&D) funding.** Many maritime sectors are in the early stages of development, requiring research funding and technical expertise to progress. Coordination on a regional basis is the best way to achieve economies of scale and advance blue economy innovation, with accelerators and maritime clusters. Models from Europe include the European Marine Energy Centre (EMEC) for marine energy, JPI Oceans for applied marine research, and—of course—BlueInvest. In developing Asia, COBSEA and PEMSEA have made a good start with a number of maritime issues with support from industry, finance, and national governments.

9. **Capacity building and training.** Many countries have limited pools of talent to responsibly grow their blue economies. Training programs and capacity development are often too complex for one nation to undertake. Regional initiatives should therefore step in to grow and expand the skills of their workforce.

10. **Raising awareness of blue economy opportunities.** Lack of understanding is a chief obstacle to community and government support of a sustainable blue

economy. What are the resources that need to be protected, the jobs that need to be created, the opportunities that need to be seized? SME BlueImpact Asia and its outreach to stakeholders provides an educational forum to raise awareness, highlighted by inspiring case studies in the region and globally.

Way Forward

The blue economy holds a wealth of opportunities for inclusive and sustainable growth across the nations of developing Asia. The tools and guidance provided by this blue economy knowledge product will certainly speed the transition to healthy oceans and coastal communities.

The SME BlueImpact Asia platform will play a critical role in growing the blue economy, as this section has amply demonstrated. Its impact will be amplified by the efforts of ADB and its partner organizations—notably Poverty-Environment Action, UNDP, and UNEP—matched by technical assistance and funding from private financiers and industry. For example, ADB may consider providing a sustainability-linked loan and a credit guarantee, while UNDP-UNEP may offer technical assistance or grant funding to ease implementation. These instruments, and the SME BlueImpact Asia platform generally, provide the catalytic and aggregating incentives demanded by private investors in emerging markets. For larger ADB and sovereign financings, the SME BlueImpact Asia pipeline enriches the opportunity set for each DMC. Given the stresses on ocean resources and coastal communities today, the SME BlueImpact Asia will begin its pilot phase; its progress can be followed on the web portal supporting this knowledge product.

Financing the Blue Economy

Investments in Sustainable Blue Small-Medium Enterprises and Projects in Asia and the Pacific

Small and medium-sized entrerprises dominate their respective local and country economies. Yet the SME landscape is fragmented and lacks access to capital, making them the "missing middle" in sustainable blue economy development. This knowledge product takes aim at this problem. It proposes SME sector priorities in the blue economy, analyzes the financing gap, presents tools and resources to better understand how to develop new financial connections between international capital and local actors, and recommends the establishment of a new blended finance platform— SME BlueImpact Asia—to fill the estimated up to $2 trillion SME blue economy financing gap in developing Asia.

About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members—49 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

About Poverty–Environment Action for the Sustainable Development Goals

The joint United Nations Development Programme–United Nations Environment Programme (UNDP-UNEP) Poverty-Environment Action for the Sustainable Development Goals (2018–2022) project promotes an integrated approach that brings poverty, environment and climate objectives into the heart of national and subnational plans, policies, budgets, and public and private finance to strengthen the sustainable management of natural resources and to alleviate poverty. Poverty–Environment Action is made possible through the support of the European Union and the Governments of Austria, Norway, and Sweden.

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