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Investing in the New Blue Economy: The Changing Role of International Development Organizations in Catalyzing Private Sector Investment in Support of Regional Strategic Action Programmes for the Sustainable Development of Coasts and Oceans

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Investing in the New Blue Economy: The Changing Role of International Development Organizations in Catalyzing Private Sector Investment in Support of Regional Strategic Action Programmes for the Sustainable Development of Coasts and Oceans

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1. INTRODUCTION

This paper makes the case for a transformative approach to private investment in the blue economy, catalyzed by international development organizations. It proposes using government approved regional action programs as guides to investment, as strategic frameworks to prioritize action, and as tools to reduce private sector investment risks. Establishing regional pre-investment facilities supported by the international development and donor communities could serve as a new institutional arrangement to help cultivate pipelines of sustainable and bankable projects addressing the sustainability of ocean health and coastal economies.

We examine the development of such a pre-investment facility for the Seas of East Asia, presenting the regional governance framework, early work conducted to prepare such a facility, the services it can offer, and an emerging ecosystem that is advancing the theory and practice of blue economy investment. Lessons learned from four pilot investment cases are analyzed and a framework is proposed for development organizations to consider addressing the constraints to investment by private investors. The paper concludes by offering recommendations for transforming investment towards a more sustainable blue economy.

We start by presenting an outline for a framework (fig. 1) for blue economy investment that catalyzes public and private investment in green infrastructure, technology, and innovative practices to reduce environmental risks and ecological stress, enhance sustainable development and human well-being, and sustainably manage coasts and oceans. The framework is based on the establishment of regional pre-investment facilities built on the foundation of Strategic Action Programs implemented by intergovernmental organizations to ensure transparency and accountability and reduce investment risk, and linking with an ecosystem of public and private institutions. The ultimate goals of the framework are to create new asset classes, reduce investment risk, and transition to a blue economy. The regional pre-investment facilities are supported by success fees on deals closed.

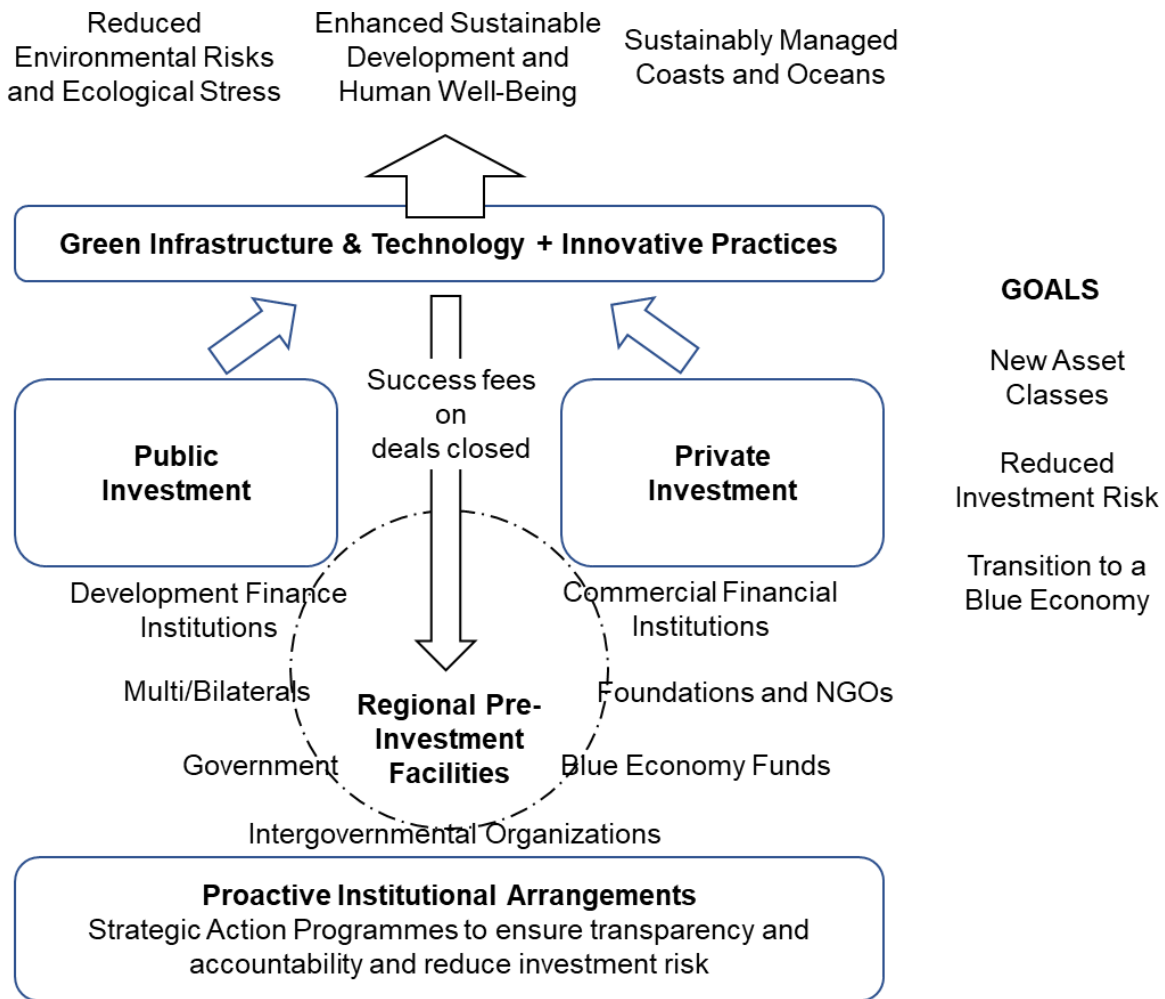


Figure 1: Blue Economy Investment Framework

1.1 Background

1.1.1 Ocean Economies at Risk as Ocean Health Declines

Coasts and oceans are among the most productive ecosystems on the planet, providing an array of services that directly and indirectly support local coastal communities and national economies. Globally, the market value of coastal and marine resources and industries is estimated at US\$3 trillion per year or about 5 percent of global gross domestic product, and over 3 billion people depend on the oceans as their primary source of protein and livelihoods (UNDP 2018). If it were a country, as a whole, the blue economy that the oceans provide for would be the 7th largest economy in the world (Kraemer et al. 2017).

But the health of global ocean resources continues to deteriorate. Coral reefs are under threat; loss of mangrove forests and seagrass beds continue; fish stocks are in decline; nutrient pollution and coastal eutrophication continue to increase; ocean plastic

pollution is a growing problem; ocean warming and acidity threaten the balance of life in the sea; and sea level rise, coastal erosion, and changing weather patterns threaten coastal communities worldwide (Van Lavieren and Benedetti 2015).

1.1.2 Regional Policy Response to Issues Confronting Ocean Health

Since the early 1990s, the Global Environment Facility (GEF) and other donors have contributed billions of dollars to Large Marine Ecosystem (LME) and Regional Seas (RS) programs to:

- a) support regional scientific assessments through Transboundary Diagnostic Analysis identifying common problems in shared coastal and ocean ecosystems;
- b) develop regional Strategic Action Programs (SAPs) for countries bordering LMEs to jointly address the common problems identified; and
- c) establish regional institutional mechanisms, such as Regional Seas program secretariats and LME commissions, for addressing transboundary issues and promoting sustainable development of coastal and ocean ecosystems.

Decades of scientific research and policy dialogue by the GEF and agencies such as the United Nations Development Program (UNDP) have established a foundation of scientific and policy understanding about the problems and solutions common to Large Marine Ecosystem and Regional Seas.

SAPs, as inter-governmental—in some cases, legally binding—agreements, are supported regionally by clear institutional mechanisms facilitating joint implementation. Examples of regional mechanisms include the Caribbean and North Brazil Shelf Large Marine Ecosystems, the South Asia Cooperative Environment Program, and Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). SAPs include identification of investments needed to use, protect, and sustain coastal and ocean ecosystems. The SAPs thus provide a government-sanctioned, science-based planning and action framework for investing in coasts and oceans. They have the potential to reduce investment risks and provide increased transparency and accountability for investing in the blue economy and for monitoring the social, economic, and environmental impact of the investments.

1.1.3 Opportunities and Challenges of Investing in the Blue Economy

To tackle issues facing marine ecosystems ranging from community-level concerns to broad environmental and economic issues such as overfishing, coastal hypoxia, and ocean acidification, investments are needed to catalyze hundreds of billions of dollars in new public and private financing. Such investments could deliver net socioeconomic benefits exceeding US\$1 trillion per year (Hudson and Glemarec 2012). The private sector represents an important source of this investment capital, while donor and government

support are increasingly needed to provide catalytic funding. It is well established that there is no shortage of private capital available. Investors seek opportunities to diversify and find growth in new asset classes with appropriate returns on capital, if risks (real and perceived) can be appropriately managed.

Donors, including the GEF and the Green Climate Fund, are well-positioned to act as market catalysts providing patient capital, with an opportunity to act as a bridge between the global and local market (AVPN 2019). The GEF's policy, for example, allows for the use of non-grant instruments, which provide financing in a form that has the potential to generate financial returns, to leverage capital for targeted investments (GEF 2014). The GEF has successfully used such "blended finance" approaches, such as credit guarantees, equity investment, and concessional loans, to pioneer and scale-up financing of new technologies in renewable energy, energy efficiency, and urban transport (GEF 2019).

However, experience from different parts of the world indicates a number of continuing challenges and constraints to investment in the blue economy. First and foremost is the time and effort it takes to establish a new asset class with the appropriate levels of risk and return. According to The Global Impact Investing Network's 2018 Annual Impact Investor Survey, the most commonly cited challenges by investors include (Mudaliar, Bass and Dithrich 2018):

- a) difficulty developing a pipeline of high-quality, investable projects with track record;
- b) lack of appropriate deal structures;
- c) need for a common understanding of how the blue economy investment market is defined;
- d) lack of appropriate capital across the risk/return spectrum;
- e) lack of government support for blue economy investment markets; and
- f) lack of suitable exit options.

Not enough projects that emanate from SAPs and other international development programs are yet organized in ways that lead to appropriate deal structures. To be considered for investment, projects need to clearly indicate how cash flows will be generated, how acceptable return on investment will be captured, and how risks will be addressed. Investors are consistently looking for investments with management and business planning comparable to more typical mainstream investments, including underlying working business models and demonstrated track record (Conti 2018a; Conti 2018b).

A lack of track record, few examples of successful investments, capriciousness of local politics, issues of rights and tenure, and untested revenue models all conspire to limit the potential of investing in the sector, even for the most patient of private capital (Shujog and PEMSEA 2015).

1.1.4 International Organizations Find Ways to Support Investing in the Blue Economy

To address some of these challenges, international organizations are experimenting with a number of different approaches to investing. Approaches include investing patient capital, developing a project pipeline for other investors, launching incubators and accelerators, creating seed and early-stage investment vehicles, conducting advocacy for improved access to finance, launching funds targeting social and environmental impact, and investing in under-banked markets, among others (Dente et al. 2018).

International organizations can function as intermediaries, providing technical assistance to investees and project developers, supporting investing for social and environmental impact through:

- a) convening power to bring together government, multilateral donors, nonprofits, and the private sector;
- b) understanding of local context and operating realities in emerging markets;
- c) science-based research to inform decision-making, performance measurement, standards development, and evidence-based tools;
- d) access to grant or philanthropic funding to de-risk investments through blended finance approaches; and
- e) commitment to ensuring positive social and environmental impact of investments.

These intermediaries can help to address the “missing middle” of enterprises and investments requiring technical assistance and capacity development while helping to transition development-oriented projects to become investment-ready for more traditional investors (Dente et al. 2018).

1.2. SAPs as an Innovative Approach for Supporting Investment and Donor Exit

East Asia represents one of the regions where joint assessment and policy work has led to a mature SAP being implemented to advance development of the blue economy. East Asia was selected as the pilot region to develop and test an enhanced approach to catalyzing public and private investments in the blue economy, at scale. The pilot built on work done by regional intergovernmental coastal and ocean organizations to provide increased transparency, legitimacy, and accountability, creating a policy environment that enhances trust and reduces risks for investors.

The SAP-driven investment approach examined in this paper differs from typical project development activities by international development organizations in three ways:

1. It is specifically linked to a regional sustainable development agreement, supported by governments sharing a common ecosystem, increasing the likelihood of transparency, accountability, and regular monitoring of the investments and their socio-economic and environmental impact.

2. It specifically scans for and identifies innovative projects using the latest developments in sustainable technology, resource management, and business practices.

3. It aims to establish new ocean-related asset classes and new regional and global financing vehicles that include success fees for development organizations that are involved in creating an enabling environment for investment (i.e., scientific evidence, political support, and promotion of innovative and sometimes disruptive investments).

This SAP-driven investment approach also represents a means for reducing the reliance of regional programs on donor funding and, over time, can enable a strategy for donor exit. The mechanism discussed in this paper targets self-financing of a pre-investment facility after an initial round of projects are funded and implemented by public and private partners, with the help of institutional and other investors. Fees leveraged on successful investment deals can be used to recover cost and pay for services delivered by the pre-investment facility, and revenue realized over and above full cost recovery can be reinvested. It could take several years for full exit of donor funding so international donor money is required in the first phase to support the financial sustainability of LME programs, complementing other LME financing mechanisms such as country contributions and project delivery and consultancy fees.

2. THE SEAS OF EAST ASIA

2.1 Coastal and Ocean Policy and Governance Framework

The Seas of East Asia are ecologically and economically significant. Recognized as the center of marine biodiversity globally, they are home to over 30 percent of the world's mangroves, a third of seagrass beds and a third of the world's coral reefs. Countries of the region account for 80 percent of global aquaculture and around 60 percent of the world's capture fisheries supply and production. The region's seas serve as an important conduit for shipping, which globally carries 90 percent of world trade. The region is also a center of economic growth, home to the second and third largest economies of the world (China and Japan, respectively), and the combined economies of the Association of Southeast

Asian Nations (ASEAN), which represent the world’s fifth largest economy (PEMSEA 2018b).

PEMSEA is an intergovernmental organization specializing in coastal and ocean governance for East Asia. In 1993, PEMSEA began as a regional project under UNDP, with funding support from the GEF.

In 2006, eleven countries in the region resolved to transform PEMSEA from a project-based arrangement into a self-sustained, regional collaborative mechanism with the mandate to pursue the implementation of a regional marine strategy, the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA). The SDS-SEA functions as the regional SAP for the Seas of East Asia.

The SDS-SEA is adopted by 14 countries—Brunei Darussalam, Cambodia, China, the Democratic People's Republic of Korea, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, the Philippines, the Republic of Korea, Singapore, Thailand, Timor-Leste and Viet Nam. Updated in 2015, the SDS-SEA harmonizes relevant current international and regional conventions, action programs, and agreements, including the United Nations Framework Convention on Climate Change, Sendai Framework for Disaster Risk Reduction, Rio+20, the Aichi Biodiversity Targets, and the UN Sustainable Development Goals (SDGs). Overall, the SDS-SEA provides a framework for sustainable development of coasts and oceans for the region.

PEMSEA’s Implementation Plan for the SDS-SEA identifies expected outcomes, indicators, and targeted actions for governance and management programs that contribute to blue economy growth in the region by 2022. One of its program objective targets bolstering “blue economy investment and sustainable financing of the SDS-SEA by promoting improved access to sources of financing and development of financing mechanisms and partnerships” (PEMSEA 2018a). This includes access to sector-based ocean investment funds and mechanisms that demonstrate socio-economic and ecological benefits resulting from investments.

PEMSEA defines blue economy as “a practical ocean-based economic model using green infrastructure and technologies, innovative financing mechanisms and proactive institutional arrangements for meeting the twin goals of protecting our oceans and coasts and enhancing its potential contribution to sustainable development, including improving human well-being, and reducing environmental risks and ecological scarcities (PEMSEA 2012).”

2.2 Early Diagnostic Action by PEMSEA to Prepare for Investing in the Blue Economy

In 2015, PEMSEA launched a series of National State of Oceans and Coasts reports produced by Cambodia, China, Indonesia, Malaysia, the Philippines, the Republic of Korea, Singapore, Thailand, Timor Leste, and Viet Nam. The reports look at ocean-based

economic activities conducted in marine waters, sectors that use inputs from the oceans, and those that produce outputs for ocean-based activities. The State of Oceans and Coasts reports provide a baseline for monitoring progress towards the SDGs, the SDS-SEA, and other international agreements through ocean governance and blue economy initiatives. They also serve as an information source for advancing scientific support, raising public awareness, promoting good governance and partnerships, and fostering the planning, development, and application of synergies between the public and private sectors (Ebarvia 2016).

That same year, PEMSEA released a report on *Blue Economy for Business in East Asia* to address the critical role that the private sector plays in blue economy development (Whisnant and Reyes 2015). The report examines blue economy trends relevant to business and highlights four key elements that must be present in coastal and marine economic activities to be considered “blue economy” development: a) protecting, restoring, and sustaining healthy coastal and marine ecosystem services; b) generating sustainable, equitable economic benefit and inclusive growth; c) integrating approaches between multiple industries and sectors; and d) innovating, informed by the best available science.

Local governments implementing integrated coastal management (ICM) programs under PEMSEA’s project framework were consulted to identify blue economy funding needs and potential investment opportunities. The responses from across 8 countries identified more than 300 investment gaps. Further research from PEMSEA illuminated the financing flows to these ICM-related sectors across the grant and investment capital spectrum over a ten-year period (2005-2015) from donors, foundations, corporate social responsibility initiatives, development finance institutions, impact investments, and commercial investors (Shujog and PEMSEA 2015).

2.3 An Emerging Ocean Investment Ecosystem

Over the last four years, PEMSEA has identified an emerging, vibrant ecosystem of organizations that are advancing the theory and practice of blue economy investment in East Asia.

The various actors in the investment ecosystem include Development Finance Institutions; Commercial Financial Institutions; Consultants, Technical Advisors and Project Developers; Multilaterals / Bilaterals; Foundations; NGOs and Convening Organizations; Intergovernmental Organizations and Development Projects; and Pre-Investment Facilities (Table 1).

Table 1: Blue Economy Investment Ecosystem Actors in East Asia

Ecosystem Actor	Function	Examples
Sustainable Blue Economy-focused Funds	Provide return-seeking investment capital with a mandate for delivering environmental and social benefits, sometimes taking direct participation in projects.	Althelia Funds, The Meloy Fund, Encourage Capital, Circulate Capital, Rockefeller Ocean Strategy (Ocean Foundation), Conservation International Ventures, ADM Capital, C4D, Aqua-Spark
Development Finance Institutions	Key facilitating role; arrange and manage debt and equity transactions; intermediary for blended finance, attracting private co-financing; provide guarantees and insurance; programs focused on thematic issues (e.g., sustainable fisheries).	Asian Development Bank, World Bank, European Investment Bank, Overseas Private Investment Corporation, local/national development banks
Commercial Financial Institutions	Provide commercial return-seeking investment capital.	Credit Suisse, BNP Paribas, local commercial banks
Consultants, Technical Advisors, and Project Developers	Expertise to develop investible projects that deliver environmental and social benefits; run business plan competitions and incubators to cultivate investible enterprises.	Impact blue, Blue finance, ARCOWA, Impact Investment Exchange, Clarmondial, Blue Ventures, Wilderness Markets, SYSTEMIQ, Resonance, Global Ocean Trust, Conservation XLabs, Fish 2.0
Multilaterals / Bilaterals	Grants for technical assistance; concessionary debt or equity and guarantees to lower cost of capital and improve risk-return profile of deals.	Global Environment Facility, United Nations Development Program, United Nations Environment Program, United States Agency for International Development, Australia Department of Foreign Affairs and Trade, Food and Agriculture Organization of the United Nations, Deutsche Gesellschaft für Internationale Zusammenarbeit, Green

		Climate Fund, Japan International Cooperation Agency, Swedish International Development Cooperation Agency, Norwegian Agency for Development Cooperation
Foundations	Provide seed financing for breakthrough initiatives, concessionary capital to de-risk and crowd in private capital.	Rockefeller, Packard, Walton Family, Summit, Gordon and Betty Moore, Bloomberg, Ellen MacArthur, Paul Allen
NGOs and other Convening Organizations*	Advance thinking through research and convenings; develop pilot projects; provide technical assistance and seed funding.	The Nature Conservancy, World Wildlife Fund, Conservation International, Environmental Defense Fund, Rare, Zoological Society of London, The Economist, International Union for Conservation of Nature, World Ocean Council, Monterey Bay Aquarium, Future of Fish, Climate Bonds Initiative
Coastal and Ocean-Focused Intergovernmental Organizations and Development Projects	Advance thinking through research and convenings; develop models and pilot projects; guide policy development; provide technical assistance.	Partnerships in Environmental Management for the Seas of East Asia, Coordinating Body on the Seas of East Asia, Capturing Coral Reef & Related Ecosystem Services
Pre-Investment Facilities**	Provide finance and technical assistance to prepare and structure bankable investments.	Blue Natural Capital Financing Facility

*Some industry-focused and private sector organizations have played an important convening role for advancing blue economy investment.

**Pre-investment facilities don't make investments as a bank or impact investor would. Their purpose is to provide technical and legal support along with seed financing to help earlier-stage investment to become investment-ready and secure financing from third parties.

As one clear indicator of interest in this new asset class, a small number of funds and investment managers have emerged with a focus on oceans and relevance to SDS-SEA implementation. They include the Althelia Sustainable Ocean Fund, which targets

deployment of approximately US\$100 million across a portfolio of between 10 to 20 project investments (Althelia Funds, n.d.); The Meloy Fund, an impact investment fund launched by Rare Conservation with more than US\$22 million in commitments to support sustainable coastal fisheries in Indonesia and the Philippines (The Meloy Fund 2018); and Circulate Capital, a US\$100 million impact-focused investment firm dedicated to preventing the flow of plastic waste into the world's oceans (IUCN 2019).

Supporting the emerging conservation investment landscape, including blue economy investment, the Coalition for Private Investment in Conservation (CPIC) was launched in 2016 by Credit Suisse, The Nature Conservancy, the International Union for Conservation of Nature, and Cornell University as a global multi-stakeholder initiative focused on enabling conditions that support an increase in private, return-seeking investment in conservation. By early 2019, CPIC had launched blueprints in two areas directly relevant to ocean investment: Green Infrastructure for Coastal Resilience (Coalition for Private Investment 2017a) and Sustainable Coastal Fisheries (Coalition for Private Investment 2017b).

Multilateral support for blue economy investment continues to grow. In 2018, The World Bank launched PROBLUE, a US\$100 million Multi-Donor Trust Fund supporting oceans across four key themes: 1) management of fisheries and aquaculture; 2) threats posed to ocean health by marine pollution, including litter and plastics; 3) sustainable development of key oceanic sectors such as tourism, maritime transport, and off-shore renewable energy; and 4) building capacity of governments to manage their marine and coastal resources in an integrated fashion to deliver more and long-lasting benefits to countries and communities (The World Bank Group 2018). The Asian Development Bank (ADB) announced a new Healthy Oceans Action Plan in May 2019, which aims to expand financing and technical assistance for ocean health and marine economy projects to US\$5 billion. ADB also launched an Oceans Financing Initiative to create opportunities for private sector investment in bankable blue economy projects through instruments such as credit risk guarantees and blue bonds (ADB 2019). A Sustainable Blue Economy Finance initiative under the auspices of the UN Environment Finance Initiative is also planned for launch in 2019 (UNEP FI 2018).

An increasing number of pre-investment facilities and accelerators are emerging that target blue economy enterprises and investments in need of support as they mature. The Blue Economy Challenge, supported by Australian Aid and implemented by Conservation XLabs, provided AU\$3 million for innovators, entrepreneurs, designers, NGOs, and academics to rethink solutions for sustainable aquaculture (InnovationXchange 2015). Fish 2.0, a global community that brings innovators together to grow the sustainable seafood sector, enables sustainable seafood businesses to meet potential investors, partners, and advisors who can help them accelerate their impact and growth (Fish 2.0, n.d.). The Blue Natural Capital Financing Facility managed by the

International Union for Conservation of Nature was launched to provide assistance to project sponsors to “prepare the technical, legal, and financial dimensions of promising blue natural capital projects, through advanced studies, evaluations, and small seed investments to secure further project financing from third parties” (IUCN 2019).

3. ESTABLISHING AN OCEAN PRE-INVESTMENT FACILITY

Investing in the sustainable blue economy is in its infancy and requires special expertise to source, evaluate, develop, and profitably exit investments in emerging asset classes. Project proponents (i.e., NGOs, national and international development agencies, national and local governments) may lack the capacity to transform SAP priorities and objectives into bankable investments that can provide a financial return to capital providers. To address this gap, the concept of an “ocean pre-investment facility” was initiated to provide a bridge between project proponents and investors. Such a facility would assist project proponents to develop a pipeline of investible projects and identify and develop sources of capital, including specific funds that invest in the new blue economy asset classes. The pipeline of high-quality, bankable projects generated would contribute to the implementation of the regional and national SAPs and thereby to sustainable economic growth. Initially, the pre-investment facility would need to be funded by governments and/or international development agencies. After the successful closure of a first pipeline of projects, an ocean pre-investment facility could become financially self-sufficient through success fees on closed deals. This could contribute to the sustainability of regional organizations, such as PEMSEA, which play a role in planning, coordinating, capacity development, and knowledge sharing for SAP implementation.

3.1 Services of an Ocean Pre-Investment Facility

Pre-investment facilities associated with mature Regional Seas or Large Marine Ecosystem Programs would identify, assess, and develop a pipeline of bankable blue economy investments and prepare the investments for presentation to investors. They would utilize the expertise of government, development finance institutions, and finance experts, alongside scientific, engineering, operations, environmental, and development experts. The focus of the pre-investment facilities would be on sourcing and development of projects ranging from early-stage or smaller scale social impact investments to large infrastructure and project finance investments.

The pre-investment facilities help project proponents to:

- a) identify investible projects that address priority management concerns of local governments and stakeholders, as well as the financial requirements of investors, while at the same time assisting in knowledge transfer to build internal capacity;

- b) assess feasible business and financial models and connect them with a network of experts to help develop investible projects;
- c) identify project developers and/or investors to complete feasibility studies;
- d) tap into a growing pool of interested investment funds, matching with the right investment capital and capital structuring, including blended finance from private sector and donor sources; and
- e) promote investment projects to potential investors, assisting with negotiation, development, and investment close.

The pre-investment facilities help investors by:

- a) leveraging a regional network of national and local governments, research and science institutions, international and donor agencies, regional programs, NGOs, and companies to identify investment opportunities;
- b) providing political context, visibility, and accountability for minimizing risks for effective functioning of investments;
- c) identifying opportunities for aggregation, alignment, and collaboration with complementary projects, initiatives, and enterprises supporting investment projects;
- d) tailor-fitting projects to investor requirements, including structuring and monitoring for sustainability and impact using indicator-based monitoring and evaluation and reporting systems; and
- e) tapping into opportunities for blended finance through track record with donors.

3.2 Target Sectors and Fund Modalities of Ocean Pre-Investment Facilities

The pre-investment facilities would support investments across a range of interconnected sectors including solid waste management and ocean plastics; sustainable fisheries and aquaculture; sustainable tourism / ecotourism; wastewater management and water supply; climate smart development and coastal resilience; and ocean-based technology (e.g., marine renewable energy, information technology, environmental services, etc.). The needed knowledge and skills would be acquired by partnering with existing institutes, project developers, and programs with the appropriate sector expertise.

The facilities can utilize a variety of investment products and mechanisms, including loans, bonds, equity, grants, and hybrid investments (mezzanine and quasi equity) to help project proponents structure deals for presentation to funds and investors. Blended finance approaches can be used to source capital from multiple funder types: impact investment funds, multilateral and bilateral funding, foundations, private equity or debt funds, or corporate social responsibility funding.

3.3 PEMSEA Early Work on Establishing a Pre-Investment Facility

For PEMSEA, the concept was originally conceived as launching both a 1) pre-investment service and 2) an actively managed investment fund, or set of funds, with the mandate to structure financial deals and co-invest capital into projects generating positive social and environmental impact. However, given the emergence of other blue economy focused and commercial-sector specific funds and the complexity of launching a new fund, PEMSEA chose to first prioritize the pre-investment service. Internal research found that creation of a single fund to support the breadth of blue economy investments needed for SDS-SEA implementation was prohibitively complex. Sector-specific expertise is needed to guide investments across areas as diverse as sustainable fisheries, wastewater treatment, marine protection, and renewable energy. The operating cost of such a complex unified fund would not be feasible. This also addressed the clear need for developing examples of successful investable projects as models for a pipeline of bankable investments

Acting as an intermediary between projects and investment funding, PEMSEA leverages its 25 years of experience in the region to ensure that projects take a holistic approach. The approach is underpinned by the principles and framework of ICM, supporting implementation of the SDS-SEA and the SDGs, and benefiting local communities.

It was estimated that pre-investment work to produce a first pipeline of bankable projects in East Asia would require grant funding at the level of US\$4-6 million, complementing ongoing donor funding of PEMSEA's regional project work. In 2017, the East Asian Seas Partnership Council, PEMSEA's governing body, allocated US\$300,000 as seed funding for the design and development of a pre-investment facility. As a condition of the seed funding, the Council stipulated that the pre-investment facility should be designed with cost recovery and income-generating features to support its own operations and contribute to the financial sustainability of PEMSEA (PEMSEA 2017).

Once initial grant funding of up to US\$6 million was secured and the first pipeline of deals closed with existing investors within a 3- to 5-year period, the facility could then gradually phase out government funding as it transitions to self-funding its operations through private capital and fees generated from deals.

PEMSEA developed a standardized process for identifying and developing investment projects focused on five steps in the life cycle of investment project development:

- 1) Project Sourcing, originating blue economy projects from the PEMSEA network;
- 2) Pre-Feasibility, with initial diligence and matching of identified projects with potential investors to gather early feedback;

- 3) Feasibility, with further diligence and determining fit of the project to the investor;
- 4) Project Development, to develop the project to full investment-readiness; and
- 5) Investment.

Simple process templates were created to balance ease of use by local project proponents with obtaining the necessary information to understand a potential investment.

3.4 PEMSEA Knowledge Management for Enabling Investment

With funding support from the GEF and The World Bank, the Seas of East Asia Knowledge Bank was launched in 2016 as a platform for policymakers, planners, managers, investors, and other stakeholders to scale up ICM and investment in sustainable development of coasts and oceans in the region (seaknowledgebank.net). The platform provides access to a collection of case studies, manuals, technical reports, and other resources, along with opportunities for engaging and collaborating with peers and experts. The Knowledge Bank supports local governments and other stakeholders in identifying and developing projects that could attract investment.

The Knowledge Bank includes unique features supporting the identification, development, and sharing of sustainable and investment-ready projects and enterprises in coastal and ocean areas. The design is based on extensive research of the investment landscape in East Asia and the needs of governments and projects developing investments, along with the expectations of the investment community. It provides a jump-start in understanding the enabling environment for investment, identifying investment gaps and opportunities, and assessing the investment-readiness of projects through simple online assessments. Investors can express interest in specific investment areas and connect with organizations to explore opportunities for collaboration and blended finance approaches.

The platform aims to not reinvent or compete with existing platforms or services, rather its focus is on helping projects and governments to become more investment ready. Based on the outcomes of the assessments, project proponents are able to submit a project to PEMSEA through the platform for further evaluation. Projects meeting minimum criteria can be plugged into PEMSEA's pre-investment facility for further development and linking with investors.

The Knowledge Bank also aims to increase investor confidence in the social and environmental benefits of the projects they invest in, as well as increase the visibility, accountability, and transparency of the projects funded to investors, policy makers, and the public at large.

4. PEMSEA BLUE ECONOMY INVESTMENT PILOT CASE STUDIES

As the first step in applying the concept of an ocean pre-investment facility, PEMSEA initiated the development of pilot cases to a) identify and validate potential forms of investment opportunities available; b) learn-by-doing about the process, partnerships, and expertise needed to develop investments; c) understand the on-the-ground context, reality, and barriers for blue economy investment; and d) begin establishing track record to promote, facilitate, and package investments. PEMSEA engaged international experts to develop investment cases in four ocean-related sectors—sustainable seafood, marine protection and sustainable tourism, wastewater management, and ocean plastic pollution. Given the proprietary nature of the investment cases, they are not publicly available documents at the time of writing.

The cases were developed to include proper business and financial modeling, i.e., models for operations, revenue generation, and managing costs and risks. They also aimed to include financing considerations such as sources and uses of investment proceeds, target returns, investment terms, and potential investment funds identified. While the pre-investment facility would target a range of investment sizes, the initial set of pilot case studies focused on smaller impact investments that the typical emerging ocean funds are seeking.

4.1 Sustainable Seafood: Applying a New Business Model to Meet a Growing Market Need

PEMSEA partnered with Impact blue, a sustainable fisheries and aquaculture project developer, to create an investment case for the launch of a Philippines-based sustainable seafood venture. Due to the complexity of fisheries governance in East Asia, aquaculture was identified as the target sector for impact investment. Through a rigorous screening process, grouper was selected as the species with highest impact potential and lowest business risk among species that are feasible for farming in the region.

The grouper is an iconic marine finfish found throughout Southeast Asia, prized as a high value whitefish among Asian and other consumers. Because of its high value, wild groupers are overfished and under threat of depletion. In some parts of the region, wild grouper harvesting has increased five-fold within the past two decades to support growing demand (Yulianto et al. 2015). Groupers are generally not resilient to fishing pressure because of their slow growth and late maturity. Added to this, groupers are often harvested with particularly damaging fishing practices, including the use of cyanide and dynamite, which can devastate marine ecosystems. In spite of growing interest from high-end buyers of grouper products, there is no sustainably sourced or produced commercial grouper available.

The investment case explores a joint venture for a sustainable grouper farming operation. The operation includes a local Filipino partner company under the strategic and operational guidance of Blueyou, an international sustainable seafood company (and founder of Impact blue), managed against strict environmental standards for sustainable aquaculture, as well as direct market access through an existing local subsidiary, Meliomar, a Manila-based seafood processing and distribution business. Blueyou and Meliomar's leadership and management teams bring extensive on-the-ground expertise and a track record of sustainable seafood sales in the Southeast Asian Region.

The venture requires investment to build vertically integrated hatchery, nursery, and grow-out operations aiming to sustainably produce grouper products for distribution as live and fresh products in the Philippines and regional Asian markets. Investment proceeds would be utilized for capital expenditures to build the land-based hatchery and nursery facility, to construct the open-water farming operations, and to build a proximate packing and dispatch station, along with working capital requirements.

The grouper farming operation will be established based on the Tropical Marine Finfish standard in development by the Aquaculture Stewardship Council and may also consider organic certification in the future. The operation will source fingerlings exclusively from its vertically integrated, local hatchery operations, use traceable and sustainably sourced feed ingredients, and monitor all impacts on the farm's aquatic environment. The venture will offer a sustainably produced alternative to overfished wild caught grouper and would be the first certified sustainable producer of grouper in any market worldwide.

4.2 Marine Protection and Sustainable Tourism: An Innovative Management Approach and Investment Vehicle for Sustainable Use of Marine Resources

PEMSEA partnered with Blue finance, an NGO project developer for structured investments in coral reef conservation, livelihood improvements, and climate change resilience for coastal communities, to create an impact investment scheme for marine protection in SE Asia. Blue finance prepared an investment case based on a proposed public-private partnership (PPP) between local government and a newly created private operator. The partnership is formalized through a co-management arrangement, which requires no increase in public debt, no public budget allocation, and no transfer of property. Such an approach is being applied in the Caribbean, e.g., in the Dominican Republic, where Blue finance is developing a US\$2.5 million investment for a marine sanctuary covering 8,000 km² of coastal ecosystems (CFA 2018).

The project sought to identify a pilot site with the highest probability of success based on factors including local government interest, marine protected area (MPA) governance, tourism potential, and biophysical characteristics. The assessment identified the MPA network in Northern Oriental Mindoro in the Philippines as the top candidate site. Considered to be the center of the center of marine biodiversity globally, the area is home

to vibrant coral reef, mangrove, and seagrass ecosystems and is one of the country's top ecotourism destinations. The network includes 450km² of coastal ecosystems with 400,000 annual visitors. But, the area is under a number of threats including uncontrolled tourism development and activities, unsustainable fishing practices, nutrient and bacteriological pollution from untreated and partially treated sewage discharges, foreshore encroachment, erosion and sedimentation, inadequate water supply, and proximity to international and domestic shipping lanes.

The proposed investment involves co-management of the MPA network by a non-profit, non-stock special purpose entity (SPE), through a 10-year renewable agreement between the province, four local government units and the SPE, with a mechanism for termination of the agreement in case of underperformance. The SPE, guided by a Co-Management Committee comprised of public, NGO, and academic stakeholders, would receive a mandate from the concerned local governments to charge statutory user fees to generate revenue. However, initial funding is needed from impact investors to launch the venture and invest in the necessary assets and equipment.

The US\$1.5 million investment required for initial capital expenditures in the MPA network is structured as a senior 8-year loan (i.e., a loan at 8% interest rate, with debt holders getting paid back first before those with more junior loans) to the newly-created non-profit SPE, with no collateral guarantee required. The investment is secured via the PPP with the government. The investors provide a loan based on the agreement that guarantees user fees and other revenues will be used to repay the loan. The loan will be paid back by the SPE through revenues of more than US\$1 million annually generated from statutory visitor fees and innovative sustainable tourism activities.

Enhanced management of the MPA is expected to result in reduced overfishing and user conflicts, sustainable tourism practices, improved enforcement of water quality regulations, improved fishery incomes for local communities, opportunities for ecotourism businesses, protection from coastal erosion, and resilience to climate change, benefitting an estimated 35,000 households.

4.3 Wastewater as a Resource: Applying New Technology with Appropriate Regulation

PEMSEA partnered with ARCOWA, an advisory firm focused on sustainable and entrepreneurial water and ocean management, to improve the understanding of in-country wastewater sector opportunities and constraints in Indonesia, the Philippines, and Viet Nam. The project followed a systematic process to identify a validated, high-potential investment case. For each country, studies were conducted on investments in wastewater focused on assessment of the financial feasibility of resource recovery from the waste stream, including energy, water, and nutrients (ARCOWA 2018a; ARCOWA 2018b; ARCOWA 2018c). The studies covered the urban and industrial wastewater sector in the

three countries as a basis for further analyzing opportunities to invest in wastewater treatment and resource recovery and as an initial step in the potential mobilization of public and private investments

Following the country research, a water company serving a special economic zone in the Philippines was identified as a candidate for the development of a pre-feasibility study. The company is currently not meeting the general effluent standards on nutrient concentration (for class C water bodies) in the Philippines, particularly so with respect to ammonia and phosphates. The pre-feasibility study recommended options for upgrading the company's existing wastewater treatment facility (WWTF), enhancing its capacity to remove the nutrient content of the wastewater in compliance with the effluent standards.

The existing WWTF has a design capacity of 27,000 m³/day and is comprised of a series of lagoons with two activated sludge ponds, two aerated partial mix ponds, and two maturation ponds. Discharge of the effluents impact local waterways and, ultimately, contributes to excessive nutrient loadings of Manila Bay. The main drivers for upgrade of the WWTF in the economic zone are compliance with the new wastewater effluent norm, potential for water re-use (sales) due to water scarcity, expansion of activities in the economic zone, and reduction of the WWTF footprint and associated lease costs.

Of the options for upgrading and retrofitting the existing WWTF, biological nutrient removal combined with chemical phosphorus removal was found to be the most financially viable. A capital investment of 68 million Philippine Pesos (approximately US\$1.3 million) would have a return on investment of more than 8% and a payback period of less than two years, the best performing option from a financial standpoint compared with the other options analyzed. Implementing the proposed upgrade of the WWTF would result in a reduction in nutrient discharge to the local waterways and Manila Bay. Total nutrient discharge would be reduced by approximately 15 tons per year. The resulting water reuse would also reduce pressure on groundwater resources.

4.4 Ocean Plastic Pollution: Unlocking Institutional Funding by Addressing the “Missing Middle”

Eight million metric tons of plastic from land-based sources enter the ocean every year, much of it a consequence of under-investment in both infrastructure and operations for waste management services (Circulate Capital 2019). This is especially important in East Asia, which is home to the largest contributors to ocean plastic leakage (Jambeck et al. 2015).

The 2016 report *The Next Wave* published by the Ocean Conservancy showed that integrated, locally appropriate waste management solutions are needed, but it is highly unlikely that government funding alone will be sufficient. Private investments are needed to overcome barriers and transform the system, including (Ocean Conservancy 2017):

- a) collection, sorting, and processing systems;
- b) designing more products for profitable recycling and incentivizing the use of recycled feedstock where feasible in product manufacturing;
- c) inclusive integration with the informal waste-picking economy to effectively collect and sort material while realizing benefit throughout the supply chain; and
- d) supporting waste system education and outreach programs.

PEMSEA established a partnership with Circulate Capital, an impact-focused investment management firm dedicated to incubating and financing companies and infrastructure that prevent ocean plastic pollution, with a strong focus in PEMSEA's region. Not unlike other sectors examined, investment in solid waste management suffers from a lack of pipeline opportunities. There is a "missing middle" of investible entities that can demonstrate a track record of profitability and growth. Circulate Capital aims to "blend concessionary and philanthropic monies with market rate investment capital to unlock institutional funding by showing that investment in the resource recovery sector can ultimately provide attractive financial returns" (Circulate Capital 2019).

With its focus on South and Southeast Asia, Circulate Capital stands as an important investment partner for the region. By late 2018, it announced more than US\$100 million in commitments toward investing in waste management and recycling companies and infrastructure in the region. The partnership represents a step forward in understanding and developing a pipeline of potential investments. Early examples include a women-owned and managed producer of high- and medium-grade recycled Polyethylene terephthalate flakes for the packaging and textile industries based in Tangerang, Indonesia and a developer of waste-to-worth projects in the Philippines.

5. LESSONS FOR DEVELOPMENT ORGANIZATIONS AND INVESTORS

5.1 Lessons Learned from Pilot Case Studies

Based on the pilot studies of PEMSEA's blue economy investment programs briefly summarized in this paper, several practical lessons emerged for national and international development organizations, local and national governments, and investors to consider as they work together to develop blue economy investments. These lessons are further elaborated in PEMSEA's report (forthcoming at the time of writing) *Enabling Blue Economy Investment for Sustainable Development in the Seas of East Asia: Lessons on Engaging the Private Sector for Partnership and Investment* (Whisnant and Ross 2019).

It can take significant time and resources to develop viable investment projects. It is important to recognize the runway of time and resources required to build up a first

pipeline of bankable projects in a new blue economy asset class that is aligned with the government approved action programs for sustainable use of coastal and ocean resources. Identifying the necessary funding for capital and operating expenses along with sources of funding are critical elements for pre-feasibility work. Even a small- to medium-scale investment may take a year or more to develop, prior to engaging investors. The cost for these projects is estimated to be, at a minimum, 10% of the investment ticket size (i.e., a US\$2 million investment could cost at least US\$200,000 for the right project development and financing expertise to develop a case).

One of the reasons for a longer timeline to develop investments is a misalignment of understanding and expectations between development agencies and investors of what constitutes an “investment”. Development organizations tend to see investments more broadly as any use of funds that stimulates financial flows for sustainable development. They work on behalf of local or national governments and have an important role to play in establishing policy, regulatory, and enforcement frameworks that provide an enabling environment for transitioning to more sustainable investments. Often, governments are the ones commissioning the investments needed to implement the SAPs. The private sector, on the other hand, has a narrower definition of investment that includes an expectation of financial return to the provider of the funds.

There is a need to address the “missing middle” to improve the pipeline of projects suitable for private investment. The vast majority of cases identified by the international donor community don’t have a sufficiently viable financial model for generating acceptable returns or an approach to managing risks. Even viable business models must be translated into a format that includes required information for an investor, e.g., cash flow analysis, capital structure, uses of investment proceeds, target returns, investment terms, etc. There is value in investment experts being involved from the beginning, alongside the project developer, to ensure investor concerns and questions are addressed. The active participation by an investment expert can also provide links to investors for feedback and lining up initial interest.

At the same time, local and national governments may not have the necessary knowledge to develop investments for private investors, e.g., market-ready innovative technological solutions or financial structures that blend resources from different sources.

Local and regional intermediaries play a crucial role in the investment ecosystem. From an investor perspective, development organizations are needed to open doors, provide local context, and deliver technical assistance. They are needed to address both operational complexities and governance challenges, particularly in ensuring development outcomes with the proper social and environmental safeguards and benefits for local communities. Intermediaries can help investors by leveraging regional networks,

navigating the local political setting, identifying pipeline investments and opportunities for aggregation, and assisting with monitoring and evaluation.

Holistic, integrated approaches are needed. All project partners, from intermediaries to investors, have the responsibility for ensuring that investments consider economic, social and environmental interrelationships, impacts, and trade-offs that can contribute to the transition to more sustainable regional development pathways. GEF-funded projects, through the Transboundary Diagnostic Analysis and Strategic Action Program approach, have identified such synergies and trade-offs and hence can provide guidance, not only on the challenges, but also opportunities.

New approaches require new mindsets. Sustainable blue economy development provides an opportunity to look beyond traditional models, think outside the box, and try new approaches. Investment necessitates a process of discovery and some tolerance for risk taking. Political will is needed to set policy and regulatory frameworks that can enable investors to enter. Governments can provide support including credit enhancement, tax credits and subsidies for investors, funding for technical assistance, and even co-investment. It's vital to ensure full transparency and buy-in from local stakeholders. While government tends to be more risk averse, the donor community is able to provide the additional support needed to allow for experimentation with new approaches.

5.2 Potential Roles for Development Organizations

The research identified six key roles that development organizations should consider for advancing blue economy investment (Table 2). These roles are overlapping and mutually reinforcing in certain areas. Organizations may find that they can fulfill multiple roles.

The framework highlighted in Table 2 demonstrates how development organizations are well positioned to address the constraints to investing in the blue economy expressed by private investors identified in section 1.1.3. For instance, private investment needs predictability and a clear understanding of governance structure and the “rules of the game”. Development organizations functioning as Investment Enablers help to address these constraints by advocating for policy reforms and facilitating governance that includes proper regulatory and enforcement regimes.

Table 2: Potential Roles for Development Organizations to Advance Blue Economy Investment

Role	Objective	Typical Activities	Best for organizations with...
<i>Technical Advisor</i>	Deliver technical expertise on conservation, sustainable development, and impact investment aspects of projects and enterprises	<ul style="list-style-type: none"> ● Provide technical expertise to development projects and/or investors supporting environmental and social impact and investment-readiness ● Provide independent measurement and evaluation of impacts 	<ul style="list-style-type: none"> ● Technical expertise and experience delivering services ● Understanding of local context ● Ability to collect data and experience measuring and evaluating development outcomes
<i>Pipeline Developer</i>	Leverage local knowledge and relationships to identify and develop potentially investable projects and enterprises	<ul style="list-style-type: none"> ● Identify potential pipeline of investment opportunities ● Provide accelerator, incubator, or technical assistance services to build investment-readiness of projects and enterprises 	<ul style="list-style-type: none"> ● Local relationships and understanding of local context ● Track record of local capacity-building ● Sufficient on-staff or outsourced business / finance expertise ● Access to interested investors
<i>Ecosystem Builder</i>	Coordinate and promote relationships and knowledge to advance blue economy investment	<ul style="list-style-type: none"> ● Develop partnerships and establish linkages between organizations along the blue economy investment value chain ● Produce knowledge products ● Conduct local, national, and regional convenings and dialogues to further knowledge sharing and relationship building 	<ul style="list-style-type: none"> ● Research expertise and track record of knowledge management ● Experience designing and delivering successful workshops and conferences ● Relationships and ability to convene government, NGO, private sector, multilaterals, etc.
<i>Investment Enabler</i>	Serve as a policy-oriented advocacy and capacity-building platform for creating the right conditions for private investment	<ul style="list-style-type: none"> ● Advocate for policy reforms and public investment with local and national government ● Facilitate proper governance, including 	<ul style="list-style-type: none"> ● Relationships and experience engaging local and national government and multilaterals on policy issues ● Track record of local capacity-building

		<p>regulatory and enforcement regimes needed for investment</p> <ul style="list-style-type: none"> ● Provide capacity-building, primarily of local stakeholders, on requirements for private investment 	<ul style="list-style-type: none"> ● Sufficient on-staff or outsourced business / finance expertise
<i>Finance Catalyzer</i>	Utilize blended finance to de-risk investments or fund project development and investment readiness	<ul style="list-style-type: none"> ● Cultivate relationships and execute projects for donors (e.g., multilaterals, foundations) ● Develop project concepts and proposals blending public, donor, and private capital 	<ul style="list-style-type: none"> ● Relationships with international funders ● Ability to access specific donor funding (e.g., as a Global Environment Facility or Green Climate Fund Implementing Agency) or close relationship with such partners ● Track record of developing project proposals and accessing grant capital ● Sufficient on-staff finance expertise
<i>Capital Provider</i>	Provide the organization’s own capital to a project or enterprise as either a grant or an investment to help achieve development outcomes	<ul style="list-style-type: none"> ● Provide grants with no expectation of repayment ● Make investments with an expectation of financial return, at a minimum, preservation of invested capital 	<ul style="list-style-type: none"> ● Legal structure allowing for disbursement of grants and investments ● Sufficient on-staff finance expertise ● Access to sufficient capital and willingness to risk it

6. CONCLUSIONS

The international development community, through organizations including the United Nations and the Global Environment Facility, has made great strides in helping countries to prepare for “greener”—for oceans, “bluer”—economies through standard setting, assessments, and action programs. Now is the time to move from preparing countries for the transition to blue economies to redirecting trillions of dollars to more sustainable investments. Sustainable blue economies should move into the mainstream from their unrealized role in the global economy.

The set of institutions, tools, and financing vehicles that served the global community well in preparing for a transition to blue economies now need to be enhanced by a new set that can redirect financial resources towards more sustainable investments. Current approaches and tools have brought the global community to the economic paradigm of today, but they will not suffice to transition to a more sustainable and equitable development pathway. This paper has described one approach for blue economy investments, developed and tested within the governance framework for the Seas of East Asia.

Recommendations for Transforming Investment Towards a Sustainable Blue Economy

1. Transformative change requires political support and civil society engagement to gain momentum. The strategic planning frameworks created under the GEF-supported Large Marine Ecosystem and Regional Seas Programs provide readily available policy frameworks to obtain the needed political support and momentum. This will be needed for the transparency and accountability required for establishment of new blue economy asset classes. It can also facilitate monitoring of the long-term sustainability of economic, social, and environmental impact.
2. Technological breakthroughs, developments in natural resource management and business planning, and insights into what drives human behavior provide ample opportunities to effect disruptive change. This knowledge needs to be shared and applied to SAP-driven investments at local and national levels.
3. Donor exit strategies should be an integral part of new private sector finance vehicles that support blue economy investments and derive their pipeline in part from the preparatory work that the development agencies have conducted over more than two decades. New financing vehicles need to be developed that allow some of the investment profits to return to the development organizations (e.g., through a success fee on closed deals) that are instrumental in moving communities and economies towards more sustainable development patterns.
4. Bridges need to be built between the activities of the development community and those of the commercial investment community. Both parties can learn from each other and jointly work on pipelines of investible projects from the conceptual phase through to deal close. Public funding will be needed to de-risk financing of the first sets of pipeline projects, helping to bring these new asset classes to the market.
5. Development of more pre-feasibility studies of viable investment cases are needed. There's a clear need and interest from both the investor community and by local

stakeholders for pre-investment assistance. It is important that this is done well in the initial stages so blue economy investments build a strong track record of success

Technologies, systems, and models are available today to address the mounting challenges facing sustainable development of coasts and oceans. As illustrated in this paper (see Table 1), several experienced international organizations are focusing resources on new solutions and models. But much more investment will be needed. Real, on-the-ground change cannot stray far in any one step from what development organizations and the private sector consider business-as-usual. However, while concrete action must be stepwise, the vision for a better, more sustainable and equitable future must be grand and ambitious. This paper has proposed one such transformative approach to strengthening private investments in the blue economy to address the long-term sustainability and health of oceans and coastal economies.

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