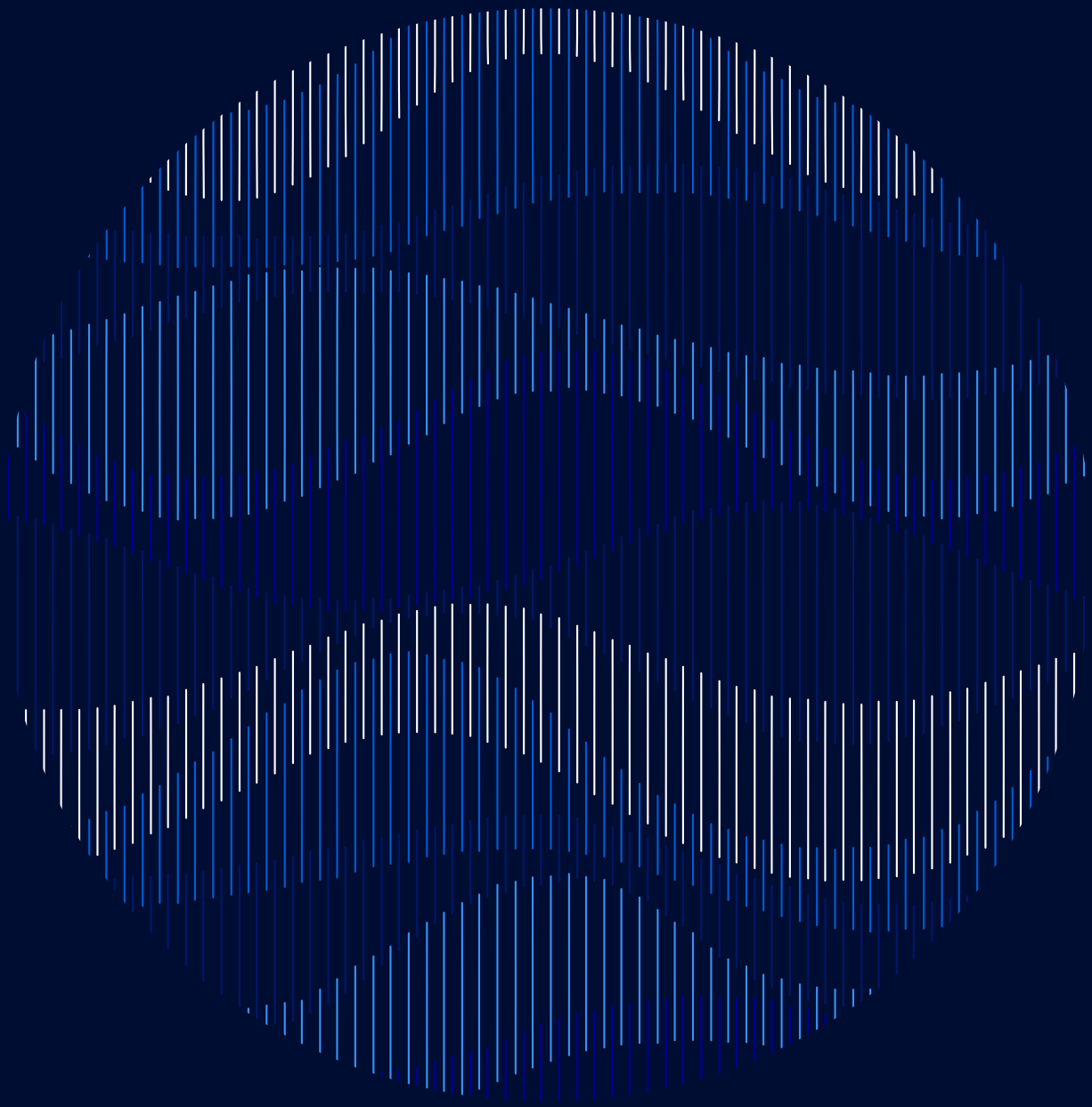
SCALING OCEAN FINANCE

Blue bonds and innovative debt instruments for a sustainable ocean economy in MENAT and APAC



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ABOUT THIS REPORT

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AUTHORS AND ACKNOWLEDGMENTS

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The views and opinions expressed in this report are only those of the authors and the individuals consulted, not those of the institutions listed above.

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FOREWORD

The ocean holds the key to a more resilient and nature-positive world. The planet's ability to sustain us and ensure our well-being hinges critically on the health of the ocean. It regulates our climate, provides food and energy and protects us from the devastation of climate impacts. It offers holistic, scalable and cost-efficient solutions to address the twin crises of climate change and biodiversity loss.

Financing a sustainable ocean economy will be vital to realise this brighter, bluer future and deliver on the Ocean Breakthroughs – a blueprint for transformative pathways across key ocean sectors where accelerated action and investment can contribute to a resilient and net zero world by 2050.

Blue bonds can play a critical role in this agenda, unlocking finance for governments, businesses, and financial institutions to invest in sectors like protection and restoration of marine ecosystems; clean offshore renewable energy; the transition of our shipping and port industries; and resilient aquatic food systems that can promote food security for billions of people.

This report offers a clear vision for the opportunity for blue bonds to accelerate a sustainable ocean economy in MENAT, APAC and beyond. It also highlights urgent priority actions to achieve this vision. It is an important resource to inform blue bond issuers and investors.

H.E. Razan Khalifa Al Mubarak
UN Climate Change High Level Champion for COP28

ABBREVIATIONS

ADB	Asian Development Bank
APAC	Asia-Pacific
ASEAN	Association of Southeast Asian Nations
DFI	Development financial institution
DFNS	Debt-for-nature swap
EEZ	Exclusive economic zone
EMDE	Emerging markets and developing economies
ESG	Environmental, social and governance
GBP	Green Bond Principles
GBS	Green Bond Standards
ICMA	International Capital Markets Association
IFC	International Finance Corporation
IMF	International Monetary Fund
IUU	Illegal, unreported and unregulated fishing
KPI	Key performance indicator
LMIC	Low middle income country
LOS	Large Ocean State
MDB	Multilateral development bank
MENAT	Middle East, North Africa and Turkey
MPA	Marine protected area
SBE	Sustainable blue economy
SBG	Sustainability Bond Guidelines
SBP	Social Bond Principles
SBTN	Science Based Targets Network
SDGs	Sustainable Development Goal
SIDS	Small Island Developing States
SLB	Sustainability-linked bond
SLBP	Sustainability-linked Bond Principles
SOE	Sustainable ocean economy
SPT	Sustainability Performance Targets
UN	United Nations
UNEP-FI	United Nations Environment Program Finance Initiative
UOP	Use of proceeds
USD, $	United States Dollar

EXECUTIVE SUMMARY

The ocean is an indispensable natural asset, offering vast economic, environmental and social benefits that sustain life on earth as we know it. Despite the growing threats it faces, the ocean offers a vital ally in combatting the climate, biodiversity and food security crises, and in building a more resilient, nature-positive and net-zero aligned economy. Investment will be critical to accelerate the shift from extractive and polluting blue business models towards sustainable and regenerative alternatives, and to unlock the ocean's vast potential.

Blue bonds can be a powerful tool to support this transition. First issued in 2018, these innovative financial instruments are gaining traction fast. While the market today remains nascent, the prize is clear. If growth continues at the same rate as seen on the more mature green bond market, blue bonds could mobilise up to $14bn of new finance in 2030 and close almost 10% of the estimated annual funding gap for SDG 14. While the overall ocean investment need is much bigger, bonds will be a critical piece of the puzzle, attracting both public and private capital to the blue economy.

When it comes to ocean-themed instruments, no one size fits all. While use-of-proceeds bonds are most common, sustainability-linked bonds, blue debt-for-nature swaps and other debt financing instruments can all be used to raise money for blue economy projects.

These instruments have important differences – they are applicable to different issuers, have different use cases and are at different levels of maturity. Use-of-proceeds bonds can be used to channel funding into specific, pre-defined blue sectors that need to transition, adapt or scale. Sustainability-linked bonds are well-suited for transitioning sectors to finance general sustainability strategies by introducing forward-looking performance indicators related to ocean health. Debt-for-nature swaps can help break the climate/debt trap by reducing countries' debt burdens while unlocking funding for marine conservation and resilience.

Private, public and development actors all have a role to play to scale blue debt instruments. Their relative roles vary across sector based on expected returns, types of projects and investment needs, and across geographies. Governments, alongside developing favourable and clear policies, should raise capital for marine protection, restoration, coastal adaptation, and to support local communities.

Corporates can expand or improve their sustainable ocean-related activities, while commercial banks can support smaller private companies unable to access capital markets. Development finance institutions have a critical multifaceted role – they can issue blue bonds, provide de-risking and concessional lending when needed, and build capacity across sovereigns and the private sector.

Vast potential exists for blue bonds to support key sustainable blue economy sectors in Asia-Pacific (APAC) and the Middle East, North Africa, and Türkiye (MENAT).

In MENAT, the most water scarce region in the world, investment can boost freshwater availability while addressing ocean pollution. Blue bonds could also unlock finance to help transition fossil fuel dependent economies to renewable offshore energy. In APAC, unlocking financing for restoration and protection of vital ecosystems, supporting sustainable fisheries and aquaculture, as well as scaling solutions to plastic pollution and wastewater treatment can benefit ocean health while strengthening livelihoods and human health. In both regions, innovative financing mechanisms can also enable a transition to sustainable models in ports, shipping and tourism sectors.

The world does not only need more blue bonds, it needs better blue bonds. For blue issuances to emulate the growth seen in green finance in recent years calls for tackling three main challenges: first, creating capacity on the supply side to scale blue bonds issuances; second, boosting investor demand by building confidence in the market; and third, making sure that proceeds are fully utilised and deployed in high impact projects. Improving governance, creating supportive frameworks and policies, developing pipeline and focusing on robust KPIs and data access can be critical unlocks to mainstream the blue bond market and mobilise capital at scale for the ocean.

Chapter 1

THE CASE FOR FINANCING A SUSTAINABLE OCEAN ECONOMY

Covering over 70% of the earth's surface, the ocean is a cornerstone of planetary health and human wellbeing. It is a source of immense biodiversity, with 80% of all animal biomass on Earth.[1] Its economic benefits are vast.

Ocean-linked sectors contribute $2.5tn in export value annually to the global economy[2] and a further two-thirds of it is moderately or highly dependent on ocean resources. But the ocean's enormous value extends far beyond its economic contribution. It also provides numerous ecosystem services crucial to sustaining life on earth: it acts as a carbon sink and regulates the climate, is a vital source of food, provides protection for coastal communities and their assets, and offers immense social and cultural services.

Despite its importance, the health of our ocean is under threat. Climate change, pollution, habitat destruction and over-exploitation are driving critical changes in the ocean, including rising temperatures, acidification, sea-level rise, and biodiversity loss. These alterations threaten the functioning of marine ecosystems and pose significant risks to economies, communities, and the very fabric of life on Earth.

Alterations in the ocean are already disrupting critical sectors that depend on its health, including tourism, aquaculture, and fisheries. If unchecked, ocean stressors could cost the global economy $400bn annually by 2050.[3] The consequences of neglecting this vital resource could also have far-reaching social costs including unprecedented flood damage, exacerbating inequalities, displacement of populations, and rising food insecurity.

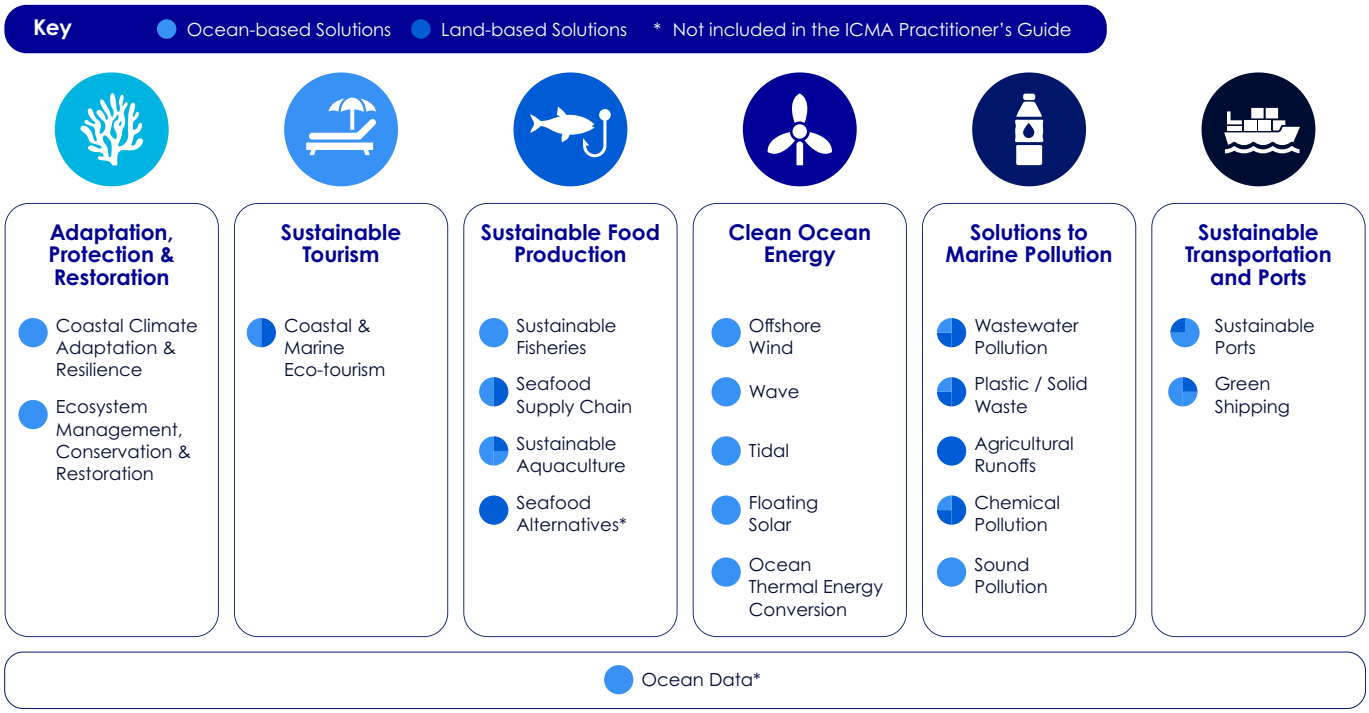
But the ocean is not a victim – it also holds the potential to be a powerful ally in the fight against the climate and biodiversity crises. It is a resilient system, capable of astonishing recovery. On average, species richness is 21% higher and biomass of fish is 6x higher in Marine Protected Areas (MPAs) than in adjacent unprotected areas. Clean ocean-based activities could reduce global greenhouse gas emissions by up to 4bn tonnes CO2e by 2030, and close one-fifth of the carbon mitigation gap to reach net zero by 2050.[4]

Within the vast expanse of the ocean lies a wealth of investment opportunities that can drive sustainable development and climate resilient economic growth. The ocean could generate 40x more renewable energy by 2050[5], with potential for offshore wind alone to generate ~20x more power than total global electricity consumption in 2020, if fully utilised.[6] The full potential of the marine economy, including non-monetised ecosystem services, is estimated to be worth at least $24tn.[7]

Unlocking the ocean's full potential means shifting away from traditional extractive and polluting economic models and towards a 'sustainable ocean economy' – a paradigm that recognises the need for sustainable use of ocean resources to protect the vital services it provides for people, planet, and prosperity.[8] As outlined in Figure 1, building a sustainable ocean economy will call for action across many sectors, including transitioning existing industries and scaling new regenerative ones.

Figure 1

Sectors for Investment in the Sustainable Ocean Economy



Sources The Ocean Impact Navigator (2022), Bonds to Finance the Sustainable Blue Economy: Practitioner's Guide (2023), Systemiq

Now, investment is needed to rapidly unlock the potential of a sustainable ocean economy.

Private, public, and philanthropic capital will all have a role to play. Governments must also act to create the right policies and incentives to accelerate investment. Scaling up existing sources of capital will be key, but so will innovative mechanisms that unlock new sources of finance for governments, businesses, and projects.

Blue bonds are one such promising financial instrument. This report explores the growing market for these innovative debt instruments and highlights opportunities for leaders across the private, public, and development spheres in MENAT and APAC to accelerate progress towards a sustainable ocean economy.

Chapter 2

AN EMERGING MARKET: THE EVOLUTION OF BOND INSTRUMENTS FOR A SUSTAINABLE OCEAN ECONOMY

BLUE BONDS CONTEXT

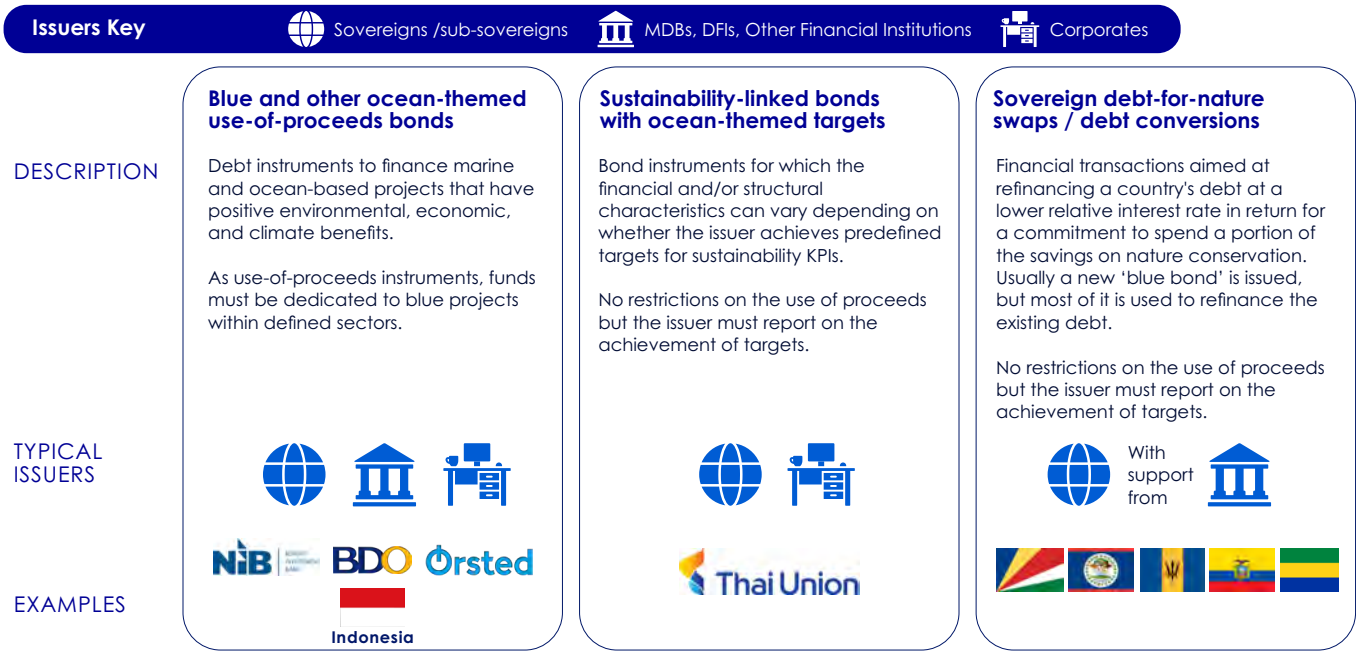
Blue bonds first emerged on the sustainable debt market in 2018 as an innovative instrument for financing a sustainable ocean economy. Like conventional bonds, they are a fixed income instrument, where bond investors lend money to the bond issuer, who agrees to repay a fixed interest rate (coupon) on a fixed schedule and return the initial investment (principal) upon maturity of the bond.

Blue bonds are usually considered a subset of the more mature and developed market for green bonds. Green bonds finance projects and activities with environmental benefits, facilitating the shift to a low-carbon, climate-resilient and resource-efficient global economy.[9] Blue bonds, on the other hand, focus explicitly on the ocean economy. The World Bank defines them as a "debt instrument issued by governments, development banks or others to raise capital from impact investors to finance marine and ocean-based projects that have positive environmental, economic and climate benefits."[10]

Although research, analysis and proof points are increasing in number, the blue bond market continues to experience some growing pains. Differences in definitions and labelling have created complexities in judging the effectiveness of and potential use cases for blue bonds. Most often blue bonds, like their green counterparts, are considered to be "use-of-proceeds" (UOP) bonds, which means that the issuer must promise to the investors that all of the raised funds will only go to specified programs or assets with direct ocean health benefits. However, there are other types of instruments such as sustainability-linked bonds (SLBs) and debt-for-nature swaps (DFNSs), which can play a role in mobilising additional capital for a sustainable ocean economy. These instruments can be complementary, but, as Figure 2 highlights, do have important differences across relevant issuers and use cases, and are at varying levels of maturity.

Figure 2

Landscape of Bond Instruments to Finance the Sustainable Ocean Economy



OCEAN-THEMED USE-OF-PROCEEDS BONDS

Issuers Key Soverigns, Sub-Soverigns | MDBs, DFIs, Other Financial Institutions | Corporates

Type
Use-of-proceeds

Typical Issuers

Market Maturity
First blue bond issued in 2018

Amount Raised to Date
USD 6.5 billion (excluding debt-for-nature swaps)

Use of Concessional Capital
Possible

Past Examples

Description

Blue bonds are debt instruments issued by governments, development banks, or others to raise funds from investors to finance marine and ocean-based projects that have positive environmental, economic, and climate benefits (The World Bank 2018). They are usually considered a thematic subset of green bonds. Even when not specifically labeled "blue", other UOP bonds such as social bonds (focused on social benefits) or sustainability bonds (targeting a combination of social and environmental benefits) can invest in projects related to the ocean and the sustainable blue economy.

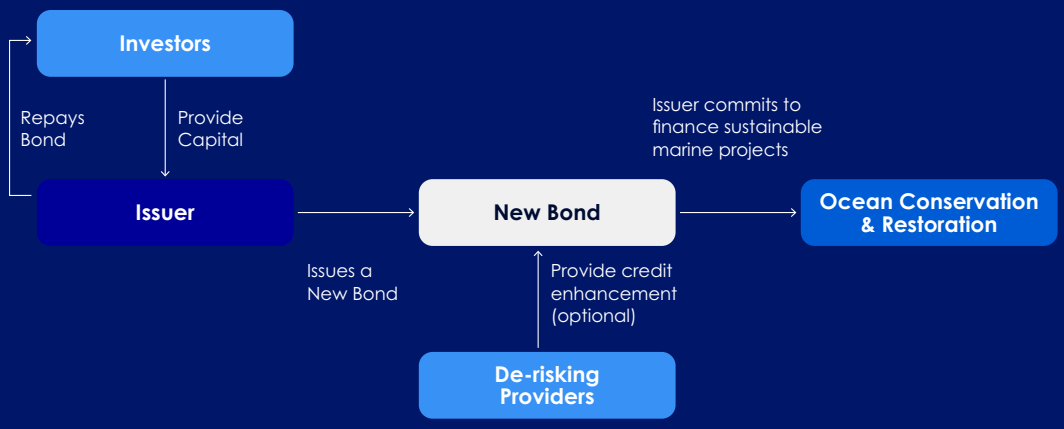
Bond Characteristics

- **Structure:** Blue bonds are structured as other green bonds, where the issuers have a predefined strict use of proceeds.
- **Use of bond proceeds:** Capital raised often goes to ocean conservation (e.g., MPAs, conservation) and restoration, blue infrastructure (e.g., wastewater management, sustainable shipping and ports), sustainable blue economy (e.g., seafood, ecotourism).
- **Impact KPIs:** There is no single recognized set of KPIs. Existing bonds typically use metrics such as GHG emissions, chemicals discharge, highly protected MPA area, water savings, incremental sewage treatment capacity etc.
- **Repayment:** Through state budgets (most common for sovereign bonds), project revenues (most common for banks & corporates), grants and donor capital (sovereign or MDB/DFI bonds) or a combination of these.

State of the Market

UOP bonds (green, social, and sustainability bonds) are underpinned by existing global market standards – the Green Bond Principles (GBP), Social Bond Principles (SBP) and Sustainability Bond Guidelines (SBG) respectively. Building on this, in September last year the IFC, together with ICMA, UN Global Compact, UNEP FI and ADB, published a Practitioner's Guide to act as additional thematic guidance on UOP bonds.

Simplified Sample Structure



SUSTAINABILITY-LINKED BONDS WITH OCEAN-THEMED TARGETS

Issuers Key Soverigns, Sub-Soverigns | MDBs, DFIs, Other Financial Institutions | Corporates

Type
Target-based

Typical Issuers

Market Maturity
First SLB with ocean-themed targets issued in 2021

Amount Raised to Date
USD 152 million

Use of Concessional Capital
Possible for sovereign SLBs

Past Examples
Thai Union

Description

Bond instrument for which the financial and/or structural characteristics can vary depending on whether the issuer achieves predefined Sustainability/ESG objectives. Issuers commit to work on future improvements in sustainability outcomes within a certain timeline which makes them "forward-looking performance-based" instruments (ICMA. 2023. Sustainability-Linked Bond Principles).

While most publicly available blue-labeled bond issuances so far have been UOP bonds, there could also be blue SLBs where some of the predefined targets are related to the marine environment. An example is the SLB issued in July 2021 by the seafood company Thai Union.

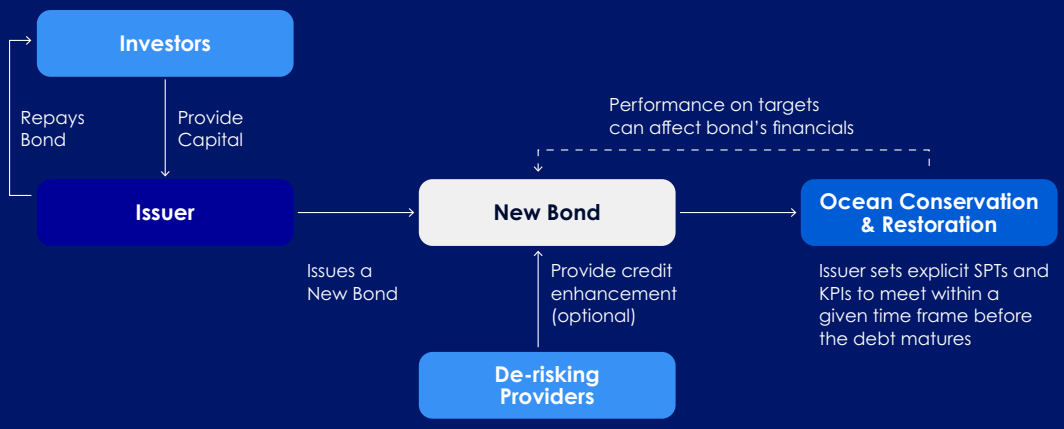
Bond Characteristics

- **Structure:** The most common structure is a potential variation of the bond coupon: if an issuer does not achieve its targets, the bond will be negatively impacted, most often by a coupon increase (ICMA, IFC, ADB 2023).
- **Use of proceeds:** There are no restrictions on the use of proceeds, but the issuer must report on the achievement of its predefined targets. "Blue" KPIs linked to the marine environment and the sustainable ocean economy could include fish survival rate, decrease in nitrogen secretion, pollutants discharged into water, among others.
- **Repayment:** Project revenues or general revenues of the issuer.

State of the Market

The Sustainability-linked Bond Principles (SLBP) provided by ICMA are the voluntary global market standards for SLBs. In addition, the Guidance for Blue Bonds published last year by IFC, ICMA, UN Global Compact, UNEP FI and ADB can be applicable for SLBs incorporating blue KPIs.

Simplified Sample Structure



DEBT-FOR-NATURE SWAPS

Issuers Key Soverigns, Sub-Soverigns | MDBs, DFIs, Other Financial Institutions | Corporates

Type
Debt Conversion

Typical Issuers

Market Maturity
First "blue" debt-for-nature-swap in 2018 (Seychelles)

Amount Raised to Date
USD 1.7 billion

Use of Concessional Capital
Very Common

Past Examples

Description

A debt conversion arrangement where the external debt owed by a debtor country is refinanced at a lower relative interest rate in exchange for linked financial instruments to improve the natural environment in that country (in this case with a focus on the ocean). DFNS differ from traditional blue UOP bonds and sustainability-linked bonds because proceeds of the newly issued bonds are used to refinance existing debt. Only the savings from buying back the debt at a discount or the lower coupon on the new debt go to sustainable ocean-related activities and conservation.

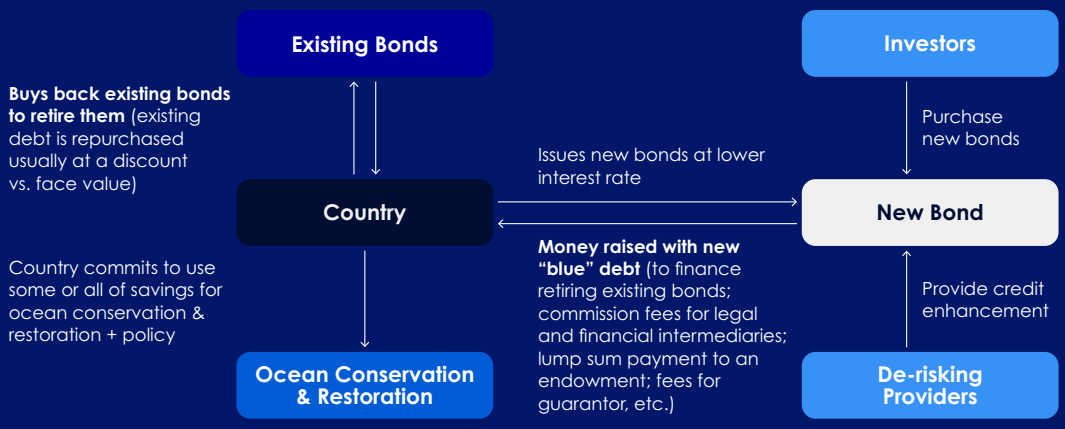
Bond Characteristics

- **Structure:** Exact structure and terms of each deal vary based on the specific situation of the country candidate for a debt swap, including the composition and sustainability of its debt, and conservation and economic objectives.
- **Use of proceeds:** DFNS differ from traditional blue UOP bonds because proceeds of the newly issued bonds are used to retire the existing sovereign debt, while only the savings go to sustainable ocean-related activities and conservation. Those can include expanding MPAs, implementation of governance and regulatory frameworks to improve management of marine waters, support for sustainable development of the blue economy.
- **Repayment:** Predominantly state budget, sometimes in combination with project revenues and/or concessional capital.

State of the Market

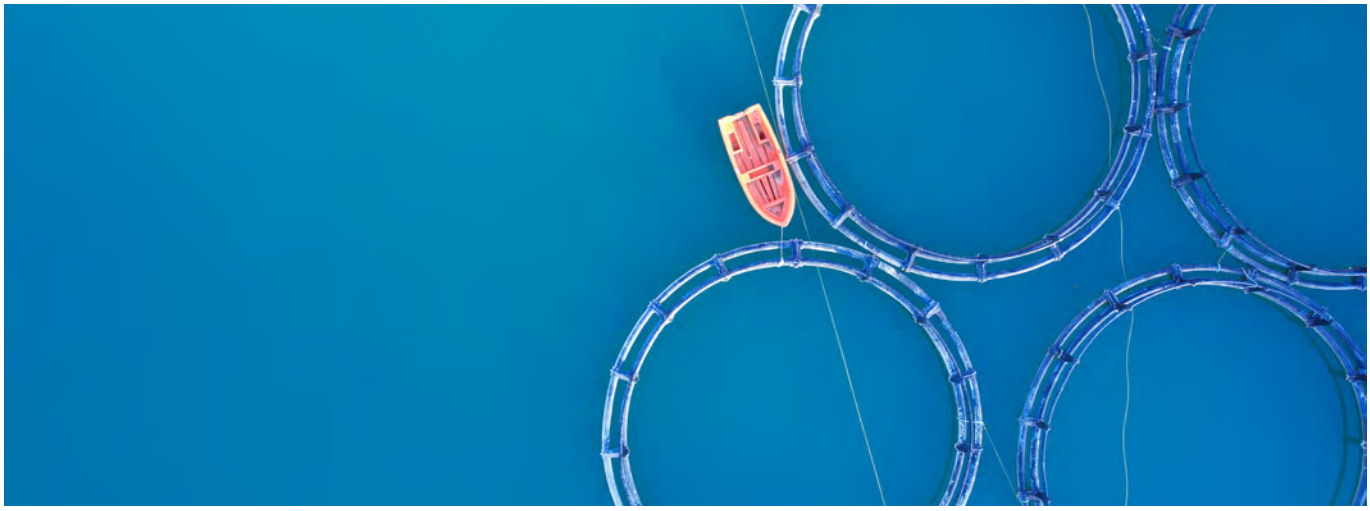
Debt for Nature Swaps are typically bespoke, based on the parties involved and the situation of the borrower country. However, there are indications of growing standardisation. The Nature Conservancy's recently published Nature Bonds Project Toolkit offers insights into the commonalities of commercial debt conversions, describes the steps before and after a transaction close, and highlights practical considerations to support stakeholders.

Simplified Sample Structure



Blue bonds are not, it should be noted, the only debt instruments and structures used to raise money for the sustainable ocean economy. Other examples include blue use-of-proceeds loans, sustainability-linked loans and notes, impact bonds, mangrove bonds, etc.

However, blue bonds are the largest and most promising market today. The opportunities for investment highlighted in the regional deep dives in Chapter 3 could, in some cases, also be applicable to these alternative instruments, amongst others.



ROLE OF DIFFERENT STAKEHOLDERS

Blue bonds are relevant across a range of issuers, including sovereigns, sub-sovereign agencies and state-owned enterprises, multilateral development banks and other international financial institutions (IFIs), commercial banks and large and medium-sized companies. Sovereign actors can issue blue bonds to finance large infrastructure projects, such as waste management and green ports, or for ocean conservation, e.g. to expand marine protected areas or develop governance and regulatory frameworks to improve ocean management. Multilateral development banks and other international financial institutions have a wide spectrum of goals which can vary from supporting conservation and adaptation activities to financing infrastructure projects and companies working on reducing ocean pollution and more sustainable use of water resources.

Commercial banks can issue blue bonds to then extend finance to private sector companies across sectors, such as renewable energy, water, tourism, fisheries and aquaculture. Finally, corporates issue blue bonds to expand or improve their own ocean-related activities. So far, such bonds have been issued by companies in the seafood, shipping, water and sanitation and energy sectors.

But issuers are not the only stakeholders in the blue bond market – many other actors have a role to play in bringing a blue bond transaction to the market. Those include structurers, arrangers, placement agents, underwriters, legal advisors, verifiers, providers of credit enhancement and others that help structure the transaction and market it to potential investors.

Collaboration across actors is also helping to formalise the market. In September 2023 ICMA, IFC, UN Global Compact, UNEP FI and ADB published a Practitioner's Guide on blue bonds to provide additional thematic guidance on UOP bonds supporting the sustainable blue economy and ocean health.[11]

This guidance provides an indicative list of sectors in scope for blue bond issuances (Fig 1), outlines the process, suggests potential KPIs, and describes the benefits for issuers.

STATE OF THE BLUE ECONOMY BOND MARKET

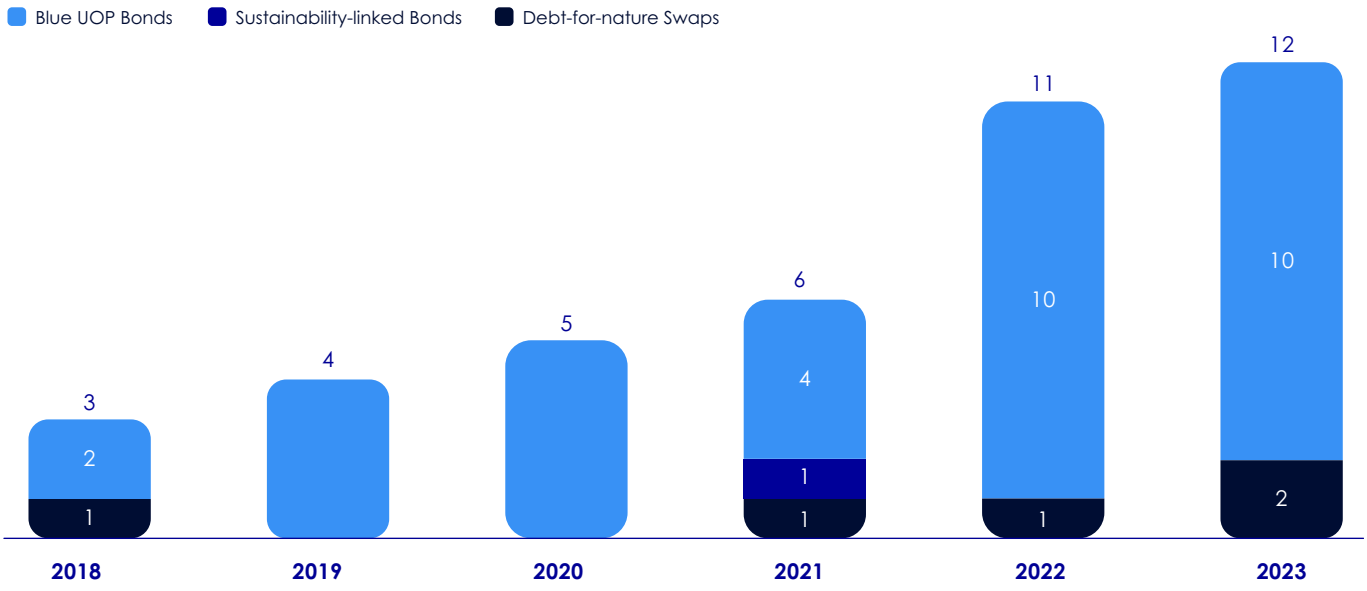
Our analysis mapped more than 40 ocean-related transactions across UOP bonds, SLBs and debt-for-nature swaps that took place between 2018 and 2023 (see Annex 1). This includes instruments that are linked to the blue bond concept even though they were originally marketed differently – for example sustainable development bonds that have been referred to as "blue" or corporate green bonds with a clear link to the blue economy. The analysis only includes bonds and does not account for other blue instruments such as use-of-proceeds loans, sustainability-linked loans, and notes. Moreover, while the analysis focuses on issuances that target ocean health, it also includes blue bonds which explicitly target both SDG 14 (Life below water) and SDG 6 (Clean water and sanitation). This is an area of live debate. The ICMA guidance, for instance, includes clean water and sanitation projects in scope of blue bonds only where these projects have a clear link to ocean health (i.e. are within 100km of coastlines). Other blue bond frameworks such as the IFC's Guidelines for Blue Finance take a more expansive view that places ocean health and clean freshwater on an equal footing. Due to the interconnectedness between the two sectors, we expect some issuers to integrate clean water projects into blue bonds.

Since 2018, blue UOP bonds, SLBs and DFNSs have amounted to approximately $8.3bn across 41 issuances. Although still a small fraction of the overall sustainable bond market – less than 0.2% of the total green, social, sustainability and sustainability-linked bond issuance in 2023[12] – blue UOP bonds are growing.

Debt-for-nature swaps, while still uncommon, are gaining traction too. Three out of five total swaps took place in the past two years, and there have been indications of interest from other potential issuers.

Figure 3

Number of Blue Use-of-Proceeds Bonds, Sustainability-Linked Bonds and Debt-for-Nature Swaps issued (2018-2023)



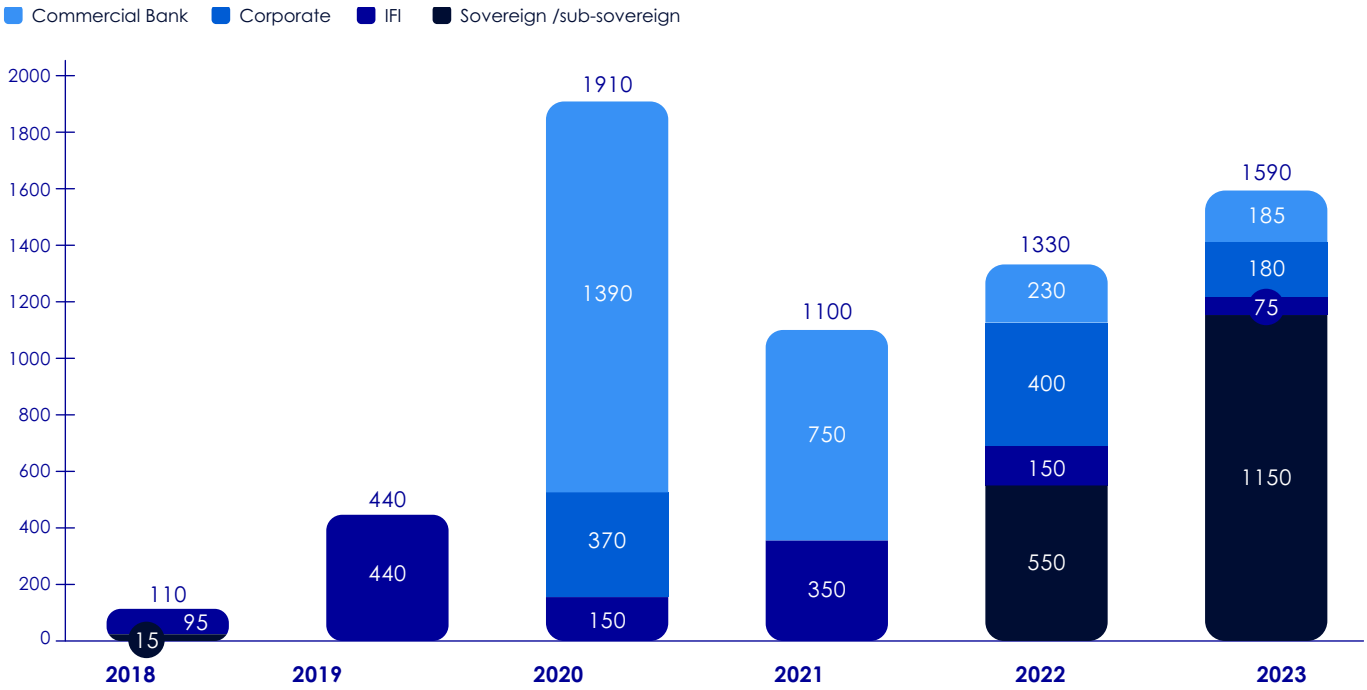
UOP BONDS

Between 2018 and 2023 blue UOP bond issuances amounted to $6.5bn, with 2023 alone seeing a record $1.6 billion in new blue bonds. The current rapid rate of market growth is expected to slow, but even at lower rates, like the 35% CAGR in the more mature green bond market over the last 10 years, UOP blue bonds could reach $14bn of new issuances in 2030, closing almost 10% of the estimated funding gap for SDG 14.[13]

While significant additional investment is still needed, as one of the most promising mechanisms to unlock additional private capital for the ocean, blue bonds will be crucial to the emergence of a sustainable ocean economy.

Figure 4

Value of UOP blue bonds by type of issuer, $ million



**Analysis based on a dataset of 35 transactions. The $1bn blue bond issued by Exim Bank of Korea in January 2023 is classified as "Sovereign/Sub-sovereign" due to the sovereign status of Kexim as the official export credit agency of Korea.*

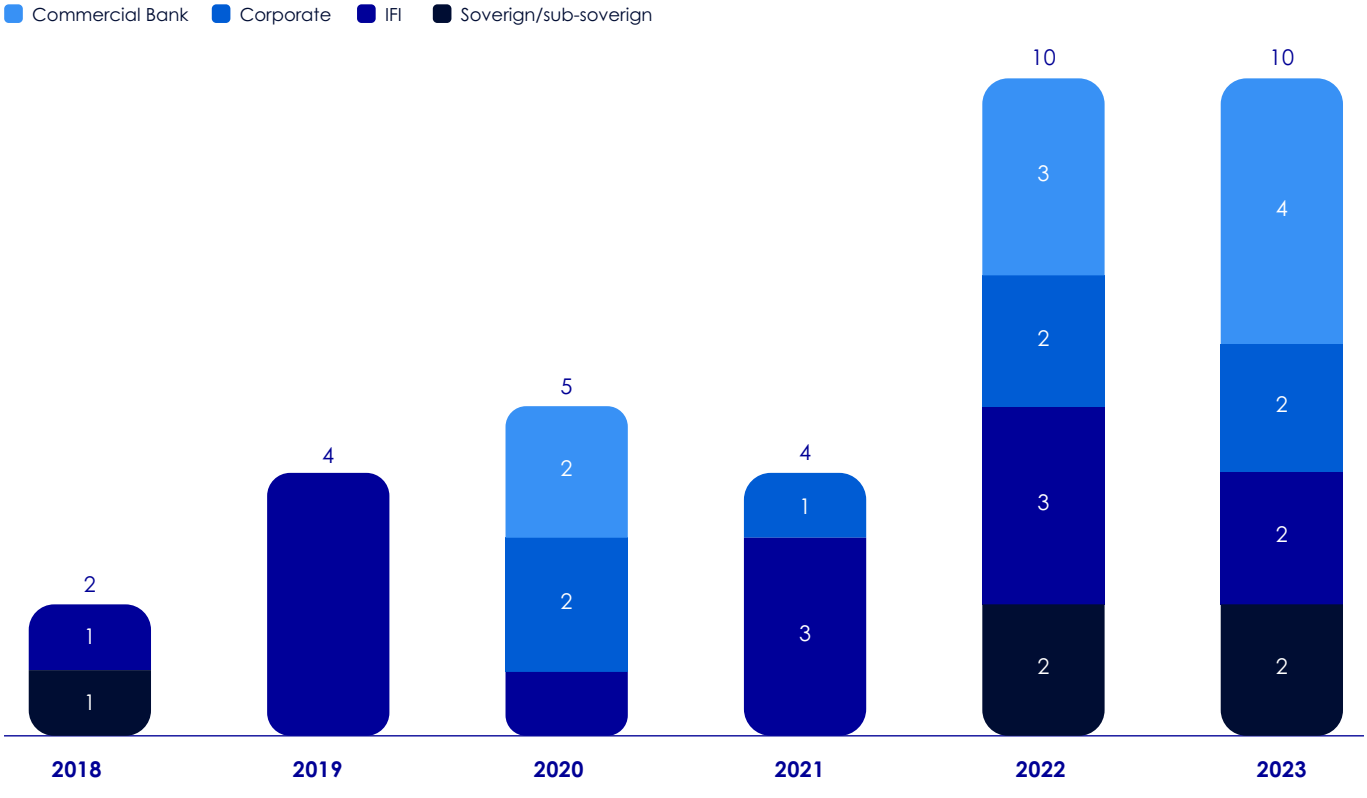
Blue UOP bonds are championed among a range of issuers. Initially dominated by international financial institutions and sovereigns, the market has seen increasing interest from commercial banks and corporates.

The first commercial bank to issue a blue bond was Bank of China with a $943mn dual tranche bond (CNH, USD) in 2020. In the last years there have been several issuances by the financial sector, mostly led by Asian and Latin American banks. However, many private bank issuances are still supported by IFIs like IFC and IDB Invest, which is not unusual for nascent markets that still need support to develop frameworks and structures, as well as to build confidence with investors.

Private corporations also entered the market in 2020. Seafood companies took the lead, with Mowi ASA and Grieg Seafood issuing the first corporate blue-aligned green bonds. Since then, blue bonds have been issued by companies in the shipping sector (e.g. Seaspan Corporation's Blue Transition Bond) and the water and sanitation sector (e.g., BRK Ambiental in Brazil and Desarrollos Hidráulicos de Cancun in Mexico). In 2023, Ørsted was the first energy company to issue a blue bond, with use of proceeds targeting offshore biodiversity and development of clean fuels for sustainable shipping.

Figure 5

Number of UOP bonds by issuer (2018-2023)

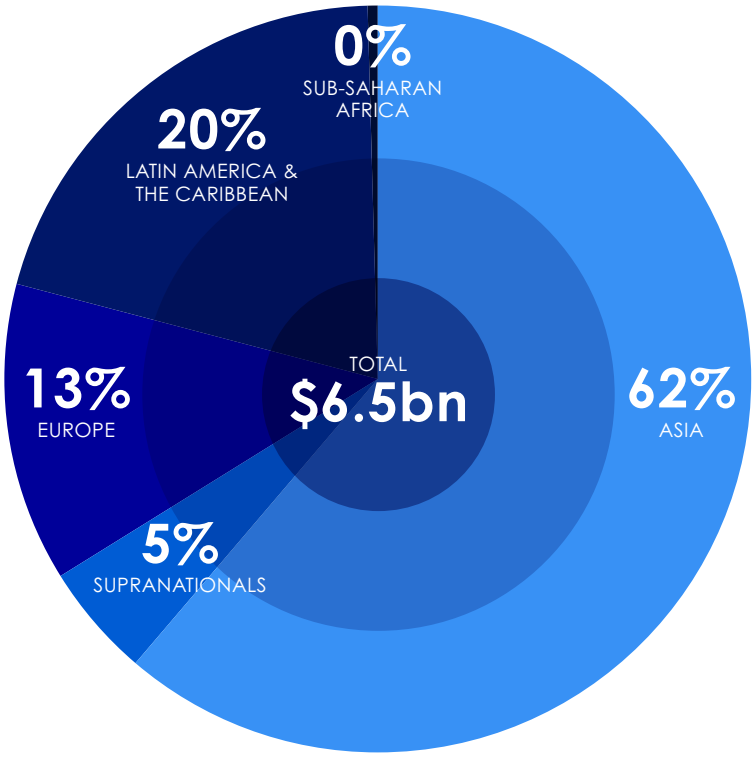


Deal size varies significantly - from two $10mn bonds by the World Bank to the $1bn blue bond issued by Exim Bank of Korea in January 2023. The average size of blue UOP bonds issued during the period is $176mn. With only 3 bonds above $500mn (34% of the total volume), the size of blue UOP bonds is still smaller than that on the green bonds market, where two thirds of the volume in 2022 came from deals $500mn and above.[14] This can be explained by the relative immaturity of blue bonds compared to their green counterparts. With the first green bond issued in 2007[15], it also took a number of years for the green bond market to find its feet, before gaining momentum after the 2015 Paris Climate Summit. Once the private sector enters a market, the size of the issuances usually increases. This can also be observed in the blue bonds dataset, where bonds issued by corporations were on average 2.7 times larger than those issued by international financial institutions.

Emerging economies are leading the way, with the biggest blue bond volume coming from Asia, which has 62% of the market. Contrary to trends in many other sustainable finance instruments, Europe is lagging compared to other regions, with only 13% of the total volume. The MENAT region has not seen any blue labelled bond issuances so far, but this looks set to change. For example, Egypt is expected to be preparing to issue blue bonds, among other kinds of sustainable bonds, to meet its 2030 Vision.[16] Despite the differences in the adoption of blue bonds in APAC and MENAT, both regions have significant potential for investments in a sustainable ocean economy.

Figure 6

Distribution of UOP blue bond issuances by region (2018-2023), $ million



DEBT-FOR-NATURE SWAPS

Since the Seychelles' first modern debt-for-nature swap in 2018, there have been four other multilateral debt-for-nature swaps – three in Latin America and the Caribbean (Belize, Barbados, and Ecuador) and 1 in Africa (Gabon). The total size of the five transactions is ~$1.7bn.

Figure 7
Blue Debt-for-Nature Swaps (2018-2023)

As discussed earlier in this chapter, referring to new bonds issued as part of DFNSs as blue bonds has led to misunderstandings in the past. Most of the proceeds are used to refinance existing sovereign debt, while the interest savings are allocated to ocean conservation. In this way, DFNSs help to reduce debt burdens of the participating countries and simultaneously unlock funding for marine conservation and the sustainable ocean economy. Based on public announcements, the five multilateral swaps since 2018 are expected to contribute cumulatively more than $700mn for the oceans.

DFNSs, however, are not universally applicable – these instruments are most relevant for significantly indebted low and middle income countries with ocean-dependent economies, offering a powerful opportunity for below credit-grade countries to raise finance for their resilience agenda.

CREDIT ENHANCEMENT AND DE-RISKING INSTRUMENTS

For low- and middle-income (LMIC) coastal and island nations, investing in a sustainable ocean economy can be a powerful lever to unlock low-carbon and climate resilient development pathways. These countries are among the world's most climate vulnerable, with coastal communities facing sea level rise, increased flooding and hurricanes. Small Island Developing States (SIDS) face an existential risk. Despite the enormous potential for investment in the blue economy to deliver both economic growth and adaptation benefits for these LMICs, many struggle to access the finance they need, as sub-investment grade credit ratings limit their access to capital markets. Credit enhancement can help. Key instruments include partial credit guarantees, political risk insurance (PRI) or guarantees, policy-based guarantees, catastrophe insurance and concessional loans, as outlined in Figure 8. By reducing the risk profile for investors, credit enhancement reduces the cost of capital for borrowers and increases access to and affordability of debt to finance ocean protection, conservation, and the transition to a sustainable ocean economy. These mechanisms can also crowd in private investors to multiply the impact of public funds. For DFNSs, credit enhancement also reduces existing interest repayments for countries with unsustainable debt burdens.

Credit enhancement instruments are especially vital for sovereign blue bond issuances, but they can also support the private sector.

While examples of credit enhancement in blue bonds issued by corporations or banks are scarce today, there is a clear opportunity. In other debt markets, credit guarantees and PRI are commonly used by private financial institutions and companies to issue bonds or borrow for specific projects in emerging markets.

Although critical, credit enhancement instruments remain difficult to access and can incur high transaction costs. Sovereign credit enhancement instruments are provided by a small number of multilateral institutions.

With the exception of the US International Development Finance Corporation (DFC), which provides political risk insurance, many bilateral institutions have private sector mandates and limited involvement with supporting sovereign issuances and debt restructurings.

There is an urgent need to improve the speed, access and affordability of credit enhancements by establishing standardized products and effectively leveraging the participation of private sector insurers and reinsurers. The World Bank is taking steps in this direction with the recent announcement of MIGA's restructuring.

The agency will become a one-stop-shop platform for all World Bank guarantees, streamlining its offering and removing redundant processes as it aims to triple its guarantee issuance by the end of the decade.[17]

Figure 8

Overview of Credit Enhancement Instruments

INSTRUMENT	DESCRIPTION	RISKS COVERED	POTENTIAL PROVIDERS	EXAMPLES
CREDIT GUARANTEES	• Instruments which protect the lender from losses in the event of non- or late payment of debt obligations. • Credit guarantees are the most common type of guarantee. They can be either full or partial. Full credit guarantees, which cover the full value of the debt, are used only in rare cases. Partial credit guarantees (PCGs) are widely used and provided by many development finance institutions. They cover loss in case of default up to a certain proportion (usually ~30-50%) and can be denominated in either local or foreign currency. • Credit guarantees act as catalysts for private sector investment and commercial financing, reducing risks and costs for projects and governments.	• Credit risk • Liquidity risk	• GuarantCo – a PIDG company • The United States Development Finance Corporation (US DFC) • Several MDBs – World Bank, IFC, IADB, AfDB, ADB • Global Environmental Facility (GEF) • National export credit agencies (ECAs)	• Seychelles blue bond – IBRD provided a $5mn PCG[18] • Barbados debt-for-nature swap – TNC and IDB provided $150mn PCG to the government of Barbados[19] • Ecuador debt-for-nature swap – IADB provided a $85mn PCG[20] • Philippines' first peso-denominated green project bond - ADB supported the issuance with a 75% PCG in pesos[21]
POLITICAL RISK INSURANCE (PRI) / GUARANTEES (PRG)	• Instruments protecting investors against pre-defined political risks such as expropriation, change of laws and regulations, currency inconvertibility, breach of contract, war and civil disturbance. Most common for public projects which involve either the private sector or cross-border financing. • Used where private investors are prepared to accept the commercial risks but not the political risks.	• Political / Country risk	• World Bank's Multilateral Investment Guarantee Agency (MIGA) • US DFC • Several MDBs • National export credit agencies	• Ecuador debt-for-nature swap – US DFC provided PRI of up to $500mn, facilitated by >50% reinsurance from a group of 11 private insurers[22]

INSTRUMENT	DESCRIPTION	RISKS COVERED	POTENTIAL PROVIDERS	EXAMPLES
	• Providers of PRI / PRG can use re-insurance or syndication for big projects that exceed their capacity. This allows them to manage the risk of their overall portfolio and offer more products while simultaneously fostering the growth of the private risk insurance marke.			• Gabon debt-for-nature swap: US DFC provided PRI allowing for a rating higher than Gabon's sovereign debt[23] • Gas power in Indonesia – ADB provided a 20-year $150mn PRG for a gas turbine power plant in Sumatra[24]
POLICY-BASED GUARANTEES	• Used when a country receives support with their program of policy and institutional actions that promote growth and sustainable poverty reduction. • This type of Guarantee is intended to provide risk mitigation to commercial lenders with respect to debt service payment defaults by government, when the proceeds of the financing are applied to budgetary support in the context of development policy operations.	• Political / Country risk	• World Bank • IDB	• Bahamas blue bond – IDB provided a $200mn policy-based guarantee[25]
CATASTROPHE INSURANCE	• Insurance cover with payments linked to a triggering event such as extreme weather. • The new bond structure part of Belize's debt-for-nature swap also included the world's first commercial sovereign debt insurance cover for the coupon and principal payments in case of a hurricane event.	• Technical risk	• Private sector insurers and re-insurers	• Belize debt-for-nature swap included a parametric policy in hurricane event – designed by Willis Towers Watson and underwritten by Munich Re[26]
CONCESSIONAL LOANS	• Repayable capital offered on terms substantially more generous than generally available commercial terms. The concessionality is achieved either through rates below those available on the market or grace periods, or a combination of these.	• Credit risk • Liquidity risk • Technical risks	• MDBs / DFIs • GEF • Other non-governmental finance organisations • Impact investors	• Seychelles blue bond – GEF provided $5mn concessional loan, which partially subsidized bond costs by reducing the interest rate from 6.5% to an effective rate of 2.8%[27]

Risk mitigation via insurance at project level is also key to securing funding. However, with global warming increasing the frequency of extreme events, securing insurance will become increasingly difficult for vulnerable assets.

Insurers, asset owners and investors must take a long-term view and work together to invest in catastrophe prevention measures and implement robust adaptation strategies to keep assets insurable.

Other instruments which can further de-risk bond instruments and increase investor confidence are donor-funded grants and technical assistance.

In the context of sovereign blue bonds, grants have been used to pay for legal fees – for instance, the Rockefeller Foundation provided a grant to support the Seychelles blue bond in 2018. Technical assistance (TA) can also play an important role in blue bonds, particularly for improving legal frameworks, policies and project design, enhancing skills and strengthening implementation capacity of the recipient. TA can benefit a broad range of issuers – not only sovereigns, but also commercial banks and private companies.

Several MDBs such as ADB, IDB and IFC facilitate the development of blue bond markets by providing pre- and post-issuance TA. For example, in addition to subscribing up to $100mn for the blue bond issued by BDO Bank in the Philippines, IFC also committed to helping BDO identify projects that can be funded by the bond and build its capacity to monitor the impact of these projects.[28]

Chapter 3

THE BLUE BOND OPPORTUNITY: MENAT AND APAC DEEP DIVES

There is no one-size-fits-all roadmap to create a sustainable ocean economy.

Priority sectors, innovations and projects will depend on regional, national and sub-national contexts, including existing blue economy sectors, competencies, key threats to ocean health, natural capital assets, local climate conditions, strategic government priorities and more. Taking a regional or national lens can help reveal priority areas of focus and financing needs.

In this spirit, this chapter explores high potential opportunities in the MENAT and APAC regions to transition existing blue economy sectors, scale new regenerative sectors, build resilience and accelerate progress on net zero and adaptation – and considers where blue bonds and related instruments could help unlock finance to realise this potential.

MENAT DEEP DIVE

The MENAT region encompasses the countries of the Middle East, North Africa, and Türkiye. Comprised of 21 countries, the area is home to a population of 580 million people.[29] For many of the region's countries and communities, the ocean is central, with coasts on the Mediterranean Sea, the Red Sea, the Gulf of Aden, the Caspian Sea, and the Atlantic Ocean.

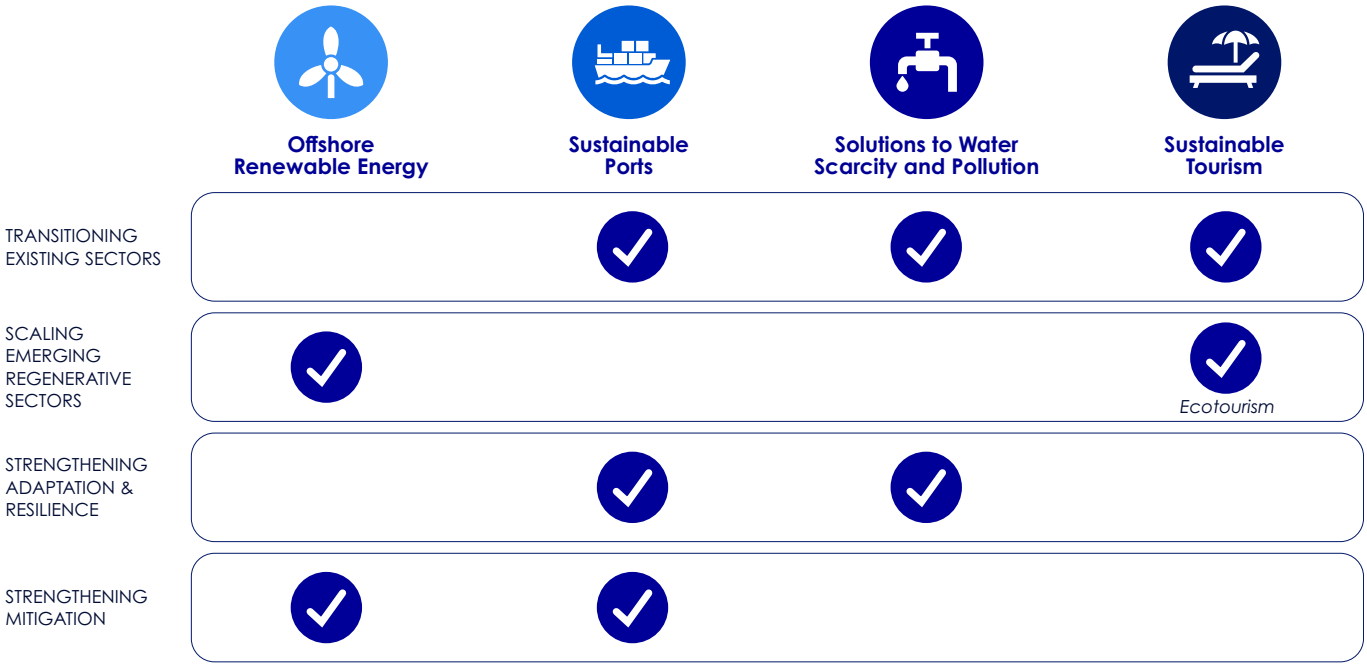
Despite the importance of the ocean economy to the region, to date no blue bonds have been issued, and the green, social, sukuk and sustainability-linked bond market remains small, at <3% of global issuances in 2023.[30]

But the market for innovative debt products is maturing fast.

Issuances are growing at pace – doubling from 2022 to 2023 – and 2020 saw Egypt issue a $750mn sovereign green bond, the region's first. Now, the emerging blue bond market is creating new opportunities for governments and corporates to accelerate investment in a sustainable ocean economy.

Figure 10

Highlighted Sectoral Opportunities for Blue Bonds in the MENAT Region



OFFSHORE RENEWABLE ENERGY

Investment in ocean-based renewables could be a vital boost for MENAT countries to accelerate progress on net zero and a sustainable ocean economy. The case for action is clear: offshore oil and gas is still the largest blue economy sector in the world, with some MENAT economies among the world's largest producers – including Saudi Arabia, the UAE and Qatar. Of 693 offshore oil rigs across the globe[i], more than a quarter (29%) are in the Middle East[31], and 3 of the 10 largest offshore oil and gas companies by revenues are headquartered in the region.[32]

Clean alternatives are scarce: 95% of electricity generated in the Middle East relies on natural gas and oil, the highest proportion of any region in the world.[33] Countries across the region urgently need to scale clean sources of power generation to reduce the cost of energy and transition economies and companies away from dependence on fossil fuel revenues.

i *Note, this does not reflect the number of rigs actually working at any given time as some contracted rigs may be moving between locations, undergoing maintenance, waiting on weather, etc.*

Offshore wind offers vast potential. Morocco alone has a total estimated offshore wind potential of 200 GW[34] (Europe's entire offshore wind capacity in 2023 was 32 GW).[35]

Many other countries also have suitable wind conditions. As technology advances and supply chains mature, conditions in the region are ripe for developing the sector. Yet today, there are no offshore wind farms anywhere in MENAT.

Governments are waking up to the opportunity. Some have signalled interest or announced targets for scaling offshore wind, including Saudi Arabia, Egypt and Türkiye. Sovereign and corporate blue bonds could unlock capital for these efforts, building on the region's corporate green bond issuances, for which onshore renewable energy is among the most common use of proceeds.

Offshore wind presents an opportunity for oil and gas companies to diversify their business in support of the energy transition, capitalising on shared synergies and competencies. The International Energy Agency estimates that 1/3 of the operation, maintenance and service costs of offshore winds offer efficiencies with the hydrocarbon supply chain.[36] Offshore oil and gas infrastructure at end-of-life could also be converted into bases for maintenance of offshore wind farms. Proof points for these synergies are growing in other mature oil and gas regions, including Europe, as large fossil fuel producers move towards offshore wind.

Ørsted, a Danish former oil and gas producer, has fully transitioned its operations to renewable energy. Last year, it became the first energy company to issue a blue bond, raising €100mn for investments in offshore biodiversity and sustainable shipping.[37]

Private and state-owned enterprises in the region could follow suit, raising finance for these efforts through blue bond issuances.

Beyond wind, blue bonds could also finance the scale up of nascent technologies, including wave, tidal, and ocean thermal energy conversion (OTEC).

SUSTAINABLE PORTS

Shipping is the lifeblood of global trade, responsible for the transportation of around 90% of traded goods.

However, it is also a carbon intensive and hard-to-abate sector. Last year, maritime transport was responsible for 3% of global GHGs, and emissions continue to rise, with an increase of 20% over the last 10 years.[38] With global trade set to continue to grow, decarbonising the shipping sector is an imperative. But meeting net zero by 2050 – in line with the International Maritime Organization's Strategy on Reduction of GHG Emissions from Ships – will call for investment not only in shipping, but in ports as well.

Action in MENAT will be critical. The region is a major commercial shipping route, with around 10% of international trade moving through the Red Sea every year.[39] Container port traffic across the region was 62 million Twenty Foot Equivalent (TEU) in 2021 – 7% of the global total.[40]

The Jebel Ali port in the UAE, and the Tanger-Med port in Morocco are among the 25 busiest container ports in the world. As vital hubs in the shipping supply chain, port operators in MENAT can facilitate and accelerate transition of the shipping sector. Blue bonds could be issued by port operators to enable immediate investment in infrastructure and safety projects for green hydrogen, ammonia and methanol. Methanol and ammonia-fuelled ship orderbooks are growing, and investment is already underway in many first-mover ports globally (e.g. the ports of Rotterdam and Singapore.) Moving now could position MENAT ports as leaders and offers clear synergies for countries with ambitions to become green hydrogen hubs and ammonia exporters. Egypt, for instance, has signed MOUs with green hydrogen and renewable energy developers that could unlock $40bn in investment in the Suez Canal Economic Zone over the next decade.

Other countries in the region that have signalled green hydrogen ambitions include Morocco, Saudi Arabia, and Türkiye.[41]

Beyond clean fuel bunkering infrastructure, investments to improve the environmental impact of ports could include improved waste disposal facilities to reduce dumping of untreated wastewater and ballast water, electrification and renewable energy sources – both for port operations and for ships when they are docked. Infrastructure upgrades could be combined with resilience measures to help ports adapt to rising sea levels, although embodied carbon from 'hard' adaptation interventions (which are often concrete and steel-intensive) will imply a larger emissions footprint.

Investment in adoption of advanced analytics to optimize vessel scheduling – to reduce fuel usage and risk of oil spills from congestion – can also be complementary. Investment in sustainable and smart ports offers a clear commercial opportunity for the region. By moving early, operators can respond to growing calls from shipping companies and their customers for low carbon services and alternative fuels. Investment in ports is also well aligned with existing port efficiency and optimization capabilities, with 4 of the world's 5 most efficient container ports already in the Middle East.[42]

SOLUTIONS TO WATER SCARCITY AND POLLUTION

MENAT is the world's most water scarce region, with 11 of the 20 most water stressed countries.[43] Scarcity is driven by challenging climate conditions – with water insecurity set to rise further as climate change worsens and prolongs droughts and heatwaves. Climatic factors are also compounded by water management and distribution.

On average, only 20% of the region's wastewater is re-used, and just half is treated.[44] A significant proportion of water is lost through leakages or unaccounted for – in some countries, such as Jordan, as much as half of water is lost.[45]

The social, environmental and economic impacts of water stress are significant and growing. More than 60 million people in the region lack basic sanitation.[46]

Future agricultural yields, which are highly reliant on irrigation, are being called into question as the effects of climate change intensify. Overall, projected economic losses over the next 30 years could come to 14% of the region's GDP.[47] Despite this looming crisis, an analysis by the Climate Policy Initiative put public and private funding for water at just 3% of global climate finance in 2019 and 2020.

Water scarcity and its solutions in the region are also intricately bound up with ocean health.

Desalination (the process of removing salt and other minerals from seawater to produce pure fresh water) has emerged as the dominant strategy to address freshwater scarcity, with the majority of plants worldwide found in MENAT. The process generates brine, chemicals and warm water, which are frequently discharged into the ocean and can negatively impact water quality and marine life. As the quality of seawater declines, desalination plants must carry out additional treatments to produce pure water, raising costs. Moreover, as agricultural yields suffer with prolonged droughts, pressures on fisheries as an alternative food source may grow.

In narrower definitions, including the ICMA framework, blue bonds do not encompass projects delivering benefits for SDG 6 (Clean water), unless these projects have direct links to ocean health (e.g. wastewater management projects within 100km of the coast)[ii]. However, the MENAT region offers a clear demonstration of the potential utility of taking a more holistic view of 'blue' that encompasses both fresh water and ocean impacts.

An integrated blue bond instrument in the region could help reconcile trade-offs, maximise synergies, and unlock finance for projects that enhance both goals. Such an approach could shift investment in the region from unsustainable desalination plants towards more ocean-positive solutions. This could include wastewater treatment infrastructure to boost reuse for irrigation and industry, or projects to reduce water leakage and loss along the distribution network.

Investment in innovative solutions will be vital: HydroIQ, for instance, is a Kenyan company developing smart water grids that aim to reduce the time to identify leaks in water distribution networks from months to minutes.[48]

Desalination operators can invest capital raised through blue bonds to accelerate more sustainable and circular models, by financing adoption of zero-liquid discharge technologies. Bonds could be issued directly by water utilities or sovereigns. Alternatively, financial institutions in the region could issue blue bonds to then lend to projects – as in the case of the Nordic Investment Bank Nordic-Baltic Blue Bonds in 2019 and 2020, for which use of proceeds were water management and protection.[49]

There are signs that this integrated approach is gaining traction. The new Emerging Markets Blue Bond fund set to be launched by T Rowe Price and IFC in 2024, for instance, intends to finance projects contributing to both SDG6 and SDG14.[50]

SUSTAINABLE TOURISM

Blue bonds can play a critical role in accelerating the development of sustainable coastal tourism in MENAT, especially in existing tourist hubs across the region, including Türkiye, Tunisia, Egypt, Morocco, the UAE and Jordan. Investment in the sector could unlock a major opportunity for operators and governments: a survey by Bain found that more than 2/3 of prospective travellers to the Middle East and North Africa rate sustainability as 'important' when travelling, and 2/3 are willing to pay extra for more sustainable options.[51]

First, finance is needed to transition existing coastal tourism facilities, including cruises, to more sustainable models. Proceeds from blue bonds issued by FIs, or by corporates themselves, can help meet the high upfront costs of reducing facility emissions, including through retrofitting green heating and cooling systems, developing on-site renewable energy systems such as solar PV, and leveraging alternative building materials to enhance energy efficiency.

Addressing waste and wastewater is a further imperative for sustainable tourism – during peak tourist season, marine litter in the Mediterranean rises by up to 40%.[52] Investment, particularly in North Africa, in enhanced waste collection, sourcing, recycling and in wastewater treatment will be vital to improve the environmental performance of the sector, and could be a use of proceeds of future sovereign or FI and IFI blue bond issuances.

Blue bonds can also accelerate development of ecotourism – an emerging business model for holistic tourism that centres on conservation and restoration efforts in parallel with renewable energy, waste and water infrastructure, often creating added benefits for local communities.[53]

Momentum for coastal ecotourism is building across the region, with governments taking the lead.

Ahead of COP27, the village of El-Quala'an in the Marsa Alam's Wadi El Gamal Nature Reserve in Egypt was transformed into an eco-village that aims to develop tourism without undermining the integrity of local coastal ecosystems. As part of the initiative, the village is now fully solar powered, supplied by a sustainable desalination plant, and emphasises tourism that safeguards the protection of nearby mangroves.[54] Government plans, including Saudi Arabia's Vision 2030 and Oman's Vision 2040, as well as the UAE's National Ecotourism Project all recognize the contribution of ecotourism models to future tourism development.[55]

The ecosystem restoration and protection that is integral to ecotourism models today faces a critical funding gap: immature business models, limited revenue streams, and high risks mean projects rely heavily on public capital. Innovative financial instruments are urgently needed across the world to unlock capital for these vital initiatives. Blue bonds can help – especially sovereign issuances – if proceeds are directed to restoring ecosystems and to developing, expanding and enforcing Marine Protected Areas. However, there is no silver bullet: payment for ecosystem services, blended finance, and impact investing will all have a critical role to play in unlocking the investment that is required.

COUNTRY DEEP DIVE CASE STUDY: ASSESSING OPPORTUNITIES FOR BLUE BONDS IN THE UAE

MAP OF THE UNITED ARAB EMIRATES

GEOGRAPHY

The Kingdom of the United Arab Emirates comprises seven united emirates. More than half of the population lives in The Emirate of Abu Dhabi, which accounts for 55% of GDP.[56, 57] The UAE is bounded by the Gulf of Oman to the East and the Persian Gulf to the West, which is a major maritime trade route.[58]

BLUE ECONOMY

The UAE is the 3rd largest economy in the MENAT region, after Türkiye and Saudi Arabia, with a population of 10 million. Economic growth and government revenues in recent decades have relied significantly on oil and gas production, with the UAE among the top 10 oil producing nations in the world.[59] Following efforts to diversify its economy, the oil and gas sector has fallen to 30% to the country's GDP.[60] The blue economy offers significant potential for growth and to further reduce reliance on fossil fuels.[61] The UAE considers itself a world-leading maritime nation, and addresses SDG 14 (Life below water) in its Vision 2021 under the pillar of a 'competitive knowledge economy'.

VULNERABILITY

The UAE has an arid desert climate. Climate change is exacerbating the UAE's vulnerability to water scarcity and is worsening drought and flooding. Coastal assets and infrastructure are at risk from rising sea levels.

SUSTAINABLE FINANCE

No blue bonds have been issued or announced in the UAE so far. However, the market for sustainable finance is growing. COP28 in 2023 coincided with increasing sovereign and corporate sustainable debt and sukuk issuances, which accounted for 45% of green bond issuances in MENA last year.[63] Looking ahead, the UAE is taking a leading role in deepening sustainable finance markets in the region. In 2019, the Abu Dhabi Global Market (ADGM) launched the Abu Dhabi Sustainable Finance Declaration, a collaborative framework alongside Ministry of Climate Change and Environment (MoCCAE), the Central Bank and Securities and Commodities Authority. The Declaration is a commitment by entities to incorporate sustainability into investments and new asset classes and has been signed by over 100 private and public sector organisations to date. In 2023, the country hosted the Sustainable Finance Summit, and both ADGM and the UAE Securities and Commodities Authority issued a regulatory framework for sustainable finance, green bonds, SLBs and sukuk.[64]

OCEAN HEALTH

The UAE ranks 6 out of 220 on ocean health index, indicating stronger performance on key ocean health dimensions than most countries.[62] Increasing water temperatures are a leading threat to the country's marine ecosystems. Besides that, coastal developments have damaged mangroves and coral reefs in past decades.

OPPORTUNITIES FOR BLUE BONDS TO SUPPORT THE DEVELOPMENT OF A SUSTAINABLE OCEAN ECONOMY IN THE UAE

This analysis highlights the potential role of blue bonds in the UAE to finance key blue economy sectors. For each sector, context on its state today is provided, as well as an indication of how urgent investment in the sector is to improve ocean health and strengthen mitigation and adaptation in the UAE (See Appendix 2 for methodology). The analysis also provides an indicative view of the applicability of blue bonds for each sector to different types of issuers (globally), based on typical project characteristics and examples of blue bonds issued so far.

ASSESSMENT OF POTENTIAL OF BLUE BONDS TO FINANCE KEY OCEAN ECONOMY SECTORS IN THE UAE

Sector	UAE Context	Need for investment for ocean health in the UAE	Need for investment for adaptation/ mitigation in the UAE	Sector fit with different blue bond issuers (globally)			
				Corporate	FI	IFI	Sovereign
FISHERIES & AQUACULTURE SUSTAINABLE TOURISM	• Fisheries and aquaculture are less than 1% of the UAE economy.[65] • Fisheries sector is mainly small-scale. Less than 25% of fish consumption is locally produced.[66] • Aquaculture produces less than 5% of volume produced in fisheries. Government aims to grow the industry in the Arabian Gulf, focusing mainly on pearls, seaweed and sea cucumbers.[67] • Fish was identified as a strategic food item in the government's National Food Security Strategy.[68]	Low	Low	High	High	Medium	Medium
SUSTAINABLE SHIPPING & PORTS	• Maritime transport contributes $35bn (~7%) to GDP in 2022, 18% growth since 2021.[69] • UAE aims to grow position as global trade player with world-class ports, increasing value of foreign trade to AED 4 trillion by 203.[70] • UAE is category B member of IMO, indicating large interest in international seaborne trade, aligns with highest international standards, and pledged to help realize IMO's decarbonization goals for the shipping industry. • Jebel Ali port is one of the world's largest container ports. • DP World, holder of Jebel Ali Port, announced to invest $500mn between 2022-2027 to reduce CO2 emissions and actively cooperates with Maersk to accelerate transition in the industry.[71]	Medium	Low	High	Medium	Medium	Medium
SUSTAINABLE TOURISM	• Tourism sector contributes ~9% to UAE's GDP (2022).[72] • Tourism is a highlight in the UAE's vision 2031 report, aim is to become a global tourism destination, attracting 25mn tourists annually by 2031. • The government launched a national project to promote ecotourism ('the UAE's Natural Wonders') and has set up massive eco-tourism projects, such as Hatta, Khorfakkan and Jebel Jais, offering many activities.[73] • The Department of Culture and Tourism developed extensive Sustainable Tourism guidelines.[74]	High	Low	Medium	High	Medium	Low

Sector	UAE Context	Need for investment for ocean health in the UAE	Need for investment for adaptation/ mitigation in the UAE	Sector fit with different blue bond issuers (globally)			
				Corporate	FI	IFI	Sovereign
OFFSHORE RENEWABLE ENERGY	• UAE wind conditions are not optimal for wind energy, especially offshore wind speeds are low. New technologies make wind projects feasible, however mainly onshore.[75] • Onshore wind is gaining momentum: a 103MW coastal wind project was launched in 2023, comprising four wind farms, by Masdar, a UAE based energy company that unites three major energy players - Mubadala, ADNOC and TAQA.[76] • Potential synergies for wind and solar energy with the UAE's ambition to scale green hydrogen production.[77]	Low	Low	High	High	Medium	Low
SOLUTIONS TO PLASTIC POLLUTION	• UAE residents use ~450 plastic water bottles annually. [78] • 9/10 turtles found dead in Dubai coastal areas had plastic in their stomachs.[79] • The UAE introduced a ban on single-use plastic bags starting 2023; other single-use plastics such as packaging, cutlery, bottles and balloons will be banned starting 2026.[80] • UAE joined Rebound Plastic Exchange (RPE) programme and aims to set up a recycling system to reduce marine debris.	High	High	Medium	High	High	High
SOLUTIONS TO WATER SCARCITY AND POLLUTION	• UAE is second most water stressed country worldwide, after Kuwait.[81] • With zero rivers, rainfall below 100mm per year, and limited groundwater aquifers, desalination is a crucial enabler of population growth and development. (WWF, report) • UAE is the world's 2nd desalinization market; 20% of world's brine is produced in UAE desalination plants. Brine discharges into the Gulf, cause salinization of the shallow waters.[82] • >80% of plants in UAE are thermal plants, while (solar-powered) Reverse Osmosis (RO) plants are 75% more energy efficient and projected to meet future demand.[83] (WWF) • UAE Water Security Strategy 2036 focuses on sustainability: increase reuse of treated water to 95%, reduce per capita consumption by half; increase water productivity and increase storage capacity.[84]	High	High	High	High	High	Medium

Sector	UAE Context	Need for investment for ocean health in the UAE	Need for investment for adaptation/ mitigation in the UAE	Sector fit with different blue bond issuers (globally)			
				Corporate	FI	IFI	Sovereign
RESTORATION & CONSERVATION	• Coral reef ecosystems cover ~1200km2 of coral reefs. • Reefs are threatened by rising sea temperatures causing bleaching. West coast reefs are located in some of the world's seas. • Mangroves cover ~180km^2, with multiple public and private initiatives to promote mangrove restoration & conservation – including the Mangrove Alliance for Climate – a coalition of government partners co-led by UAE and Indonesia to build capacity around mangrove ecosystems. • Strong link between restoration & conservation measures and ecotourism opportunities. • ~11.5% of UAE marine areas are protected (MPAs).[86] • The UAE launched a Nature-Based Solutions for Climate, Biodiversity and People project – supported by HSBC – focusing on management & restoration of key coastal ecosystems and identified a pipeline of bankable SOE and NBS projects, including ecotourism and agriculture.[87, 88]	Medium	Medium	Low	Low	High	High

ASIA-PACIFIC DEEP DIVE

The Asia-Pacific (APAC) region is home to >50% of the world's population and includes 40+ coastal countries. The region is highly diverse, with countries ranging in size, level of development and dependency on the ocean for livelihoods and protection. Eleven of the 25 countries with the largest Exclusive Economic Zones (EEZ) are found in APAC, of which five are SIDS – some with EEZs 10s or 100s of times larger than their land area.

The region is rich in ocean natural capital and home to some of the most biodiverse ecosystems on the planet, with ~70% of the world's coral reefs and ~50% of mangroves.

The contribution of the blue economy to many coastal countries in the region is significant, rising to 85% for some small island states[iii].[89, 90, 91] It is here that some of the world's biggest ocean economy corporates are located, especially in China and South Korea.

The region is highly vulnerable to climate change, with rapidly growing adaptation needs. Sea level rise, floods and storms threaten coastal areas, where many major cities are located. Of the world's 10 most vulnerable cities to future coastal flooding, nine are in APAC.[92]

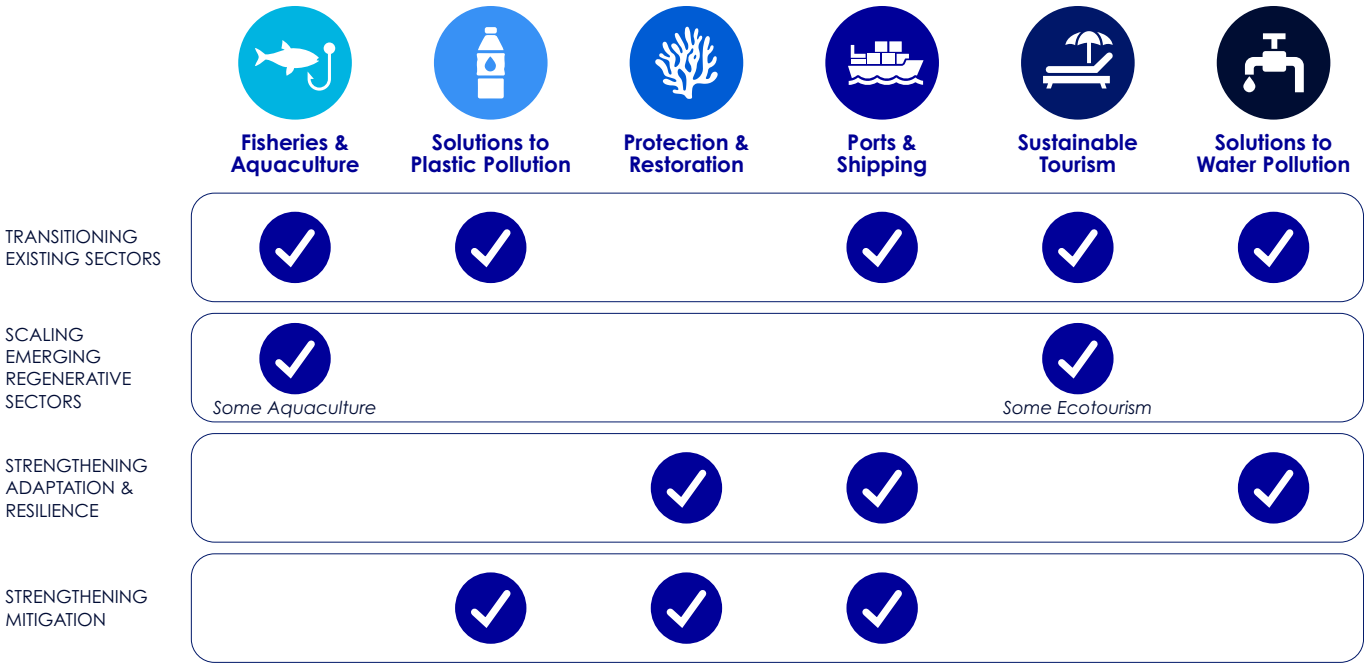
iii *Contribution to national GDP goes up to 85% for Timor Leste, and ranges between ~3% for Australia (2018), to ~23% for Malaysia (2015), with ~9% for China (2019).*

It is therefore no surprise that APAC is the world's leading region for UOP blue bonds issuance. Since 2020, 12 blue bonds have been issued in APAC, totalling over 60% of global issuances by value. So far, issuers have been mainly commercial banks (5), corporates (3), sovereigns (3) and 1 IFI (ADB).

Where sovereign bonds mainly focused on restoration, conservation and mitigation, the proceeds of the other bonds have been allocated across key existing and scaling sectors in the region: i) sustainable renewable energy generation, ii) wastewater and water management, iii) fisheries, aquaculture and food production, iv) sustainable ports and shipping, and v) tourism.

Figure 11

Highlighted Sectoral Opportunities for Blue Bonds in the APAC Region



SOLUTIONS TO PLASTIC POLLUTION

Mismanagement of waste is the biggest driver of plastic pollution to the ocean. More than 80% of the world's ocean plastic originates from APAC, with significant sources including the Philippines (contributing 36%), India (13%), China and Malaysia (both 7%).[93] Up to 80% of ocean plastic comes from land-based sources, with the remainder coming from discarded fishing nets, lines and ropes. The challenge is also growing: the annual flow of plastic into the ocean is expected to triple by 2040.

Plastic pollution is a major driver of ocean degradation, posing a serious threat to marine health and biodiversity. More than 800 marine and coastal species are affected through entanglement, ingestion and other risks, and vital coral reef and mangrove ecosystems are infected by diseases spread through plastic pollution.[94,95,96]

The cost of addressing pollution, as well as the negative impacts on tourism and seafood sectors, cause significant economic losses and have been growing at a rate of 35% per year. If unchecked, these losses could reach $200bn by 2050 for APAC economies.[97]

A shift to a circular economy has the potential to reduce annual land-based plastic leakage into the ocean by ~80%. As a region responsible for >50% of plastic production, action in APAC will be critical to realise this potential. Investment will be needed across the value chain, including in upstream measures like reduction, substitution, and redesign, and downstream reuse, better collection and disposal.

The most efficient and environmentally sound solutions are upstream; reduction (including reuse) and redesign could reduce plastic leakage by 47%.[98] Yet upstream investments are critically underfunded and 88% of investment capital for circularity goes into recycling and recovery, despite just 10% of plastics being recycled.[99] Downstream plastics recycling is concentrated in China, which covers 65% of the plastics recycling market.[100]

Blue bonds can help raise finance to support the transition to more circular and regenerative plastic supply chains in Asia. Extended Producer Responsibility (EPR) is on the rise globally, and initiatives have been introduced in countries such as India, Vietnam and the Philippines. Singapore and Australia are implementing deposit return systems.

Both EPR and deposit return systems help drive investment, with positive linkages across the value chain. For instance, corporate investment in recycling facilities can guarantee offtake, and thus help derisk investment in waste collection infrastructure.

Upstream, packaging producers and other corporates could use proceeds to invest in innovation to eliminate plastic, redesign products and value chains, develop new delivery models to boost reuse, or for innovation in compostable and bio-benign alternative materials (such as seaweed-based packaging). Examples of corporates who invested in sustainable packaging alternatives are Lecka and Singha. Lecka, a Vietnamese healthy snack brand, are pioneering compostable and recyclable food packaging. Singha, a Thai beer brand, also developed 100% biodegradable packaging for a selection of their products.[101]

Midstream, proceeds from blue bonds could finance projects by recycling companies to boost capacity. For instance, Indorama, a Thai corporate manufacturing and recycling PET resin, issued a $300mn blue loan in 2020 which will primarily be used to increase the recycling of PET with $50bn bottles annually by 2025, mainly in APAC (Thailand, Indonesia, Philippines, India and Brazil).[102]

Downstream, governments and IFIs can issue blue bonds, or other sustainable financing instruments, to invest in expanding waste collection capacity, rehabilitating coastal and riverside dumps, and in urban stormwater management.

Key countries could include Indonesia and Laos, where 40% and ~50% of waste gets collected respectively,[103] although impacts on informal waste collection supply chains and associated livelihoods should be reflected in project design and implementation. In many countries, governments need to invest in enabling conditions for waste collection, e.g. providing key infrastructure, such as roads, and regulations permitting re-use of plastics.

In January 2024, the World Bank issued a first-of-its-kind sustainable bond, which is fully targeted at reducing plastic waste. The proceeds of this $100mn plastic waste reduction-linked bond are focused on reducing and recycling plastic waste in vulnerable communities to prevent leakage into nature. The first projects identified are in Ghana and Indonesia and will be managed independently by Plastic Collective UK.[104] The innovative approach in this bond links finanical returns to the generation of Plastic Waste Collection Credits, Plastic Waste Recycling Credits[iv], and voluntary carbon credits via two projects in Ghana and Indonesia, which are managed independently by Plastic Collective UK.[105] The annual coupons are composed of a fixed amount, plus payments linked to the performance of the credits sold.[106]

Blue bonds issued by financial institutions can play a critical role in financing the transition to a circular economy in the region, through lending to players across the value chain. The BDO bank issuance in the Philippines in 2022 provides an example.

iv A plastic credit means cleanup and recycling of 1000kg of plastic. (DGB Group)

In 2022, the BDO Bank issued a $100mn blue bond which included a focus on solid waste management and marine plastics, as well as water conservation and waste water treatment, tourism and sustainable fisheries.[107] The bond was arranged by BDO Capital & Investment Corp and invested in by IFC. The bond aligns with ICMA's green bond principles and IFC's Blue Finance Framework and metrics to monitor the use of proceeds and to report on relevant impact, however, metrics were not defined ex-ante.[108] IFC will support BDO in identifying projects and building capacity in terms of impact monitoring.

Regulatory pressure for action and government commitment is further increasing the impetus for investment. In 2022, 175 UN Member States agreed to develop an international legally binding agreement by 2024 to end plastic pollution.

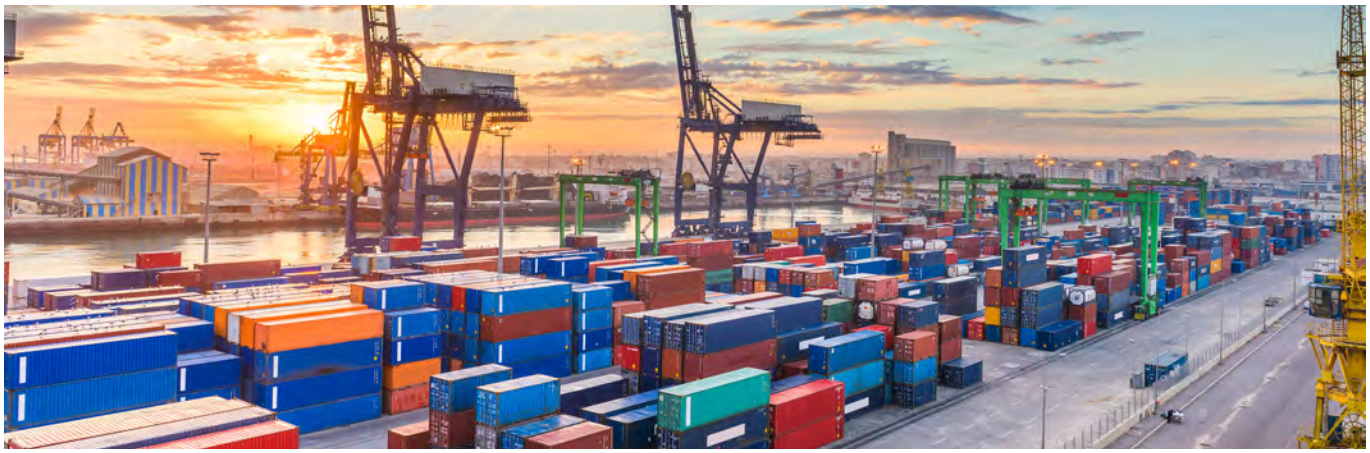
In APAC, several action plans are setting plastic reduction targets, e.g., the Australia, New Zealand and Pacific Island Nations (ANZPAC) Plastics Pact, China's 5-year action plan to reduce plastic pollution of 2021, and Japan's Plastic Resource Circulation Act of 2022.

Asia-Pacific is dominant in the global shipping and logistics value chain, with significant concentration in the region's largest economies.

China and South Korea alone have more than 50% share of the global shipbuilding market and the 10 largest ports in the world are all found in APAC, with 8 in China.

Transitioning the maritime transport sector requires investment and coordinated action across the entire system, from shipbuilding, to fleet owners, to ports. As a shipping and port powerhouse - with significant share and some of the largest companies in the world at every stage of this complex value chain - APAC can play a vital strategic role.
Complementary investments by actors across the sector can create a step change through adoption of clean fuels, such as green hydrogen, ammonia and methanol, tackling noise, pathogenic, chemical and nutrient pollution and solutions to biofouling. Most ports and vessels are privately owned, but policy changes can play a key role in stimulating the investments needed to accelerate the transition.

Today, Asia is behind Europe on its shipping decarbonisation journey. But there are signs the tide may be changing. Many of Asia's leading maritime transport economies are defining decarbonisation strategies and regulatory frameworks that are accelerating action: China has committed to faster upgrading of old ships, accelerating the transition to LNG-fuelled and electric ships and utilisation of green ships; Japan launched a 'Roadmap to Zero Emissions from International Shipping' in 2020, including a strategy to align with the International Maritime Organization's decarbonisation targets; South Korea launched an air quality control programme in 2020, which assigns certain ports and port areas as Emission Control Areas, including speed and sulphur emission limits; and Singapore developed a Maritime Decarbonisation Blueprint, highlighting 7 focus areas – including port terminals and future marine fuels – where the maritime and port authorities will provide support to decarbonise the industry.[109, 110]



A transition to sustainable ports and fleets requires significant upfront investments, for which blue bonds can unlock the finance required. Proceeds from blue bonds issued by port operators, financial institutions or governments can be used to upgrade waste management, decarbonise on-land operations through energy efficiency measures and renewable energy, and improve or build new storage, pipeline and bunkering vessels for methanol and ammonia bunkering services. Investment in adaptation to sea level rise is also urgently needed.

By 2050 some of the largest ports might become unusable due to an average sea level rise of 40cm, including port of Shanghai.[111] Adaptation measures such as flood defence systems will be key for ports at risk, especially for ports in SIDS that are integral for trade and economic connectedness.[112] In some cases, interventions to adapt to sea level rise can benefit other nearby assets and infrastructure, such as airports or industry hubs. Blue bonds are well-suited to finance the necessary capex investments and have been issued for ports improvements twice already.

In 2020, the China Industrial Bank issued a $450mn blue bond, which included construction, operation, maintenance and retrofits of ships in the use of proceeds, as well as a port pollution prevention project for one of the largest ports in northern China by constructing air pollution and water treatment facilities.[113] The second example is the issuance of a $302mn blue bond in 2021 by the Asian Development Bank.[114] Part of the proceeds will be used for projects that reduce and mitigate ship stroke, invasive species, pollution and other impacts to the ocean due to ports and shipping, as well as reducing waiting times in ports to lower fossil fuel consumption.

Investment in fleet improvements is needed for shipping companies to retrofit their vessels, or to obtain new vessels to decarbonise shipping. Blue bonds are one way for shipping corporates to finance these projects while clearly signalling their commitment and helping create a race to the top across the sector. Mitsui O.S.K. Lines (MOL), a Japanese shipping company, announced the issuance of a blue bond in January 2024.[115] While the precise use of proceeds are not yet known, finance raised through the $67mn issuance could support implementation of MOL's 'Blue Action 2035' plan, which defines sustainability targets and KPIs across its operations.

Potential use of proceeds could therefore include projects to increase the number of clean fuelled or wind propulsion equipped vessels, to achieve a ratio of at least 5% zero-emission fuel being used, and to improve fuel efficiency by 5%.[116] As one of the largest shipping companies in the world, acting on these targets could also incentivise its suppliers – including shipbuilders or ports – to invest in complementary projects for the transition.

Asia-Pacific is the largest seafood market in the world, with 35% of the global fisheries and aquaculture markets concentrated in Asia (excl. China).[117]

With 2/3 of the world's vessels, the region also has the world's largest fishing fleet. Fisheries and aquaculture make a vital contribution to APAC economies, as well as to food security and to livelihoods for coastal communities. In APAC, ~23% of the protein in diets is from fish, compared to 16% globally.[118] The global seafood labour force is overwhelmingly concentrated in the region – 85% of the population employed in fisheries globally are in Asia, including many small-scale artisanal fishers. Aquaculture is another significant source of livelihoods, with upwards of 650,000 seaweed farmers in Indonesia alone in 2017.[119]

Prevailing models for much of the fisheries and aquaculture sectors are, however, unsustainable, impacting ocean health and the ecosystems on which these industries depend. A quarter of all fish caught is IUU (illegal, unreported and unregulated), and 67% of fishing areas in Southeast Asia Pacific are fished at unsustainable levels, especially in Cambodia and the Philippines. Lost and discarded fishing gear contribute up to 20% of ocean plastic. Aquaculture drives nutrient pollution, chemical pollution, and habitat destruction – shrimp aquaculture is a leading cause of mangrove degradation in Indonesia, where a quarter of the world's mangroves are found.[120]

Investment is urgently needed to transition the fisheries and aquaculture sectors and address these challenges. Active development of a more sustainable offering can also capitalize on evolving consumer awareness and growing demand for traceability and certification. Meanwhile, meeting the protein needs of a growing population creates a massive opportunity for sustainably scaling food from the sea. Investment in aquaculture, especially regenerative business models like seaweed and bivalve aquaculture that can improve ocean health while meeting rising demand, can play a critical role. Many policymakers in the region have growth of the seafood sector in their sights. In Indonesia, the government has an ambition to increase the contribution of the fisheries sector by about 50% by 2045. The Chinese Ministry of Agriculture and Rural affairs aims to increase the scale of offshore aquaculture nationally by +30% by 2028.[121]

Figure 12

Sustainability Improvements in Fisheries and Aquaculture Industries

	Solution	Description
FISHERIES	Smart fishing gear	Reduces bycatch, through better locating fish stocks, identify species, offer escape routes or using less deadly gear vs. specific species
	Affordable monitoring technologies	Enhances data availability of catch, bycatch and discard. Only 1% of vessels is currently subject to electric monitoring (EM) systems.
	Waste reduction solutions	Creates value from waste by using more or developing co-products. 35% of fish and seafood is currently wasted.
	Supply chain tracking	Improves traceability and tracking to obstruct illegal/unethical seafood. E.g., enhanced traceability software and DNA testing. This market is expected to grow at ~14% CAGR.
	Low emissions vessels	Reduce pollution from fuels used.
	Sustainable fishing behaviour	Increase adoption of sustainable fishing practices through capacity building efforts.
	Formalisation of businesses	Enable capital deployment into informal micro/small businesses
AQUACULTURE	Farm optimisation (incl. on-land)	Optimize location, techniques and management to improve economic viability, cost effectiveness and sustainability.
	Sustainable feed	Include novel feedstocks such as insects and algae to reduce reliance on wild caught fisheries for fish oil and meal.
	Waste reduction solutions	Reduce input and pollution through precision feeding, disease control and treatment solutions.
	Seaweed farming and applications	Apply regenerative aquaculture solutions to offer bioremediation, marine habitat and carbon sequestration benefits
	Low-tropic aquaculture	Lower input aquaculture with bioremediation.

Blue bonds can unlock finance for this urgent agenda. The proceeds can be used for a wide variety of sustainability improvements across fisheries and aquaculture.

Fig 12 provides an overview of projects and solutions that could be financed through proceeds. Large seafood corporates could issue blue bonds themselves to directly finance projects.

Example corporate issuances are those by Thai Union and Maruha Nichiro, both major seafood producers. Thai Union, one of the largest producers of shelf-stable tuna products, issued a sustainability-linked bond of $152mn in 2021 to invest in improving monitoring and surveillance of wild-caught tuna supply chains with electronic or human observers at sea. Other targets in this Sustainability-Linked Bond were: i) remain in top 10 rank of companies for the Dow Jones Sustainability Index Food Products Industry Index, and ii) reduce scope 1 and 2 carbon emissions from manufacturing operations by 4% annually.[122] After defining a baseline, the observer coverage (electronically or human) on vessels sourced from was 71% by end of 2021, and electronic monitoring was still growing.[123] The Japanese seafood producer Maruha Nichiro issued a $36mn use of proceeds blue bond in 2022. A third of the proceeds are invested in a new JV together with Mitsubishi Corporation, ATLAND corporation, which operates a closed loop local-production-for-local-consumption land-based salmon aquaculture project.[124, 125, 126]

Both the fisheries and aquaculture sectors are characterised by a high proportion of SMEs and smallholders for whom capital markets are out of reach.

Blue bonds issued by local banks or DFIs can help, with proceeds used to extend finance to smaller businesses.

ADB's 2021 blue bond has been used for various projects - $41mn was invested in loan packages to support the sustainability transition in Cambodia's fisheries sector. It includes investing in reduction of wild capture fisheries, rebuilding ecosystem productivity and transitioning to open water mariculture. The project supports SMEs, coastal communities and businesses in adopting diversified and sustainable practices and to scale.[127]

For many smallholder fishers and farmers in emerging markets, access to financial services is a major challenge.[128] For these smallholders to transition to more sustainable practices, alternative models are needed. One option is for larger seafood businesses to extend credit to producers within their supply chain through mechanisms like revolving loan facilities, enabling smallholder fishers and farmers to access the finance they need to upgrade their gear or purchase cold storage. Sovereign blue bonds can also help. Proceeds could be put to capacity building or programmes designed to support smallholders to adopt more sustainable equipment and practices.

Finance unlocked by sovereign blue bonds can also support robust fisheries management, including enforcement of protected areas and fishing quotas, as well as eliminating IUU and destructive fishing.

Credit enhancement will be critical for non-investment grade coastal nations in the region – many of which are highly dependent on fisheries and aquaculture for food security and livelihoods. For the least creditworthy sovereigns, DFNS may be an alternative.

Proceeds from the $15mn 2018 Seychelles blue bond were used i) to expand sustainable-use MPAs, ii) to improve governance of priority fisheries, and iii) for sustainable development of the blue economy. Example projects are: mapping connectivity of coral reefs and ocean currents to determine key reefs to focus conservation resources and inform management of coral reefs; setting up a sustainable management plan of resources for artisanal and small-scale fisheries, which entails improved fishery management, including rollout of onboard tracking systems and integration of satellite tracking data collection and visualization.[129] The bond was invested in by 3 impact investors, and de-risked through a $5mn World Bank guarantee, and a $5mn concessional loan by the Global Environment Facility.[130]

New sources of finance are urgently needed to address water pollution in Asia-Pacific. Of the 10 most polluted rivers in the world, 9 are found in APAC.[131]

Untreated urban sewers and industrial effluents are the leading causes – just 20% of wastewater in Asia is treated before being discharged into water bodies.[132] Runoff from agricultural lands treated with inorganic fertilisers and pesticides in coastal watersheds is a further driver of nutrient and chemical pollution.

While pollutants are typically discharged first into rivers and lakes, they ultimately enter the ocean. Pollution from nutrients, pathogens, chemicals and heavy metals is less visible than ocean plastic, but the impacts are no less severe. Excess nutrients can lead to eutrophication, causing algal blooms and in severe cases – for instance in Thailand and Indonesia – hypoxic (low oxygen) 'dead zones'.[133] Recent studies have identified nutrient pollution and sediments as the most significant threat facing coral reefs today.[134] Meanwhile, chemicals and heavy metals in the ocean bioaccumulate throughout the food chain, leading to potentially sub-lethal effects or death in higher trophic marine creatures like mammals and large fish.

Beyond the risk it poses to the ocean, pollution is also compounding a water scarcity crisis on land. Water insecurity in APAC is growing as populations increase and climate change impacts accelerate.

By 2050, about 3.4bn people could be residing in water-stressed areas in Asia alone.[135] Pollution compounds this scarcity by further reducing the availability of clean water – particularly for the most vulnerable. Over 1mn people die each year from unsafe water – with per capita deaths highest for poor countries in Asia and Sub-Saharan Africa.[136]

Investment is urgently needed to address the twin ecological and health crises of water pollution. A suite of interventions is needed, both for improvements in the water supply system and to address point and non-point sources of pollution.

Firstly, financing is needed for developing, upgrading and maintaining wastewater collection and treatment facilities in coastal watersheds. Today, private investment in water supply and sewerage only covers about 1% of Asia's infrastructure needs. This is partly due to the poor creditworthiness of private water service providers, which limits their access to capital markets.[137] To meet the investment need, a combination of public and commercial capital will be needed, and blue bonds issued by FIs, IFIs and sovereigns can therefore all play an important role in unlocking finance for this agenda.

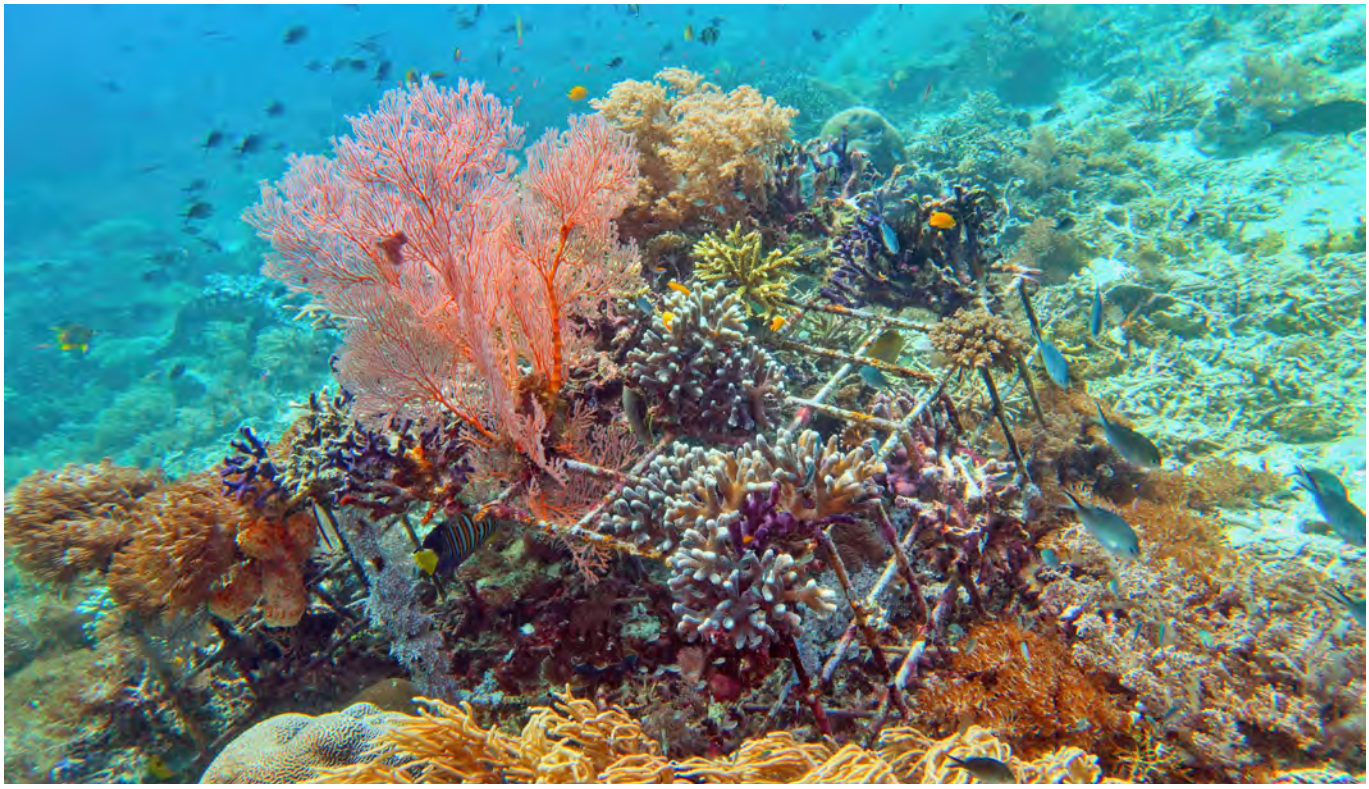
Bank of China issued a $943mn blue bond in 2020, of which 12% was allocated to marine related sewage treatment projects. These projects entailed building and renovating a sewage pipeline system to reduce pollutants.[138]

The proceeds of the 2021 ADB blue bond financed 11 projects for wastewater management and non-source point pollution. For example, $160mn was invested to develop a new sewerage system in Khulna, Bangladesh. This project aims to cover 120,000 households with service coverage and develop two sewage treatment plants and five pumping stations, including free connections to poor and vulnerable households. A second project aims to improve the economic and environmental conditions in the upstream area of the Xin'an River in China. The project aims to set up 85 decentralized wastewater treatment systems and connect ~15,000 new rural households to sewer systems.[139]

In many cases, expanding wastewater infrastructure leads to increased emissions. Investments could therefore be complemented with finance for renewable energy projects, to reduce the carbon intensity of new water infrastructure.

Blue bonds can also unlock investments for interventions to address non-point source pollution, particularly agricultural runoff. Proceeds could be used for sustainable agriculture programs that reduce inputs of fertilizer and agrochemicals, or for development and adoption of technologies to reduce agricultural pollution, such as precision farming techniques.

APAC is rich in blue natural capital, with half of the world's mangroves and some of the world's largest continuous coral reefs, including the Great Barrier Reef and Fiji's Great Sea Reef.



But the future of its marine and coastal ecosystems hangs in the balance due to unsustainable blue economy pressures combined with climate change. Over 80% of coral reefs in APAC are threatened.[140] Regular bleaching events from temperature increases (including El Niño) have contributed to 20-50% reef loss between 2000 and 2020.[141] Over the same period, Asia lost about 40,000ha of mangrove coverage and 4.7% of seagrass beds annually.[142]

There is a clear need and opportunity to scale finance for protection and restoration of these ecosystems, as further warming of seas and climate change will accelerate loss.[143]

More than 100 countries have committed to '30x30': a global initiative agreed at CBD COP 15 to protect 30% of land and ocean by 2030.[144] Delivering on this commitment, in combination with restoration, will be essential to protect biodiversity, livelihoods and food security. Protection and restoration also offers clear spillover benefits for related blue economy sectors that depend on the services that coastal ecosystems provide. For example, a mangrove restoration project in Viet Nam led to 200-800% yield and income increases of aquaculture products for coastal communities.[145] Protecting and restoring coral reefs will be vital for the ~4mn coral reef fishers in APAC, as well as for coastal tourism.

Many coastal ecosystems are also carbon sink powerhouses – per hectare, mangroves and seagrasses sequester carbon at 4x and 10x the rate of terrestrial rainforests respectively. Intact coastal ecosystems also offer crucial protection against extreme weather events, flooding and sea level rise. This protection is vital in many APAC countries, which on average experienced 6 natural disasters a year over the past 3 decades – with frequency and intensity set to grow as climate change impacts accelerate.[146] Healthy coral reefs can decrease wave energy by 97%, while 100m of mangrove forests can decrease wave height up to 66%.[147] As well as reducing wave energy, salt marshes, seagrasses and oyster reefs also slow floodwaters and prevent erosion of coastlines.[148] In many cases, nature-based adaptation solutions ('green' infrastructure) can be more effective and reduce costs relative to engineered solutions ('grey' infrastructure).

Where grey adaptation measures are required, there may be potential to integrate 'green' solutions to develop green-grey infrastructure, to boost effectiveness and associated biodiversity benefits (e.g. 'living' seawalls in Australia; combining mangrove restoration with breakwaters in the Philippines etc.)[149, 150]

Today, protection and restoration in APAC falls short of what is needed. Many countries are far from their 30% MPA commitment; only ~1% of South East Asia's coral reefs are considered to be 'highly protected' by an MPA.[151] Public funding is needed to define MPAs, set up appropriate management and enforcement of protective measures and implement coastal protection solutions.

Restoration efforts are growing but remain fragmented and sub-scale, with nascent technologies and mixed long term survival rates.

Areas with ecosystems that are better adapted to climate change can serve as nurseries to help repopulate nearby affected areas. However, on its own, restoration is not sufficient. To improve the resilience and health of ecosystems such as coral reefs, local stressors must also be reduced, including through managing destructive fishing practices and overfishing, reducing land- and marine-based pollution, and limiting coastal development.

Governments have a critical role to play in financing protection and restoration.

Blue bonds can help unlock additional finance for this agenda. Proceeds from sovereign issuances, or savings from DFNS can finance multiple projects including expansion, improved management and enforcement of MPAs and other effective area-based conservation measures (OECMs); nature based solutions as alternatives or complements to grey infrastructure for adaptation of coastal regions; and research and innovation in restoration projects.[152]

Indonesia's $150mn sovereign blue bond issued in 2023 uses proceeds for marine biodiversity conservation and mangrove rehabilitation.[153] Belize undertook a $364mn DFNS in 2021. Savings have been committed to, among other uses, $4.2mn for marine conservation and expansion of biodiversity protection zones each year until 2041, to increase coverage of these zones from ~16% to ~30% of its ocean area by 2026.

Unclear business models are a key challenge for mobilising private investment for protection and restoration. Projects often generate low or zero revenues over long timelines.[154] Benefits are mainly avoided costs or non-monetised positive externalities for a wide range of stakeholders across sectors. Several studies, for instance, show that a local net economic benefit can be achieved through MPAs as, in the short term, tourism gains will outweigh losses to local fisheries when constraining fishing practices, and in the long term, fisheries will experience an increase in their catch.

However, the role and opportunity for the private sector to finance protection and restoration is growing. Numerous businesses in coastal regions benefit from healthy ecosystems. For example, coastal hospitality facilities benefit from increased nature tourism and adaptation. Nature based solutions can provide protection against storms or sea level rise for coastal assets and valuable infrastructure, such as industry hubs or airports.

Innovative new financing mechanisms are emerging to mobilise private finance. HSBC and The Nature Conservancy Australia, for instance, set up a $100mn climate partnership which seeks to identify nature-based restoration activities and develop new frameworks to accelerate the issuance of ocean impact bonds.[155] New blended finance models are being developed, including for MPAs. Maturing blue carbon methodologies also offer an opportunity for new markets and revenue streams to create investable business models and finance protection and restoration of mangroves and seagrasses. Blue bonds issued by FIs or Corporates could also help unlock finance for these projects. An example is the $302mn blue bond issued by ADB in 2021. Part of the proceeds are used to transition the fisheries sector, which also includes protecting and preventing further conversion of mangroves.[156]

SUSTAINABLE TOURISM

Asia-Pacific is home to some of the world's most renowned marine and coastal tourism hubs, with visitors attracted to the region's coral reefs, mangrove forests and pristine beaches.

The so-called 'Coral Triangle' in the Pacific Ocean is a popular attraction, and, before the Covid-19 pandemic, tourism to the six countries in the area was expected to quadruple due to increasing demand for ecotourism.[157] Travel and tourism make a significant contribution to the region's GDP, especially for SIDS where, before Covid-19, tourism accounted for ~30% of GDP, climbing to 40% for Fiji and 50% for the Maldives.[158, 159]

However, business-as-usual tourism in the region is undermining ocean health and the very ecosystem services on which the sector depends. The development of hotel facilities and associated infrastructure has led to conversion or damage of coastal ecosystems. In Fiji, mangrove deforestation for tourism development has heightened the vulnerability of coastal communities to storms and floods.[160] Tourism is also a major contributor to waste and pollution, especially for countries or regions with limited waste management infrastructure. In 2018, multiple South East Asian governments, including Thailand and the Philippines, opted to temporarily close islands struggling under tourism pressures.[161] Large numbers of tourists can also compound existing overfishing stressors, by increasing demand for fish consumption and recreational fishing activities.[162] Beyond the carbon footprint from travel, heating and cooling of hospitality facilities also drives local GHG emissions.

Rising sea levels and coastal erosion are a further risk to the sustainability of the tourism sector. This issue is most significant for low-lying coastal regions in countries like the Philippines, Malaysia and Indonesia where coastal tourism is a major source of income and livelihoods. In Bangladesh, 24% of the coastline is identified as highly vulnerable to coastal erosion, with many homes, hotels and other businesses already lost.[163] In the Maldives, ~20% of GDP is linked to tourism, but much of its land area lies at or below 3m above sea level.[164] Investment in adaptation, including both green and grey infrastructure, will be vital to ensure coastal tourism in vulnerable areas has a future.

Global standards and alliances are working to build consensus on and drive progress towards sustainable tourism models. Examples include the Global Sustainable Tourism Council (GSTC); the World Travel and Tourism Council; the Sustainable Hospitality Alliance, and the Glasgow Declaration on Climate Action in Tourism, which aims to drive and align climate action across tourism stakeholders, with 450 organisations signed up.

Blue bonds could help finance the transition to new, better tourism models. Sovereign blue bonds could finance the upgrade or expansion of waste infrastructure in under-served tourism hot spots. Large tourism corporates or FIs in the region could deploy proceeds in capital-intensive adaptation, renewable energy or energy efficiency projects for hospitality facilities. Adopting sustainable sourcing policies can have knock on effects in related sectors including fisheries, by strengthening incentives for local suppliers to invest in better gear and enhanced traceability – blue bonds can also unlock finance for these improvements. Ocean-based tourism such as cruises also impact ocean health, with significant capex investments needed to move towards more sustainable models including the transition to low- or no-emission vessels.

Blue bonds can also unlock finance for ecotourism models that are intrinsically regenerative and linked to protection and restoration of marine and coastal ecosystems. Developing and strengthening marine protected areas is a clear opportunity for deploying capital raised through sovereign UOP blue bonds or DFNS.

As well as creating direct benefits for marine biodiversity, investment in conservation offers a clear return on investment: tourism to protected areas globally generates a 60x higher return compared to spend on protection of these sites.[165] Another use of proceeds for sovereign bonds or DFNS is management of coastal erosion and supporting science-based solutions to protect coastal areas from floods.

Using blue bonds to finance sustainable and ecotourism is a largely untapped opportunity. Relatively few blue bonds issued so far have targeted the sector, and where tourism is included as a use of proceeds, it is typically one of many. Within APAC one example is the BDO Unibank Philippines $100mn blue bond, which will finance sustainable tourism as well as wastewater treatment, plastic recycling, fisheries and water conservation.

COUNTRY DEEP DIVE CASE STUDY: ASSESSING OPPORTUNITIES FOR BLUE BONDS IN THE PHILIPPINES

MAP OF THE PHILIPPINES

GEOGRAPHY

The archipelago of The Philippines spans 7,641 islands and is the 5th largest island nation in the world. It is bounded by the South China Sea, the Philippine Sea and the Celebes Sea.

BLUE ECONOMY

The Philippines is a middle-income country, but its blue economy offers enormous potential for future sustainable development. Of its population of ~120mn people, 60% live in coastal areas.[166] The contribution of the blue economy to the Philippines' GDP is ~$15.3bn.[167, 168]

VULNERABILITY

As an island state, the Philippines is highly vulnerable to flooding caused by tropical cyclones and increasingly frequent heavy rainfall.[169] The country is hit by ~20 cyclones annually, and floods affect approximately 176,000 individuals each year. Climate change will increase the intensity and frequency of extreme weather events. The Philippines is a member of the V20, a cooperation of mainly lower and lower-middle income countries that are systemically vulnerable to climate change.

SUSTAINABLE FINANCE

The Climate Bonds Initiative cites the Philippines as regional leader in green finance, due to its initiatives on green bonds, loans, equity, credit guarantees, and specialty funds for green infrastructure.[171] In 2022, the government planned for $7bn of foreign sovereign and corporate green bond issuances.[172] The Economic Research Institute for ASEAN and East Asia (2023) highlights blue bonds as one of the top 10 enablers for the Philippines to scale up and finance research in innovative projects to support the blue economy.[173] Several frameworks have recently been launched to encourage innovative financing instruments and attract foreign investment. The SEC published national blue bond guidance last year, and the Central Bank (BSP) launched a sustainable finance taxonomy in February 2024, reflecting existing EU and ASEAN taxonomies. To date, one blue bond has been issued in the Philippines, by BDO Unibank in 2022.

OCEAN HEALTH

Despite the importance of the ocean to its growth and adaptation agenda, ocean health for the Philippines ranks #210 out of #214 assessed geographies, according to the Ocean Health Index.[170] Investment to address key drivers of degradation, as well as to leverage the full potential of its abundant blue natural capital, will be vital to develop a sustainable ocean economy.

OPPORTUNITIES FOR BLUE BONDS TO SUPPORT THE DEVELOPMENT OF A SUSTAINABLE OCEAN ECONOMY IN THE PHILIPPINES

The analysis explores the potential role of blue bonds to finance key blue economy sectors in the Philippines. For each sector, key context on the state of the sector today is provided, as well as an indication of how urgent investment in the sector is to improve ocean health and strengthen mitigation and adaptation in the Philippines (See Appendix 2 for methodology). The analysis also provides an indicative view of the applicability of blue bonds for each sector to different types of issuers (globally), based on typical project characteristics and examples of blue bonds issued so far.

ASSESSMENT OF POTENTIAL OF BLUE BONDS TO FINANCE KEY OCEAN ECONOMY SECTORS IN THE PHILIPPINES

Sector	Philippines Context	Need for investment for ocean health in the Philippines	Need for investment for adaptation / mitigation in the Philippines	Sector fit with different blue bond issuers (globally)			
				Corporate	FI	IFI	Sovereign
Fisheries & Aquaculture[174]	• 8th largest fisheries & aquaculture producer in the world, with 60% of volume from fisheries, 40% from aquaculture. • 75% of the country's fishing grounds are overfished • Fisheries are 1/3 commercial fisheries, and 2/3 municipal, small scale fishers • Government's Comprehensive National Fisheries Industry Development Plan (2021 – 2025) has acknowledged finance and capabilities gap in the sector • Aquaculture identified as a priority growth sector by government	High	Medium	High	High	Medium	Medium
Sustainable Shipping & Ports[175, 176]	• Maritime transport sector contributes 3.6% of GDP • Manila port is in top 10 busiest ports in SEA and growing +10% YoY • Shipping failing to meet international standards incl. EMSA and IMO • Government support for action signalled by Maritime Industry Development Plan (MIDP) 2028	Low	Low	High	Medium	Medium	Medium
Sustainable Tourism[177, 178]	• Before Covid, 8m tourists p.a., with tourism at 14% of GDP and creating 5.7m jobs. In 2023, tourism was 5.5m people. • Examples of severe ocean health impacts from tourism: in 2018, Boracay, a popular island, was closed for 6 months until waste management practices were addressed to address severe water quality issues • 2023-2028 National Tourism Development Plan signalled government ambition to scale sustainable tourism • Sovereign ecotourism tracking tool established to evaluate projects	High	Low	Medium	High	Medium	Low
Offshore Renewable Energy	• World Bank roadmap highlighted potential to install 21GW of offshore wind power by 2040, covering 1/5 of national electricity supply.[179] • In response, six energy companies have formed POWER - a coalition to accelerate project development.[180] • So far, govt. has granted 63 wind project service contracts.[181] • Policy framework to support development of the sector is in progress.[182]	Low	Medium	High	High	Medium	Low

Sector	UAE Context	Need for investment for ocean health in the UAE	Need for investment for adaptation/ mitigation in the UAE	Sector fit with different blue bond issuers (globally)			
				Corporate	FI	IFI	Sovereign
Solutions To Plastic Pollution[183]	• World's largest source of ocean plastic – more than 1/3 in 2019 • Challenges in product offering & consumer preferences – the 'sachet economy'. • Nationally, waste collection rates are variable - from lows of 40% to 85%. • Govt. aims to promote 60% recovery and recycling of plastic by 2030. • Ambitious EPR law introduced in 2022 to promote plastic reduction & recovery for large companies, incl. recovery of flexible plastic.[184]	High	High	Medium	High	High	High
Solutions to water scarcity and pollution	• Philippines faces a water and sanitation crisis. • 50% of population lack access to safe water due to untreated sewage, industrial effluent, and agricultural runoff.[185] • 60% of its coral reefs are at risk from watershed-based pollution.[186] • Water pollution costs the economy $1.3bn p.a.[187]	High	High	High	High	High	Medium
Restoration & Conservation	• 9% of the world's coral reefs, which prevent about $590mn in damage p.a.[188] • Mangroves provide over $1bn in flood protection benefits annually in the Philippines, and protect over half a million people from floods.[189] • Since 1990, the Philippines has lost ¾ of its mangrove coverage, driven largely by aquaculture development.[190] • Has over 1500 locally managed marine reserves, covering ~4mn ha., incl. no-take zones and limited non-destructive fishing activities, although effectiveness of enforcement is mixed.[191, 192] • NBSAP specifies biodiversity and ecosystem conservation targets and plans.[193]	Medium	Medium	Low	Low	High	High

Chapter 4

CREATING THE CONDITIONS FOR A STEP CHANGE IN BLUE BONDS

Blue bonds could help finance a step change in action to create a sustainable ocean economy.

Growing the market at pace calls for tackling three related challenges: first, creating capacity on the supply side to equip public and private actors to issue more high integrity blue bonds; second, growing investor demand through building awareness and confidence; and third, ensuring that proceeds are fully utilised and deployed in high impact projects. Improving governance, supportive frameworks and policies, pipeline and data will be critical to mainstream the blue bond market. So too will learning lessons from other, more mature sustainable debt instruments.

1 ADOPTING HIGH INTEGRITY THEMATIC BOND FRAMEWORKS

Investor pressure for high integrity thematic bond frameworks is increasing. Frameworks are key to provide clarity to issuers on the sectors, projects and activities in scope and to assure investors that finance is deployed in high impact interventions. The ICMA Blue Bond Practitioner's Guide launched in September 2023 was a welcome step towards a global market standard that defines eligible use of proceeds and impact metrics for UOP blue bonds. It will provide much needed credibility to the sector and is expected to be widely used by issuers going forward. For example, the recently announced Emerging Markets Blue Economy Bond Strategy by T. Rowe Price and IFC will use a framework that builds upon both the Practitioner's Guide and IFC's Guidelines for Blue Finance.[194] While the ICMA Guide focuses on use of proceeds blue bonds, the other bond instruments relevant to the blue economy such as SLBs and DFNS could also benefit from the development of clear frameworks defining their scope, targets, process and reporting requirements.

Alongside issuer frameworks, developing national blue bond standards can further increase investor confidence. National standards can help embed global frameworks like the ICMA Guidance in local contexts and allow transactions to be carried out in local currency, adhere to national regulations for disclosure, and meet the sustainability objectives of the country and local companies and investors. A recent example is the Guidelines on the Issuance of Blue Bonds in the Philippines, launched by the country's Securities and Exchange Commission in 2023. The Guidance outlines eligible blue projects and activities, excluded sectors and quantitative performance measures, building upon the ASEAN Green Bond Standards (GBS) and the ICMA Green Bond Principles (GBP). Such initiatives to provide greater policy clarity from governments and regulators are a critical condition for fostering a sustainable blue economy while building robust domestic capital markets to attract local and international investors.

2 DEVELOPING NATIONAL OCEAN PLANS

Comprehensive ocean strategies developed at the national level can help promote the enabling conditions for investment and ensure finance raised through blue bonds is deployed in the most impactful projects. Creating holistic ocean plans can help align ocean management, policy and investment with macro national priorities for resilience, mitigation and prosperity. They can integrate climate considerations into planning, direct resources towards sustainable economic activities, prioritize areas for marine conservation and provide guidance for coordinating the wide array of ocean uses and activities.

The High Level Panel for a Sustainable Ocean Economy has called for countries to develop Sustainable Ocean Plans to outline comprehensive strategies to sustainably manage 100% of the ocean area under their national jurisdiction.[195] National ocean plans should also align with the National Biodiversity Strategies and Action Plans (NBSAPs) that are being developed as part of the Convention on Biological Diversity.[196] In ideal scenarios, national ocean strategies identify the costs and optimal ways for financing these plans, including blue bonds where relevant.

For example, before issuing the first sovereign blue bond in 2018, the Government of Seychelles developed a Blue Economy Strategic Policy Framework and Roadmap, which presents an integrated approach to ocean-based sustainable development and advances a prioritized agenda for action and investment up to 2030.[197]

Having a clear national ocean strategy and understanding of how blue bonds can help deliver this strategy is critical. Such strategies signal to the market a government's commitment to building a supportive enabling environment for blue bonds. They can also help ensure that finance is mobilised and deployed in complementary projects that together contribute to the achievement of a government's long-term strategic initiatives. Creating holistic national ocean roadmaps should be a top priority for governments to realize new investment opportunities in sustainable debt finance.

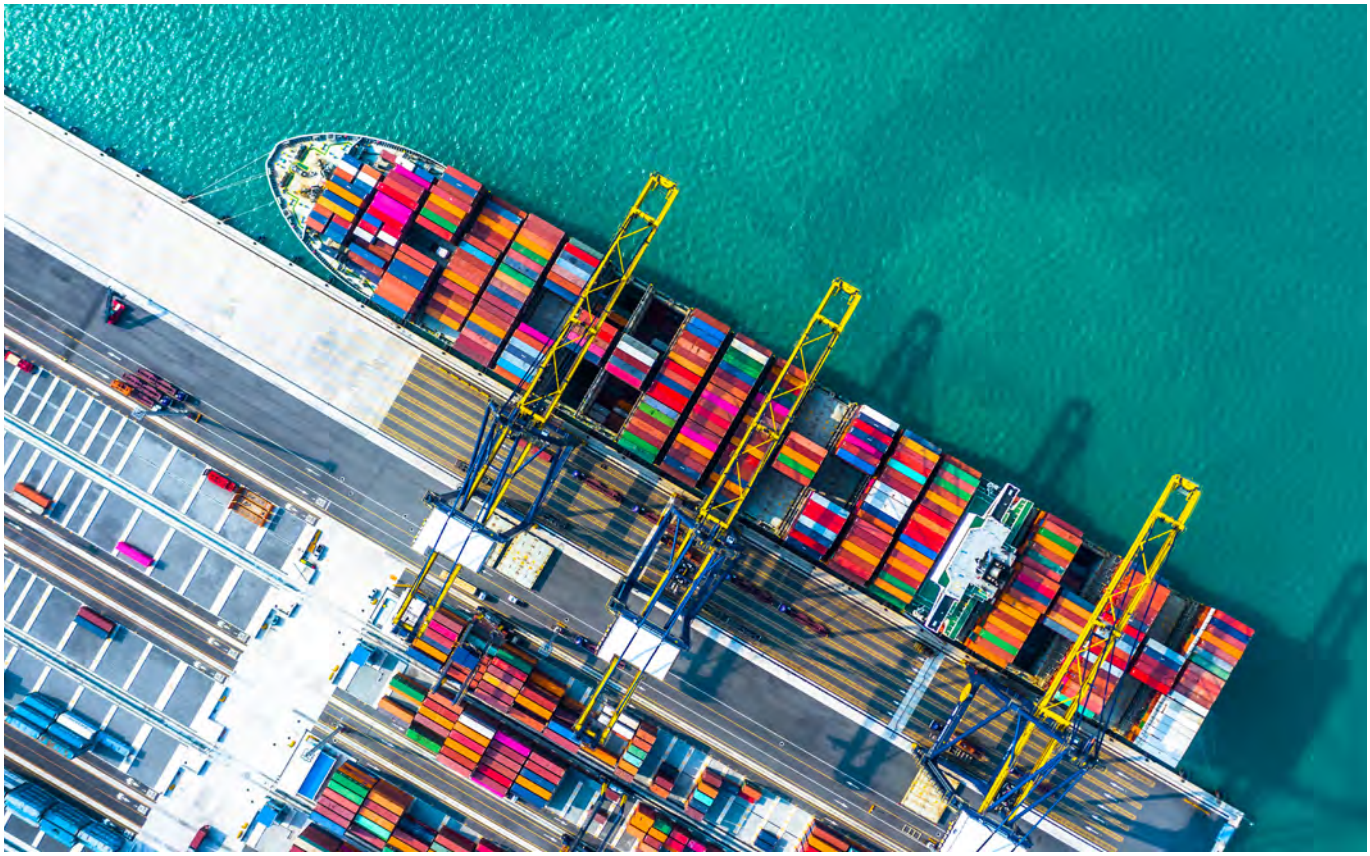
3

BUILDING PROJECT PIPELINE

Similar to the green bond market, establishing a functioning and active market for blue bonds will rely on developing a stable and robust pipeline of eligible blue projects and activities. The lack of bankable projects that can be financed or refinanced through blue bonds today is one of the most significant bottlenecks in scaling the market.

Some eligible blue sectors like renewable energy, water and solid waste management or green shipping are more established and offer bigger ticket sizes and stable revenue streams. Developing pipeline in these more mature sectors will be similar to other infrastructure projects and subject to regulatory support, creation of standardised processes and contracting, certainty around long-term planning, availability of credible project developers and financial de-risking. Other eligible sectors such as adaptation and resilience, conservation and restoration, sustainable value chains and ecotourism are more nascent. They have limited proof points, and in some cases offer limited direct revenue streams, with benefits coming largely from avoided costs. The track record, volume and scale of bankable projects in these sectors must grow fast to ensure capital gets deployed. Expertise, capacity and early-stage concessional funding in the form of technical assistance and grants will be critical. A toolbox of instruments and the right sequencing can help build and mature pipeline, creating proof points for nascent business models.

The Mangrove Breakthrough Financial Roadmap is an example of a comprehensive strategy which outlines a complementary package of tools to scale investment in mangroves and related mangrove-positive businesses, including incubators and accelerators to scale early-stage project pipeline.



Pipeline origination mechanisms such as dedicated incubators, accelerators, and project preparation facilities will play an outsized role in coming years to crystallise investment opportunities in the nascent blue sectors. The Government of Australia and the Grand Duchy of Luxembourg together with IUCN, for instance, have launched the Blue Natural Capital Financing Facility (BNCFF) to develop ocean-positive pipeline in developing countries.[198] The Blue Finance Accelerator, a joint initiative of UNDP and ADB, provides capacity-building and support for start-ups and SMEs tackling blue sector challenges in Indonesia.[199] Platforms and aggregator facilities can help small-scale projects access capital by pooling multiple projects to match bigger investment ticket sizes.

For instance, the BlueDeals Platform by the Ocean Assets Group backed by ADB, UNDP and UNEP is a digital impact investment platform for SMEs in Asia and Africa which seeks debt finance for commercial-ready projects that improve ocean health and coastal communities.[200] Launching and ramping up similar pipeline origination mechanisms and aggregators will be key to unlocking investment for the sustainable blue economy at scale and increasing utilization of blue bond proceeds.

4

DATA DISCLOSURE AND ACCESSIBILITY

High quality, reliable and comparable data is vital to establishing and upholding the credibility of a new asset class. More transparent disclosure on the financial and impact performance of funded projects could help grow and build trust in the blue bonds market. Publicly available data and the development of benchmarks can help effectively assess the impact and additionality of blue bonds over time and aid investors in comparing blue bonds against each other. As the market matures, track record will become increasingly important, with issuers that fail to deliver on their promises potentially facing criticism and challenges in attracting investors for subsequent blue bond issuances.

Recent research shows that blue bond issuers currently either do not disclose clear targets or tend to cherry pick the environmental impacts they report on, which can overstate their impact and pose the risk of "blue washing".[201] Robust impact frameworks can help. For instance, the ICMA practitioner's guide provides a list of example project outputs and impact indicators. Other relevant blue economy impact measurement initiatives include the Ocean Impact Navigator[202] and ADB's Blue Economy Metrics.[203]

The Science Based Targets Network (SBTN) Science-Based Targets for the ocean are also expected to be released in 2024. Issuers' formal blue bond documents should explain how selected KPIs will be measured and provide clear baselines, targets, and mitigation measures, so that investors can make informed decisions. Given the complexity of ocean ecosystems and the lack of a single, universal metric for measuring impact, standardization across a limited number of priority metrics could be a further opportunity to boost confidence in the positive effects of investments.

Efforts to strengthen data access and transparency for blue debt can build on existing tools in the green bond universe. The Climate Bonds Initiative Green Bond Database (Climate Bonds GBDB) is an excellent source which can be replicated for blue bonds and other blue-aligned debt instruments. Other data providers, such as Bloomberg New Energy Finance (BNEF) and Environmental Finance Data, which currently track green bonds, sustainability bonds, social bonds and SLBs, could also report on blue bonds to increase data availability and support investor decision-making.

5 PROVIDING DEBT RELIEF FOR VULNERABLE OCEAN-DEPENDENT COUNTRIES

Sovereign blue bond issuances are a vital innovative mechanism to unlock additional ocean finance for governments. However, for some LMICs, they risk increasing already unsustainable debt burdens. Tight fiscal conditions have been exacerbated by the impact of Covid-19, geopolitical pressures, weak global growth and rising interest rates. Together, these conditions have precipitated a debt crisis in many low- and middle-income countries, which are even more severely exposed to these challenges due to their lower resilience and higher socio-economic vulnerability.

More than half of EMDEs – including many SIDS – are in or facing debt distress[204], limiting the fiscal space for investment in the ocean economy, despite its role as a potential low-cost solution to build local resilience, generate jobs, strengthen food security and reduce physical and financial risks for coastal communities.

For some EMDEs, DFNS can present a viable alternative financial solution. These transactions provide access to long-term, cost-efficient funding from a diversified pool of private capital. At the same time, they decrease indebtedness by offering longer maturity, lower interest and/or reducing the debt stock, thus freeing up finance in constrained budgets for other priorities, including investment in blue projects. Debt conversions are made possible by credit enhancement instruments such as credit guarantees and political risk insurance (PRI) (for an overview of instruments see Chapter 2). In the five multilateral debt-for-nature swap transactions that have taken place since 2018, guarantees and PRI were provided by four institutions – the World Bank, DFC, IADB and TNC.

A larger number of providers offering different credit enhancement instruments can help scale the market for DFNS. In APAC for example, ADB plays an active role already in the UOP blue bonds market and could potentially step up to provide credit enhancement for countries that may look to debt swaps in the future. An initiative making steps in this direction is the recently launched Task Force on Credit Enhancement of Sustainability-linked Sovereign Financing for Nature and Climate, which will work to strengthen the availability of risk mitigation and credit enhancement tools for developing countries.[205]

In addition to more catalytic and flexible credit enhancement, next steps to improve the debt-for-nature swaps market could include development of best practice frameworks with a focus on scope, eligibility criteria and reporting, as well as collaboration between structuring NGOs to accelerate action and ensure competition does not lead to a race to the bottom.

Debt for Nature Swaps are not, however, a panacea, nor are they appropriate for all countries. In certain cases, debt cancellation may be more appropriate - for example, last year the Government of Portugal pledged to swap all of the $153mn of debt it is owed by Cape Verde in exchange for environmental investments.[206] But cancelling debt outright comes with its own issues and is unlikely to be used at scale. Instead, coalitions like the Bridgetown Initiative, co-launched by the Barbados Prime Minister Mia Mottley, suggest a suite of reforms which can make debt more affordable while scaling climate finance.

Proposed reforms include automatic debt repayment pauses during climate disasters, extending loan durations, reducing costs, and establishing a facility to address exchange rate fluctuations. Opportunities to apply these proposals to blue bonds could also be explored. For instance, low interest, long term '50 year' blue bonds.

On their own, instruments like sovereign blue bonds and debt-for-nature swaps are not a silver bullet for a country's debt problems or the blue funding gap. However, when undertaken as part of a holistic set of solutions and wider financial reforms, they can help countries avoid a debt downward spiral while protecting their oceans and supporting a flourishing blue economy.

Chapter 5

CONCLUSION

The ocean stands at a critical juncture, facing escalating threats and challenges that call for immediate action. Scaling finance can safeguard the ocean's future, secure the vital ecosystem services it provides, and help protect and create resilient livelihoods for the communities that depend on it.

Moreover, the ocean offers a massive investment opportunity. While some capital is already flowing to sustainable blue economy sectors, many traditional industries such as ports, shipping, and energy, as well as fishing and aquaculture, need capital to accelerate the shift to new regenerative and net-zero aligned models. At the same time, scaling finance for marine protection and restoration can preserve the ecosystem services on which vital ocean sectors depend, while investments in adaptation can reduce physical and financial risks for coastal communities and their assets.

Blue bonds are emerging as a vital new mechanism to support the sustainable ocean economy.

If blue bonds issuances grow at the same speed as observed on the green bonds market, annual issuances can reach $14bn by 2030, closing almost 10% of the ocean funding gap. Leading the way is APAC, which accounts for the majority of the blue bonds issued so far, but significant opportunities exist in new geographies like the MENAT region.

There is clear evidence of collective efforts at global and local levels to advance the market, standardize practices, build investor confidence, and scale investment into blue bonds around the world. But more is needed. Multiple stakeholders have a role to play in mainstreaming the market:

GOVERNMENTS

Governments should take steps to create a supportive enabling environment through national blue bond standards and ocean strategies that send clear market signals to investors. They should also issue blue bonds to raise capital for public goods including protection, restoration, adaptation, ocean management, and programmes for the most vulnerable communities depending on the ocean for their livelihoods.

MDBS & DFIS

MDBs & DFIs should scale their own issuances of blue bonds. In parallel, they must accelerate the implementation of reform agendas, strengthen their strategic focus on nature-based solutions and adaptation, deploy efficient credit enhancements and third-party risk mitigation instruments for blue bonds to allow investment to flow to where it is needed most.

PRIVATE FINANCIAL INSTITUTIONS

Private financial institutions should design blue bonds to unlock additional finance for sustainable ocean economy sectors. They can help finance SMEs and other underserved projects which have previously had limited access to finance.

CORPORATES

Corporates have an opportunity to capitalise on momentum for the net zero and nature-positive transition. They can lead by example and look within their own value chains to mitigate negative ocean impacts or set up and finance strategies for positive impact. Some corporates can issue blue UOP bonds or SLBs with ocean-linked targets.

PROJECT DEVELOPERS, ENTREPRENEURS, INCUBATORS AND ACCELERATORS

Project developers, entrepreneurs, incubators and accelerators can help prove new ocean-positive business models, and build and aggregate project pipeline

DONORS AND PHILANTHROPIES

Donors and philanthropies should provide capital to support local organizational and institutional capacity building as well as directly support the development of new and nascent business models and early-stage ventures.

NGOS

NGOs can help build capacity, support the development of an enabling environment, and support implementation of protection and restoration. In some cases, they can also help structure and design debt for nature swaps.

This collective action will be essential to unlock the full potential of the ocean and build a sustainable blue future for generations to come.

Appendix 1

LIST OF BLUE BOND TRANSACTIONS

Name	Issuer	Year	Amount (USD mn)	Type of instrument	Description / Use of Proceeds Summary
WORLD BANK (IBRD) SUSTAINABLE DEVELOPMENT BOND	World Bank (IBRD)	2018	95	UOP bond	Sustainable use of water in order to increase access to safe and reliable water sources and sustainable use of ocean resources and marine life.
SEYCHELLES BLUE BOND	Government of Seychelles	2018	15	UOP bond	Expansion of sustainable-use marine protected areas, improved governance of priority fisheries, project management and coordination, promotion of sustainable practices, fisheries management planning, education awareness programs, stock rebuilding, refitting fishing vessels, aquaculture development
SEYCHELLES DEBT-FOR-NATURE SWAP	Government of Seychelles	2018	21	Debt-for-nature swap	Financing for adaptation to climate change through management of coasts, coral reefs and mangroves; Promoting implementation of a Marine Spatial Plan (MSP) for the entire Seychelles EEZ; Approximately 400,000 km2 managed for conservation as MPAs within five years; Implementing the MSP, setting ground rules for what is permitted and where within Seychelles;
NIB NORDIC-BALTIC BLUE BOND 1	Nordic Investment Bank	2019	220	UOP bond	Wastewater treatment, prevention of water pollution and water-related climate change adaptation
WORLD BANK & MORGAN STANLEY SUSTAINABILITY BOND	World Bank (IBRD)	2019	10	UOP bond	Plastic waste reduction efforts in oceans; Promotion of the sustainable use of marine resources in developing countries including scientific research, policy and regulatory reform and cross-sector collaboration
WORLD BANK (IBRD) SUSTAINABLE DEVELOPMENT BOND	World Bank (IBRD)	2019	180	UOP bond	Sustainable use of water in order to increase access to safe and reliable water sources; sustainable use of ocean resources and marine life
WORLD BANK (IBRD) & CREDIT SUISSE SUSTAINABLE DEVELOPMENT BOND	World Bank (IBRD)	2019	29	UOP bond	Promote strong governance of marine and coastal resources to support sustainable fisheries and aquaculture; Make coastlines more resilient; Establish coastal and marine protected areas; Improve solid waste management to reduce pollution in waterways and oceans; Sustainable fisheries; Ocean waste upcycling
MOWI GREEN BOND	Mowi ASA	2020	220	UOP bond	Environmentally sustainable aquaculture; Energy efficiency; Water & wastewater management; Waste management; Eco-efficient and/or circular economy adapted products, production technologies & processes

Name	Issuer	Year	Amount (USD mn)	Type of instrument	Description / Use of Proceeds Summary
NIB NORDIC-BALTIC BLUE BOND 2	Nordic Investment Bank	2020	150	UOP bond	Same use of proceeds as 1st NIB bond.
GRIEG SEAFOOD - JUN & NOV 2020 TRANCHE	Grieg Seafood	2020	150	UOP bond	Environmentally sustainable aquaculture; Pollution prevention and control; Water and water waste management; Waste management
BANK OF CHINA BLUE BOND - CNH AND USD TRANCHE	Bank of China	2020	943	UOP bond	Renewable energy (solar energy, onshore and offshore wind energy and biomass energy); Sustainable water and wastewater management: including sustainable infrastructure for clean and/or drinking water, wastewater treatment, sustainable urban drainage systems and river training and other forms of flooding mitigation
CHINA INDUSTRIAL BANK BLUE BOND	China Industrial Bank (CIB) Co. Ltd	2020	450	UOP bond	Marine renewable energy, sewage pipelines and sewage treatment in coastal areas, shipping and port pollution prevention facilities, and urban flood control facilities in coastal areas.
WORLD BANK & JP MORGAN SUSTAINABLE BLUE DEVELOPMENT BOND	World Bank	2021	10	UOP bond	Access to clean water and the sustainable use of ocean and marine resources (SDG 6 and SDG 14)
SEASPAN CORP BLUE TRANSITION BOND	Seaspan Corp	2021	750	UOP bond	Building of new containers targeting decarbonizing by utilizing an alternative emission fuel source; investment in R&D, retrofitting, vessel modifications
THAI UNION SUSTAINABILITY-LINKED BOND	Thai Union Group PCL.	2021	152	SLB	Targets include remaining in the Dow Jones Sustainability Index Emerging Markets and ranking in the top 10 companies for the Dow Jones Sustainability Index Food Products Industry Index, reducing Thai Union's Scope 1 and Scope 2 carbon emissions from manufacturing operations by 4% annually (carbon intensity) and increasing the monitoring and surveillance of Thai Union's wild-caught tuna supply chains, whether electronically and/or through the use of human observers at sea. Investors in the bond will be entitled to a lower or higher coupon should the company achieve or fail to achieve these SPTs in 2023 and 2026.
ADB DUAL-TRANCHE AUSTRALIA / NZ BLUE BOND	Asian Development Bank	2021	302	UOP bond	Ecosystem and natural resources management projects: Ecosystem management and natural resources restoration, Sustainable fisheries management, Sustainable aquaculture; Pollution control projects: Solid waste management, Resource efficiency and circular economy, Non-point source pollution, Wastewater management; Sustainable Coastal and Marine Development Projects: Ports and shipping, Marine renewable energy
IDB INVEST BLUE BOND	IDB Invest	2021	37	UOP bond	Energy (offshore renewables); Agribusiness; Tourism; Shipping sector, decarbonization of port operations; Water and sanitation
BELIZE BLUE BOND	Government of Belize	2021	364	Debt-for-nature swap	Increasing Biodiversity Protection Zones, designating mangrove reserves and implementing governance and regulatory frameworks.

Name	Issuer	Year	Amount (USD mn)	Type of instrument	Description / Use of Proceeds Summary
TMBTHANACHART BANK BLUE BOND	TMBThanachart Bank, Thailand	2022	50	UOP bond	Renewable energy, sustainable water and wastewater management, pollution prevention, fisheries, aquaculture, seafood
BAHAMAS BLUE BOND	The Commonwealth of the Bahamas	2022	385	UOP bond	Debt repayment and supporting the blue economy
BDO UNIBANK PHILIPPINES BLUE BOND	BDO Unibank Philippines	2022	100	UOP bond	Water conservation, wastewater treatment, plastic recycling, sustainable tourism, fisheries, and sustainable seafood processing
BARBADOS DEBT-FOR-NATURE SWAP	Government of Barbados	2022	147	Debt-for-nature swap	1. Expansion of the country's MPAs from zero to ~30% 2. Improve management for all marine waters within its jurisdiction.
IDB INVEST BLUE BOND (II)	IDB Invest	2022	25	UOP bond	Finance private sector projects that contribute to the UN Sustainable Development Goal 6, Clean Water and Sanitation, and will promote the sustainable use of water resources for economic growth, improved livelihoods, and jobs, as well as ocean conservancy
HAINAN PROVINCE BLUE BOND	People's Government of Hainan Province	2022	167	UOP bond	Maritime economy and marine protection projects; Water sanitation, sustainable shipping and port logistics, fisheries and seafood value chain, and marine ecosystem restoration
MARUHA NICHIRO CORPORATION BLUE BOND	Maruha Nichiro Corporation	2022	36	UOP bond	Environmentally sustainable fisheries and aquaculture operations; Prevention of ocean pollution
IDB INVEST BLUE BOND (III)	IDB Invest	2022	34	UOP bond	Finance private sector projects that contribute to the UN Sustainable Development Goal 6, Clean Water and Sanitation, and will promote the sustainable use of water resources for economic growth, improved livelihoods, and jobs, as well as ocean conservancy
BANCO INTERNACIONAL BLUE BOND	Banco Internacional Ecuador	2022	79	UOP bond	Sustainable fishing and aquatic farming, water supply and treatment, chemicals and plastics treatment, water and waste management in vessels and shipping yards, licensed sustainable tourism operators, and the manufacturing of ocean-friendly products and offshore renewable energy
BRK AMBIENTAL BLUE BOND	BRK Ambiental	2022	364	UOP bond	Business solutions for oceanic health, freshwater and to improve access to water and sanitation in Metropolitana de Maceio, Brazil
CABEI BLUE BOND (AUD & JPY TRANCHE)	CABEI (Central American Bank for Economic Integration)	2022	93	UOP bond	Water resources protection, sustainable water management, offshore renewables, blue economy, MPAs, restoration
CABEI - 2ND BLUE BOND (JPY)	CABEI	2023	53	UOP bond	Water resources protection, sustainable water management, offshore renewables, blue economy, MPAs, restoration
EXPORT-IMPORT BANK OF KOREA BLUE BOND	Export-Import Bank of Korea	2023	1,000	UOP bond	Eco-friendly shipbuilding and marine renewable energy development
DESARROLLOS HIDRÁULICOS DE CANCUN	Desarrollos Hidráulicos de Cancun	2023	74	UOP bond	Supplying drinking water to the people living in the municipalities where DHC operates

Name	Issuer	Year	Amount (USD mn)	Type of instrument	Description / Use of Proceeds Summary
CABO VERDE MARINE AND OCEAN-BASED BLUE BOND	International Investment Bank	2023	3.5	UOP bond	Affordable loans to microentrepreneurs and startups in coastal communities, investing in small and medium-sized enterprises operating in the maritime and fisheries sectors in Cabo Verde
ECUADOR GALAPAGOS DEBT-FOR-NATURE SWAP	Government of Ecuador	2023	656	Debt-for-nature swap	The deal is expected to provide $450mn for Galapagos marine protection by 2041, with that money tied to conservation priorities.
REPUBLIC OF INDONESIA BLUE BOND	Republic of Indonesia	2023	150	UOP bond	Ocean conservation and climate change mitigation programs
ØRSTED BLUE BONDS	Ørsted	2023	108	UOP bond	Offshore biodiversity and sustainable shipping
BANK OF AYUDHYA BLUE BOND	Bank of Ayudhya, Thailand	2023	50	UOP bond	Water supply, fisheries and aquaculture
BBVA COLOMBIA BLUE BOND	BBVA Colombia	2023	50	UOP bond	Water and sewage treatment plants, ocean preservation, protection of lakes, moorlands and mangroves
IDB INVEST / BANCO BOLIVARIANO BLUE BOND	Banco Bolivariano	2023	80	UOP bond	Adoption of sustainable practices by companies that operate in sectors related to water ecosystems and the sustainable conservation of the oceans in Ecuador and the region
CABEI - 3RD BLUE BOND (AUD)	CABEI	2023	21	UOP bond	Water resources protection, sustainable water management, offshore renewables, blue economy, MPAs, restoration
GABON DEBT-FOR-NATURE SWAP	Government of Gabon	2023	500	Debt-for-nature swap	Develop marine spatial plan to increase the area of ocean under protection, improve management in currently protected areas and all new protected areas, and support Gabon's sustainable blue economy

Appendix 2

METHODOLOGY FOR ASSESSING INVESTMENT NEED FOR COUNTRY DEEP DIVES

For each of the sectors, an indicative assessment was carried out of the need for investment to achieve a) improved ocean health, and b) adaptation and mitigation outcomes. This assessment involved:

1. **Evaluating the potential contribution of the sector to achieve aims a) and b) on a general / global basis.** For this, the ICMA Blue Bonds guidelines assessment of project categories vs. the GBP environmental objectives (P. 6 – 7) was used as a basis to calculate an average sector 'score'.
2. **Assessing the significance of the sector to the country's ocean economy agenda.** This is a subjective assessment of the importance of each sector based on the information collected under the country's sector context.

For each assessment, a score between 0 and 3 (with 3 being the highest) was given. These scores were then multiplied to give an overall score: the 'Overall ocean health investment need' or the 'Overall adaptation and mitigation investment need'. For rounded scores of 6 or more, the final evaluation was 'high', for scores of 3 or more, the final evaluation was 'medium', for scores below 3 the final evaluation was 'low'.

SECTOR ASSESSMENT OF INVESTMENT NEEDED IN OCEAN HEALTH IN THE UAE AND THE PHILIPPINES

					UAE			PHILIPPINES		
Sector	Resource conserv-ation score	Biodiversity conserv-ation score	Pollution prevention score	**Ocean Health Average**	'Signifi-cance' weighting	**SCORE - Overall ocean health investment need**	**Overall ocean health investment need**	'Signifi-cance' weighting	**SCORE - Overall ocean health investment need**	**Overall ocean health investment need**
Fisheries & Aquaculture	2	2	3	**2,3**	1	**2**	**Low**	3	**7**	**High**
Sustainable Ports (MENAT)	-	-	3	**1,0**	3	**3**	**Medium**	N/A	**N/A**	**N/A**
Sustainable Shipping + Ports (Average - APAC)	1	2	3	**1,7**	N/A	**N/A**	**N/A**	1	**2**	**Low**
Tourism	2	2	2	**2,0**	3	**6**	**High**	3	**6**	**High**
Marine Renewable Energy	1	2	-	**1,0**	1	**1**	**Low**	2	**2**	**Low**
Plastic Pollution	2	2	2	**2,0**	2	**4**	**High**	3	**6**	**High**
Water	2	2	2	**2,0**	3	**6**	**High**	3	**6**	**High**
Conservation and Restoration (Incl. Adaptation)	3	3	2	**2,7**	2	**5**	**High**	2	**5**	**Medium**

SECTOR ASSESSMENT OF INVESTMENT NEEDED IN ADAPTATION AND MITIGATION IN THE UAE AND THE PHILIPPINES

				UAE			PHILIPPINES		
Sector	Mitigation Score	Adaptation Score	**Adaptation/ Mitigation Average**	'Signifi-cance' weighting	**SCORE - Overall ocean health investment need**	**Overall ocean health investment need**	'Signifi-cance' weighting	**SCORE - Overall ocean health investment need**	**Overall ocean health investment need**
Fisheries & Aquaculture	1	1	**1,0**	1	**1**	**Low**	3	**3**	**Medium**
Sustainable Ports (MENAT)	2	1	**1,5**	3	**5**	**Low**	N/A	**N/A**	**N/A**
Sustainable Shipping + Ports (Average - APAC)	2	1	**1,3**	N/A	**N/A**	**N/A**	1	**1**	**Low**
Tourism	-	-	**-**	3	**-**	**Low**	3	**-**	**Low**
Marine Renewable Energy	3	-	**1,5**	1	**2**	**Low**	2	**3**	**Medium**
Plastic Pollution	2	2	**2,0**	2	**4**	**High**	3	**6**	**High**
Water	2	2	**2,0**	3	**6**	**High**	3	**6**	**High**
Conservation and Restoration (Incl. Adaptation)	1	3	**2,0**	2	**4**	**High**	2	**4**	**Medium**

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