

BNCFF

Blue Natural Capital Financing Facility

Blue Bonds: Financing Resilience of Coastal Ecosystems

Key Points for Enhancing Finance Action

A technical guideline
prepared for IUCN GMPP by
Nathalie Roth, 4Climate;
Torsten Thiele, Global Ocean Trust;
Moritz von Unger, Silvestrum.

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Executive Summary

The Seychelles Blue Bond was the first bond explicitly advertised as “blue”. It was launched in October 2018 by the Republic of the Seychelles for an amount of USD15 million with a maturity of 10 years and a coupon (annual interest payment) of 6.5%. In January 2019, the Nordic Investment Bank (NIB) issued a SEK 2 billion (USD 200 million) blue bond to protect and rehabilitate the Baltic Sea.

Under the Seychelles bond, the proceeds from the transaction will be used to support the expansion of marine protected areas, improve governance of priority fisheries and the development of the Seychelles' blue economy. Through the Baltic Sea bond, the issuing bank will support lending to waste water treatment and water pollution prevention projects, storm water systems and flood protection, protection of water resources, protection and restoration of water and marine ecosystems and related biodiversity (wetlands, rivers, lakes, coastal areas and open sea zones).

Both the Seychelles and the Baltic bond follow in their design green and other impact bonds, notably social and sustainability bonds. The difference between these and classic bonds is that they are issued on the promise to use the funds raised for specific green, climate and/or social purposes.

Bonds are a fixed income investment, where bond investors become creditors to the issuing entity. Bond investors are paid a fixed interest rate (coupon) on a fixed schedule and will be returned their initial investment (principal) upon maturity of the bond. Green bonds finance projects and activities with environmental benefits, often facilitating the shift to a low-carbon, climate-resilient and resource-efficient global economy.

The green bond market is only a decade old, but already well established. It amounts to about USD 500 billion globally. In order to define what is a green bond, several green bonds standards co-exist with a number of guidance documents having been developed by financial market regulators and being used by the financial industry at large. To date, the Green Bond Principles (GPB) and Social Bond Principles (SBP), developed by the International Capital Market Association (ICMA) are the most internationally accepted and widely used guidelines. Rather than providing a firm classification system, the GPB and SBP lay down guidance on important transparency processes – use of proceeds, process of evaluation, management of proceeds, and reporting – and otherwise offer only indicative green project categories.

The present report provides an overview in order to identify how blue bonds could best be developed and what elements of the GPB and SBPs categories could be of relevance. It aims to define the place of blue bonds within the emerging field of sustainable finance classification (or “taxonomy”) schemes for bonds and provide new concepts for sustainable blue economy financing.

Activities financed by blue bonds focusing on coastal ecosystems fall squarely within the scope of the GBP green project categories, namely those related to environmentally sustainable management of living natural resources, terrestrial and aquatic biodiversity conservation, sustainable water, wastewater and waste management as well as climate change adaptation. On the level of SBP eligible project categories, blue activities relate well to employment generation through SME finance and food security.

Climate change has provided an impetus to develop new bond financing solutions. An early example of a climate change-focused taxonomy has been provided by the Climate Bond Initiative (CBI). It is applicable to blue bonds targeting investments in the areas of marine energy, water infrastructure, specifically including coastal conservation and restoration activities. Importantly, the CBI makes reference to work done by IUCN and others in terms of quantifying the climate mitigation (blue carbon) effect of such activities.

A new taxonomy of what constitutes a green activity in financing products is being developed under the auspices of the European Commission and as part of the EU Action Plan on Sustainable Finance. The work will also produce an “EU Green Bond Standard”. Both the forthcoming EU Sustainability Taxonomy and the EU Green Bond Standard are meant to harmonize green investment practices at least across the European Union. Notably, the EU Sustainable Taxonomy will include chapters on sustainable use and protection of water and marine resources, climate adaptation and mitigation, which will inform the future EU green bond label and has strong relevance for upcoming blue bonds as well.

The design of blue bonds should be aligned with the new taxonomy work, while also responding to the increasingly comprehensive policy framework around the blue economy. The Sustainable Blue Economy Financing Principles, formulated in 2018, chime with the transparency principles developed for the labeled green and social bond markets, while putting stronger emphasis on environmental, social and governance (ESG) criteria in project selection, on impact management, stakeholder involvement, and enhancement of local livelihoods.

Against this investment context, a blue bond is likely to be recognized as a green / environmental, social or sustainable bond in the market. Indeed, rather than defining new blue bond principles and own blue bond project categories – in an already crowded field in need of consolidation and harmonization – a blue bond issuer is well advised to use one of the existing bond categories and define specific blue aspects and objectives from within these existing recognized bond frameworks. This concerns first and foremost the funding objective: Blue bonds should be aimed at promoting the implementation and achievement of sustainable development goals (SDG), in particular SDG 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development) and related SDGs such as the sustainable management of water and action to combat climate change. Complementing this, blue bonds may target any area of the blue economy, as long as the particular measures are meant to

encourage sustainable stewardship of ocean and coasts and preserve the blue natural capital.

Two emerging conceptual approaches could be considered. On the one hand, blue bonds may be seen as part of a specific ocean-centric effort and used to finance broader sustainable blue economy strategies (in particular for Small Island Developing States (SIDS)). On the other hand, blue bonds can emerge as a part of the broader sustainable bond landscape, with issuers focusing on identifying a set of defined projects and measures, using the project categories of the GBP and the taxonomy of the Climate Bond Initiative on low carbon and climate resilient investments as relevant guidance. Potential interventions under this approach include projects on coastal conservation and restoration (likely with a clear climate change – “blue carbon” – focus), marine energy sourcing, water and flood management, on-shore/off-shore pollution avoidance, as well measures to improve sustainable fisheries.

Blue bonds as a targeted financing instrument for coastal resilience based on natural capital are only likely to emerge as distinct capital markets instrument if a number of pre-requisites have been fulfilled. At the most basic, this requires a pipeline of acceptable projects large enough in size. Unless there are adequate projects with the right risk-reward profiles there will be no market for funding. The development of appropriate projects with identified returns and robust assessments of their positive impacts on marine and coastal ecosystems is a crucial and possibly the critical gap to date.

List of pre-requisites for “coastal resilience” blue bonds

- ✓ Pipeline of acceptable projects large enough in size
- ✓ Growing awareness of market participants
- ✓ Adequate monitoring and verification procedures
- ✓ Adequate impact management procedures

A particular constraint for blue bond issuance is the lack of familiarity of potential market participants with this space. This includes both issuers as well as potential buyers. As with green bonds, where the European Investment Bank started to issue the first green bonds about 10 years ago, the World Bank took the lead in setting up the first blue bond with the Seychelles, and multilateral development banks are expected to lead the future development of the blue bond market. On the buyer side, in order to reach a wider audience of possible investors, blue bond issuers may benefit from listing the blue bonds on sustainable exchanges with high transparency and impact requirements.

Adequate monitoring and verification procedures – demonstrating the positive investment impact using clear, recognized and meaningful metrics – should be placed at the heart of the blue bond design. We define this blue natural capital as the comprehensive concept of the coastal and marine nature-based capital stock that delivers eco-system-based services and posit that the aim of any blue bond finance should be to protect and strengthen this key asset and thus appropriate impact

metrics are required. Both issuers and investors face reputational risks and potential accusations of so-called “greenwashing” if proceeds are not used for their intended purposes or if issuers are unable to prove that proceeds have funded projects with positive and additional impact.

As with green bonds, specific attention should be put on the impact management process. This concerns the type of reporting (ex-ante / ex-post), the frequency, and the choice of the reporting agent (in-house or independent), among others.

Process aside, common metrics for measuring the impact of bond investments are available for certain type of projects, which can be applied to blue bonds as well. Harmonized reporting methods and commonly adopted metrics for bonds already exist in the areas of renewable energy (applicable to marine energy), energy efficiency, as well as waste and waste water management, which can be applied to blue bond investments in coastal zones for example. In other sectors, like agriculture, land use, forests, and ecological resources, projects and related metrics are more heterogenous and require an individual design of metrics and indicators. However, progress is being made on common metrics in these sectors too, especially for land use applicable also to coastal zones as well as sustainable use of ocean resources.

Especially for the mitigation impact of coastal ecosystems, referred to “blue carbon”, robust metrics exist and can be integrated into blue bond metrics. As coastal ecosystems are increasingly recognized for their important role in absorbing CO₂, the actual results in climate abatement – i.e. the CO₂ sequestered or, usually more relevant in this context, the CO₂ emissions avoided – of any investment in coastal habitats becomes a primary yardstick for measuring impact.

Acronyms and abbreviations

AMAT	Adaptation Monitoring and Assessment Tool
ASEAN	Association of Southeast Asian Nations
BBB	Better Business Bureau
BNC	Blue Natural Capital
BNC+	BNC Positive Impact Framework
BRIM	Biodiversity Return on Investment Metric
CBI	Climate Bonds Initiative
CFL	Compact Fluorescent Lamp
CLO	Collateralized Loan Obligation
CPIC	Coalition for Private Investment in Conservation
DAC	OECD's Development Assistance Committee
DBS	Development Bank of Seychelles
EE	Energy Efficient
EIB	European Investment Bank
ESG	Environmental, Social, Governance
EU	European Union
FFA	Pacific Islands Forum Fisheries Agency
FSC	Forest Stewardship Council
GEF	Global Environment Facility
GBP	Green Bond Principles
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
IBRD	International Bank for Reconstruction and Development
ICMA	International Capital Markets Association
IFC	International Finance Corporation
IISD	International Institute for Sustainable Development
IPCC	Intergovernmental Panel on Climate Change
KPI	Key Performance Indicators
LGX	Luxembourg Green Exchange
LuxSE	Luxembourg Stock Exchange
MDB	Multilateral Development Banks
MEAT	Management Effectiveness Assessment Tool
M&E	Monitoring and Evaluation
MPA	Marine Protected Areas
MRV	Monitoring, Reporting and Verification
NIB	Nordic Investment Bank
OECD	Organisation for Economic Cooperation and Development
OECM	Other Effective Area-Based Conservation Measures
OPOC	Office of the Pacific Ocean Commissioner
PBOC	People's Bank of China
PEFC	Programme for the Endorsement of Forest Certification
PFS	Pay for Success
PIFS	Pacific Islands Forum Secretariat
POFP	Pacific Ocean Finance Program

RE	Renewable Energy
REDD	Reducing Emissions from Deforestation and Forest Degradation
SeyCCAT	Seychelles' Conservation and Climate Adaptation Trust
SBEFP	Sustainable Blue Economy Finance Principles
SDG	Sustainable Development Goals
SF	Sustainable Finance
SFM	Sustainable Forest Management
SIB	Social Impact Bonds
SIDS	Small Island Developing States
SME	Small and Medium-sized Enterprises
STP	Sewage Treatment Plants
TIAA-CREF	Teachers Insurance and Annuity Association - College Retirement Equities Fund
UNEP FI	United Nations Environment Programme – Financial Initiative
UNFCCC	United Nations Framework Convention on Climate Change
VCA	Safety, Health and Environment



1. Who is this paper for?

Bonds are long term finance instruments for companies, governments and other entities. In order to fund targeted sectors, green and climate bonds have already been issued.

This paper analyzes the emerging field of blue bonds. It identifies key action items necessary to scale up blue bonds so that they can be used to effectively finance coastal resilience activities, that are based on natural solutions. The paper is aimed both at potential blue bond issuers and related finance sector participants as well as at a broader audience. It summarizes some of the key concepts and approaches.



2. Current State of the Blue Bond Market

A bond is a form of debt security, a legal contract for money owed that can be bought and sold between parties, with its price fluctuating over time. Investors in bonds become creditors to the issuing entity. Investors are paid a fixed interest rate (coupon) on a fixed schedule and will be returned their initial investment (principal) upon maturity. As interest is typically paid over the maturity period they are also referred to as fixed income securities. Fixed income securities constitute the world largest capital markets.

2.1. The First Blue Bonds are here

2.1.1. The Blue Bond Innovation: Seychelles Blue Bond 2018

The ‘Seychelles Blue Bond’ was the first bond explicitly advertised as “blue”. It was launched in October 2018 by the Republic of the Seychelles (which has a BB- credit rating from Fitch) for an amount of USD15 million with a maturity of 10 years and interest payments (“coupons”) of 6.5%. The World Bank provided a repayment guarantee for a third of the principal, while the UN’s Global Environment Facility (GEF) offered a USD5 million concessional loan to help cover the coupon payments. These credit enhancement instruments allowed for a reduction of the price of the bond by partially de-risking the investment for the impact investors, and by reducing the effective interest rate of 6.5% for Seychelles to 2.8%¹. The Seychelles will pay the bond holders from the central budget.

Too small to be traded on an exchange, the Seychelles Blue Bond was sold in a private placement to three US-based impact investors – Nuveen, the asset management arm of TIAA (which will include the bond in the TIAA-CREF Social Choice Bond Fund), Prudential Financial and Calvert Impact Capital – with each buying USD5 million of the notes. Notably, two of these social impact investors also have an environmental mandate.

Although not officially labeled as a green bond, the Seychelles Blue Bond contains similarities to a green bond with the focus being on financing the implementation of the sustainable blue economy plan of the Seychelles. The Seychelles blue bond was launched as a private placement to directly identified end buyers and is not traded. The preparation time for the blue bond was about one and a half years.

The proceeds from the transaction will be used to support the expansion of marine protected areas, improved governance of priority fisheries and the development of the Seychelles’ blue economy. The proceeds will be distributed to two agencies. The Development Bank of Seychelles will receive USD12 million, which it will on-lend to

1 World Bank, The Seychelles Achieves World’s First Sovereign Blue Bond, Feature Story, October 29. 2018.

eligible projects, and the remaining USD3 million will go to the Seychelles' Conservation and Climate Adaptation Trust, which will distribute it via grants and concessional loans for the private sector. Grants and loans will be provided through the Blue Grants Fund and Blue Investment Fund, managed respectively by the Seychelles' Conservation and Climate Adaptation Trust (SeyCCAT) and the Development Bank of Seychelles (DBS).²

SeyCCAT is an independent, nationally based, public-private trust fund established in 2015. The Trust is already administering previously-raised marine conservation and climate adaptation funds.

A World Bank team comprising experts from its treasury, legal, environmental and finance departments worked with investors, structured the blue bond and assisted the Government in setting up a platform for channeling its proceeds.

The Seychelles blue bond issue has no form of external assessment; however, the proceeds will be disbursed subject to World Bank policies and procedures.

2. 1. 2. Another Blue Bond Landmark: Nordic Sea Blue Bond 2019

In January 2019, the Nordic Investment Bank (NIB), issued a SEK 2 billion (USD 200 million) blue bond to protect and rehabilitate the Baltic Sea³. The bond was issued under the NIB Environmental Bond Framework and will concentrate on water projects. Through this bond the NIB will support lending to waste water treatment and water pollution prevention projects, storm water systems and flood protection, protection of water resources, protection and restoration of water and marine ecosystems and related biodiversity (wetlands, rivers, lakes, coastal areas and open sea zones).

One of the projects that will receive financing from the Nordic–Baltic Blue Bond is the Nya Slussen project in Stockholm. NIB is not only financing clean transport solutions at the Slussen traffic hub, but also the redevelopment of the Slussen water locks. The expansion of the water locks will increase the drainage capacity and accommodate higher floodgates by adding two larger water channels beside the locks. The Nya Slussen redevelopment project is a crucial flooding mitigation measure that will allow Stockholm and the Mälars region to prepare for and adapt to the effects of rising sea levels and more extreme weather conditions in the future.

The bond has a maturity of five years and a coupon of 0,375% and was twice oversubscribed. By marketing the bond as a blue bond, the NIB tries to raise awareness of the damage being suffered by the Baltic Sea, allowing investors to specifically target water investments to address these Baltic Sea challenges. The blue bond will be

² <https://www.thegef.org/news/seychelles-launches-world-s-first-sovereign-blue-bond>

³ NIB was established on 4 December 1975 through an intergovernmental treaty between Denmark, Finland, Iceland, Norway and Sweden. On 1 January 2005, Estonia, Latvia and Lithuania became members of the Bank. As an international financial institution, the Bank is governed by constituent documents adopted by the member countries. The structure of NIB's Board of Governors, Board of Directors and Control Committee reflects the Bank's ownership.

listed on Nasdaq Stockholm. The NIB is optimistic about the future blue bond market development, predicting more deals like this to come to the market.

2. 2. Setting the Context: Green Bonds and the Climate Aligned Bond Market

2. 2. 1. Market Overview

The difference between a green bond and a regular bond is the specific use of the funds raised to support the financing of specific projects related to climate change or the environment. In addition to financial characteristics, investors analyze the specific environmental purpose of the projects that the bond intends to support. The first green bond issued was a EUR 600 million bond issued in 2007 by the European Investment Bank (EIB) under the name of a Climate Awareness Bond focusing on renewable energy and energy efficiency projects. This bond had been listed in 2007 on the Luxembourg Stock Exchange (LuxSE).

Since then, the green label has received considerable attention as well as methodological structure. Today labeled green bonds are expected to reflect the Green Bond Principles published by the International Capital Market Association (ICMA).⁴ In a separate development, the Climate Bond Initiative, has developed the concept of so called “climate bonds” which have a more targeted investment focus on climate change adaptation and mitigation⁵ (see chapter 2 for more information).

Next to green bonds, other thematic bonds are emerging as an accepted asset class, among them social and sustainability bonds. Social Bonds use their proceeds to raise funds for new and existing projects with positive social-economic outcomes for an identified target population, with neutral or positive impact on the environment. Sustainability Bonds are bonds where the proceeds will be exclusively applied to finance or re-finance a combination of both green and socio-economic projects.

Exchanges like the Luxembourg Stock Exchange and Nasdaq break the sustainability themed bond market down into the three categories: green (environmental, including climate), social, sustainable (green and social combined). These three categories of bonds have become recognized asset classes, which institutional investors are familiar with and ready to invest in.

2. 2. 2. Market size

The green bond market has grown considerably from 2012/2013 to the current level of USD505 billion labeled green bonds, issued by over 600 issuers. The growth has been

⁴ International Capital Market Association (ICMA), Green Bond Principles 2018, at <https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>.

⁵ Climate Bond Initiative (CBI), Climate Bonds Standard (version 2.1, 2018), at <https://www.climatebonds.net/standard>.

powered by repeat issuers such as US-based Fannie Mae (with a combined \$48.6 billion of deals, or 9.63% of the market), the EIB (\$32.4 billion of deals, or 6.41% of the market), and German government-owned development bank KfW (\$16.8 billion, or 3.32% of the market).

The Climate Bond Initiative publishes regularly market updates. According to the latest report (mid-2018), the climate aligned bond universe reached over 1.45 trillion⁶, this number includes the green labelled bonds (95% of proceeds aligned with the Climate Bond Taxonomy), as well as bonds from strongly and fully aligned⁷ climate bond issuers and fully aligned US municipal issuers.

In comparison to the global bond market, the green and climate bond market is still small, making up less than 10th of issuance yet with a decidedly upwards trend. Some key actors, like the IFC and other organizations, are very optimistic in their outlook for the growth of the green bond market, with some actors even predicting a \$1 trillion labelled green bond market five years' time⁸.

2. 2. 3. Issuer and investor perspective

Issuers of labelled green bonds include corporates, financial institutions, agencies, supra-nationals, sovereigns and municipalities.

For issuers, green bonds can provide much needed finance for environmental and low carbon assets, while also demonstrating environmental credentials, like their approach to ESG issues. Issuing green bonds allows issuers to signal sustainability aspirations and articulate its sustainability strategy to investors. Green bonds enable issuers to gain access to a wider investor base therefore expanding funding sources.

For investors, green bonds allow them to balance risk-adjusted returns with environmental benefits as well as satisfy their ESG requirements and green investment mandates. The green label enables easy identification of green fixed income products as well as enhanced transparency of the projects being financed and potentially their impact (impact reporting is so far only done on a voluntary basis).

2. 2. 4. Examples of a green bond with ocean focus and other themed bonds linked to sustainability & water

Fiji IFC Green Bond, including elements to coastal blue natural capital

Fiji issued a sovereign green bond at the end of 2017, which was the first ever green bond issued by a developing country. This 100 million Fijian dollars (USD 50 million equivalent)

⁶ The Climate Bond Initiative (2018), Bonds and Climate Change, The State of the Market 2018

⁷ Strongly aligned issuers derive at least 75%, fully aligned issuers derive >95% of revenue from 'green' business lines in at least one of six climate themes: clean energy, low-carbon transport, water management, low-carbon buildings, waste management and sustainable land use.

⁸ Quote from Sean Kidney, CEO of Climate Bond Initiative, Environmental Finance Magazine, Winter Edition 2018, p.39.

green bond aimed at both climate mitigation and adaptation with some use of proceeds having a direct and indirect positive impact on the blue natural capital of Fiji.

The bond's main focus was on sustainable development of natural resources, renewable energy, water and energy efficiency, clean transport, waste water management and sustainable agriculture to reduce fertilizer run-off into the ocean, avoiding damage to coastal ecosystems.

The first tranche was privately placed. The second dual-tranche green bond transaction included a Fijian dollars 20 million (USD10 million equivalent) tranche which will mature in 2022, and Fijian dollars 40 million (USD20 million equivalent) tranche to mature in 2030. The second tranche of the Fiji Green Bond has been listed in April 2018 on the London Stock Exchange.

The planned framework for green investments was independently verified against robust standards of environmental credibility, consistency and transparency. Verification included a dual assessment, with the International Capital Markets Association (ICMA), in a second opinion, screening the bond for compliance with the Green Bond Principles. Fiji has received technical assistance from the World Bank (IBRD) and the IFC in preparing the issuance.

Fiji is looking at the feasibility of issuing a second green bond which would have a blue focus or perhaps even labeled a blue bond proper. For that purpose, it is currently preparing a blue carbon roadmap outlining both potential funding sources and funding targets. Various options might be considered for bond repayment, including revenues from an increased environmental tax for the tourism sector and also the international carbon markets including Art.6. transactions under the Paris Agreement.

EIB Sustainability Bond focusing on water projects

The European Investment Bank (EIB) has launched in fall 2018 its first 'Sustainability Awareness Bonds' Initiative, with an initial funding target of EUR 500 million to invest in social and environmental projects around the world. According to EIB, the bonds to be issued will focus on "big-impact projects" that achieve multiple SDGs simultaneously. Projects supported by the bonds must have a direct impact "on people's lives". This bond was listed on the Luxembourg Stock Exchange (the Luxembourg Green Exchange).

Funds raised from the first bond will be used initially for water related investments, like drinking water, sanitation and flood protection projects (IISD article, EIB press release). Future Sustainability Awareness Bonds may focus on other sectors and topics like health, education, gender. The Sustainability Awareness Bonds are aligned with EIB Climate Awareness Bonds, through which the EIB helped raise EUR 23 billion over the past 11 years.

2. 3. Further developments

Concrete blue bond development action is also taking place in other parts of the Pacific. Pacific Islands Forum Fisheries Agency (FFA) and the Office of the Pacific Ocean Commissioner (OPOC; affiliated with the Pacific Islands Forum Secretariat, PIFS) are planning the development of a Pacific Ocean Bond, for which three specific ocean bond concepts will be developed in 2019 as part of the Pacific Ocean Finance Program⁹ (POFP) focusing on eleven Pacific countries.

In the Pacific region and elsewhere, Small Island Developing States (SIDS) are particularly interested in the blue bond concept as they see significant spending needs in their marine estate, while often depending on credit enhancement, for instance from a Multilateral Development Bank (MDB). Other interested countries are those with threatened coastlines, for which an investment in nature-based coastal resilience is attractive (see section on environmental impact bonds below).

A related theme is presented by bond financing for waste water treatment. Such bonds for specific purposes are often issued by public bodies (usually municipal authorities) as long-term capital bonds directly targeting water quality improvement in the coastal areas. Provided that the investments are linked with direct revenue schemes (e.g. through long-term water purchase arrangements) this specific-purpose bond type can, if all other risk aspects are met, be launched as stand-alone blue bond, attracting investors without the need for sovereign guarantees, thus freeing up national debt capacity.

The significant blue loan portfolios of the multilateral development and investment banks would allow these multilateral development banks to re-package some of these obligations into a bond format, which would help to add liquidity to the market and raise the profile of blue bonds.

Another recent development concerns the emergence of Environmental Impact Bonds. While meeting the green bond characteristics in principle, Environmental Impact Bonds combine three components of repayment to investors: principal, interest and a performance payment tied to the achievement of project outcomes (results-based payments). They could be issued by public bodies that presently are active in the capital markets (including municipalities), to provide upfront capital to allow coastal restoration projects to be built sooner. Other stakeholders (beneficiaries, donors) could provide the pay-for-environmental results performance element such as is already done in Social Impact Bonds¹⁰, which would require clear metrics setting and monitoring.

A specific Environmental Impact Bond variation was recently presented by the International Finance Corporation (IFC). This member of the World Bank Group issued

⁹ <https://www.pacificoceanfinance.org/tenders>

¹⁰ Social Impact Bonds (SIB), combine pay-for-results logic with pre-financed activities. SIBs mainly provide investment to address social problems and look to fund preventative interventions. Investors are impact investors; public and private donors provide payment for achieved results.

USD152 million forest protection bond, the bondholder has the opportunity to receive the interest payments (coupon) in form of cash or in form of carbon credits, which will be delivered from a project reducing emissions from deforestation and forest degradation (REDD). This structure needed an intermediary to take off the generated carbon credits in case the bondholders decided to be paid in cash, a function fulfilled by BHP Billiton.

Resilience bonds are emerging as well. They are project bonds, linked to catastrophe bonds, by which you get a reduction on the catastrophe bond coupon if the resilience bond proceeds are invested in measures that reduce the risk related to expected future damages from catastrophic events. Investments are made in green and grey resilience infrastructure.



3. Blue Bond objectives, standards and principles

A consolidated concept of “blue bonds” currently does not exist. The World Bank referred to the term in the context of the sovereign bond issued for the Seychelles (see above) – apparently in an effort to strengthen the specific (“blue”) destination of the bond proceeds. Although the Seychelles bond exhibits many features of a green bond, it was not promoted as such, partially because experts involved in the transaction pointed out that existing taxonomies of “green projects” arguably do not capture sufficiently the various facets of preservation and protection of marine life targeted by the blue bond. Whereas NIB Baltic Blue Bond was promoted as a blue bond developed within the Environmental Bond (green bond type) framework of the Nordic Investment Bank with an excellent green score provided by independent reviewers.

The concept of “blue bonds” or “blue projects” so far lacks a clear definition. In the following sections of this chapter, we outline approaches on possible definition, principles and key requirements to move towards a commonly accepted understanding of blue bonds. This chapter also reviews how coastal nature-based solutions fit into existing or planned sustainable finance taxonomies and standards and propose a range of elements for sustainable and resilient coastal bond guidance integrating nature-based solutions.

3.1. Objectives of blue bonds

A Blue Bond is a debt security issued to raise capital specifically to finance the implementation of the sustainable development goals related to life under water as well as the transition towards a sustainable blue economy with a strengthened blue natural capital at its core.

3.1.1. Financing sustainable development goals with focus on SDG 14

Blue investments financed through blue bonds should be aimed at promoting the implementation and achievement of sustainable development goals, in particular SDG 14 (*Conserve and sustainably use the oceans, seas and marine resources for sustainable development*) and related SDGs¹¹, that contribute to good governance of the ocean and coastal habitats, deliver long term value to marine and coastal ecosystems, reduce carbon emissions or strengthen resilient livelihoods of people who depend on oceans and their resources in a changing climate.

¹¹ See, in particular SDG 6 (Ensure availability and sustainable management of water and sanitation for all); SDG 13 (Take urgent action to combat climate change and its impacts); as well as SDG 15 (SDG 15 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss).

There is a growing body of scholarship around to the cross-cutting nature of SDG 14 and blue habitats in general¹² focusing on the intricate interconnections between SDG 14 and other goals based on the diverse benefits provided to humankind by marine ecosystems. Placing SDG 14 in the center of investment strategies is particularly interesting for Small Island Developing States (SIDS). Development and climate finance increasingly shift their focus to blue, SDG 14-inspired aspects. The Pacific Ocean Finance Programme, for instance, whilst acknowledging the lack of SDG 14-finance linkages thus far, explicitly considers the development of a Pacific Ocean Bond¹³.

3. 1. 2. Financing the sustainable blue economy

As illustrated by the first two blue bonds observed in the market, blue bonds have a strong potential to become a financing instrument for achieving a sustainable blue economy in developed countries as well as developing countries.

There is a strong case for integrating the Blue Economy Finance Principles¹⁴ as recently launched by a mix of public and private institutions¹⁵ in funding decisions for the blue economy. These principles are intended to complement existing frameworks governing responsible investment in aspects of the Blue Economy (see box below). They are expressly intended to further the implementation of SDG 14 and related goals. The principles include a commitment to the specific purpose, namely to restore, protect or maintain the diversity, productivity, resilience, core functions, value and the overall health of marine ecosystems, as well as the livelihoods and communities depending upon them (see further below, section 2.3).

In a first attempt to define blue bonds, blue bond project categories might focus on blue natural capital, the sustainable blue economy, conservation and restoration of coastal areas, as well as the sustainable use of the ocean. Possible broad blue project categories could include but are not limited to:

- a. sustainable blue economy activities that
 - ✓ restore, protect and maintain diversity, productivity, resilience, core functions, value and health of marine ecosystems
 - ✓ provide sustained livelihood opportunities and strengthen livelihoods and communities dependent on the marine ecosystems
- b. investments which strengthen, restore and conserve the blue natural capital for climate mitigation and climate adaptation
- c. Investments that address coastal resilience and coastal and marine climate adaptation challenges

12 <https://www.sciencedirect.com/science/article/pii/S0308597X17300520>

13 https://docs.wixstatic.com/ugd/9b71e9_924c8a4d7382489685f30cf70b0ea924.pdf

14 https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/declaration-sustainable-blue-economy-finance-principles_en.pdf

15 It is an initiative led by the European Union, European Investment Bank and the WWF to provide a framework for funding decisions in the blue space. The initial adopters include both a number of impact investors as well as major multilateral banks such the World Bank.

- d. Activities and projects that reduce stressors to marine ecosystems, such as sources of pollution which can be from industry, agriculture, retail
- e. Infrastructure that is using nature-based solutions in the marine and coastal space
- f. Activities that strengthen coastal and marine governance, science and technology for the benefit of ecosystems
- g. Potentially, capture fisheries that have been confirmed to achieve the highest standards of sustainability and are benchmarked accordingly

What is the blue economy, blue growth, blue natural capital?

The 'Blue Economy' is an emerging concept which encourages better stewardship of our ocean. The concept of a "Blue Economy" came out of the 2012 Rio+20 Conference and emphasizes conservation and sustainable management, based on the premise that healthy ocean ecosystems are more productive and a must for sustainable ocean-based economies. Similar to the 'Green Economy', the blue economy model aims for improvement of human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities. It provides for an inclusive model in which coastal states can develop.

At the core of the blue economy concept is the de-coupling of socioeconomic marine and coastal development from environmental degradation. To achieve this, the blue economy approach needs to be founded upon the assessment and incorporation of the real value of the blue natural capital into all aspects of economic activity. Blue Natural Capital (BNC) is the natural capital in the coastal and marine environments.

By contrast, the definition of the blue economy according to the OECD is wider and encompasses all economic sectors, which have a direct link or indirect link to the ocean. Others have suggested to refer to this wider range of activities simply as the ocean economy, therefore reserving the term blue economy strictly for sustainable ocean action. According to the World Bank Group, the 'Blue Economy' concept seeks to promote economic growth, social inclusion and preservation or improvement of livelihoods while at the same time ensuring environmental sustainability.

Blue Growth is the long-term strategy proposed by the European Commission to support sustainable growth in the marine and maritime sectors as a whole. Seas and oceans are drivers for the economy and have great potential for innovation and growth. It is the maritime contribution to achieving the goals of the strategy for smart, sustainable and inclusive growth. Blue Growth is still in its early stages. Sustainable growth in the blue economy hinges on a healthy blue natural capital and the shared social, ecological and economic factors that are dependent upon it.

3. 2. Blue within accepted bond standards

While the previous section gives some orientation on substance and function, and while it offers a first attempt on defining broad blue bond project categories, the conceptualization of “blue bonds” frameworks and guiding principles needs to be further explored. As financial markets are structured along firm categories, established asset classes and accepted instruments, one is well advised to equally structure the new phenomenon of “blue bonds” along – and within – existing concepts. “Blue bonds” can certainly be placed into certain debt security classes recognized by the actors in the capital markets, namely green bond, social bond, sustainable bond classes. The specific denomination as “blue”, then, relates to specific information on what the issuer considers as eligible under project categories within these bond classes.

This additional – “blue” – information may be restrictive in some ways as it calls for specific blue investment objectives, clarifying blue metrics as well as monitoring and reporting standards – but otherwise respond to, and can be aligned with green, social and sustainable bond standards provided by International Capital Market Association (ICMA), Climate Bond Initiative Marine Energy and Water Infrastructure Criteria as well as the Sustainable Blue Economy Finance Principles.

In any case, in order to spur blue bonds in the market, it is important not to set a too narrow definition of blue bonds or to try to draw up separate blue bond principles. It is recommended to use existing frameworks accepted by bond market participants and to further specify blue elements within these frameworks. The subsequent sections provide an overview of existing accepted bond frameworks and offer insights into how specific blue information could be added to those frameworks.

3. 2. 1. Blue within Green Bonds

The concept of green bonds has largely developed in the absence of common regulatory frameworks. Globally, several green bonds standards co-exist with a number of guidance documents having been developed by financial market regulators and being used by the financial industry at large. Efforts are currently underway to provide methods of comparison between them to enable comparability and move towards some degree of harmonization, a common reference framework. Several international and national initiatives are dedicated to produce green taxonomies for eligible projects, that can be financed through green bonds. At this stage, standards remain diverse, however.

Leading multilateral development banks like the World Bank and the European Investment Bank (EIB) have their own criteria or definitions of eligible green projects for green bonds. The World Bank, for example, supports through its green bond issuance a broad category of projects that advance the transition to low-carbon and climate resilient development, including both mitigation and adaptation to climate change. While the EIB, is limiting its green bond (climate awareness bond) issuances to renewable energy and energy efficiency investments, where impact reporting can be based on clear and transparent metrics.

Countries and regions have also moved to define their own set of definitions on what they consider green project categories under green bonds. Noteworthy here is the Chinese green bond catalogue, which has been developed by the People's Bank of China in 2017, with the assistance of the International Capital Market Association (ICMA). The Chinese green bond catalogue is largely consistent with the Green Bond Principles developed by ICMA and has a broader scope of green, covering "environmental protection" and allowing fossil fuel based retrofits among others, than e.g. the Climate Bond Initiative bond standards.

On a regional level, the regulators from the ASEAN countries have defined eligible green project categories, which determine the ASEAN Green Bond Standard.

For the European Union (EU), the EU Commission is preparing an EU Green Bond Standard as part of the EU Action Plan on Sustainable Finance. This EU Green Bond Standard will be based on the association with the EU Sustainability Taxonomy and will include an explicit definition of an EU green bond and the existing and widely accepted market-developed principles for market processes. The EU Sustainability Taxonomy is an EU classification system to determine whether an economic activity is environmentally sustainable. Work on this taxonomy started in the year 2018 and will continue through 2019. The EU Sustainability Taxonomy will first focus on mitigation and adaptation activities and then move on to sustainable use and protection of water and marine resources and other sectors as well. Especially the nascent taxonomy on the sustainable use and protection of water and marine resources will be key to the design of future EU green bonds with a blue focus.

According to latest indications, the EU Green Bond Standard will be based on current best practices. It will build on work carried out by the Green Bond Principles and the Climate Bonds Initiative and will refer to those taxonomies. The technical expert group working on the EU Green Bond Standard is considering strengthening impact reporting requirements and the verification process.

The Green Bond Principles are the most internationally accepted and widely used guidelines, which many of the above-mentioned standards refer to (see table below) and therefore merit a more detailed description.

Table 1: Overview of green bonds standards

	ICMA Green Bond Principles (GBP)	CBI Climate Bonds Initiative	Chinese Domestic Green Bonds Standard	ASEAN	Draft EU Green Bond Standard
Principles	Use of proceeds Project evaluation and selection Management of proceeds Reporting	Fully integrates the four ICMA Green Bond Principles	Management of proceeds, reporting and disclosure fully aligned with int'l standards like ICMA Green Bond Principles	Fully integrates the four ICMA Green Bond Principles and adds a principle on external review	Fully integrates the four ICMA Green Bond Principles and adds a principle on external review
Eligible project categories	Guidance on ten high-level categories	Detailed qualification criteria.	PBOC ¹⁸ green bond catalogue	Ten categories of the ICMA GBP. Excludes fossil fuel power generation	Compliance with detailed EU sustainability taxonomy

Sources: Adapted from information provided by the Luxembourg Stock Exchange, Luxembourg Green Exchange https://www.bourse.lu/sustainability_standards_and_labels and the Asean Capital Market Forum (2017), Asean Green Bond Standard (2017) and the EU Commission (2018), Informal Supplementary Document on Green Bonds.

The Green Bond Principles (GBP) are voluntary best practice guidelines and were established in 2014 by a consortium of investment banks: Bank of America Merrill Lynch, Citi, Crédit Agricole Corporate and Investment Bank, JPMorgan Chase, BNP Paribas, Daiwa, Deutsche Bank, Goldman Sachs, HSBC, Mizuho Securities, Morgan Stanley, Rabobank and SEB. Ongoing monitoring and development of the GBP have since moved to an independent secretariat hosted by the International Capital Market Association (ICMA). The ICMA oversees the annual update of the GBP and acts as a secretary to the GBP advising on governance and providing organizational support. The GBP have achieved broad market acceptance and legitimacy as well as growing official recognition by policy makers and regulators. The GBP recommend transparency and disclosure promoting integrity in the development of the green bond market. The GBP have four core components:

Table 2: The four ICMA Green Bond Principles, further explained

The four Green Bond Principles (ICMA)			
Use of Proceeds for Green Projects	Process for project evaluation and selection	Management of Proceeds	Reporting
All designated Green Projects should provide clear environmental benefits, which will be assessed and, where feasible, quantified by the issuer. Indication of the share of proceeds used for financing versus re-financing is recommended.	Clear communication to investors on: environmental sustainability objectives, process to determine eligibility with Green Project Categories, process applied to identify and manage potentially material environmental and social risks associated with the projects (may come in form of exclusion lists). External review encouraged.	Net proceeds of the Green Bond should be credited to a sub-account, moved to a sub-portfolio or otherwise tracked by the issuer in an appropriate manner. Recommended use of third party (auditor) to verify the internal tracking method and the allocation of funds.	Annual update on the use of proceeds and list of projects to which the proceeds have gone to. Description of expected impact based on qualitative performance indicators and, where feasible, quantitative performance measures.

The Green Bond Principles, on purpose, do not give a clear definition or details on what is considered “green”. This is left for the issuer in question and the green bond market actors. However, the GBP provide a broad, non-exclusive list of eligible Green Bond Principles green project categories ranging from renewable energy, energy efficiency, green buildings and clean transportation to waste and waste water management, pollution prevention and control, sustainable resource management, habitat conservation and climate change adaptation.

Not all green projects listed on the GBP green project categories have a climate mitigation and / or climate adaptation relevance. To close this gap, the non-profit organization Climate Bond Initiative (CBI) provides guidance for climate aligned assets and projects through the development of a Climate Bond Standard.

The Climate Bond Standard provides a certification scheme as well as definition for climate activities. These definitions are presented under a Climate Bond Initiative (CBI) Taxonomy, developed by scientists and industry experts. It is a tool for bond issuers and investors to help them understand what investments are compatible with delivering a low carbon and climate resilient economy. These investments fall into eight broad project categories and make up the Climate Bond Initiative Taxonomy and include energy, transport, water, buildings, land use and marine, industry, waste, information and communication technology. The CBI Taxonomy specifies the climate relevance and the alignment of the green bonds with the Paris Agreement goals.

Within the CBI taxonomy, the project criteria for Marine Energy and the Water Infrastructure are most relevant for blue bonds. The CBI Water Infrastructure criteria

explicitly mention the application of coastal ecosystem conservation/restoration activities as eligible activities and points to the work of IUCN, Conservation International, Ramsar and Wetlands International in quantifying the climate mitigation effect of such activities.

The following table provides an overview of the Green Bond Principles eligible project categories and specifies activities that are relevant to the blue economy and blue natural capital within these categories. The table lists as well CBI taxonomy categories that are relevant for blue natural capital projects, sustainable blue economy activities, as well as the conservation and the sustainable use of the oceans.

At this stage, the blue activities in the following list should serve as tentative examples only. Being on the list should not be seen as sufficient criterion, but rather as potential activities that would still require robust assessment before they would be seen as acceptable.

Table 3: Determination of blue activities within green project categories of Green Bond Principles and Climate Bond Initiative Standard

Green categories of the Green Bond Principles	Examples of «blue » activities (including relevant “blue” activities of CBI Taxonomy)
Renewable energy (RE)	<ul style="list-style-type: none"> ✓ Marine renewable ocean energy including (CBI) <ul style="list-style-type: none"> ✓ Wave energy (from wave motion) ✓ Tidal (energy from marine currents due to tides) ✓ Ocean thermal (gradient of ocean surface/depth), ✓ Salinity gradient ✓ Ocean current (deep sea currents) ✓ Off-shore wind and solar farms (CBI) ✓ Renewable biofuels (e.g. biogas) substituting use of mangrove wood for household cooking and heating in small businesses. ✓ RE supply chain facilities: manufacturing facilities dedicated to marine renewable development. ✓ Transmission infrastructure, including supporting facilities and vehicles¹⁹ (CBI). ✓ Fuel substitution /supplementation in maritime transport (e.g. solar and wind power, renewable biofuels). RE substituting fossil fuel powered engines, refrigerators, lighting.
Energy efficiency (EE)	<ul style="list-style-type: none"> ✓ Industrial process cooling and space cooling with deep sea water. ✓ Energy efficiency in seafood processing plants: solar pre-heating of water; heat co-generation. ✓ Improved energy efficiency in maritime transport (e.g. improved hull design, fuel substitution to natural gas or biogas, improved EE lights CFL, solar lights). ✓ Reducing energy use in the production of desalinated water. ✓ EE improvement in cookstoves and heating boilers using mangrove wood.

¹⁷ CBI requires such vehicles to comply with CBI Low Carbon Transport criteria and excludes installation vessels given the reliance on fossil fuels.

Pollution, prevention and control, including waste management	<ul style="list-style-type: none"> ✓ Reduction, control and response management of land-based sources of marine pollution. ✓ Reduction control and response management of marine sources of marine pollution. ✓ Reduction control and response management of underwater noise pollution. ✓ Waste prevention and recycling on maritime transport and fishing.
Environmentally sustainable management of living natural resources and land use	<ul style="list-style-type: none"> ✓ Environmentally sustainable management of coastal wetlands (including mangrove forests, salt marshes, mud flats) and coastal landscapes and habitats, e.g. seagrasses, coral reefs. ✓ Aquaculture and fisheries with related conservation actions (MPA, no take zones). ✓ Improving sustainability in fishery and aquaculture through reducing environmental and social impacts (e.g. fisheries and aquaculture holding a certification for sustainable management, substitution of fishing gears to more eco-friendly types, greater gender equality in seafood industry, sustainable artisanal fisheries and small scale community based aquaculture respecting fair trade, including also seaweed and mollusk farming. ✓ Providing access for small-scale artisanal fishers to marine resources and sustainable commodity markets. ✓ Substitution of fish meal in animal feeds from vegetable and alternative protein sources. ✓ Environmentally sustainable mangrove forestry, afforestation, reforestation, preservation and restoration of natural coastal landscapes and habitats e.g. salt marsh, mud flats, seagrasses, coral reefs. Related avoided emissions of blue carbon and blue carbon sequestration. ✓ Equitable bioprospecting of marine species. ✓ Algae industry application to reduce greenhouse gas emissions.
Terrestrial and aquatic biodiversity conservation	<ul style="list-style-type: none"> ✓ Aquatic biodiversity conservation, including the protection of coastal, marine and watershed environments. ✓ Protection of coastal and marine environments using conventional or other 'Effective Area-Based Conservation Measures (OECM)' ✓ Protection of threatened habitats and species. ✓ Conservation and restoration of coral reefs, mangroves and seagrasses: avoided emissions and production of blue carbon.
Clean transportation	<ul style="list-style-type: none"> ✓ Cleaner marine transport and coastal logistics (improved emissions, reduced discharges, improved anti-fouling etc.). ✓ Improved ballast water management re invasive species risk. ✓ Production of biofuels from algae.

Sustainable water and wastewater management	<ul style="list-style-type: none"> ✓ Waste and waste water treatment in coastal areas with direct impact on health of coastal ecosystems (CBI). Focus of avoiding plastics reaching the oceans and waste water treatment of coastal activities. ✓ Conservation and/or restoration of natural and semi-natural areas that can function as natural waste water filtration plants, as a replacement of or addition to conventional water treatment technologies (EU SF Taxonomy: adaptation, CBI). ✓ Coastal flood management (estuarine and storm surge), including improvement of runoff and storm water quality entering marine environment. ✓ Reduction of nutrient content from STP, terrestrial run off etc. ✓ Improved management of industrial outfalls (see above) ✓ Development of bulk water supply chain and maritime trade ✓ Offshore desalination.
Climate change adaptation	<ul style="list-style-type: none"> ✓ Early warning systems for monitoring and forecasting climate-related hazards in coastal zones (including HABs, cyclones and other extreme weather events). ✓ Nature based solutions that contribute to the resilience of ecosystems (CBI) ✓ Water storage, flood defense, drought defense, storm water management, ecological management to support intact or recovering ecosystems in a shifting climate²⁰. ✓ Green and soft infrastructure to mitigate erosion, storm surge, tsunamis, climate change risks. ✓ Managed retreat from vulnerable coastlines.
Eco-efficient and/or circular economy adapted products, production technologies and processes	<ul style="list-style-type: none"> ✓ Eco-label or environmental certification, resource-efficient packaging and distribution in seafood value chains. ✓ Recycling of fish nets, collection and treatment/reuse of ocean plastics. ✓ Reduction of waste in seafood supply chain, and increase in value. ✓ Development of sustainable coastal and marine tourism. ✓ Broadband networks and IT solutions to support coastal and marine solutions (CBI).
Green buildings	<ul style="list-style-type: none"> ✓ RE and EE installations at ports. ✓ Environmentally friendly redevelopment of water locks. ✓ EE and RE installation in cold storage and seafood processing buildings. ✓ MPA watchtowers, with solar energy and serving as drying rack for algae production.

3. 2. 2. Blue within social bonds and sustainability bonds

Social bond principles intend to guide social impact bonds (SIB) with a process and an indicative broad set of eligible categories of activities that address social challenges. Social impact bonds operate at the intersection of three important trends: greater funder interest in evidence-based practices in social service delivery; government

18 Only in case of demonstration of no net GHG emissions or negative GHG emissions.

interest in performance- based contracting¹⁹; and impact investor appetite for investment opportunities with both financial returns and social impact²⁰. SIBs are usually a specific kind of Pay for Success (PFS) contract. Target populations for social bonds include, among others, vulnerable groups, especially those exposed to natural disasters.

A leading standard in the social bond market are the Social Bond Principles, developed by ICMA. They use the same four core procedural components as the Green Bond Principles. The Social Project categories include but are not limited to the following broad categories of activities.

Table 4: Determination of blue activities within social project categories of Social Bond Principles

Social categories of the Social Bond Principles	Examples of «blue » activities
Affordable basic infrastructure (e.g. clean drinking water, sewers, sanitation, transport, energy)	✓ Prevention of saltwater intrusion into ground water
Access to essential services (e.g. health, education and vocational training, healthcare, financing and financial services)	✓ Substituting use of mangrove fuel wood in cookstoves by more healthy and environmentally friendly alternatives
Affordable housing	✓ Affordable, climate resilient and low carbon housing in coastal zones
Employment generation including through the potential effect of SME financing and microfinance	<ul style="list-style-type: none"> ✓ Providing access for small-scale artisanal fishers to marine resources and markets ✓ Access to financial services for the underserved to enable them to invest in sustainable blue activities
Food security	✓ Activities that maintain biodiversity and a varied fish stock
Socioeconomic advancement and empowerment	✓ Relevance on multiple levels

Many coastal nature-based solutions related climate adaptation measures include activities involving the above project categories. Bonds that finance also climate adaptation and climate resilience activities, especially in coastal zones, may have a strong social bond character. Conversely, a range of social projects may have important environmental co-benefits.

19 This refers to the interest of governments to not finance anymore directly social services, but to let external investors finance them and provide the investors with a performance contract that rewards them if the social performance is delivered. Sometimes it is referred to Social Impact Incentives.
 20 Ragin, L and Palandijan, T. Social Impact Bonds: Using Impact Investment to Expand Effective Social Programs

The classification of a use of proceeds bond as a Social Bond or a Green Bond is ultimately determined by the issuer based on the primary objectives for the underlying projects to be financed by the bond.

This said, there is a growing practice to intentionally mix green and social projects with equal importance. This bond type is usually referred to as Sustainability Bonds. Specific guidance for such bonds is provided separately in the Sustainability Bond Guidelines developed by the ICMA.

Sustainability bonds may be linked to the SDGs within a detailed SDG mapping exercise. A new tool²¹ mapping the ICMA Green and Social Bond Principles to the Sustainable Development Goals (SDGs), is now available by ICMA. According to this tool, all the targets under SDG 14 can be mapped to project categories eligible under the Green Bond Principles. As noted above (section 2.1.1), when performing such a mapping, one should consider that the ocean SDG 14 (life under water) has key interactions²² with other SDGs including SDGs including SDG 6 (Ensure availability and sustainable management of water and sanitation for all); SDG 13 (Take urgent action to combat climate change and its impacts); as well as SDG 15 (Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss), as well as SDG 1 (End poverty in all its forms everywhere) and SDG 11 (Make cities and human settlements inclusive, safe).

3. 3. Sustainable Blue Economy Financing Principles and bond relevance

New guidance on structuring blue investments along sustainability principles have recently been issued in the form of the above-mentioned 14 Sustainable Blue Economy Finance Principles (SBEFP).²³ Developed by the European Commission, the European Investment Bank, the Prince of Wales Sustainability Unit and WWF, they provide a framework for funding decisions for sustainable blue activities.

The SBEFP focus on process – principles of inclusiveness, cooperation, transparency, science-driven evaluation, among others – and impact: Investments must go beyond the avoidance of harm to provide social, environmental and economic benefits. The first seven principles are based on existing concepts of green, climate and sustainability investment criteria, whilst the second seven principles are specifically developed to address the specificities of the blue space. The initial adopters of the SBEFPs include a number of impact investors, major multilateral banks such as the EIB and the World Bank as well as the UNEP Principles for Sustainable Insurance Initiative.

21 <https://www.icmagroup.org/green-social-and-sustainability-bonds/>

22 <https://council.science/cms/2017/03/SDGs-interactions-14-life-below-water.pdf>

23 https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/declaration-sustainable-blue-economy-finance-principles_en.pdf

The organizations that have agreed to adopt these principles, believe that delivering on these principles will contribute to the conservation and sustainable use of the ocean and to de-risking investments in the 'Blue Economy'. These principles are complementary to existing principles and commitments on sustainable financing and to existing corporate responsibilities by which signatories may be bound. These principles are voluntary; they do not create any rights or liabilities; and the sole responsibility for investment decisions remains with the institutions, who are signing up to these finance principles.

The SBEFP have been designed with the aim to engage investors, insurers, banks and other financiers and are not specific to bond issuers and investors. In order to specifically implement the Sustainable Blue Economy Financing Principles for blue bonds they will need to be combined with broadly accepted leading principles governing the green and sustainability investments in the bond market, like those from International Capital Markets Association (ICMA).

The SBEFP principle on "purposeful" requires the direction of financing towards contributing directly to the achievement of SDG14s is in line with the "use of proceeds" principle of the ICMA green, social and sustainable bond principles. Furthermore, SBEFP principle on "transparency" requires to make all positive and negative, environmental, social and economic impacts available and report on progress in implementation of principles can inform ICMA principle on "reporting".

Three aspects stand out strongly in the SBEFP in comparison to the ICMA themed bond principles and these aspects will have to be addressed while developing future SBEFP compatible blue bonds:

Strong integration of ESG considerations

Long term value for marine and coastal related ecosystems can be achieved by either direct investing into such ecosystems (through conservation, restoration) or ensuring the blue economy activities do not negatively impact the marine and coastal ecosystems. SBEFP aligned blue bond financed investments will need to undergo screening for environmental and social risks and negative impacts based on sound scientific evidence and this financing condition is mirrored in the SBEFP principle on "risk awareness" and the principle "*precautionary measures*". The precautionary principle will prevail, especially when scientific data is not available. Furthermore, the SBEFP call for negative impacts across the value chain.

The SBEFP are intended to be compliant with the EIB Environmental and Social Principles and Standards and the IFC Performance Standards for managing environmental and social risks. These performance standards encompass also the topic of biodiversity conservation and natural resource management by requiring investees to avoid or mitigate threats to biodiversity arising from their business activities and to promote the use of renewable natural resources in their operations.

Strong integration of positive impacts

The SBEFP principle on “impact” demands investments to provide social, environmental and economic benefits from our ocean for both current and future generations. The SBEFP principle “systemic”, in turn, calls for the identification of systemic and cumulative impacts across the value chain.

The SBEFP put a strong focus on the process of management and measurement of positive impacts. While details are not provided, the SBEFP may well be linked to related principles from industry champions such as the IFC (IFC Principles for Impact Investing; (draft) IFC Operating Principles for Impact Management, to be launched in April 2019) and UN bodies, notably UNEP (UNEP Financial Initiative (FI) Positive Impact Framework). UNEP FI has indicated that it would host the SBEFP in the future, and it is currently preparing a blue economy sustainable finance initiative²⁴.

These more detailed guidelines describe the essential features of managing investments with the clear intent to contribute to measurable positive social, economic, or environmental impact, alongside financial returns. Their use goes beyond investment portfolio selection with a view to impact goals (for example, the SDGs), as it requires the establishment of a robust investment thesis of how the investment contributes to the achievement of impact.

It is noted that the IUCN Blue Natural Capital Positive Impact framework containing rigorous ESG screening and positive impact measurement guidance, is a tool that could be used by future blue bond developers to cover the above-mentioned aspects.

Inclusiveness

The SBEFP specifically calls for supporting investments that enhance local livelihoods and engage effectively with relevant stakeholders, addressing any issues arising from affected parties.

3. 4. Recommendations on principles and definitions

In order to spur blue bonds in the market, it is important not to set a too narrow definition of blue activities or to try to draw up separate blue bond principles. It is recommended to use existing frameworks accepted by bond market participants and to further specify blue elements within these frameworks.

Bond frameworks generally consist of categories of acceptable projects or activities and a set of core principles. These core principles include implementation and transparency requirements related to project selection, monitoring and reporting as well as external review of the use of proceeds and impacts.

²⁴ As a next step, a specific data tool is being developed to help signatories of the Principles to assess specific projects in the context of the SDGs.

Today's listed and traded bond markets categorize themed bonds into green, social and sustainability bonds. There are good reasons to integrate the concept of blue bonds within the green and sustainable categories. While considerable and growing, blue bond supply and demand is still comparably modest, and financial markets will only stomach so much in new instruments or asset categories. It is therefore better to use an existing asset class that the market is familiar with, and focus on the blue aspects within green, social or sustainable framework by providing a "blue tag" or blue label. Indeed, as shown above, the essentials of "blue bonds" are compatible with the existing bond frameworks. They certainly allow the issuer to realize the main motive for a blue bond investment: channeling bond proceeds to specifically blue projects and activities.

At the same time, fitting a blue bond within the categories of social and sustainability bonds also permits to move beyond the environmental aspect and address specific livelihoods, education, training and social aspects. Coastal adaptation as well as coastal mitigation projects will almost certainly have a positive impact on alternative livelihoods, job creation, diversification of income streams and the strengthening of the social climate adaptation capacity. These are key social activities related to sustainable blue economy and might attract better financing through a sustainability bond rather than a pure green bond. As it is, the job creation and livelihood aspects are largely missing in the green bond principles.

It is hard to predict at this stage the direction the blue bond movement will take. However, two conceptual approaches seem to make most sense:

- ✓ Blue bonds that finance broader sustainable blue economy strategies of issuers (whether SIDS or other). This could happen under the form of a green, social or sustainability bond, always complemented by, and vetted against, the Sustainable Blue Economy Financing Principles; and/or
- ✓ Blue bonds that finance specific, narrowly defined impact transactions borrowing, in particular, from the Climate Bond Initiative taxonomy and screening criteria. Examples would be transactions focusing on blue carbon habitats (blue carbon bond), marine environments (marine protection or marine energy bond), or blue natural capital compatible coastal infrastructure investments (blue natural capital bonds)

General guidance on blue bond principles and eligible project definitions is illustrated below.

Figure 1: Illustration of a Blue Bond Framework (Principles and Eligible Project Categories)

Blue Bond PRINCIPLES



Blue Bond Eligible PROJECT CATEGORIES

Green Bond, Social Bond, Sustainable Bond Principles (ICMA)

- 1. Use of Proceeds for Projects**
- 2. Process for Project Evaluation and Selection**
 - Incl. E&S risk identification & management
- 3. Management of Proceeds**
- 4. Reporting**
 - Use of proceeds, expected impacts
 - Impact monitoring recommended

- Quality ESG risk & impact process**
 - Based on industry best practice (e.g. IFC, EIB)
 - Based on scientific evidence
- Positive impact assessment**
 - Envir., social, econ. impact
 - Cumulative, across value chain
- Inclusiveness**
 - Local livelihoods, stakeholder engagement

Sustainable Blue Economy Financing Principles

Existing categories of leading bond standards

- ICMA Green Bond eligible project categories
- ICMA Social Bond eligible project categories
- Climate Bond Initiative relevant taxonomies

EU Sustainable Finance Taxonomy

- Climate mitigation & adaptation
- Sustainable use and protection of water and marine resources

Blue tags

Goals & objectives of issuer

- SDG 14
- Sustainable Blue Economy
- BNC conservation & restoration
- Marine climate mitigation and adaptation

Blue Bond impact transparency tools

E.g. Blue Natural Capital Positive Impacts Framework*

* bluenaturalcapital.org/our-approach/positive-impacts/

Note: Most relevant GBP categories for SDG 14 are: Environmentally sustainable management of living natural resources and land use; terrestrial and aquatic biodiversity conservation; environmentally sustainable management of living natural resources and land use; pollution and prevention control, climate change mitigation, climate change adaptation

Defining and designing future blue bonds could be structured along the above presented format with a special focus on a) transparency of process, b) strategic alignment of issuer with broader sustainability goals and c) the impact of bond proceeds.

4. Key action items necessary to scale up blue bonds

4.1. Gap and barrier analysis and action items

Blue bonds for coastal resilience will only emerge as distinct capital markets instruments if a number of pre-requisites have been fulfilled. At the most basic, this requires a pipeline of acceptable projects large enough in size or equivalent corporates active in these areas. Unless there are adequate projects with the right risk-reward profiles there is no market for funding. The development of appropriate projects with identified returns and robust assessments of their positive impacts on marine and coastal ecosystems is a crucial and possibly the critical gap to date.

Assuming basic project conditions are in place, the initial funding is generally going to come in the form of loans and equity, not only as these can be tailored more directly to individual project needs, suit also smaller projects, may have lower transaction cost and the pool of potential lenders, including local institutions, is larger. Nevertheless, there is likely to be a gap in knowledge around coastal resilience projects as well as a gap in terms of capital for financial institutions in developing countries, necessitating the use of other funding sources either for projects themselves or to provide capital to institutions that can then deliver loans locally.

In order to issue bonds, issuers are needed that have adequate credit ratings offering investors sufficient comfort that even long-term bonds will be repaid. The universe of acceptable issuers such as multilateral banks is well established. Thanks to the track record of their existing bonds, the work of rating agencies and stock exchanges, the liquidity of capital markets is high, so there is not much of a barrier for well-known issuers to bring out further bonds, including under new labels such as “blue”, provided these are fully guaranteed such bonds are likely to find ready buyers.

Once there is adequate deal flow, lenders such as multilateral development banks (MDBs) will be looking to share these risks. The most direct way for such entities is to package appropriate project loans in the form of collateralized loan obligations (CLOs) or turn them into bonds. Institutions such as the World Bank, the European Investment Bank, the Asian Development Bank and others are therefore a key issuer audience for potential blue bonds provided that they have a sufficient pool of projects that can be fitted under the blue bond label. In addition to convincing their treasury departments that such instruments will provide funding to the institution at least at equivalent cost, they need to be persuaded that a category is helpful and can be cohesively integrated into existing impact categories such as green bonds, climate bonds or sustainability bonds.

As issuers will be careful to maintain their reputation and their finance and treasury departments will need to be persuaded that creating such a new category offers benefits such as access to cheaper funding, to attract new buyers for their bonds or to support

their wider purposes. These issues present relevant barriers and therefore significant engagement is required with each institution to overcome them.

Other potential issuers could be public bodies, sovereign states themselves and other adequately-rated public entities such as municipalities and public utilities. The number of such entities that is investment grade, in particular from developing countries, is limited, therefore in many cases they will require additional guarantors and other forms of credit enhancement. Those are most likely to come from MDBs, so the issues raised above continue to be of relevance. Even if a public sector entity such as a water utility would be interested in pursuing the blue bond route, its funding cost may be significantly higher, which would again make the case for approaching a guarantor or find additional insurance and other risk mitigation to lower borrowing cost. A concept that is worth exploring further for smaller countries would be to develop a regional borrower, bundling projects from a range of countries and having the backing of several sovereign states.

Further issuers can be corporates, in particular if they are already rated in the bond markets and have sufficient investments in the blue natural capital space. At the moment this would be a small universe, possibly involving subsidiaries of large utilities, coastal real estate owners, sustainable commodity businesses or engineering companies. There have of course been corporate issuers in the climate bond space and as larger projects emerge looking for funding it will be interesting to see whether project developers or beneficiaries will consider the blue bond route. At present it seems that this will only happen once the market is more established and there is a group of investors that shows particular interest in that space.

Ultimately the most transparent and financially effective transaction would be a non-recourse project bond for a coastal resilience project itself, which would mean that the capital markets instrument would be used to fully transfer the risk to the buyer of the bond, and the local entities would not need to use their borrowing capacity though of course the pricing may be higher. At this stage we are far away from this solution, even in the climate bond area there have not yet been such transactions without recourse to an established entity.

In conclusion, at this stage very few developing country actors, be they states, other public entities or corporates, qualify to act as issuers on a stand-alone basis. Therefore, the likely issuers are either the MDBs themselves or transactions in which MDBs act as guarantors of bond issues by sovereigns, such as in the case of the Seychelles.

A further constraint for blue bond issuance is the lack of familiarity of potential market participants with this space. This includes potential bond issuers as well as potential bond buyers. On the issuing end, government actors in particular, do not always have the expertise in place to structure a blue bond package from scratch. For buyers, the novelty of the product means that the initial buyers are likely to come from related areas such as impact investment. As the climate bond analysis shows it can take some time until more general buyers are familiar with new market segments. This is an important barrier, but one that can potentially be overcome reasonably rapidly through,

in particular, the creation of a pipeline of blue bond transactions that shows their transparency and benefits. In addition to broader market education and public support, the practical experience of successful issuances that trade well in the secondary market would be the most effective way to develop this segment.

A major benefit of capital markets instruments is their liquidity, that is buyers are able to sell their bonds at any time with low transaction cost. Yet as the Seychelles bond example shows, initial blue bonds that use a private placement format require identification of a potential buyer and lack market-making and liquidity. This could be a reason more general buyers will be put off engaging in the blue bond space but it is an important initial step to progress with those investors that are already familiar with the impact and ocean space. The private placement instrument allows specific targeting and is in any case appropriate for smaller transactions that will already, due to their size, fail to attract liquidity. Based on feedback received from market participants, it is likely that a transaction would need to be of a size of at least \$500 million to really attract broad-based trading and achieve sufficient liquidity to reach full public market engagement. A larger issue could deliver these conditions.

The support of existing exchanges may also be helpful to the early stage development of the blue bond space. Exchanges will play a critical role in a later phase to provide transparency, keep costs low and liquidity high, but in this earlier phase, other issues, gaps and barriers need to be addressed first.

Credit enhancement options shall be considered carefully in respect of their cost-effectiveness. Such enhancements are frequently offered for project bonds by various public financial institutions or under international programmes or investment facilities²⁵.

Some dedicated green bond funds, like the IFC's 2 billion Green Cornerstone Bond Fund, which invests in green bonds in emerging markets, provides a first loss tranche and additional capacity building measures to de-risk the project pipeline and the issuer's lacking track record in issuing green bonds.

²⁵ German Federal Ministry for Economic Cooperation, SEB (2018), Green Bonds, Ecosystem, Issuance, Process and Case Studies, p.73

Table 5: Blue bonds gaps and solution analysis

Gaps and barriers	Solutions
lack of guidance on blue bonds	base blue bond eligible project categories on GBP
lack of projects	feasibility support (such as BNCFF)
lack of corporates adhering to blue standards	explain benefits
projects are too small	bundle projects, scale projects with other capital
projects are too risky	de-risk through multiple revenue streams
projects are too risky	de-risk through credit enhancement or insurance
projects are too complex	clarify project structures
low issuer credit rating	add MDB guarantor
lack of buyers	focus on impact investor familiar with the space
lack of awareness of benefits	provide technical assistance
lack of credibility	develop metrics, principles, verification mechanisms
high transaction cost	standardized assessment, develop transaction tools

4. 2. Lessons learnt from scaling up the green bond market that can be applied to the blue bond market

4. 2. 1. The green bond market is growing and starting to become financially more attractive for borrowers

In the first half of 2018 there were 28 issuers, of which 11 were first time green bond issuers. Green bonds are starting to achieve greater lower spreads and more demand during pricing than standard bond equivalents on average. There are now some arguments made, though these are anecdotal, that this will mean that issuers could raise funding more cheaply through the green bond route than through traditional issuance. Green bond issuers highlight other clear benefits including a diversified investor base and enhanced visibility for corporate and social responsibility initiatives. As the green bond market grows, ‘additionality’ is being discussed, that is, do green bond issuance attract new investors to the issuer or do they get bought mainly by existing investors.

However, the buyers of these bonds are still a small subset of the overall investor universe

55% of green bonds were allocated to investors declaring themselves green, which shows a good progress in investors identification with the green space but means that

green issues still need to find more ways to sell to more traditional investors and bond funds. Green bond issuers continue to extol the virtues of going green.

Emerging markets are increasingly issuing green bonds

USD80.47bn of qualifying green bonds were issued from emerging markets between January 2016 and June 2018. 93% of this debt was denominated in CNY, USD, and EUR. During this same period, a further USD25.9bn was issued from supranational development banks, which then also reach emerging markets that have insufficient credit status to raise and manage money directly. The most prolific to date have been China (Moody's: A1 / S&P: A+), Mexico (Moody's: A3 / S&P: BBB+), and India (Moody's: Baa2 / S&P: BBB-). These all are rated investment-grade (BBB- and above), confirming the point made above that investment grade issuers are required.

The importance of China

The total amount of green bond issued by China in the first three quarters of 2018 has reached USD21.5bn, surpassing the USD20.9bn issued in the same period last year.

49% (or USD4.2bn) of quarterly volumes from Chinese issuers is aligned with international green bond definitions, while the rest has been excluded in accordance with the CBI Green Bond Database Methodology. The largest proportion of Q3 proceeds were allocated to Renewable Energy, as defined by CBI. The share allocated to Water has been increasing since the beginning of 2018, from 7% in Q1 to 18% in Q3. Proceeds will be used for a variety of project types, ranging from wastewater treatment to stormwater collection and water distribution. This shows the potential of overlap with the notional blue bond space.

An important aspect of green bonds is the process by which they get reviewed and certified. A growing number of firms engaged in this effort. E&Y remains the largest external reviewer for Chinese issuance, followed by Lianhe Equator, Deloitte and CECEP Consulting. China Construction Bank's USD500m deal was the only Certified Climate Bond from a Chinese issuer in Q3.

Elements that helped to grow the green bond market

Green bonds have benefited from the demand for cost-efficient renewable energy projects, in particular in solar and wind, as well as from public support for such sectors for instance through feed-in tariffs, which help issuers to show revenue certainty in the longer term. As costs come down further, these projects are profitable on a stand-alone basis, so the market is expected to grow further. The IFC estimates that the Paris Agreement commitments alone represent \$23 trillion in investment opportunities by 2030, of which IFC assumes that a small percentage could be funded by bonds.

Multilateral Development Banks leading the way

Key components of success are:

- ✓ Credentials of MDBs in terms of use of proceeds, ESG, monitoring and reporting of impacts

- ✓ Initial focus on a segment, the renewables space, where concrete metrics exist, but did this at scale.
- ✓ For the renewables space the MDBs defined a core set of principles and recommendations for a harmonized framework for green bond impact reporting²⁶. This included ex-ante estimates of the environmental impact, assumptions underlying the estimates, clarity on calculation methodologies, a set of limited core impact indicators with, if possible, harmonized calculation methodologies and a specific timeframe of impact reporting.

Lesson applicable to blue bond market:

There is a need for technical assistance to develop such instruments. The first blue bond was facilitated by the World Bank. Other development banks are currently working on similar bond structures.

No narrow definitions

Rather than providing a narrow definition “blue” at the start it is preferable to rather give direction on a general “blue” language and broad orientation for blue bond, and leave it to the market players to further define. This was the approach taken to develop green bonds²⁷. This approach leaves the definition of what qualifies as green to issuers, verifiers, indices, listings and investors or organisations (like the Climate Bond Initiative). It allows flexibility for national regulators to further clarify eligible green projects, the lack of local definitions of green is conceived as a barrier to scaling up the green bond market.

However, clear guidelines, accountability and transparency, which have been drivers of the specific green bond market growth can be applied to blue bonds.

The reporting requirements on use of proceeds and impacts after issuance.

One of the biggest impediments to scaling the green bond market is the risk of “green washing”, which is considered to be partly a function of a lack of clarity regarding definitions, binding regulation, as discussed above, and legal enforcement of environmental credentials in a largely self-regulating green bond market.

Lesson applicable to blue bond market:

The current ICMA green bond eligible project categories are not very specific on what activities can be considered relevant to the sustainable blue economy or blue natural capital. It is recommended that the activities will be specified within the existing green bond project categories. If such a specification is difficult for projects focusing on blue natural capital, an additional own category could be added to the green bond principles eligible project categories focusing on natural capital in general and blue natural capital in particular. The wording of such a new category within the GBPs shall be broad enough to include sufficient activities and provide flexibility to the issuer, yet sufficiently detailed to ensure environmental integrity.

²⁶ <https://www.adb.org/sites/default/files/related/40378/green-bonds-framework-reporting.pdf>
²⁷ (Environmental Finance 2018: 11 Green bond market breaks half a trillion dollar barrier)

Reporting on the use of proceeds and environmental impact is key in driving confidence into the market. The GBP recommend the use of qualitative performance indicators and, where feasible, quantitative performance measures (e.g. energy capacity, electricity generation, greenhouse gas emissions reduced/avoided, number of people provided with access to clean power, decrease in water use, reduction in the number of cars required, etc.), and disclosure of the key underlying methodology and/or assumptions used in the quantitative determination.

Voluntary guidelines, initiated by development banks, aiming at a harmonized framework for impact reporting exist so far only for energy efficiency, renewable energy, water and wastewater projects, and waste management projects²⁸.

Reporting on expected results is required, however the reporting on achieved impacts is voluntary in the GBP. Green bond issuers with the ability to monitor achieved impacts are encouraged, but not required, to include those in their regular reporting.

Therefore, it is recommended that blue bond impact management frameworks shall not only list expected (ex-ante) impacts but shall also present a credible impact management system to measure and report on realized (ex-post) impact resulting from the use of the bond proceeds.

Reaching out and attract institutional investors

Institutional investors, especially pension funds and insurance companies, banks and investment funds buying green bonds have been the main drivers in the growth of the green bond markets. These investors seek long-term, low-risk investments, that offer predictable, steady returns allowing which will allow them to match their liabilities, which are long term pension payments. Green bonds exhibit such properties and allows investors to communicate their sustainability strategy and commitments, without having to bear significant extra costs²⁹.

Lesson applicable to blue bond market:

In order to attract institutional investors into blue bonds, these need to offer attractive returns and have no repayment risks. Furthermore, the potential of blue bonds to offer investments with a sufficiently long maturity needs to be further explored to offer those investors the asset-liability matching as requested.

4. 3. Scaling up the markets

The discussion of scaling blue bonds hinges to a large extent on trust in the blue bond products, which can only be achieved through good transparency. To reach a broader buyer pool requires higher levels of transparency. Transparency relates on one hand to the transparent use of proceeds from blue bonds and on the other hand to information

28 <https://www.icmagroup.org/green-social-and-sustainability-bonds/resource-centre>
29 (SEB. Green Bond market overview, p.43)

on expected and achieved impacts and disclosure of the proportion of proceeds used for refinancing. Transparency is demonstrated through clear processes, regular reporting but also external review.

Transparency can for example be enhanced by listing bonds on exchanges, which have clear instructions on credible standards, eligible project categories, reporting on impacts and sometimes independent external review.

The observed first blue bond from the Seychelles was a private placement bond. The issuer did not consider a listing on an exchange due to the relatively small size of the bond (USD 15 million) and the costs of listing on an exchange. The second blue bond, the Baltic Sea blue bond, will be listed on the Nasdaq Stockholm exchange.

The costs, in terms of time and money, of an exchange traded bond listing largely depends on the quality of the placement memorandum, the initial document that describes the terms of the bond, and additional work needed to transpose it into a full prospectus for listing on a securities exchange. The highest costs in preparing the prospectus are usually attributed to the legal costs related to getting various approvals to comply with the rulebook of securities listings.

For example, the Luxembourg Green Exchange (LGX) offers a service, which is the LuxSE Securities Official List, which allows green, social, sustainability bonds to be listed on the exchange but they cannot be traded. The requirements for listing without trading are lower and less costly compared to full listing. The advantages of listing without trading is the enhanced transparency of the bond on its compatibility with key standards, like ICMA Green Bond Principles, Social Bond Principles, the Climate Bond Initiative standard. Therefore, an ex-ante external review (e.g. second opinion) on the compatibility with such standards are also required for LGX bond listings without trading. It allows bond issuers to be more visible and be more transparent about what they are doing and transmit a certain level of professionalism. This greater visibility may foster enhanced distribution and diversification of the investor base. At the same time, it sets the scene for future issuances that might be fully listed and tradable. The EIB Sustainability Awareness Bond with a water focus is listed on the Luxembourg Green Exchange³⁰.

Continuous impact measurement and reporting is at the moment only recommended and is voluntary. However, at the EU Sustainable Finance Working Group level, discussions are underway to possibly require some level of mandatory impact measurement, monitoring and reporting for green, social, sustainability bonds.

30 LGX admission process for display on the LGX, contain 1: Listing on LuxSE, 2. Ex-ante external review, 3. Commitment to ongoing post-issuance reporting on key performance impact indicators (KPIs), 4. Display on LGX platform, 5. Post-issuance monitoring by LGX team.

4. 4. The role verifiers can play in the blue bond market

External review providers play an important role in the green bond market by safeguarding environmental integrity of the market and the product by providing information on the greenness and the governance. Such reviews also lower transaction costs for investors because they do not undertake this work themselves. There are several forms of external reviews, the most common form is a second opinion. Consultancies with environment and climate expertise typically provide such second opinions.

Second opinions consist of a pre-issuance assessment of the green bond and its associated framework. This framework provides information on the definition of the green projects and typically in adherence to the GBP, all relevant information required by these principles. Second opinion providers also review if structures are in place for the management of proceeds and environmental impacts. However post-issuance review for verification of environmental impact assessments are neither offered by all second opinion providers, nor is there a strong external pressure on issuers to obtain one³¹. There seems to be a move for more realized impact reporting from the regulators, the extent of it will only emerge over the coming year or two.

Other types of reviews are certification with standards like the Climate Bond Standard as well as Ratings, like the Cicero Shade of Green methodology, the Moody's Green Bond Assessment, S&Ps Green Bond Evaluation Tool.

Some exchanges, like for example the Luxembourg Green Exchange³², which has been the first exchange to require listed securities to adhere to strict eligibility criteria, asks issuers to provide an external review³³ from a third-party expert before joining the exchange for listing or trading. Most exchanges do not require impact reports on achieved impacts over the course of the bond. An exception is the Mexican Stock Exchange, who requests an annual impact report, which needs to be externally reviewed as well.

4. 5. Additionality: learning from the green bond experience

“Additionality” mainly refers to mobilizing additional capital for sustainable activities. By promoting the additionality of blue bonds debates on this aspect can be reduced. This can be done by

31 German Federal Ministry for Economic Cooperation, SEB (2018), Green Bonds, Ecosystem, Issuance, Process and Case Studies, p.53

32 Luxembourg Green Exchange, set up in 2016, is the first stock exchange to require green securities listed on the exchange to adhere to strict eligibility criteria.

33 The external review generally focuses on the review of the bond proceeds framework, review of the actual use of proceeds, review of the project selection and evaluation process, review of controls in place within the bond management process. <https://www.bourse.lu/displaying-bonds-on-lgx>

- ✓ requesting full transparency of percentage of bond proceeds that will be used to re-finance existing blue relevant activities and percentages used to finance new blue activities³⁴.
- ✓ request issuers to document all blue projects, allocate the projects to the individual bonds and disclosing how much has been invested in each case.
- ✓ recommending the bond issuer to document if they have been able to expand its usual investor base for the blue bond issuance. Issuers are able to further promote the credibility of the blue bond and attract additional investors if it adopts a sustainable strategy for its entire business, aligned with a 1.5°C goal and referenced to a sustainable blue economy with respect of the blue natural capital.

The role that IUCN can play to foster blue bonds

This chapter suggests some ideas as to the role IUCN can play to foster blue bonds in the different stages from preparation, issuance, monitoring and reporting of a blue bond.

As a first step, blue bonds will continue to be bespoke and highly structured smaller transactions but at a later stage, blue bonds may emerge as a relevant subset of an overall market of bonds that are SDG-aligned. IUCN could help to promote this development in general and also provide its expertise in restructuring guidelines and standards. Two examples come to mind. The continuing work on the Green list and on the MPA standards are both examples where IUCN has emerged as the undisputed global custodian of the required quality standards. The emerging impact verification and reporting needs for blue bonds will require a similar mechanism. Now would be the time, before bonds are launched with ad hoc assessment, to develop such a structured quality approach. The wide range of expertise within IUCN Commissions could provide an appropriate pool of experts to set the criteria required and act as a repository of relevant information.

The path to further blue bonds lies in enhancing existing leading green or social bond frameworks to credibly develop blue elements within these frameworks. IUCN could play a role in further defining the blue elements of the Green Bond Principles and the Climate Bond Initiative eligible project categories as well as specifying blue elements that do not fit within these market accepted categories and might have to be added under a new category. A first attempt in this direction has been made in chapter 2 of this report.

Another aspect worth developing further is the application of the Sustainable Blue Economy Finance Principles to the blue bond space. As both relevant impact investors and large MDBs such as the World Bank and the EIB are already signed up to these, their application to future blue bonds in a consistent format would be a practical step forward. IUCN could provide guidance to MDBs on how this could be achieved.

34 As requested by the EU green bond standard currently under development.

The European Commission is presently working on an implementation tool for these Sustainable Blue Economy Finance Principles that will align them closely to the SDGs, so using the principles will thus support the use of blue bonds as SDG-compliant bonds. The International Capital Markets Association has developed an initial SDG mapping tool for green and social bonds. This tool is not yet very elaborate on SDG14. IUCN may work with ICMA and other actors to further deepen the bond mapping tool with the SDGs, focusing in SDG14.

In the wake of the EU Commission preparing a sustainable finance taxonomy, which will be applied to EU green and sustainable bonds, IUCN could provide guidance concerning eligible projects in the upcoming “sustainable use and protection of water and marine resource” chapter of the EU taxonomy.

IUCN could furthermore consider becoming a green (blue) process partner for the World Bank and other development banks as well as public sector issuers either scoping projects or assessing the projects and being a delivery partner in the monitoring, verification and reporting (MRV) process.

More specifically, IUCN might play a significant role in identifying appropriate ESG screening indicators and identification on positive impact in project selection, monitoring and reporting.

In this respect IUCN might support the blue bond market development through following activities:

- ✓ provide guidance on what constitutes major environmental risks for activities in the blue economy.
- ✓ provide sources of sound scientific evidence upon which blue bond issuers will base their ESG risk analysis and their precautionary principle.
- ✓ help bond issuers to assess the mitigation effect of coastal nature based solutions to enable them getting the Climate Bond Initiative certification. A focus would be on blue carbon assessment.

IUCN could complement the second opinions on the aspects of marine biodiversity, stating expected results and offering frameworks for result management as the current independent verifiers might not be able to show solid background in marine conservation, natural capital and biodiversity matters.

4. 6. Roles that public actors can play in fostering blue bonds

Public bodies can contribute at different levels. First, they are the obvious issuers of blue bonds. This is for reasons of capacity, size and complexity, but also due to the specific subject matter. Especially where blue bonds are used to restore and enhance blue habitats – activities widely perceived (rightly or wrongly) as a public, not

necessarily an individual, responsibility – governments will be the primary agents to issue blue bonds and oversee the use of proceeds. Thus, governments are advised to improve the bond sourcing environment. This relates to the identification of a suitable project pipeline (see above), but also to formal criteria. There may be standard budget cycle criteria in the way (OECD 2016)³⁵:

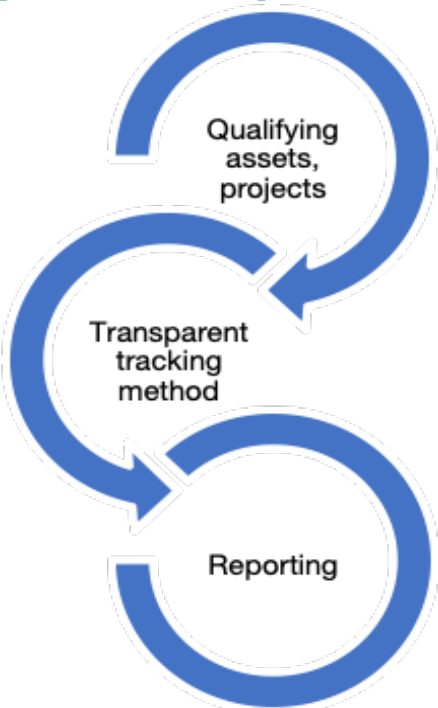
Governments need to be able to spread appropriated funds throughout the fiscal years and to issue, where applicable, success-based payments. Similarly, the need for governments to work with an intermediary or other stakeholders during the implementation of the dedicated bond is sometimes hampered by procurement rules. Governments could consider aligning their procedures so as to allow harmonized sourcing and implementation.

Second, governments can use regulatory tools to improve the market environment for blue bonds. They can subject blue bond investment earnings to preferential tax treatment, exempting the earnings from taxation. Specific tax incentives have been discussed in detail for social impact bonds (Mazur 2017)³⁶, and the same principles apply for environmental impact bonds, in general, and blue bonds, in particular. Then, the need for universal use of harmonized independent, high quality review procedures are becoming more pronounced. The use of such reviews shall be made mandatory for labelled green bonds by regulators, stock exchanges and index providers. Public funding could be used in certain conditions to subsidize the use of external reviews.

Third, the issuance of blue bonds can be substantially helped by international donor governments. These can provide bilateral technical assistance to developing countries targeting specifically the issuance of blue bonds. In most cases, however, donor countries will work through multilateral funding institutions, MDBs and special international funds. They are best suited to render both technical and financial support. They may assist – as the World Bank and GEF did in the case of the Sovereign Blue Bond of the Republic of the Seychelles – with the issuance process, provide repayment guarantees and or concessional loans to cover the coupon payments, or – as in the case of IFC, which co-founded the Amundi Planet – Emerging Green One Fund – with creating a green (or blue) bonds issued by private sector financial institutions in developing countries.

³⁵ OECD, Understanding Social Impact Bonds (Paris 2016), at <http://www.oecd.org/cfe/leed/UnderstandingSIBsLux-WorkingPaper.pdf>.

³⁶ Orly Mazur, Social Impact Bonds: A Tax-Favored Investment?, 9 Colum. J. Tax L. 141, at <https://taxlawjournal.columbia.edu/article/social-impact-bonds-a-tax-favored-investment/>.

<p>Considerations before preparations</p>	<p>Identify reasons/ objectives for issuing blue bond Identify a pipeline of potentially eligible blue projects Identify sources for repayment of bond coupon and principal Plan for credit enhancement (if needed): guarantees, concessional support Lay out a governance structure for the blue bond (e.g. steering committee)</p>
<p>Development of the blue bond processes and its implementation</p> 	<p>Ensure alignment with int. accepted principles for bonds (e.g. GBP) and its project categories Define types of eligible blue projects for use of proceeds Define project selection process with solid ESG risk screen Develop a few but strong KPIs for impact reporting Clearly state methodologies used to calculate and verify the KPIs Develop an impact monitoring and reporting process over the life of bond Open special account for the bond proceeds Develop internal tracking method for allocation of proceeds to projects Demonstrate additionality of bond and include it into reporting Develop annual use of proceeds reporting process Develop a strategy to ensure inclusiveness Get the framework externally reviewed (second opinion, verification, certification) Write the blue bond prospectus</p>
<p>Issuance and post issuance</p>	<p>Roll out marketing and communication strategy Encourage listing on exchange to promote transparency & exposure Consider getting a credible label or standard certification to further enhance distribution Start the monitoring and regular reporting process</p>

A developer's guide for a coastal resilience blue bond based on natural solutions

The existing green bond developer's guidance provides an appropriate format for application for blue bonds with the focus on natural solution but the development of adequate metrics is required. When developing a blue bond, emphasis should be laid on ESG risk assessment, ex-ante and ex-post impact assessment and clear measurable key performance indicators. A credible blue bond shall provide a demonstration of additionality to lay out that new and additional funds are mobilized to advance healthy oceans. The above following graph provides an overview of the general steps to be taken to develop a blue bond.



5. Transparent Metrics for Blue Bonds

Adequate monitoring and verification procedures – demonstrating the blue natural capital investment impact using clear, recognized and meaningful metrics – should be placed at the heart of the blue bond design.

Both issuers and investors face reputational risks and potential accusations of so-called “greenwashing” if proceeds are not used for their intended purposes or if issuers are unable to prove that proceeds have funded projects with positive and additional impact.

Conceptually, the blue bond impact metrics can draw on the principles and precedents developed in the green bond context, on the one hand, and the (by now) rich experience with investments in climate change adaptation, resilience as well as climate mitigation activities, on the other hand.

5.1. Green Bonds: Measuring Impact (Precedents)

The green bond investment framework provides a process focused on individual impact definition and follow-up rather than strict and harmonized metrics to evaluate output and outcomes. Of the four Green Bond Principles (GBP), two are dedicated to address impact measuring: Principle No 2: Process for Project Evaluation and Selection, and Principle No 4: Reporting.

Continued impact monitoring and reporting is not yet mandatory under all the leading green bond standards and guidelines. The following table provides an overview.

Table 6: Impact monitoring requirements of green bond standards

	ICMA Green Bond Principles (GBP)	CBI Climate Bonds Initiative	Chinese Domestic Green Bonds Standard	ASEAN Green Bond Standard	Draft EU Green Bond Standard
Impact monitoring	Recommended	Addressed in Climate Bonds Standard qualification	Recommended	Recommended	Annual reporting of actual or estimated environmental impact based on metrics (if possible quantitative) outlined in the EU Green Bond Framework. Additional metrics allowed with specification of methodologies. ³⁹

In practice, evaluation process and reporting guidelines are fairly diverse. Large banks, especially multilateral development banks, are setting key performance indicators (KPIs) and performing the impact assessment mostly in house as part of the normal project monitoring cycle³⁸. Other issuers choose to retain specialist service providers to perform an independent (and often peer-reviewed) review assessment, including on impact,

37 EU Green Bond Standard – Interim report - March 2019
 38 World Bank Green Bond Process Implementation Guidelines <http://pubdocs.worldbank.org/en/217301525116707964/Green-Bond-Implementation-Guidelines.pdf>

that includes stakeholder consultations, audits and third-Party certification (OECD and Bloomberg Philanthropies 2015).³⁹

The benchmarks and metrics for the review are less standardized. The environmentally sustainable benefits, the GBP note, should “where feasible... be quantified or assessed by the issuer”. Potential quantitative indicators include “energy capacity, electricity generation, greenhouse gas emissions reduced/avoided, number of people provided with access to clean power, decrease in water use...” Similarly, the Climate Bond Standard (version 2.1, 2018) lays down the obligation for the bond issuer to “use qualitative performance indicators and, where feasible, quantitative performance measures of the impact of the [projects selected]” and to “disclose the methods and the key underlying assumptions used in preparation of the performance indicators and metrics”. Suggested metrics, the documents adds in a note, include “energy capacity installed, electricity generated, greenhouse gas emissions performance of buildings, number of passengers carried by public transport, number of electric vehicles manufactured, [and] volume of wastewater treated”.

Overall in the green bond market, the issuer retains wide discretion, and the independent reviewers and auditors might not usually do not evaluate the content, let alone the appropriateness of the indicators selected. According to the GBP Independent External Review Form⁴⁰, the reviewer is limited to determine the impact reporting type (project by project vs. portfolio-wide) and frequency. With respect to the specific impact information, the reviewer only checks what type of information is provided. Options are “GHG Emissions/Savings”, “Energy Savings”, “Decrease in water use”, “Other ESG indicators (please specify)”.

In practice, however, issuers often take into careful consideration what the specific indicators are they wish to report on, and reviewers advise on the content as much as on the process.⁴¹ A general drive towards harmonized impact metrics can be observed in the bond market. Key bond market players like the leading development banks are striving towards harmonized frameworks for impact reporting for green bonds. Initial efforts have already started in 2015 with a harmonized approach for renewable energy and energy efficiency project finance by green bond proceeds.

The EU Technical Working Group on Sustainable Finance is developing within their Sustainable Taxonomy also common metrics⁴² for each activity type. This EU taxonomy will be used by the upcoming EU green bond standard and will include an entire section on sustainable use of ocean resources, next to climate mitigation and adaptation.

39 OECD and Bloomberg Philanthropies, Green bonds: Mobilizing the debt capital markets for a low-carbon transition (2015)

40 International Capital Market Association, Green, Social and Sustainability Bonds Database, at <https://www.icmagroup.org/green-social-and-sustainability-bonds/resource-centre/>.

41 Cf. the Climate Bonds Initiative Case Study: DC Water Green Bond, at <https://www.climatebonds.net/files/files/DC%20Water%20case%20study%20-%20final%281%29.pdf>.

42 https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/sustainable-finance-taxonomy-feedback-and-workshops_en.pdf#taxonomy, p.38 onwards.

Harmonization efforts began in 2015, with the International Financial Institutions (IFIs) proposing a harmonized approach to impact reporting for renewable energy and energy efficiency across industries. In 2016 the ICMA, Green Bond Principles Impact Working Group (consisting of investment banks, development banks, exchange, verifiers) have developed commonly suggested impact metrics⁴³ for sustainable water and waste water management projects as well waste management and resource efficiency projects, which have a relevance for the blue environment if projects are located in coastal zones. The guidelines include templates for the format of impact reporting at a project and at a portfolio level that issuers can adapt to their own circumstances.

The Nordic public sector bond issuers published a new common position paper in 2019 on green bond impact reporting⁴⁴ covering a range of sectors including water and waste water management and sustainable land use (biodiversity conservation, reforestation).

The different sector-specific “criteria documents” of the Climate Bond Initiative may provide more definite and unambiguous information on the metrics for impact measurement. The criteria document for marine renewable energy, for instance, highlights GHG reduction measurements as a “relevant metric”⁴⁵:

“Issuers are expected to benchmark their emissions performance against comparable sectoral best practice. In general, performance standards specify efficiency metrics, (e.g. tons of carbon emitted per unit of production) that represent best practice for specific economic sectors. For marine renewable energy, a relevant metric will be avoided fossil fuel use measured in CO₂-equivalent.”

A recent report by the Climate Bond Initiative on the state of the post-issuance reporting in the green bond market provides an analysis of impact reporting in green bonds. The report offers a good overview of the metrics harmonization process including a comprehensive list of commonly used metrics in the areas of energy, transport, buildings, water, waste, land use and adaptation.

Overall, however, outside renewable energy, energy efficiency, waste and waste water management, the guidance providers are careful not to establish rigid impact measurement metrics. The Climate Bond Initiative’s “criteria document” on forestry interventions, in particular, seems to suggest that the development of firm metrics and benchmarks would not be possible at all⁴⁶.

Due to the specificities of each project, heterogenous impact metrics will likely prevail in blue relevant sectors like coastal agriculture, coastal land use, forests and sustainable use of living natural resources, terrestrial and aquatic biodiversity, eco-efficient

43 <https://www.icmagroup.org/green-social-and-sustainability-bonds/resource-centre>.

44 Nordic Public Sector Issuers, Position Paper on Green Bonds Impact Reporting (October 2017).

45 Negra, C., Marine Renewable Energy Assets and the Climate Bonds Standard: Background Document to Eligibility Criteria (October 2017), at https://www.climatebonds.net/files/files/CBI_Marine%20Renewables_Background_Sep2017__GP__Final.pdf.

46 Negra, C., et al., Forestry Criteria: Development of Eligibility Criteria under the Climate Bonds Standard & Certification Scheme (November 2018), at https://www.climatebonds.net/files/files/CBI_Background%20Doc_Forests_November%202018.pdf.

production, climate adaptation among others. Of all blue habitats, nonetheless, coastal forests (in particular mangrove forests) may be open to fairly standardized impact metrics concerning respective forest-related activities, i.e. afforestation/reforestation (A/R) and sustainable forest management, in particular. The working paper of the EU Technical Expert Group on Sustainable Finance⁴⁷ suggests as benchmarks for these activities substantial GHG mitigation outputs as well as Sustainable Forest Management (SFM) requirements to ensure the promotion of growth, general forest health, ecosystem service provision, production of timber, soil quality and carbon, forest protection, regeneration after harvesting, and the avoidance of emissions from land use change. As methodological tools for verification, the paper suggests the use of Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) and, in addition, quantification of GHG emissions by using an internationally recognized GHG standard such as the Verified Carbon Standard, Plan Vivo or the Climate Action Reserve.

While the technical expert group is still at the consultation stage and while both the taxonomy on environmentally sustainable economic activities and the EU Green Bond Standard are still under development, the listed benchmarks represent useful guidance for an important segment of blue investments, namely coastal forests and wetlands.

Level of transparency in impact reporting: The level of transparency on impacts indicators and metrics varies immensely among issuers. A good example on transparency is the World Bank, which lists the project summaries and impact indicators for Green Bond eligible projects in summary form on the investor website⁴⁸ through annual green bond impact reports.

5. 2. Experience of Climate Change Adaptation and Resilience

The aid and development sector and increasingly also the climate change cooperation sectors have a robust, if complex, tradition of impact evaluation. According to the OECD's Development Assistance Committee (DAC), impact evaluations take into account intended and unintended, positive and negative as well as expected and unexpected changes.⁴⁹ They are supposed to not only provide information on all possible changes that have occurred during the implementation of an intervention or investment but also to link these observed changes to their causes. Therefore, the establishment of causality (cause/effect relationship) is crucial in order to understand why particular incidents occurred during and after an investment. In particular, the question 'What would have happened without the investment?' needs to be investigated in detail (counterfactual or "baseline" assessment).⁵⁰

47 Cf. https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/sustainable-finance-taxonomy-feedback-and-workshops_en.pdf#taxonomy.

48 <http://treasury.worldbank.org/en/about/unit/treasury/ibrd/ibrdgreen-bonds>

49 OECD, Principles for Evaluation of Development Assistance (1991), at <http://www.oecd.org/dac/evaluation/2755284.pdf>.

50 GIZ/UNDP/CEVAL, Impact Evaluation Guidebook for Climate Change Adaptation Projects (2015), at https://www.adaptationcommunity.net/?wpfb_dl=260.

- ✓ From the perspective of climate change adaptation, measuring impact -- monitoring and evaluation ("M&E") of adaptation action in the widely-used adaptation terminology – focuses on the target group – for which specific vulnerability to climate change has been established – and follows the triple question:⁵¹
- ✓ Have the objectives and targets been achieved?
- ✓ Can this achievement be attributed to the measure/investment in question?
- ✓ Does the measure/investment effectively reduce vulnerability and enhance the adaptive capacity of the target group?

Specific M&E metrics differ from fund to fund and from program to program. The Global Environment Facility (GEF), for one, has introduced its Adaptation Monitoring and Assessment Tool (AMAT) in 2011. It seeks to measure progress towards achieving the outputs and outcomes established at the portfolio level under the results framework of the different funds it manages. Similarly, the Adaptation Fund⁵² seeks to establish metrics to measure the achievement of expected results, namely in terms of reduction of vulnerability, strengthened institutional and technical capacities, and integration of adaptation into relevant sectoral and development policies, plans and processes. The approaches by GEF and the Adaptation Fund lead to a selection of variable metrics such as the number of technologies and innovative solutions transferred or licensed, the number and level of coordination mechanisms, the use of climate information products, number of males and females reached etc.

While there is a clear trend to quantification of results and impacts, there is also a growing understanding that indicators are not always appropriate proxies for measuring change and impact. It is argued that they fail to explain why changes take place and that there is the risk that standard metrics oversimplify complex issues.⁵³ One way to address this issue is to include also qualitative metrics.

5. 3. Common Blue Bond Impact Metrics

Despite the difficulties and pitfalls described above, the development of impact metrics targeting blue bond investments has its merits. Provided they are robust and well-designed, they can provide clarity and certainty on the use of bond proceeds, the results, and the performance. They can allow for standardized investment approaches, comparative assessments, and for comprehensive planning.

This said, investors will expect that the key bond impact metrics are accessible, replicable and well manageable across investment portfolios while the above-portrayed experience in project finance serves as guidance when developing individual project

51 Möhner, A., The evolution of adaptation metrics under the UNFCCC and its Paris Agreement, in Christiansen, L. / Martinez, G. / Naswa, P., Adaptation metrics: Perspectives on measuring, aggregating and comparing adaptation results (2018), at https://resilientcities2018.iclei.org/wp-content/uploads/UDP_Perspectives-Adaptation-Metrics-WEB.pdf.

52 <https://www.adaptation-fund.org>

53 Leiter, T. / Pringle, P., Pitfalls and potential of measuring climate change adaptation through adaptation metrics, in Christiansen, L. / Martinez, G. / Naswa, P., Adaptation metrics: Perspectives on measuring, aggregating and comparing adaptation results (UNEP DTU, March 2018).

impact metrics for adaptation, blue bond developers will likely turn to representative quantitative targets with proxy-functions.

The World Bank, in its Green Bond Impact Report 2018⁵⁴, lists several ocean- and coastal-related measures, among them one on coral reef rehabilitation (Indonesia) and the strengthening of coastal management (Philippines). Metrics used to measure impact included the increase in Marine Protected Area (MPA) management effectiveness as measured according to the MPA Management Effectiveness Assessment Tool (MEAT) as well as the increase in area size of coastal ecosystems under continuous monitoring and the number of ecosystem monitoring surveys completed.

Measuring impact in area size, in particular, is a common feature across habitat restoration and management programs and green bond investing funds (see table 7), and so is reporting on numbers of direct beneficiaries (in terms of job or income generation, vulnerability improvement and other). Other metrics vary widely, and often quantifiable metrics are supported by qualitative targets (e.g. improvement of effectiveness of early warning systems, or capacity improvement of government agencies to respond to disasters).

Table 7: Commonly used key performance indicators in investment funds or financing facilities

Key Performance Indicators (Agriculture, Land-Use, Forestry, Sustainable Use of Living Natural Resources, Terrestrial and Aquatic Biodiversity, Eco-Efficient Production)				
AREA SIZE				
Hectares of wetland habitats restored	Hectares of marine areas under biodiversity protection (MPA)	Hectares of forests protected by sustainable land management	Hectares of marine areas under conservation	Hectares of forests restored or reforested
Hectares under sustainable forestry management	Hectares of land managed with sustainable practices	Hectares of land protected from flooding	Hectares of improved yields smallholder farmers or fishers	Reduction of destructive fishing in selected area
BENEFICIARY COUNT				

54 World Bank, Green Bond Impact Report 2018, at <http://pubdocs.worldbank.org/en/916521543500726747/report-impact-green-bond-low-re-2018.pdf>.

# of fishers that have adopted sustainable fishing practice	# of fishermen with Increased income and their value of their product	# of farmers adopting new technologies	# of fishers receiving climate awareness training and reached by better practices	# of forestry workers having better working conditions and/or receiving higher wages
DIVERSE				
Reduction of pollutant load to waterways	# of new technologies demonstrate of farms	Reduced erosion	Reduced water use per product	Improve soil condition (e.g. more nutrients, reduced salinity)

While selecting such indicators, the issuer must specify the key indicator according to the given metric (e.g. area size) as well as the methodology for verification (e.g. surveys to verify income increase, MEAT for reef management, and so on).

The key performance indicators listed in table 7 are relevant for a wide range of blue investments, namely those with a conservation, restoration or management focus for coastal or ocean habitats. For other blue segments, notably marine energy (renewable energy and energy efficiency⁵⁵) and waste and waste water management in coastal wetlands, harmonized reporting methods and commonly adopted metrics are readily available.

An increasingly important thread through the diversity of blue investments is the attention to the role of coastal habitats for climate change mitigation (“blue carbon”). Conserving coastal wetlands allows for continued sequestration of carbon and maintains buried carbon stocks out of the atmosphere. It is estimated that loss of coastal wetlands globally released 450 MMTCO₂⁵⁶ back to the atmosphere each year, an amount equivalent to the emissions resulting from the economy of California or the United Kingdom.⁵⁷

Blue investments almost always have a direct or indirect blue carbon impact, i.e. they reduce, avoid or sequester GHG emissions. Moreover, there is a strong correlation between GHG stock stability or stock growth and core ecosystem services, including healthy soils, clean water, biodiversity including stable and diverse fish stocks, and much more. The identification of GHG fluxes, then, would appear a natural impact metric and multi-purpose proxy for virtually all blue bond investments.

55 <http://pubdocs.worldbank.org/en/420421536957716072/Guidance-and-Template-for-Green-Bond-Impact-Reporting-December-2015.pdf>.

56 Million metric tons of carbon dioxide

57 Pendleton L, Donato DC, Murray BC, Crooks S, Jenkins WA, Sifleet S, et al. (2012) Estimating Global “Blue Carbon” Emissions from Conversion and Degradation of Vegetated Coastal Ecosystems. PLoS ONE 7(9): e43542. doi:10.1371/journal.pone.0043542

There are different techniques for assessing carbon stocks in coastal soils and tracing carbon fluxes over a certain period of time.⁵⁸ Generally, in line with the “tiers” approach of the Intergovernmental Panel on Climate Change (IPCC), carbon stocks within a plot of land can be calculated in three different ways, the first (“Tier 1”) being the most simplified and least accurate way taking into account IPCC default factors, the second “Tier 2”, relying on country specific data for key factors, and the third (“Tier 3”) being the most tailored and accurate way of assessment, relying on data based on repeated measurement or modeling. “Tier 2” is in the middle of the two. A robust methodological framework for Tier 3 measurements for tidal wetland as well as seagrass restoration has been recently introduced by the Verified Carbon Standard.⁵⁹ It seems particularly apt to inform the climate change mitigation impact of any blue investments.

5. 4. Recommendations

The role of the IUCN BNC Positive Impacts Framework in scaling up blue bonds

IUCN recently issued its first BNC Positive Impacts Framework (BNC+) as a management tool to assess and report on projects and investments in the field of blue natural capital. It builds on the Sustainable Blue Economy Financing Principles which go beyond the generic rules laid out in the Green Bond and Social Bond Principles by adding depth and detail on blue investments, namely in ESG.

As stated in the section on metrics for blue bonds (see chapter 6), voluntary guidelines aiming at a harmonized framework for impact reporting exist for energy efficiency, renewable energy, water and wastewater projects, and waste management projects⁶⁰. However, these guidelines are not always directly applicable to sustainable blue economic activities and especially blue natural capital focused actions.

The BNC+ is a rich resource on impact criteria, metrics and safeguards. It may be used by impact investors globally as a toolbox for defining specific performance indicators, when planning and evaluating their investments in natural capital of coastal zones and the marine environment.

When designing impact metrics for blue bond investments, a number of priorities come into view:

- ✓ As with green bonds, specific attention should be put on the impact management process.⁶¹ Issuers and investors should not just rely on expected impact, but

58 Howard, J. et al, Coastal Blue Carbon: Methods for assessing carbon stocks and emissions factors in mangroves, tidal salt marshes, and seagrass meadows (Conservation International / IOC-UNESCO, IUCN 2018).

59 Verra, Verified Carbon Standard, VM0033 Methodology for Tidal Wetland and Seagrass Restoration, at <https://verra.org/webinar-newly-approved-vcs-methodology-tidal-wetland-and-seagrass-restoration/>.

60 <https://www.icmagroup.org/green-social-and-sustainability-bonds/resource-centre>

61 Nordic Public Sector Issuers' Position Paper on Green Bond Impact Reporting (2017), World Bank 2018 Green Bond Impact Report.

on actual impact achieved. For portfolios of blue projects, annual reporting is advised. Issuers should offer quantitative as well as qualitative impact metrics. Independent (third party) verification of impact is increasingly sought in the green bond market and may be the instrument of choice for blue bonds, too.

- ✓ Common metrics for measuring the impact of blue projects and other investments are available. This relates to climate change mitigation aspects of blue bond financed projects (“blue carbon”), to marine energy (renewable energy and energy efficiency), as well as to waste and waste water management in coastal wetlands. As harmonized reporting methods and commonly adopted metrics already exist in these areas, they should be used.
- ✓ In other sectors, like agriculture, land use, forests, and ecological resources, projects and related metrics are more heterogeneous and require an individual design of metrics and indicators. However, progress is being made on common metrics in these sectors as well, especially for land use applicable also to coastal zones as well as sustainable use of ocean resources (EU sustainable taxonomy).
- ✓ Measurement concepts will need to be built with respect to the particular objectives of the investment. Investments into marine energy – whether for local purposes (serving coastal communities) or large-scale (on-grid supply) – will take into account the energy capacity added, its availability, access, and resilience. Investments into coastal wetlands will target the reduction in damage related to flood risks, and soil salination. The creation of a marine protected area (MPA) around coral reefs is aimed at protecting the reef, increasing fish stock, reducing flood risk, and so on.
- ✓ From here, targeted metrics should be installed, using either direct indicators (e.g. for marine energy: capacity in kWh; annual renewable energy generated MWh or GJ, annual CO₂e reduced, number of males and females with access to electricity; for habitat protection: the measurement of MPA management efforts (e.g. using MEAT; water quality, etc.) or indirect indicators (proxies). The Coalition for Private Investment in Conservation (CPIC)⁶², a global multi-stakeholder initiative to create, analyze and trace investment models (blueprints) into nature-based solutions, used the example of an environment impact bond blueprint for coastal restoration investments in Louisiana’s Mississippi River Delta. As key impact metric, this proposal chose to track avoided land loss from the restoration activities. Land loss, it argues, is a robust proxy for flood risk and flood damage reduction.⁶³ An indirect indicator for impact of reef protection activities, could be the uptake of sustainable fishing practices by artisanal or commercial fishers. Further indicator and proxy options to trace blue investments in coastal habitats are provided in (see table below). While working with indirect indicators, it is important to establish the causal link of the chosen indirect indicator to the expected broader impact or result of the blue investment. This is best addressed through a theory of change analysis and expressed in a logical framework.

62 <http://cpicfinance.com>.

63 CPIC, Conservation Investment Blueprint Case Study: Environmental Impact Bond for Green Infrastructure, at <http://cpicfinance.com/wp-content/uploads/2019/01/CPIC-Blueprint-Case-Study-Environmental-Impact-Bond-for-Coastal-Green-Infrastructure-by-Environmental-Defense-Fund.pdf>.

- ✓ As coastal ecosystems are increasingly recognized for their important role in absorbing CO₂ and thereby mitigating the effects of climate change, the actual results in climate abatement – i.e. the CO₂ sequestered or, usually more relevant in this context, the CO₂ emissions avoided – of any investment in coastal habitats becomes a primary yardstick for measuring impact. Indeed, blue investments almost always have a direct or indirect blue carbon impact, i.e. they reduce, avoid or sequester GHG emissions. Moreover, there is a strong link to core ecosystem services, including healthy soils, clean water, biodiversity including stable and diverse fish stocks, and much more. The identification of GHG fluxes, then, would appear a natural impact metric and multi-purpose proxy for virtually all blue bond investments. The UNFCCC, the International Energy Agency, the World Resources Institute etc. provide resources and methodologies for calculating GHG outputs both in terms of energy (marine energy)-focused investments and in terms of land/aquatic interventions. Many blue investments will target tidal wetlands (such as mangroves and marshlands) as well as seagrasses. The Verified Carbon Standard recently issued the first consolidated methodology for the quantification of reduced and avoided GHG emissions through tidal wetland and seagrass restoration.
- ✓ There are different techniques for assessing carbon stocks in coastal soils and tracing carbon fluxes over a certain period of time. Generally, in line with the “tiers” approach of the Intergovernmental Panel on Climate Change (IPCC), carbon stocks within a plot of land can be calculated in three different ways, the first (“Tier 1”) being the most simplified and least accurate way taking into account IPCC default factors, the second “Tier 2”, relying on country specific data for key factors and the third (“Tier 3”) being the most tailored and accurate way of assessment, relying on data based on repeated measurement or modeling. “Tier 2” is in the middle of the two.
- ✓ Investment of a particular focus – e.g. blue carbon project development – or size (e.g. from 10 million USD into habitat conservation or development) would be required to apply Tier 3 data (ideally using a recognized carbon assessment methodology).⁶⁴
- ✓ A high-effort carbon assessment may be used to issue tradable emission reduction/sequestration credits under a recognized carbon credit standard (such as the Verified Carbon Standard. The purpose would be to increase the transparency of the climate mitigation output and possibly also to generate additional revenues.
- ✓ It is noted in this context that crediting of mitigation activities is increasingly influenced by country-level or jurisdictional-level low-carbon development programs (such as Reducing Emissions from Deforestation and forest Degradation or “REDD+”). Whether any particular emission reductions may be claimed or not under a blue bond investment requires careful assessment. Conversely, country-level and jurisdictional programs (including REDD+ programs) themselves are increasingly affected by non-state actor impact investments. The allocation of

⁶⁴ VM003 Methodology for Tidal Wetland and Seagrass, at <https://verra.org/methodology/vm0033-methodology-for-tidal-wetland-and-seagrass-restoration-v1-0/>; or similar.

mitigation efforts in all these cases is complex and not without a risk that actors – state actors and non-state actors – will claim responsibility at multiple levels. With respect to carbon crediting, this risk is discussed under the term “double counting”.⁶⁵

- ✓ Given the interdependency between habitat protection and livelihood development, climate change mitigation and adaptation impact metrics should always be paired with social-centered metrics (including gender). In fact, the social-centered metrics will provide important clues concerning the long-term sustainability of many interventions. Measures to decrease habitat degradation, in particular, will often be successful in the long-term only if local communities carry substantial benefits. These benefits are usually easy to trace (number of jobs, number of sustainable fishing permits, number of low-energy stoves, and so forth). The ICMA is working towards a harmonized framework for social bonds (with some results already been published. This framework, once available, is likely to provide valuable social centric KPIs. For a list of further appropriate indicators and proxies in this area see (see table below).
- ✓ A blue bond transparency framework may well incorporate the lessons from many years of monitoring and evaluation in the sphere of climate change adaptation. In particular, it is suggested to focus on the specific vulnerability of a target group (e.g. coastal communities in district/state/country X) and assess the particular enhancement of their adaptive capacity as a result of the blue bond investment (attributability of the investment). Specific adaptation-focused indicators and proxies can be found in (see table 8 below).

The table below provides excerpts from the [Blue Natural Capital + Impacts Framework \(BNC +\)](#) for the selected impact categories: conservation management, ecosystem restoration, creation of jobs and livelihoods, gender equality impacts. The BNC+ provides comprehensive lists of examples, rationale, recommended mandatory and secondary key performance indicators (KPIs), assessment and measurement methods, baseline data and monitoring data. The table below only presents recommended primary KPIs, and the actual BNC+ shall be referred to for additional information.

65 Von Unger, M., Future of the Voluntary Carbon Markets in the Light of the Paris Agreement: Perspectives for Soil Carbon Projects (2018), at https://www.dehst.de/SharedDocs/downloads/EN/project-mechanisms/peatland_standards_slides-3.pdf?__blob=publicationFile&v=1.

Table 8: Recommended primary KPIs for selected blue bond relevant activities

<p>Conservation management</p>	<p>Conservation management (planning and implementation) leading to ecosystem, habitat, biodiversity protection and endangered species, recovery and restoration and creation of new jobs and livelihoods</p>
<p>KPIs</p> <ul style="list-style-type: none"> ✓ Status of each area based on its condition and ecosystem function at the close of the reporting period (GRI Disclosure 304-3) compared to the start of project activities ✓ Land Area [and sea area] directly controlled at the end of the reporting period (IRIS Ref: OI 5408) ✓ Protected Land [and sea] Area at the end of the reporting period (IRIS Ref: PI 4716 and PI 3824) ✓ Biodiversity Return on Investment Metric (BRIM) ✓ % of ecologically and biologically important habitats and species within the project or activity's zone of impact/influence at the end of the reporting period. ✓ Area based conservation management plans (VCA standard) <p>Annual conservation performance reports (VCA standard)</p>	
<p>Ecosystem restoration</p>	<p>Coastal and marine ecosystem restoration activities using ecological restoration techniques. Species recovery activities involving active measures to protect nesting habitat, enhancing recruitment, migration routes, and breeding grounds of endangered species.</p>
<p>KPIs</p> <ul style="list-style-type: none"> ✓ Area (ha) or linear area (kms) and condition of coastline and/or coastal habitat restored using appropriate, internationally accepted methods ✓ The benefit (in financial terms) to people arising from the ecosystem services associated with the restored habitat ✓ Coastline restored during the reporting period (IRIS Ref: PI 2538) ✓ Number of additional recruits entering the population <p>Number of avoided mortalities (e.g. reduction of bycatch, poaching) of endangered species</p>	
<p>Climate mitigation</p>	<p>Reduction of greenhouse gas emissions to mitigate climate change, and increase in GHG sequestration potential in coastal ecosystems Renewable energy: tidal, wave, wind and solar Energy efficiency</p>
<p>KPIs</p> <ul style="list-style-type: none"> ✓ tCO₂e reduced/yr (GHG stored through carbon sequestration activities) during the reporting period ✓ tCO₂e avoided/yr (GHG stored through activities related to avoiding emissions) during the reporting period ✓ Renewable energy (RE): <ul style="list-style-type: none"> ✓ Annual renewable energy generation in MWh/GWh (electricity) and GJ/TJ (other energy) during the reporting period ✓ Capacity of renewable energy plant(s) constructed or rehabilitated in MW during the reporting period ✓ Energy efficiency (EE): Annual energy savings in GJ/TJ during the reporting period 	

Creation of jobs and livelihoods	Creation of new jobs and livelihoods in the coastal zone based on the sustainable use of blue natural capital
<p>KPIs</p> <ul style="list-style-type: none"> ✓ Number of full time jobs created by the project activity at the end of the reporting period (by gender, by enterprise). Modified from IRIS Ref: O13160 ✓ Number of unique very poor, poor and low income individuals who were clients of the organization during the reporting period (IRIS Ref PI3193 etc.) ✓ Price premium (absolute and percentage) that the producer (supplier) selling to the organization obtains from the organization for its goods or services during the reporting period. (modified from IRIS Ref PI1568) ✓ Volume of product sold under sustainable label or voluntary code of conduct certificate [Fisheries and Aquaculture] ✓ Number of visitor nights during the reporting period [Eco-tourism] ✓ Average financial yield per visitor nights during the reporting period [Eco-tourism] <p>Indicators of the sustainability of resource use such as presence/absence of key species, cover of sensitive habitat types etc.</p>	
Gender equality	Empowerment of women in sustainable development of coastal zones
<p>KPIs</p> <ul style="list-style-type: none"> ✓ Avoided damages, resource savings (like water savings), system performance improvements (less business interruption, less maintenance costs), expressed physical terms as well as in financial terms where possible and appropriate (European Financing Institutions Working Group on Climate Adaptation). ✓ Effects of the climate resilient project on the system being financed (EIB, MDB working group on adaptation) ✓ Non-financial: Adjustments of physical, human, or environmental system ✓ Financial: economic benefits of such system adjustments <p>Forecast reduction in the costs of expected damage caused by extreme weather events relative to the costs of constructing the project (S&P Green evaluation tool, resilience benefit ratio)</p>	

Source: Wilson, S. / Baldwin, R., Blue Natural Capital Positive Impacts Framework (BNC+IF), Hamriyah (Oman) 2018)

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