

Analysis & Development of a Pacific Ocean Bond

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Analysis & Development of a Pacific Ocean Bond - Final Report

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Executive Summary

The Pacific Ocean Bond project under the Pacific Ocean Finance Program (POFP)¹ explores how carefully designed bond structures can meet the strategic priorities of mitigating risks to ocean health, increasing the resilience of Pacific communities, generating sustainable economic development opportunities across multiple sectors, and attracting longer-term capital to the Pacific region. It also seeks to build support and develop guidance for potential issuers and project developers for issuance of such a bond instrument.

The project's key goal is to design and recommend three bond structures suitable for the above-mentioned purposes and propose guidance for an action plan for issuance of Pacific Ocean (PO) Bonds.

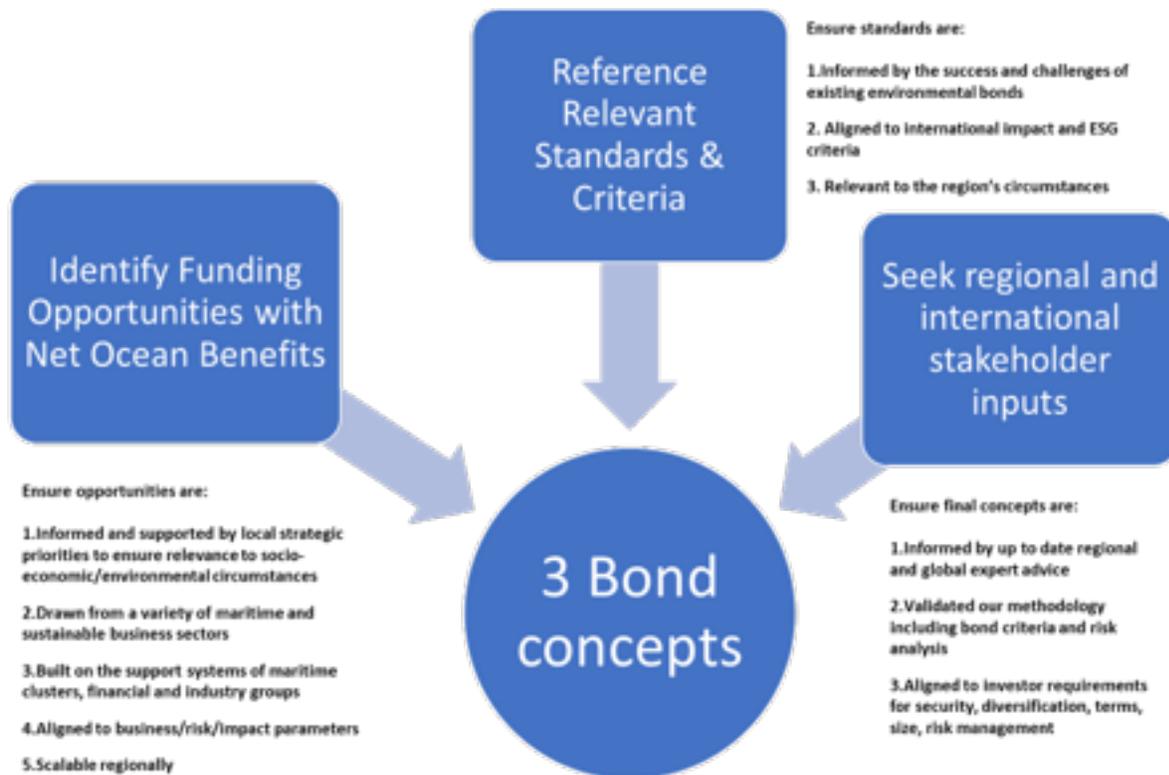
Methodology and Approach

Since the economic and sustainability circumstances are very specific to the Pacific region, it was important to first understand the regional and local activities that create net positive ocean health impact before attempting to carry across any learnings from existing sustainable and green bond.

Under this approach, we have sought to provide a balance between reviewing bond financial architecture and use of proceeds, early stakeholder consultation to develop bond concepts, considering governance and institutional/legal capacity, and assessing investor priorities to understand feasibility of the proposed bond concepts.

The diagram below summarizes the project's methodology and approach. Please refer to the *Methodology Section* for a full description and *Annex I* for a full list of the tasks completed.

¹ The POFP covers 11 island nations: Solomon Islands, Vanuatu, Fiji, Tonga, Samoa, Kiribati, Nauru, Palau, Marshall Islands (RMI), Federated States of Micronesia (FSM) and Tuvalu. They are collectively referred to as POFP11.



The project has resulted in:

- Three bond concept notes relevant to the region, described in detail in *Section 5* of this report
- GUIDANCE NOTES FOR IMPLEMENTING OF PACIFIC OCEAN BONDS, a separate document that provides detailed next steps and guidance for each bond concept
- A PACIFIC OCEAN BOND-ESG GUIDE with sector-based appendices as a reference for any developer/advisor to a Pacific Ocean Bond
- PACIFIC OCEAN BOND CASHFLOW MODEL TEMPLATES AND USER GUIDE flexible enough for user input

Key Findings

1. There is still narrow understanding of bonds as a financing mechanism across the region. This leads to relatively limited interest among local and regional stakeholders, and points to significant gaps in the necessary regulatory and financial capacity to implement a bond financing mechanism with maximum impact, including governance and policy arrangements. Solutions will require continued and aligned donor support.
2. There are many organizations that are supporting policy and projects that are important to ocean health in the region and resilience is a strong priority for the region.
3. Project development needs systematic local stakeholder engagement and input to locate projects that have an impact on ocean health and meet local priorities and challenges.
4. International standards and case studies exist for almost all sectors that could be supported by a bond and investors are familiar with these standards.

5. Feedback from investors expressed strong interest in a well-established, highly rated issuer such as a multilateral development bank (MDB), for example the Asian Development Bank (ADB) or the World Bank, as the preferred issuer, rather than a sovereign, a corporation, or a bank. Specifically, there is interest in a Pacific Ocean Resilience Bond with an MDB issuer. MDBs have investor and regional trust and the necessary financial and implementation capacity to ensure both returns and impact.
6. The scale of the Resilience Bond and the Climate Mitigation Bond needs to be at least USD \$100mn to allow for support from institutional investors.
7. Investors have strong concerns around impact monitoring, typically where the bond has ample private sector involvement, especially where environmental, social and corporate governance (ESG) frameworks in place are weak.

The three bond structures have been developed with these findings in mind.

Introducing the three bond structures

The three bonds proposed vary significantly in their features to provide options that accommodate a wide range of regional priorities. Their design: 1) achieves financing that is clearly additional 2) delivers direct and strong ocean impacts, and 3) provides clarity to investors across investor types. The three bond structures are: the Pacific Ocean Impact Bond, the Pacific Ocean Resilience Bond, and the Pacific Ocean Climate Mitigation Bond.

The Pacific Ocean Impact Bond leverages philanthropic and impact funding to directly address ocean governance issues that have been prioritized within the Pacific Islands, identified through a marine spatial planning exercise conducted by countries. The purpose of the funds is to address these priorities through delivering direct, upfront funding to address governance, monitoring, and enforcement mechanisms at the required spatial scale, whilst also funding effective conservation measures among local stakeholders. For example, using a portion of funds to directly support fisherfolk to transition to activities that are aligned to the new measures, such as providing ecotourism services into marine protected areas or sustainably managed aquaculture activities.

This bond would be structured as a sovereign bond, with limited cash flows generated from the use of proceeds. Repayment would need to come from government budgets. This could be from existing taxes or new tax receipts. Critical to this structure's success would be a strong demonstrated commitment to improve ocean governance with a clear timeline of deliverables, as opposed to the financial viability of local entrepreneurial activities. The experience of designing a bond in the Seychelles shows that one way to achieve this is through debt for nature swaps, in exchange for commitments to advance the prioritized ocean health issues. However, a debt-for-nature (DfN) swap is not a source of new finance and the bond will bring new capital into the region. Furthermore, there is a need for strong guarantees from institutions like the World Bank, a certain amount of philanthropic capital, and support for appropriate political risk insurance, given the low capacity for new debt in the region. This bond structure would appeal most to impact investors, rather than commercial investors.

The Pacific Ocean Resilience Bond will focus on identifying measures, businesses and projects that can improve resilience in the region, protecting or rehabilitating natural capital in oceanscapes while adapting to climate change. As such, the intent of the bond is to provide finance for resilient infrastructure that has a direct and positive impact on marine life, and permanently improves the biodiversity and productivity of the oceans. Examples include protection of coral reefs and mangroves and improving access to data for ocean management

through enhanced access to telecommunications. Investing in cost-effective solutions will also result in communities that are less vulnerable to risks presented by the physical impacts of climate change, offering better environmental and economic outcomes. This focus distinguishes the bond from just a pure disaster resilience approach. Instead, it aims to increase ocean resilience overall. Furthermore, the perseveration of economic assets will typically support economic value creation, which in turn can provide a backing for payments of interest and repayment of capital.

The bond issuer would be an MDB or bilateral agency, such as ADB, the World Bank or the Japan International Cooperation Agency (JICA), as they have the required financial capacity and can provide a bundle of projects to the required scale. This structure aligns well with the objectives of grant providers and co-financiers in the region, such as the Green Climate Fund (GCF) and the L'Agence Française de Développement (AFD) and could benefit from a blended finance approach with the support of these donors. Additionally, results-based finance components could also be considered.

The Pacific Ocean Climate Mitigation Bond focuses on financing climate transition needs across the Pacific through mitigation projects that reduce the CO₂ impact on the ocean. These projects will generate revenue through direct sales and/or from feed-in tariffs. Corporate and national budgets will benefit where renewable generation reduces the need to pay for fuel imports in hard currency.

Potential issuers will include financial institutions and corporations, such as local utilities or subsidiaries of multi-national corporations. For example, they could commercially structure a blue bond with this aim with direct repayment sources. Credit enhancements may be included to raise credit ratings above host country levels. Considering China's strong position in renewables exports, the Asian Infrastructure Investment Bank (AIIB) may be interested in acting as a guarantor or partial guarantor, in addition to ADB or the World Bank.

Given the Pacific Islands' strategic priorities and ocean-related economic and environmental risks, size of economies, limited local commercial activities, and policy development support required around all ocean health activities, there is a need to use donor funding and guarantees to leverage private investment through creating structures with acceptable risk and return profiles for investors that also ensure positive ocean impact.

The value and potential for a Pacific Ocean Bond

The research undertaken through this project shows that bond issuance requires significant preparation, resources, focus and dedication, and is not appropriate in all circumstances. For instance, where the underlying project volume is too small or where a financial return cannot be identified, it could be difficult to gain investor interest. However, bonds provide significant benefits precisely as a result of the process involved as this work adds clarity, transparency, and stringency to the underlying project execution. If implemented properly, all three bond options not only deliver significant benefits to Pacific Ocean health, they also do so in a way that is accountable and cost-effective.

Bonds have the potential to deliver additional capital to the Pacific region. They bring new sources of expertise and private sector innovation into the region, and challenge policymakers and other stakeholders to develop a consistent and well-governed approach to comprehensive ocean health and climate adaptation solutions. Each of the three presented bond structures are viable with the ability to come to fruition with the right preparation, either as stand-alone bonds or through merging structural elements. In presenting these structures, the

project by no means imply that bonds are the only financial instruments to achieve the ocean health benefits through the investable activities.

Stakeholder feedback shows that considering the attractive bond size to investors, and the need for increased resilience as a regional concern, a bond with a regional perspective has strong support. Recent major development banks such as European Investment Bank (EIB), ADB, and the World Bank show an increased appetite for environmental bonds in various formats, including resilience, as evidenced by the recent European Bank for Reconstruction and Development (EBRD) USD \$700mn Climate Resilience Bond.² The recent Pacific Blue Shipping Partnership initiative also points strongly to the desire to achieve both emissions mitigation and ocean health from shipping in the region.³ Both developments are encouraging and set a foundation for deeper discussions around the Pacific Ocean Resilience Bond and Pacific Ocean Mitigation Bond.

That said, with the growing interest in impact investing, a sovereign-issued impact bond to improve ocean governance and fisheries is possible, under the following conditions: right governance provisions in place to ensure government commitment, project compliance with ESG standards and national goals, and an MDB guarantee. In the case of the Seychelles Blue Bond, strong national commitments and MDB support were present, with tools that guaranteed a percentage of capital return, while reducing the payment burden for the sovereign. The model designed to support that effort - the Pacific Ocean Impact Bond - aims to achieve this at the country-level. Certainly, a regional platform like that of the Parties to the Nauru Agreement (PNA) could also be a possible partner to such an impact bond. The platform can develop, manage, and monitor projects across the regional with direct revenue sources while also improving the management and sustainability of tuna stocks.

In general, there is agreement among investors interviewed that a Pacific Ocean Bond would need to be at a scale of upwards of USD \$100mn in order to be viable and attractive to institutional investors. However, there is evidence to support the viability, and the ability to attract investment from impact investors, of the sovereign-issued Pacific Ocean Impact Bond, for less than USD \$100mn. Consider the Seychelles Blue Bond: at USD \$15mn, its scale was significantly smaller than the Pacific Ocean Impact Bond, demonstrating that smaller-scale, sovereign-issued environmental bonds can generate sufficient investor interest. It was able to attract the required three impact investors and at least 1 donor.

Next Steps

In view of the key findings with respect to the readiness of the regional and local stakeholders for a blue bond issuance, we believe the next steps are essential:

1. Awareness-building with local stakeholders on the benefits and challenges of bond structures through roundtable discussions with local stakeholders, emphasizing the strong potential benefits to local industries and economies.

² European Bank. 2019. World's first dedicated climate resilience bond, for US\$ 700m, is issued by EBRD <https://www.ebrd.com/news/2019/worlds-first-dedicated-climate-resilience-bond-for-us-700m-is-issued-by-ebrd-.html>

³ The Guardian. 2019. Pacific islands seek \$500m to make ocean's shipping zero carbon <https://www.theguardian.com/environment/2019/sep/24/pacific-islands-seek-500m-ocean-shipping-zero-carbon>

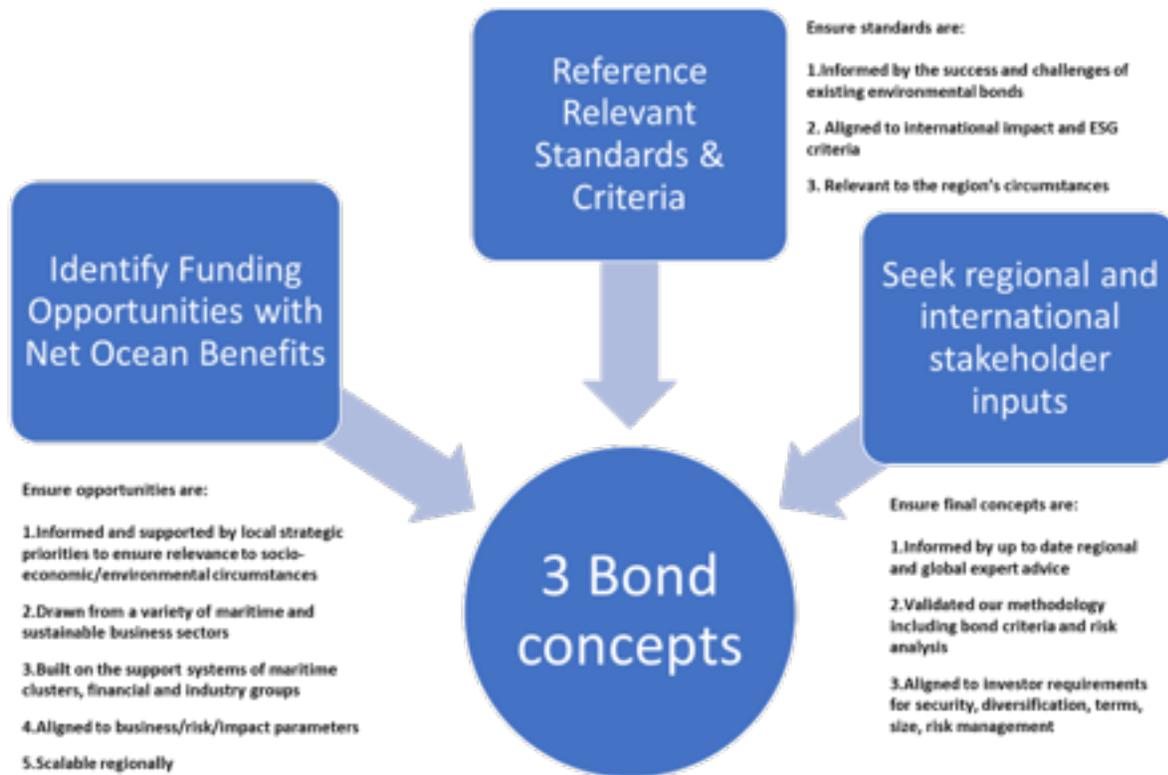
2. Obtain direct local and regional stakeholder input on potential projects. This could include developing a roadmap for actions in high priority sectors in collaboration with regional and local stakeholders, leading to projects.
3. Engage and collaborate with MDBs on bond issuance and project development. This would ensure that potential projects that are already part of MDBs consideration and pipelines are considered and discussed for feasibility.
4. Collaborate with bilateral and international donors to improve regional and national policy, and legislative capacity relating to ocean health. This should include regulatory monitoring and enforcement, and project design and implementation capacity to satisfy bond financing requirements, including standard and verification, bond repayments, scientific data modelling, and technical skills for project implementation.
5. Engage the insurance industry especially with respect to the need to protect against physical risks to infrastructure ranging from wastewater, waste management, renewable power, and telecommunications.
6. Hold stakeholder discussions around outcome-based covenants, especially for Resilience Bond projects, to ensure the ability to meet ocean health impact objectives despite relaxed operational frameworks. There are a growing number of cases where social impact bonds have financial payment terms linked to impact measures. This is an additional complexity but offers a way to make bond investors share in the success or failure of the underlying measures proposed.
7. Consider structural flexibilities after discussions with investors. These could include combining the Resilience Bond and the Climate Mitigation Bond to achieve a total bond size at a scale that is sufficient for institutional investors and structuring different tenors (from 5 to 10 years) for funding tranches to attract different investors. This could mean identifying and supporting projects with a 5-year or shorter revenue stream.

Critical to the timeframe of development of the bond instrument is a national commitment and a pipeline of projects. In the case where the issuer is not an MDB like the ADB or the World Bank, a suitable guarantor would be necessary. With these in place, completion of the structuring, issuance and placement of a bond instrument is possible within one to two years. More specific guidance is available in *Section 6* and the GUIDANCE NOTES FOR IMPLEMENTATION OF PACIFIC OCEAN BONDS.

Methodology

The project systematically 1) assessed regional and local economic activities, and environmental/social issues that need new funding to achieve ocean impact, 2) developed references to the relevant international standards, and 3) sought stakeholder feedback.

The diagram below summarizes our methodology and approach.



Identify funding opportunities with net-ocean benefits

It was important to inform and support funding opportunities through local strategic priorities to ensure relevance to socio-economic and environmental circumstances, and that funding opportunities drew from a variety of maritime and sustainable business sectors. Opportunities also needed to consider the support systems of maritime clusters, financial and industry groups, and aligned to business, risk, and impact parameters. Scalability across the region was also a major factor.

Combining these, we assessed if investment sector areas and potential projects were relevant for the additional funding needs of the Pacific Island region, and whether it could have net positive ocean impacts. It was important to consider whether potential revenue from the potential use of proceeds can be aligned to the types of bond formats available in the market, types of capital it targets, and potential the scale of projects. Through this analysis, we identified possible Pacific Ocean Bond concepts and respective use of proceeds that were suitable for further development. The proposed bond structures clearly defined the relevant sectors and key features, along with details on how the bond could mitigate risks to Pacific

Ocean health and increase resilience of Pacific Ocean communities, and how potential issuers and developers can take it forward.

Reference relevant standards & criteria

Alignment between a Pacific Ocean Bond and existing international impact and ESG criteria is important, all the while being relevant to the region's circumstances. In order to assess this, a comprehensive review and analysis of existing environmental bonds, existing and in-development green bond and climate standards were conducted. Other ecological, social, financial, and institutional risk factors were identified, and a matrix was developed to help bond developers assess the feasibility of each project. Mitigation for any perverse or unintended outcomes that may arise were suggested.

Seek regional and international stakeholder input

Through conducting engagement with diverse stakeholders in the Pacific Island region and international investors, we ensured that final concepts are informed and up-to-date with regional and global expert advice. Feedback was sought for three main purposes:

1. Validating our methodology;
2. Confirming local economic and social needs, sectors to be included within bond criteria and ESG risk considerations;
3. Aligning bond structures to investor requirements for security, diversification, terms, size, and risk management.

We reached a wide list of potential stakeholders:

- Regional organizations
- International civil society organizations working on ocean health and governance
- Multilateral and bilateral donors
- Local private sector
- Ocean finance network experts
- Institutional investors
- Philanthropic foundations/impact investors

Regional stakeholders and ocean health experts were engaged in Fiji during 29 Apr - 13 May 2019. We met several experts at the 2019 Pacific Resilience Meeting, ADB Annual Meeting, Because the Ocean Initiative Pacific Workshop, Pacific Island Finance Ministers Meeting, and Climate Action Partnership Meeting.

We also hosted a Blue Bonds Workshop in Fiji with the support of Pacific Islands Forum Secretariat that allowed for deeper discussion. Stakeholder feedback was obtained on the three bond concepts including the industry/sector areas for eligibility. This feedback provided the basis for revision of our concepts and financial models. Follow-up emails were sent to all that we met in Fiji. We also reached out to a few who indicated interest in being engaged on blue bonds to get feedback on revised bond concepts. However, we have not been able to receive follow-up comments on revisions despite several email communications. The difficulty in getting response online could be due to the lack of understanding of the applicability of bond finance to the region, especially when regional institutions also need to focus on managing other existing financing options already available to them. Furthermore, limited capacity to engage in clarifications online likely also played a role. We were able to present our findings to local/regional stakeholders at the Pacific Ocean Finance Conference in November 2019.

In-person meetings, emails, survey forms, and phone interviews allowed for engagement of ocean finance network experts. We received responses from a good cross-section of 24 stakeholders which support the investor ecosystem - these ranged from MDBs, Commercial Banks, Impact Fund Managers, and Insurance Companies (Asset Owners) to Philanthropists, Impact Investors, and Consultants. Following further revisions, next steps for bond development were developed with the feedback.

We have summarized the stakeholder feedback in *Section 4: Challenges in Bond Issuance in the Region* and you can refer to the stakeholder engagement reports in *Annex III: Comprehensive Stakeholder Findings*. A full list of stakeholders we engaged with is also available in *Annex V: Stakeholder Engagement Summary*.

Section 1: The need for capital in the Pacific Region for ocean health

Pacific Island nations urgently need to raise new capital to address growing risks to ocean health, such as from rising sea levels, increased flooding, and greater intensity tropical cyclones. Funding gaps are currently addressed through external funding and programs,⁴ either bilaterally or through MDBs. Examples of the scale of overseas development assistance (ODA) in 2017 included: Fiji received USD \$145.9mn in total net receipts; Kiribati received USD \$77.2mn; Samoa received USD \$129.5mn; and Solomon Islands received USD \$186.8mn.⁵ Reducing dependency on grants and concessionary loans, and having access to longer-term capital to the region is important to achieve long-term ocean health, resilience, and development.

There are several challenges in managing a transition to longer-term forms of capital. Pacific Island Nations have so far shown limited appetite in using capital markets to address funding gaps for climate change or ocean health matters. Further, Pacific countries generally have high budget deficits and high debt to gross domestic product (GDP) ratios limiting the potential to raise additional debt. Nevertheless, alternative forms of financing have begun to emerge globally that create an opportunity for Pacific Island Nations to access capital directly in accordance with their needs.

Between 2013 and 2017, the impact capital market expanded fivefold, with financial institutions such as MDBs, and specialist fund managers, accounting for three-quarters of the impact investing market.⁶ A review by the Dutch Association of Investors for Sustainable Development (VBDO) shows that the Sustainable Development Goals (SDGs) are increasingly seen by pension funds as an investment opportunity as well as a business responsibility, and it particularly identified SDG 13: climate action as a significant opportunity for investment.⁷ Within this, there has been a sharp growth in a specific form of debt that is ideally suited to funding shortfalls in the Pacific: green bonds, and to a lesser extent, blue bonds.

Financial institutions are already showing interest in applying these instruments in the region. In May 2019, the ADB launched its Action Plan for Healthy Oceans and Sustainable Blue Economies, among other ocean financing projects, to expand financing and technical assistance for ocean health and marine economy projects to USD \$5bn by 2024. The initiative seeks to mobilize finance to protect and restore marine ecosystems and promote sustainable blue economies through innovative funding instruments, such as revenue guarantees and cred-enhanced blue bonds with its investment areas naturally coinciding with the ones explored as

⁴ In 2018, POF 11 received USD \$42mn in ODA grants and loans (<https://pacificaidmap.lowyinstitute.org/>)

⁵ OECD. 2019. Geographical Distribution of Financial Flows to Developing Countries: Disbursements, Commitments, Country Indicators. https://read.oecd-ilibrary.org/development/geographical-distribution-of-financial-flows-to-developing-countries-2019_fin_flows_dev-2019-en-fr#page204.

⁶ Global Impact Investing Network. 2018. Annual Impact Investor Survey 2018. <https://thegiin.org/research/publication/annualsurvey2018>.

⁷ Duiker, Jacqueline; de Bakker, Lucienne; van den Boogaard, Bram. 2018. Pension funds and Sustainable Development Goals: Be smarter, speak louder, push harder. VBDO. <http://www.vbdo.nl/wp-content/uploads/2018/11/SDG-A5-E.pdf>.

part of the Pacific Ocean Bond project.⁸ The World Bank has also launched the Sustainable Development Bond to engage investors on plastic waste pollution challenges in oceans.⁹

Development of existing environmental bonds is within clearly prescribed policy frameworks, and for their success, it is critical that the proceeds of the bond contribute to and align with the priorities set out in these frameworks. An analysis of existing environmental bonds proves that there is a broad range of acceptable purposes and sectors. There is also increasing expectations to align with SDGs, with SDGs often providing an impact assessment framework. They also demonstrate that there is scope for a broad range of structures for these purposes and sectors.

There is a key distinction between liquid public bonds from strong issuers and clear repayment profiles, and small private placements that aim to deliver specific environmental impacts, but do not have stable cash flows that can support the ultimate repayment. In most cases, investors will primarily consider the inherent financial strength of the issuer and are therefore unlikely to agree to any trade-off between credit quality and environmental goals. As a result, non-investment grade issuers need strong guarantors. ‘Impact-first’ investors will generally require external monitoring and verification, in addition to considering the standards, governance, and accountability approaches of the issuer and guarantor.

Analysis of current environmental bonds reveals that where the bonds have strong backers, such as investment grade issuers and guarantors, clear funding streams, and regulatory support or consistent income at a significant scale, bond markets were able to integrate new formats such as green, climate, or sustainability. As part of this analysis, there are assessments of a wide range of bonds, bond concepts, and other debt financing tools. Fourteen bond design examples were reviewed in detail for this work, as a basis for considering key features applicable in a future Pacific Ocean Bond. The bond designs considered were:

- Seychelles Blue Bond
- NIB Blue Baltic Bond
- Fiji Sovereign Green Bond
- EIB Sustainability Awareness Bond
- Mexico MultiCat Bond
- Industrial and Commercial Bank of China Green Bond
- Huadian Fuxin Green Bond
- World Bank Kangaroo Green Bond
- AC Energy Renewables Bond
- Miami Forever Bond
- DC Water Green Bond
- Rhino Impact Bond
- Kenya Green Bond
- EBRD Global Green Bond

⁸ Asian Development Bank. ADB Oceans Financing Initiative: Accelerating Blue Investments in Asia and the Pacific. <https://www.adb.org/sites/default/files/related/145041/Oceans%20Financing%20Initiative.pdf>.

⁹ World Bank. 2019. World Bank Launched Bonds to Highlight the Challenge of Plastic Waste in Oceans. <https://www.worldbank.org/en/news/press-release/2019/04/03/world-bank-launches-bonds-to-highlight-the-challenge-of-plastic-waste-in-oceans>.

Detailed analysis of each bond design is in *Annex IV: Review of existing environmental bonds*.

The Fiji Sovereign Green Bond (FSGB) and the Seychelles Blue Bond are two positive case studies of growing interest in bond financing in Small Island Developing States, and in generating income from ocean resilience while reducing dependency on grants and international aid.

In 2017, Fiji became the first emerging market to issue a sovereign green bond, raising USD \$50mn towards sustainable development of natural resources, renewable energy, water and energy efficiency, clean transport, wastewater management, and sustainable agriculture. Fiji listed the FSGB on the London Stock Exchange International Securities Market, and the International Finance Corporation (IFC) agreed to provide technical assistance to Fiji's green bond issuance, enabling Fiji to be a leader in market-based climate finance. The FSGB received significant support from both local and international investors, with more than FJD \$162.4mn worth of bids received for the FJD \$100mn million green bonds issued.¹⁰

The Seychelles Blue Bond, also the first sovereign blue bond in the world, launched in 2018 to focus on sustainable marine and fisheries projects, raising USD \$15mn from international investors, the majority of whom were impact oriented. Proceeds from the bond are helping Seychelles to add value to its seafood value chains, reduce vulnerability to climate change, and to diversify its economy.¹¹

Both the FSGB and the Seychelles Blue Bond are strong examples of small island developing states that have successfully used bond financing to meet their objectives in climate change mitigation, adaptation, and building a blue-green economy. These two bonds demonstrate the two complementary aspects of ocean health funding urgently needed in the Pacific: sustainable fisheries finance and transition towards green infrastructure in renewable energy and infrastructure that can 1) improve and maintain water quality, and 2) inform best practice in securing sustainable finance for a potential Pacific Ocean Bond.

The above two examples also highlight the need for funding support especially in terms of technical assistance, and guarantees. In that regard, the World Bank has launched PROBLUE, a multi-donor trust fund aimed at ensuring the protection and sustainable use of marine and coastal resources through a coordinated approach.¹² To date, over USD \$100mn has been committed by donors for projects in fisheries and aquaculture management, marine plastic pollution, sustainable tourism, transport and renewable energy, and capacity building. Bilateral donor support is also growing for infrastructure in the region. For example, the Australian Infrastructure Financing Facility for the Pacific (AIFFP) also has an AUD\$2bn program for critical infrastructure for the Pacific region, including AUD \$500mn in grant

¹⁰ Fiji Ministry of Economy. 2018. Fiji Sovereign Green Bond Report: Impact Report 2018. <https://www.rbf.gov.fj/getattachment/13c25972-9998-42fc-8126-a9152948657c/Fiji-Sovereign-Green-Bond-Impact-Report-2018>.

¹¹ World Bank. 2018. Sovereign Blue Bond Issuance: Frequently Asked Questions. <https://www.worldbank.org/en/news/feature/2018/10/29/sovereign-blue-bond-issuance-frequently-asked-questions>.

¹² World Bank. 2018. The World Bank's Blue Economy Program and PROBLUE: Supporting integrated and sustainable economic development in healthy oceans. <https://www.worldbank.org/en/topic/environment/brief/the-world-banks-blue-economy-program-and-problue-frequently-asked-questions>.

funding. Moving forward, MDBs and bilateral funds operating in the region will be key partners on the development of Pacific Ocean Bonds.

The need for capital in the region is clear and there is a growing market from financial institutions and investors, and support from MDBs and bilateral donors for ocean health issues. Despite the challenges common to the region in terms of financial capacity constraints and caution expressed towards debt-based instruments, a bespoke Pacific Ocean Bond addressing regional circumstances and objectives could be instrumental in securing long-term and sustainable finance. In this report, we explore Pacific Ocean risks and priority activity areas, along with the socio-economic characteristics and the financial management landscape of the region, in order to determine the applicability of a Pacific Ocean Bond as a sustainable finance tool to address the Pacific Island's urgent strategic resilience priorities.

Section 2: Considerations around bond financing

The Pacific Ocean is an economic, environmental, social, and cultural lifeline for the Pacific Islands, with a plethora of sectors and industries dependent on the health of the ocean. Environmental events and poorly managed development, such as coastal inundation or overfishing, can cause damage not only to the environment, but also have a devastating impact on local economies. Sustainable finance solutions to safeguard the ocean and enhance resilience are therefore pivotal to economic and sectoral development. Across the region, sectors such as fisheries, tourism, and shipping could benefit ocean health and resilience significantly by adopting more green or sustainable practices. Bond financing, under the right conditions, can be an effective way to source the appropriate funding to adopt these practices, whilst contributing to the Pacific Island Nations’ ocean priorities and mitigating key risks.

Key features of bond finance, compared with other sources of capital that are commonly deployed in the region, are outlined in the below table.

Concessional funding (loans or grants)	Bond finance (investment)
Source of Capital	
<ul style="list-style-type: none"> • Public finance (ODA, MDBs) • Loan from donor to recipient 	<ul style="list-style-type: none"> • Can be tradeable which allows for access to new capital sources (public and private)
Payment Obligations	
<ul style="list-style-type: none"> • Principal repayment with some interest payment (debt) • Can have de-risking (e.g. credit enhancements) to reduce risk to loan providers 	<ul style="list-style-type: none"> • Periodic interest repayment to investors (throughout lifespan of the bond) • Principal repayment at maturity • Can have de-risking to be more attractive to investors (e.g. credit enhancement) • Bond issuer needs to be identified upfront (government, corporate, banks) • Considers affordability (debt-to-GDP ratio) and accountability (transparency of payment sources and impacts)
Priorities and Impact	
<ul style="list-style-type: none"> • Donor priorities • Public good outcomes (e.g. public finance shortfall for SDGs / Paris Agreement as a priority) 	<ul style="list-style-type: none"> • Balance issuer and investor priorities • Public & private good outcomes • Can have sustainability criteria / standards to define use of proceeds and source of impact (e.g. green bonds / climate bonds standards)

Unlike other forms of financing, such as grants or concessional loans, bonds require some repayment and the structure of repayments is an important element to the design of the bond issuance. It is important to consider how to increase investor confidence on repayment obligations. Green and blue bonds are similar to traditional bonds; however, their proceeds are earmarked for specific climate change, environmental, or sustainable development projects. As such, investors also need to gain confidence around the environmental and social benefits.

Credit rating and return on investment

Bonds are debt-based financial instruments that can raise capital for a variety of purposes, issued by a range of entities, including governments, private entities, multilateral agencies, or commercial banks. Typically, 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.

Investors assess bonds on the certainty of interest and principal repayment. It is crucial for investor confidence that blue projects and activities reduce risk in cashflow repayment, which can be challenging because of inherent uncertainties in revenue generation and return on investment in the sectors that impact ocean health. There are several arrangements to help address these challenges and reduce risks for investor.

The first method to address these challenges is using guarantees. Typically, multilateral development banks such as the World Bank or regional banks can provide either partial or full guarantees to reach investment grade for a sovereign bond issuer. The guarantee serves as security for interest and principal repayment should the bond issuer default and is thus reflected in terms and structure of the bond. For example, the Multilateral Investment Guarantee Agency (MIGA) offers political risk and credit enhancement guarantees to further improve investor confidence. Under MIGA's 'Non-Honoring of Financial Obligations' coverage, protection is provided to safeguard against the failure of a sovereign's inability to make an obligated payment. Membership to MIGA is only available to countries that are World Bank member states. Of the Pacific Island countries, there are four countries that are World Bank members but do not yet have member status with MIGA - Kiribati, Marshall Islands, Tonga and Tuvalu - limiting their ability to secure the guarantee.

A second way to manage this challenge is to aim for a lower overall return for investment by using a blended investment product. The focus, targets, and use of proceeds are relevant for those impact investors interested in the 'purpose' of the bond issuance. This 'purpose' may be reinforced through appropriate standards, monitoring, and verification. This means that

- the purpose, or impact component, needs to be clearly articulated, and
- measurable indicators must be identified, and validated, if possible, through third party verification and monitored.

Achieving this will allow these results to be translated into clear impact on top of cash flows.

One final way to address this challenge is to improve investment certainty by enabling the environment for partnership with bilateral aid and philanthropies. Official Development Aid (ODA) and private philanthropies can help reduce the costs of a bond to issuer in several ways, by contributing to credit enhancement in the form of guarantees, by contributing to development costs, or by supplementing the issuers' repayments. These increase the affordability of the bond to the issuer. In addition, grant and concessional loans can provide the technical support needed to improve the overall performance of the projects, reducing risk to bond investors. Technical support refers to policy and regulatory reform, governance, training and capacity building, research and monitoring services, may reduce the uncertainties associated with project implementation.

Climate risks to return on investment and the role of insurance

Another challenge to consider when exploring investment is that climate impacts may themselves challenge blue projects and the insurance mechanisms under current development

to address resilience are in early stages of development. Climate change can have significant environmental and social impacts, with consequences for cash flows and bond repayments, an important consideration for bond finance in a region highly vulnerable to climate risks.

Climate risks that could impact investor confidence include:

- Sustainable seafood value chains: the changes in size and distribution of fish stocks due to ocean warming;
- Sustainable tourism: major storm events, sea level rise and general volatility of tourism industry impacting short-term and long-term cash flows;
- Coastal resilience rehabilitation: climate-induced reef bleaching and uncertain ecosystem impacts from wetlands, mangroves, and seagrasses;
- Water and sanitation: declining water availability and droughts;
- Telecommunications: exposure to storm and flood risks;
- Sustainable forestry and agriculture: declining water availability and droughts affecting agricultural returns;
- Renewable energy: major storm events causing disruptions to energy infrastructure; and
- Green shipping and ports: major storm events causing disruptions to port infrastructure.

Given that every USD \$1 invested in resilience provides up to USD \$4 in benefit across the economy, the focus on insurance and resilience financing is very high in the region, and as such insurance structures are under development.¹³ Pacific Islands which are a part of insurance facilities that pool resources, reduce risks, transaction costs, which can help mitigate risks for potential. The Pacific Islands Climate Change Facility and the Pacific Resilience Facility are two such examples of regional facilities. During consultations, countries also explored dedicated sovereign funds for resilience projects, such as The Fiji Bonds, and the Tuvalu Climate and Disaster Risk Survival Fund. The Pacific Island Investment Forum (PIFF) is one regional solution of resource pooling, bringing together 18 member funds and representing over USD \$50bn.¹⁴

One use of the term “Resilience Bond” refers to an innovative variation on the catastrophe bond, whereby a public entity seeks to build coastal defence infrastructure but does not have access to funds. The public entity could purchase a multiyear, parametric catastrophe bond for flooding where the insurer takes the expected benefit of planned investments into account and lowers the premium that the public entity has to pay. With that cost saving in the budget, the entity now has the funds necessary for coastal defence infrastructure - even if no disaster ever occurs. This insurance-based concept has yet to be implemented, and is different from how the Pacific Ocean Resilience Bond under this project is conceived. The Pacific Ocean Resilience Bond refers to a bond that funds multiple measures that all contribute to improve Pacific Island resilience and that indeed has a cumulative and synergistic effect both to help the population and to benefit ocean health.

¹³ Pacific Islands Forum Secretariat. 2018. FEMM 2018: The Pacific Resilience Facility Attachment 1. <https://www.forumsec.org/2018-femm-the-pacific-resilience-facility-attachment-1/>.

¹⁴ World Bank, June 2019. “Lifelines: The Resilient Infrastructure Opportunity”. <https://www.worldbank.org/en/news/infographic/2019/06/17/lifelines-the-resilient-infrastructure-opportunity>

Investor confidence on ocean health, sustainability and resilience benefits

Green and blue bonds, unlike regular bonds, need to demonstrate measurable environmental and social benefits. As a result, they are subject to additional requirements, such as ESG criteria.

The large body of guidance on ESG standards aimed at investors, issuers, project developers places a strong emphasis on transparent decision rules, third party project assessment, monitoring and reporting of financial flows and impacts to meet accountability standards. These are all features of good governance. Additional sector specific standards such as certifications and industry-based codes of practice add to accountability requirements. In practice, demonstrating how each bond concept will meet those standards will require the selection of appropriate ocean health and community resilience indicators, the establishment of monitoring programs, as well as an independent verification mechanism and regular reporting.

The structuring of the bond can also consider mechanisms to support investor confidence, especially when it is complementary to the aims and objectives of existing impact financing instruments in the market.

One example is a DfN swap, where a third party purchases a country's debt at a discount, restructures it, and then directs the proceeds to conservation projects and activities for ecosystem-based and nature-based climate change adaptation.¹⁵ A key benefit to introducing a DfN swap is building investor confidence, especially to impact oriented investors. In the case of the Seychelles, a DfN swap was introduced prior to the issuance of a blue bond. In doing so, the Seychelles was able to evidence its commitment to applying ocean health improvement projects, which in turn contributed to the investor confidence for the successful Seychelles Blue Bond.

DfN swaps are not sources of new finance, but rather retirement of existing debt. However, there are other ways to build investor confidence. In the Pacific Islands, existing actions and priorities by the countries in the area of ocean health and sustainable development, particularly in international and multilateral fora such as on the UN General Assembly's adoption of Sustainable Development Goal on Oceans in 2015, can provide this assurance to potential investors.

¹⁵ Weary, Rob. 2016. The Nature Conservancy. Rising Tides: Debt-for-Nature Swaps Let Impact Investors Finance Climate Resilience. <https://www.nature.org/en-us/what-we-do/our-insights/perspectives/rising-tides-debt-for-nature-swaps-finance-climate-resilience/>.

Section 3: Regional Context & Potential Financing Needs

The exploration of bonds as one of the possible financial instrument to invest to activities that can generate new revenue and provide ocean benefits must be informed by the development priorities of the Pacific region, and relevant to its socio-economic and environmental circumstances. They should add value to current public and private investment vehicles & initiatives and consider a range of maritime sectors, scale, and actors. As such, a thorough review of the region in terms of key ocean risks, regional and national ocean policy landscapes and priorities, socio-economic status, and the current investment landscape was conducted (please refer to *Annex II: Regional and sectoral analysis*). The purpose is to identify potential investments, activities and geographies benefiting ocean health and Pacific communities and establish if they could be suitable for bond financing.

Overview of Pacific Ocean region's strategic priorities and risks

Multi-faceted and connected priorities

It is important to consider the region's challenges holistically. A Pacific Ocean Synthesis Report (2009) identified the most critical threats to the sustainability and health of the Pacific Ocean as: marine pollution; habitat destruction; overfishing/overexploitation or unsustainable use of marine resources; natural and environmental disasters and climate change; ocean acidification; and invasive species.¹⁶ While there is heterogeneity in the levels of dependency different ocean-based industries, we believe it is fair to assume that these threats are widely distributed across Pacific nations, with low-lying countries being at the greatest risk.¹⁷

For decades, the Pacific Islands have advocated for marine conservation, sustainable use of oceans, and climate resilience. This reflects their dependency on ocean resources for their livelihoods and economic development, and vulnerability to climate change and strong cultural association with the ocean. Ocean warming and ocean acidification, increased severity of extreme events, storm surges and floods as well as long-term sea-level rise and reduced rainfall and droughts will impact on ocean health and the resilience of Pacific communities. Thanks to their advocacy in international fora, the UN General Assembly adopted a Sustainable Development Goal on Oceans in 2015, and the Paris Agreement on climate change also dating from 2015 referred to a global warming objective of holding temperature rise to 1.5 degrees Celsius.

Through this advocacy in regional and international fora, several strategic priorities for action - some sector-based, others cross cutting and focused on enabling actions - have emerged:

- The implementation of global and regional conventions and agreements (in Multilateral Environmental Agreements [MEAs]) and the finalization of maritime boundaries (in United Nations Convention on the Law of the Sea [UNCLOS])
- The sustainable use of living resources, such as inshore and oceanic, non-living resources, such as oil and gas, and energy resources, such as wave and ocean thermal
- Sustainable tourism

¹⁶ Center for Ocean Solutions. 2009. Pacific Ocean Synthesis: Scientific Literature Review of Coastal and Ocean Threats, Impacts and Solutions. <https://www.centerforoceansolutions.org/sites/default/files/publications/PacificSynthesis.pdf>.

¹⁷ Ocean Health Index. <http://www.oceanhealthindex.org>.

- Maritime transport
- Information and Communication Technology
- Trade
- Maintaining a healthy ocean
- Adaptation to climate change and disaster risk reduction
- Maritime security (defence, surveillance, monitoring, and enforcement)
- Job creation and blue economy development
- Traditional knowledge and intellectual property
- Integrated ocean governance and management
- Knowledge management and exchange
- Capacity building (training, education, and awareness)
- Science and technology
- Financial resources

Most recently, a Pacific Oceanscape Framework (2010)¹⁸ set out a Pacific vision and guide for the protection and use of ocean resources. This includes establishing an Ocean of the Pacific Ocean Commission (OPOC) and the appointment of an Ocean Commissioner. Regional policy documents such as the Pacific Island Forum (PIF) Strategic Plan and decisions have laid a shared vision for a “Blue Pacific”¹⁹ reiterating the crucial role of the ocean and blue economy²⁰ to the livelihoods of Pacific people and advocating a more coordinated approach to decision making.²¹ It is clear the development of blue economies holds opportunities for stimulating ocean-based development and job creation. Therefore, such development needs to be part of the consideration for overall ocean health financing program.

National strategies complement these regional initiatives, and are often sector-based and respond to national commitments under a series of multilateral international agreements, including Nationally Determined Contributions (NDCs) to the Paris Agreement, National Climate Change Adaptation Plans (NAPs) under the UNFCCC, and National Biodiversity Strategies and Action Plans under the Convention on Biological Diversity.

Climate change challenges regional priorities

Whilst the Pacific Islands’ contribution to global warming is negligible, the impacts of ocean warming and ocean acidification on their marine and coastal environments, economy, and well-being are significant and threaten their long-term survival as sovereign nations. This is in addition to the long-term human-caused environmental pressures on marine ecosystems, such as over exploitation, habitat destruction, and marine pollution. Taken as a whole, these

¹⁸ Pratt, Cristelle and Govan, Hugh. 2010. Our Sea of Islands, Our Livelihoods, Our Oceania: Framework for a Pacific Oceanscape - a catalyst for implementation of ocean policy. <https://www.forumsec.org/wp-content/uploads/2018/03/Framework-for-a-Pacific-Oceanscape-2010.pdf>.

¹⁹ Taylor, Dame Meg. 2017. Samoa Observer. Blue Pacific a strong expression of Pacific Regionalism. <https://www.samoaoobserver.ws/category/columns/28247>.

²⁰ Pacific Islands Forum Secretariat. <https://www.forumsec.org/pacific-regionalism/>

²¹ Pratt, Cristelle and Govan, Hugh. 2010. Our Sea of Islands, Our Livelihoods, Our Oceania: Framework for a Pacific Oceanscape - a catalyst for implementation of ocean policy. <https://www.forumsec.org/wp-content/uploads/2018/03/Framework-for-a-Pacific-Oceanscape-2010.pdf>.

environmental stresses threaten coastal and marine resources on which the economies of many Pacific Islands depend, aggravate resource scarcity, and further increase the exposure to natural shocks such as storm surges.

As a result, economic and environmental shocks are highly connected. Climate change and natural disasters affect all aspects of development and are a significant risk to the region's economy, adding a significant burden on Pacific Islands' GDPs. The World Risk Index (2018) ranks five of the Pacific Island countries among the top 20 most at-risk countries in the world, including Vanuatu and Tonga, ranked first and second respectively.²² Based on available disclosure, the islands only allocated around 1 percent of government budget on disaster and recovery. The impacts of extreme weather or geological events on GDP pose significant challenges, and any capital instrument structure would benefit from protection by some form of catastrophe risk insurance.

Socio-economic profiles

The socio-economic landscape of the Pacific, informs the understanding of how national and regional priorities, as set out above, are considered. First, small, undiversified economies dominated by one or two economic sectors are common, with tourism and fisheries typically being the main source of domestic revenue. For example, Marshall Islands, Palau, Samoa, and Vanuatu have more than 60 percent of their export income coming from international tourism.²³ The remainder of the nation's revenue sources are made up of remittances and external funding, such as grants and concessional loans. This reflects the focus on blue economy development and financial resources in the region's strategic priorities outlined above.

Secondly, there is a high dependence on external funding and programs, such as through MDBs like the World Bank and ADB, and governments (e.g. EU, Australia, New Zealand). These account for the largest flow of external finance for many Pacific Island countries. For example, in Tuvalu, concessional finance makes up 90 percent of its external finance. At the same time, many countries show fiscal deficit with high debt per GDP ratios for their development levels; Micronesia has an ODA to GDP ratio of over 100 percent, and the ODA received by the Marshall Islands is over three times the size of its GDP.

Thirdly, vulnerability to external economic shocks and climate risks exacerbate the limited national capacities to cope. While the impact on GDP from extreme weather events can be up to 6 percent, countries are typically unable to spend more than 1 percent on disaster recovery.

Lastly, in terms of ocean health, the islands are faring slightly below average; with 2018 Ocean Health Index scores of 59 - 73, in comparison to the global overall index of 70.²⁴ Socio-economic indicators pointing to poor water quality and connectivity put increasing focus on

²² World Bank. 2019. The World Bank in the Pacific Islands. <https://www.worldbank.org/en/country/pacificislands/overview>.

²³ For specific figures, please refer to the Socio-economic country tables in *Annex II*.

²⁴ Ocean Health Index Science. 2018. 2018 Global Ocean Health Scores. <https://ohi-science.org/news/2018-global-scores>.

water and telecommunications infrastructure improvements as critical to protecting ocean health. For example, Kiribati, the Solomon Islands, and Vanuatu face high mortality rates from unsafe water. A lack of telecommunications hampers surveillance of overfishing. Access to broadband connectivity is typically less than 3 percent of population and prices can exceed 50 percent of Gross National Income (GNI) per capita in Kiribati and Solomon Islands.²⁵

With the socio-economic landscape as a backdrop, the bond structures developed need to take into account the ability of sovereigns to support a bond, the need to support ocean-based livelihoods for a sustainable future, and a wide range of infrastructure to support water quality and ocean health. In addition, working hand in hand with weather risk mitigation tools, which is being explored by the Pacific Ocean Insurance Project would be necessary.

Financial management landscape

Sovereign capacity for bond financing

Of the Pacific Island nations, only Fiji and the Solomon Islands have sovereign ratings by the rating agencies, and both are not investment grade. This limits the ability of Pacific Islands to raise bond finance as sovereigns. In addition, financial management is still a challenge in the region more generally. Several of the islands have been asked to strengthen their anti-money laundering and Combating the Financing of Terrorism (CFT) regimes.²⁶ For example, heightened due diligence by foreign banks and increased scrutiny has resulted in partial withdrawal of correspondent banking relationships (CBRs) in Samoa and Nauru. Partial or full withdrawals of CBRs would disrupt external aid and remittance flows, essential to many countries, thereby causing a drag on the economy. Increasing governance and transparency over public finance is a repeated call from the International Monetary Fund (IMF).

On top of the availability of sovereign credit ratings, several financial indicators can provide reference to the financial capacity to raise new sovereign debt. We reviewed the current fiscal position, public debt to GDP ratios as well as reliance on net receipts from development assistance.

Most islands had borderline fiscal positions and can be highly variable across years. For example, in 2018, Kiribati's fiscal balance was negative 20 percent of GDP, but it was the only year it was negative throughout the last 5 years.

Public debt to GDP ratios across the Pacific Islands tend to be very high and are likely an additional impediment to their capability to raise new debt. In particular, Nauru, Samoa and Vanuatu all have government debt to GDP ratios exceeding 50 percent. Net receipts from development assistance to GDP ratios also tend to be high, with Micronesia, Marshall Islands, and Tuvalu exceeding 50 percent.

Combining this analysis, we have categorized the countries into two groups, reflecting the feasibility of raising a sovereign bond: Challenging and Reasonable Candidates.

²⁵ United Nations ESCAP. 2018. Broadband Connectivity in Pacific Island Countries. Asia-Pacific Information Superhighway Working Paper Series. <https://www.unescap.org/sites/default/files/Broadband%20Connectivity%20in%20Pacific%20Island%20Countries.pdf>.

²⁶ Asia and Pacific Small States Monitor, IMF, Issue 10 and individual country Article IV consultation papers.

Challenging Candidates	Reasonable Candidates
<u>GDP = USD \$1bn</u>	
<ul style="list-style-type: none"> • Fiji • Vanuatu 	<ul style="list-style-type: none"> • Solomon Islands
<u>GDP = USD \$500mn - \$1bn</u>	
<ul style="list-style-type: none"> • Samoa 	<ul style="list-style-type: none"> • Palau
<u>GDP = USD \$100mn - \$500mn</u>	
<ul style="list-style-type: none"> • Tonga • Nauru • Kiribati • Marshall Islands • Micronesia 	<ul style="list-style-type: none"> • Tuvalu

Given both the fiscal and debt positions, even among the countries listed under Reasonable, it would be unlikely they could comfortably support a bond size that is above 10 percent of GDP. This suggests that bond issuance at the sovereign level will need strong guarantees, and consideration of debt forgiveness instruments such as Debt for Nature swaps. Alternatively, the bond can be issued potentially by regional actors with a strong credit rating. Investors have positive feedback and confidence around issuance by MDBs like ADB to support ocean initiatives in the region.

Familiarity, interest, and concerns in bond financing

While Pacific Island countries have accessed USD \$1.1bn in climate finance over the last 10 years,²⁷ bond finance is a very new concept for the region - grants and loans are the standard practice. There is limited incentive or appetite for debt-based instruments from these countries. In contrast, insurance has historically been a more attractive option, particularly in the context of climate change and disaster risk management. However, with concessional finance on the decline, countries are challenged to find workable solutions that are flexible enough to account for shocks, such as natural disasters, and meet requirements.

Top concerns over bond financing raised by regional stakeholders include:

- Debt sustainability, in part because of poorly diversified economics, but also because of a weak relationship between investment and growth
- High cost of finance and the inability to make bond payments, particularly in the context of climate change and natural disasters
- Financial and ESG management challenges to meet the accountability requirements of green or blue bonds

These concerns largely align with the financial landscape analysis and reinforce the need to consider other types of issuers instead of just sovereign issuers.

Pacific sovereign wealth funds and their potential support for blue bonds

²⁷ Nataro, Ivamere. 2019. \$2.8 billion in climate finance accessed last decade. Samoa Observer. <https://www.samoobserver.ws/category/samoa/41739>.

There is also some scope to consider how some Pacific sovereign wealth funds could be potential investors in regional green or blue bonds. Most notably, the Fiji National Provident Fund (FNPF) has the highest potential in terms of both fund size, valued at FD \$6.6bn, and as the only Pacific national pension fund with a track record of investing across different asset classes, including bonds like the Fiji Green Bond. However, FNPF's current investment strategy suggests that they may be more interested in diversification into foreign markets, rather than investment within the Pacific region. The Kiribati Revenue Equalization Reserve Fund is another potential pension fund open to investment in green/blue bonds. However, the government's focus is on improving management policies to insure against depletion, and international diversification, which might impact their level of interest in a new investment product.

Sectoral potential for positive ocean health impacts

Several economic activities can bring about sustainable ocean outcomes if managed well. This could include infrastructure investments for nature-based tourism, telecommunications, and local processing for fisheries. In some cases, these investments would also improve economic resilience by diversifying national economies. These economic outcomes require strong government support. Whilst governance-oriented activities may not per se generate a direct revenue stream, they nonetheless contribute to the enabling environment necessary for bond finance. Given this understanding, we have analyzed and highlighted certain activities in the following sectors that both bring about sustainable ocean outcomes, and that could be viable for bond financing under certain the conditions of the three bond concepts developed.

Stakeholder engagement showed that Pacific Islands place significant emphasis on infrastructure investment to reduce climate vulnerability over the short term and long term, and on the interlinkages between the ocean and climate resilience. Overwhelmingly, climate change is a matter of urgency for the region, framing all other issues including ocean health and sustainability. The sector analysis supports this concern with several opportunities where investment, both into infrastructure, as well as policy and governance measures will address concerns over resilience.

It was also clear from the regional stakeholder consultation that there was significant interest in funding Ocean Governance and Policy, to cover larger nationwide or region-wide governance and capacity needs, which are important to delivering ocean health across sectors.

Finally, the consultation process also revealed an interest in land reclamation, which is critical for the survival of low-lying island communities. Whilst land reclamation is critical, it is not addressed considering that it does not have a clearly positive impact on ocean health, and in fact, is likely to have a negative impact.

Annex II: Regional and Sectoral Understanding provides a full country-by-country analysis of key industries, how they can improve sustainable ocean health benefits, and existing aid programs that support these industries. Existence of supporting programs will be critical in achieving the ocean health benefits through these industries and were considered as part of designing the bond structure options.

Sustainable fisheries and seafood value chain

Fishing is a major component of protein intake and food security in the region, where inhabitants consume an estimated 37kg of fresh fish per person per annum.²⁸ This subsistence sector also provides a major contribution from an economic perspective. According to the Secretariat of Pacific Community (SPC's) 2018 Coastal Fisheries Report Card, coastal catch (subsistence and local offshore) added over USD \$300mn to regional GDP in 2014,²⁹ suggesting that the value to the region of coastal catches is comparable to local offshore catch which added USD \$323mn to income from foreign license fees which were valued at USD \$340 m in 2014.^{ix} However, Overfishing and declining habitat conditions remain an issue mostly in coastal areas.^{30,31,32} Overall, access to coastal fisheries is customary and locally managed. There is a lack of monitoring data for informed management, reflected in limited budget allocations to coastal fisheries.

Although tuna stocks appear to be sustainably fished, issues of weak management with lack of compliance and enforcement, monitoring and reporting capacity, as well as illegal, unreported, and unregulated fishing (IUU) particularly in the high seas undermine the long-term sustainability and profitability of fisheries to Pacific Island nations (Vousten 2018). Furthermore, the impact of climate change on fish stocks will create a need for improved and more adaptive management than is currently the case. For example, Pacific Island countries could lose 15 percent, and up to USD \$60mn, of their total fishing license revenue per year due to climate change-induced tuna redistribution within the next 30 years.³³ Success stories such as the PNA vessel day scheme (VDS) for tuna fisheries demonstrate how regional cooperation and a rights-based approach can significantly improve domestic revenue from tuna fishing and secure the long-term sustainability of fisheries resources.³⁴

²⁸ Charlton, Karen E. et al. 2016. Fish, food security and health in Pacific Island countries and territories: a systematic literature review. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4806432/>.

²⁹ Gillett, R; Tauato, M.I. 2018. FAO. Fisheries in the Pacific Islands: regional and national information. <http://www.fao.org/3/I9297EN/i9297en.pdf>.

³⁰ Vousden, David. 2018. Oceanic Fisheries Management Project II Western and Central Pacific Ocean - Transboundary Diagnostic Analysis. <https://www.ffa.int/system/files/WCPO%20TDA%20OFMP%20%20Final.pdf>.

³¹ World Bank. 2017. Pacific Possible: Long-term Economic Opportunities and Challenges for Pacific Island Countries. <http://documents.worldbank.org/curated/en/168951503668157320/Pacific-Possible-long-term-economic-opportunities-and-challenges-for-Pacific-Island-Countries>.

³² Pacific Islands Forum Fisheries Agency. 2018. Tuna Fishery Report Card 2018. <https://www.ffa.int/node/2126>.

³³ DeSmit, Olivia. 2019. Pacific Islands face hardships as tuna follow warming waters. Conservation International. <https://www.conservation.org/blog/pacific-islands-face-hardships-as-tuna-follow-warming-waters>.

³⁴ Parties to the Nauru Agreement Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu.

According to the World Bank³⁵, fisheries could generate more than USD \$300mn in additional revenue by 2040 and could translate into a significant increase in per capita income of between 50 and 60 percent in Kiribati and Tuvalu, and around 20 percent in Micronesia³⁶. Robust policy setting would provide significant returns to government through value of licenses, fees and taxes, and increase the value of the fisheries to the industry, whilst at the same time reducing the impacts on fish stocks as well as providing certainty for potential private investors.

Investment could focus on sector diversification. For example:

- Establishing regional processing clusters and vessel support hubs, which could generate an additional USD \$80mn in value-added fish waste for high value products and create between 7,500 and 15,000 new jobs.
- Transitioning small scale fisheries to rights-based management based on customary rights and locally based Marine Managed Areas model,
- Improving access to near shore fish aggregating devices (FADs), retrofitting vessels for inshore FAD fishing,
- Establishing local auction facilities, storage and services and better access to markets,
- Developing properly designed small scale sustainable aquaculture and mariculture, could improve food security, create opportunity for local jobs, and reduce pressure on inshore fish stocks and marine ecosystems.

Sustainable tourism and nature-based tourism

Tourism is important across the region, making up the largest contribution of national exports for several nations. The latest tourist visitor numbers show that Fiji and French Polynesia are the two main destinations³⁷ in the region. Overall, the tourism sector remains relatively small, although it is potentially a source of revenue and future employment given the growing Asian middle-class markets is projected to increase from 54 million in 2005 to 1 billion by 2030, with projections of continuously growing outbound tourism from China.

This represents an important opportunity for the Pacific Islands to grow their tourism sector.³⁸ This in turn would lead to increased demand for highly specialized technical and managerial skills. At present the Pacific imports many of these skills and with adequate investments in

³⁵ World Bank. 2017. Pacific Possible: Long-term Economic Opportunities and Challenges for Pacific Island Countries. <http://documents.worldbank.org/curated/en/168951503668157320/Pacific-Possible-long-term-economic-opportunities-and-challenges-for-Pacific-Island-Countries>.

³⁶ World Bank. 2017. Pacific Possible: Long-term Economic Opportunities and Challenges for Pacific Island Countries. <http://documents.worldbank.org/curated/en/168951503668157320/Pacific-Possible-long-term-economic-opportunities-and-challenges-for-Pacific-Island-Countries>.

³⁷ South Pacific Tourism Organization. 2017. Annual Review of Visitor Arrivals in Pacific Island Countries. <https://www.corporate.southpacificislands.travel/wp-content/uploads/2017/02/2017-AnnualTourist-Arrivals-Review-F.pdf>.

³⁸ World Bank. 2017. Pacific Possible: Long-term Economic Opportunities and Challenges for Pacific Island Countries. <http://documents.worldbank.org/curated/en/168951503668157320/Pacific-Possible-long-term-economic-opportunities-and-challenges-for-Pacific-Island-Countries>.

education and training, it should be possible to fill many of these positions locally. Tonga's ongoing whale watching industry is one such model, although its positive economic impact is constrained by seasonality.

A few islands have sustainable tourism strategies in place. For example, Palau has a responsible tourism framework and Fiji has a 2021 timeline to develop a sustainable tourism development framework, which supports the designation of Fiji's exclusive economic zone (EEZ) as a sanctuary since 2003. Seven other countries have already declared their EEZ as whale sanctuaries and some have a healthy whale tourism industry. A regional tourism strategy would ensure a coordinated approach to the development of this emerging opportunity in order to maximize revenue, avoid inter island competition, and ensure best practice standards are in place. Such efforts also support government cashflows through sustainable tourism charges, airport taxes, and parks entry fees.

Investment could focus on:

- Promoting a nature-based brand, taking advantage of the region's natural assets, and promoting hotels and hospitality providers' accreditation and best practice in energy efficiency, waste management, and coastal rehabilitation efforts. For example, Fiji recently noted an interest in raising green bonds for green hotels.³⁹ Only Fiji has large international brand hotel chains capable of doing so, while other islands' tourism economies consist of small tour operators and privately held hotels
- Diversifying of the tourism sector to include nature-based tourism facilities and opportunities and associated services
- Strengthening enforcement of infrastructure safeguards/standards and impact assessment procedures for coastal tourism infrastructure development to minimize impacts on island resources and coastal habitats
- Developing specialist skills in hospitality, environmental and coastal management, and monitoring

Water quality/waste management infrastructure

Pacific Islands and small, low lying atolls are vulnerable to marine pollution from land-based sources, as a result of high-density population, poor sanitation, limited waste management and water treatment facilities and overall limited fresh water supply. Poor water quality not only affects human health, it is also detrimental to coral reefs and fisheries that depend on reef health. Improved water supply/waste management infrastructure would help alleviate pressure on national budgets dedicated to health, generate local community health benefits and improve coral reef health.

Investment could focus on:

- A regional/national regulatory framework, protocols, and capacity for monitoring of marine water quality and education programs for recycling. Regional organizations such as the Secretariat of the Pacific Regional Environment Programme (SPREP) have technical capacity in waste management training and capacity building and The Pacific Community (SPC) has the lead on health
- Establishing water treatment infrastructure, dual reticulation water system, and waste collection and recycling facilities. Typically for this industry, recoverable revenue is low, but it could generate savings in health expenditure, generate new economic

³⁹ Pacific Region Infrastructure Facility. 2018. Fiji Sun. Big Investments Needed in Region's Renewable Energy Market. <https://fijisun.com.fj/2018/08/05/big-investments-needed-in-regions-renewable-energy-market/>.

- activity and income through improved fisheries productivity due to improved reef water quality and opportunities for local small and medium enterprises (SMEs)
- Development of waste-to-materials and waste-to-energy economy and infrastructure

Telecommunications

According to the World Bank, improved internet access and connectivity could translate into additional GDP of more than USD \$5bn and close to 300,000 additional jobs by 2040.⁴⁰ In recent years, the Pacific Island nations have liberalized their telecoms markets and invested heavily in fiber optic cable connections. This creates the basis for significant increases in mobile and internet penetration over the next 25 years. Current data show penetration is low, with the highest at 40 percent and astounding prices for connectivity in some countries, such as 237 percent of GNI per capita in the Solomon Islands.⁴¹

Telecommunication is critical for economic development and ocean benefit, supporting a range of enabling activities such as maritime surveillance and IUU, emergency services responses, monitoring of environmental indicators like water quality that impact ocean health, and more generally knowledge management that would be essential for reporting on impact or investment.

Investments could be made in:

- Constructing telecommunication towers, cables and services that can support early warning services, add value to existing economic activities like tourism, create new markets like business process outsourcing,
- Improving satellite surveillance capacity of fishing vessels and catch
- Implementing devices and developing of applications and data collection infrastructure that support collect environmental data to support monitoring
- Introducing and connecting smart devices that rely on new telecommunications protocols can support improved port efficiency (e.g. warehouse and container logistics), and improve environmental monitoring capacity (e.g. sensors, cameras collecting pollution data). This would also require policy support around development of communications protocols

Sustainable forestry and agriculture

Most of the islands have only subsistence level agriculture except for the Solomon Islands, which has an active forestry sector that in 2017 accounted for two thirds of exports of goods, 22 percent of total government revenue. It is over-exploited and rapidly depleting, and its timber typically sells below international prices, representing lost revenue.

Investment could focus on:

- Developing proper forestry management policies
- Enhancing stronger enforcement capacity

⁴⁰ World Bank. Pacific Possible Report. <http://documents.worldbank.org/curated/en/479761504687015163/pdf/119401-WP-P154324-PUBLIC.pdf>

⁴¹ United Nations ESCAP. 2014. ESCAP Annual Report 2014. <https://www.unescap.org/sites/default/files/ESCAP-Annual-Report-2014.pdf>.

- Improving management of fertilizer on farms

Aside from the reduced CO₂ absorption from unmanaged deforestation, there would be significant improvement in water quality from reduced runoff and chemical contamination.

Coastal resilience and rehabilitation

Coastal habitat degradation and coastal erosion, as a result of poorly regulated urban and coastal development, high density population, sand mining, seawall infrastructure development is compounded by the impacts of climate change. Increased frequency of cyclones, flooding, longer-term sea-level rise and resulting salt intrusion put water supply and marine water quality at risk. This can have negative impact for fringing coral reefs ecosystems (Global Coral Reef Monitoring Network, GCRMN, 2018) and the island communities. The protection of coastal and offshore marine environments through marine spatial planning and marine protected areas, although high on the agenda of the Pacific region, remains a key challenge, despite some impressive declarations of large marine protected areas and community based marine managed areas (LMMAs). Marine and coastal protected areas provide essential ecosystems services contributing to coastal and marine climate resilience. The costs of managing marine protected areas remains a challenge for most of the island countries. One interesting initiative includes the Phoenix Island Protected Areas Conservation Trust (PIPA Trust) established under the Kiribati law for the sustainable financing of the conservation of the terrestrial and marine biodiversity of the Phoenix Island group. While natural capital discussions are still ongoing, improvements in coastal resilience have the potential to deliver savings coming from reduction in the risk of damages to port facilities during storms.

Investment could focus on:

- Improving compliance and enforcement of coastal planning, regulations and standards and impact assessment for coastal and urban development and tourism facilities, and appropriately designed coastal defenses to protect key infrastructure assets
- Developing green ports strategies that include both green and grey infrastructure improvements
- Supporting nature based green infrastructure, such as coral reef restoration, alongside regional programs implemented by SPREP including the EU Global Climate Change Alliance Plus (GCCA+)
- Growing nature-based tourism ventures, which could generate revenue, contribute to coastal and marine conservation

Renewable energy

In 2010, the energy, transport and industrial sectors together accounted for over three-quarters of the total energy demand of the Pacific Islands. Oil is the main energy source, meeting over two-thirds of the primary and final energy demand. The volatility in prices can have a large impact on national finances. According to the Secretariat of the Pacific Community, “the increase in the price of petroleum from 2002 to early 2008 cost most Pacific Island nations about 10 percent of their gross national incomes”⁴². Transitioning to renewable

⁴² Secretariat of the Pacific Community. “Sustainable Development Brief 14 March 2013- Sustainable Energy For All in Pacific Islands.” https://www.sprep.org/attachments/sids/15_energy_sdwg-brief_updated%2014mar13_final.pdf

energy not only helps relieve the pressure on national budgets from volatility of oil prices, but also can mean an improvement in air and water quality.

There are several international programs supporting the transition to renewable energy like the GCCA+ - Scaling-up Pacific Adaptation program (supported by the EU), the Pacific Renewable Energy Investment Facility (under the ADB) and the Lighthouse Initiative. Several countries, including Fiji, Vanuatu and Kiribati, also have their own renewable energy plans and targets.

Investment could focus on:

- Increasing the scalability of current small scale solar and wind, including for use in conjunction with wastewater treatment, waste-to-power, desalination plants
- Developing new marine renewable energy solutions customized to local needs and configuration of the near shore environment

There can be much to learn from the Fiji Green Bond, which included funding for renewable energy projects. Whilst not having direct benefits to ocean health, investment in renewable energy reduces dependence on fuels imports and can potentially generate savings.

Green shipping and ports

Recent bond issuance by shipping companies to “green” their vessels show that the momentum towards green shipping is picking up steam. We understand that similar ideas are being considered for green fishing vessels in the region. This would be supplemented by green port management policies, including the consideration of Emission Control Areas and anti-ballast dumping regulations which can drive revenues coming from fees for pollution-based port entrance.

Investment could focus on:

- Developing green port infrastructure and management including waste management facilities, clean onshore power, and local monitoring of ships (especially cruise vessels) for IMO regulatory compliance
- Building and retrofitting ships for cleaner fuels and ballast water treatment. This includes retrofitting for fuel efficiency, conversion to fuel hybrids or liquefied natural gas (LNG), and zero-emission electric intra-island shipping and, together with cruise ships, the most publicly visible maritime segment

Section 4: Challenges on bond issuance in the region

The Pacific Island nations’ priorities, and sectoral opportunities suggest that new capital would have benefits to regional ocean health. Bonds can be one way to bring in new capital to support these investment needs. Several challenges still remain in the deployment of a Pacific Ocean Bond. The structures for a Pacific Ocean Bond would need to take into account the financial management landscape and economic challenges of the region discussed above, as well as the following concerns.

Regional capacity and the need for continued engagement

Although there is enthusiasm from MDBs and bilateral funds for blue bonds, a key takeaway from our regional stakeholder engagement was that countries are not familiar with bond financing and had relatively low engagement and several concerns. For this reason, further awareness building and capacity building is required to improve knowledge and interest of green/blue bond applicability in the Pacific Island context.

Capacity building needs to go beyond understanding the bond as a financing instrument to include the following issues:

1. governance arrangements from managing disbursement of funds to regular monitoring of use of proceeds;
2. national level policy and legislation design as well as with compliance and enforcement training;
3. technical capacity in project development and implementation across different sector areas; and
4. financial and debt management.

Investor concerns

Consultation with investors raised the following priorities and/or concerns, which may be addressed through bond structure design.

Investor Priority / Concern	
Strong issuer	There is clear preference for strong issuers, both to safeguard returns as well as impact outcomes. Potential investors noted preference for MDB issuers, rather than a sovereign or private issuer
Donor dependency	Structures largely dependent on the ability to secure substantial donors drew concerns
Project scalability	In order to attract private investors, projects need to be larger scale with larger project revenues. Projects must also have strong revenue projections that work in local conditions with clear community benefits
Governance	There needs to be strong accountability and realistic and measurable targets to prevent misuse of funds for impact, especially in areas with lax enforcement even internationally, like shipping

Investor Priority / Concern	
Monitoring	Periodic audit of funds and projects is important for investor protection as well as impact objectives
Competition	In the case of the Pacific Climate Mitigation Bond, competition with renewable energy and other climate mitigation projects available on the international market is significant, and as such both the projects and issuer must be strong enough to effectively compete

Given the unfamiliarity of the bond structure, our stakeholder consultation discussions were also unable to uncover relevant projects, particularly on activities that were already occurring, or planned. Of the projects discussed, only one sector was explicitly seeking bond finance - Green Shipping. Investor discussions reflected the need for clarity over project specifics before further commitment of interest. Local development of projects, with a team of project experts, can serve to further the project significantly.

ESG safeguards

Investors made multiple comments on the safeguards required to achieve the desired ocean health impacts. The management approach required to address ESG risks may pose challenges to bond issuers operating in the Pacific region with significant capacity issues. The field of ESG standards, guidelines, frameworks, and principles are quickly developing and launching, thus gaining traction with investors. In order to successfully attract private capital, and for the success of projects under the Pacific Ocean Bond, it is essential to reference accepted ESG tools. On top of the reference standards, case studies that can provide the appropriate guidance to help mitigate these concerns. The *PACIFIC OCEAN BOND - ESG GUIDE* serves as a reference guide to potential issuers and advisors.

We summarize below the status of existing standards:

Sector	Standards - existing or already in development
Sustainable seafood	Standards in development
Sustainable tourism	While international accepted standards are yet to be available for bond instruments, industry standards are available.
Coastal resilience and rehabilitation	Standards already developed
Water and sanitation	Standards already developed
Telecommunications	No standards. International Telecommunication Union has issued a reference guide on how the telecommunications industry can contribute to the 17 SDGs as a good reference guide.
Sustainable forestry and agriculture	Standards already developed
Renewable energy	Standards already developed
Green shipping & ports	Standards in development

While the application of these standards is vital in the context of a Pacific Ocean Bond, there are still several challenges to be addressed and considered. These challenges are enumerated, by sector, in the appendices to the PACIFIC OCEAN BOND-ESG GUIDE:

1. Environmental: Addressing the lack of existing local environmental standards that ensures environmental externalities and impact of climate change to local environments' capacity (e.g. fish stocks, increased extreme weather risk to infrastructure) are considered
2. Social: Considering risks to development of a local industry, gender issues, local employment and impacts to local community and local culture
3. Governance: Understanding marine and climate science, accountability and transparency of use of proceeds, training and capacity to ensure proper audits, and policy and legal enforcement
4. Financial: Getting support from guarantors, attracting private investors, and identifying revenue and cost risks

Section 5: Bond Structure Comparisons, Concept Notes, and Implementation Considerations

The three bond structures developed are well suited to finance the reduction of risks relating to ocean health, increasing resilience, and generating sustainable economic development among Pacific Islands through a sector-specific approach. The design of these three structures should: 1) achieve financing that is clearly additional, 2) deliver direct and strong ocean impacts, and 3) provide clarity to investors across investor types. The three bond structures are: Pacific Ocean Impact Bond, Pacific Ocean Resilience Bond, and Pacific Ocean Climate Mitigation Bond.

After a brief comparison of the three bond structures, there are detailed concept notes, feasibility assessments, and priority next steps for each bond structure in the respective sub-sections.

Three Bond Structures Overview, Ocean Health Impacts

Bond name & issuer characteristics	Pacific Ocean Impact Bond (Sovereign issuer)	Pacific Ocean Resilience Bond (Regional organization issuer)	Pacific Ocean Climate Mitigation Bond (Corporate issuer)
The type of capital investor	Impact bond investors	General bond investors	Sector-focused bond investors
Bond Size	USD \$20-50mn	USD \$100mn - \$250mn	Min. USD \$50mn
Proposed use of proceeds	<p>Marine conservation planning measures (including sustainable tourism planning) improve ocean governance. Sustainable fisheries value chain investments improve island economics, allowing for improved public finances and public debt payback.</p>	<p>Investments into coastal and marine resilience will be funded by the issuer, which recoups costs from the beneficiaries either directly or indirectly through insurance structures.</p>	<p>Commercial investments into marine and other renewable energy, clean shipping and related logistics, with direct payments from the user, which includes private companies as well as for instance public utilities.</p>
Potential for addressing Pacific Ocean health risks and resilience of Pacific Ocean communities	<p>Sustainable fisheries and seafood value chain Investment in fisheries policy reform and better fisheries management, compliance, and enforcement can reduce pressure on fish stocks, marine ecosystems, illegal fishing and by-catch, and marine litter.</p> <p>Investment in seafood value chains, better traceability, accreditation (e.g. MSC) and economic diversification (e.g. aquaculture and services) generate jobs, higher per unit revenues, and reduce pressure on fish stocks and marine ecosystems.</p> <p>Sustainable tourism and nature-based tourism Investment in sustainable tourism and nature-based tourism strategies, promotion of sustainable practices, industry stewardship, and international accreditation all can lead to reduced pollution impacts on coastal and inshore marine environment (e.g. coral reefs), improved water and waste management, energy and water use efficiency as well as create new high-value markets and jobs.</p>	<p>Coastal resilience and rehabilitation Investment in national climate adaptation policies and compliance to coastal management plans, promotion of nature based coastal defenses, as well as environment impact assessments for infrastructure development will reduce vulnerability to extreme events, coastal erosion and improved marine water quality, protecting ocean and coastal habitats and resources.</p> <p>Water quality and waste management infrastructure Investment in wastewater infrastructure and waste collection value chain, feasible water storage, and artificial wetlands will reduce eutrophication, improve inshore and offshore water quality for ocean habitats, as well as improve human health.</p> <p>Telecommunications Investment in comprehensive communications infrastructure will improve maritime surveillance which will lead to reduced impacts of illegal fishing on fish stocks and marine ecosystems. Telecommunications</p>	<p>Renewable energy Investment in low carbon energy policy and pathway, including electricity tariff system that will encourage more renewable energy, leading to investment in solar, wind, marine, as well as micro-grid infrastructure will reduce dependency on imported fuel, contribute to the global effort to reduce CO2 emissions that cause ocean warming and acidification, as well as help countries deliver on their Paris Agreement commitments.</p> <p>Green shipping / Green ports Investments into greening the fishing/cargo shipping fleets and cruise tourism and green port strategies including ballast water/ invasive species management measures and port state controls will reduce particulate pollution and contamination from vessels affecting water quality and biodiversity, reduce risk of invasive species, as well as reduce CO2 emissions.</p>

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High level comparison of key financial assumptions for each bond structure

The following key financial assumptions were made based on the specifics of each bond structure. These are high level as it was difficult to find actual on-the-ground projects to understand revenue streams.

Key Features	Pacific Ocean Impact bond	Pacific Ocean Resilience bond	Pacific Ocean Climate Mitigation bond
Issuer type	Sovereign (fully guaranteed)	Multilateral bank	Corporate/Bank
Start date	June 2021, provided there are already concrete plans being put in place	June 2021, provided there are already concrete, agreed projects that fit the criteria	June 2021, provided there are already concrete, agreed projects that fit the criteria
Time until first revenues	N/A	6-18 months	6 months
Bond size	\$25m	\$100m	\$100m
Bond maturity	10 years	10 years	10 years
Bond interest rate	2.5%	2.5%	6%
Total arrangement fees	2.5%	2.5%	2.5%
Total development fees	7.5%	7.5%	5%
Ongoing fees	1.5%	1.5%	1.0%
Asset useful life	NA	20 years, Longer than lifetime of bond	25 years for solar PV 10 years for green shipping retrofits
Pricing references	See PACIFIC OCEAN BOND CASHFLOW MODEL TEMPLATES AND USER GUIDE		

Key features and rationale for the assumptions are outlined below. Supporting cashflow model templates, and the supporting references for these assumptions are detailed in PACIFIC OCEAN BOND CASHFLOW MODEL TEMPLATES AND USER GUIDE.

Start date

Minimum development time period is one-year, and this is likely to be possible with straightforward projects already lined up that have contracting in place. Especially with high priority for resilience for the islands, we understand that the multi-lateral banks have several projects on the ground being planned.

Time until first revenues

The Pacific Ocean Impact Bond is not driven by cashflows arising from the use of bond proceeds. The Pacific Ocean Mitigation Bond has a shorter timeline for cashflows as it is expected to include more straightforward projects with shorter development times.

Bond size

Transaction costs and investor interest will drive the minimum size of bond issuance. We believe that \$50M is the lower end that can be considered. The Ocean Impact Bond has a smaller size, and this is with reference to the Seychelles Blue Bond size and considering the smaller, limited group of investors.

Bond interest rate

The three bonds have different reference points, which are described in the later tables.

Arrangement fees

This refers to the fees to bankers to bring investors together and do the required negotiations around pricing and investment sizes. This would likely be the same across all bond types. These fees are largely standard in the market.

Development Fees

The development fees here refer to costs of looking for and packaging, pre-issuance verification of standards, the projects as well as for the time for negotiation between the different financial providers including impact providers, grantors, and guarantors. This is harder to estimate, but would mean higher development fees for a more complex structure like the Impact Bond and the Resilience Bond. Assuming that the ocean climate mitigation bond can be raised on the back of commercial projects already identified, we are suggesting lower development fees compared to the other two options.

Ongoing fees

Ongoing fees include guarantee fees as well as ongoing monitoring and reporting costs to meet standards. The guarantee fees are expected to be higher for the Pacific Ocean Impact Bond and the Pacific Ocean Resilience Bond as the clarity of repayment cashflows is higher under the Pacific Ocean Mitigation Bond. As the projects under the Pacific Ocean Mitigation Bond fall into clear categories we assume the ongoing verification fees will be also lower. A good approximation would be the costs for Fiji Green Bond to be verified by Sustainalytics which has mix of projects that addresses mitigation as well as adaptation.

Asset useful life

The Ocean Impact Bond is not expected to use proceeds for large assets. The Pacific Ocean Resilience Bond is expected to invest in water sanitation, waste management, and telecommunication infrastructure, which typically have useful lives of between 20-50 years; we used the conservative estimate. The Pacific Ocean Mitigation Bond’s useful life is based on recent commercially viable projects.

Investors’ top concerns across three bond structures

Through our consultations with investors, top concerns for each bond structure were identified. More details are provided in *Annex III: Comprehensive Stakeholder Findings*.

KEY FACTORS FOR INVESTORS	Bond Rankings (1 st = most attractive to investors)
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Issuer Quality (1 st)	Resilience Bond (1 st) Impact Bond (2 nd) Mitigation Bond (3 rd)
Cash Flow Quality (2 nd)	Mitigation Bond (1 st) Resilience Bond (2 nd) Impact Bond (3 rd)
Country Risk (3 rd)	Resilience Bond (1 st) Impact Bond (2 nd) Mitigation Bond (3 rd)
Sector Risk (4 th)	Mitigation Bond (1 st) Resilience Bond (2 nd) Impact Bond (n/a)
Insurance/Risk Management (5 th)	Resilience Bond (1 st) Impact Bond (2 nd) Mitigation Bond (3 rd)
ESG Metrics (6 th)	Resilience Bond (1 st) Mitigation Bond (2 nd) Impact Bond (3 rd)

Bond Option 1: Pacific Ocean Impact Bond

Bond Concept Note

Objectives and Ocean Health Benefits

It was clear from the regional stakeholder consultation that there was significant interest in funding Ocean Governance and Policy, to cover larger nation-wide or region-wide governance and capacity needs, which are important to delivering ocean health across sectors. The Pacific Ocean Impact Bond combines commercial and philanthropic funding to directly address this. Countries may have undertaken a marine spatial planning exercise or other processes (such as referring to the Ocean Health Index) to identify ocean health priorities. The funds raised will deliver direct, upfront funding to focus on these priorities, through addressing governance, monitoring, and enforcement mechanisms. The design aims to achieve maximum ocean impact by delivering a range of activities that target marine health directly, and whilst optimizing engagement and buy-in from local stakeholders, in particular those potentially affected by management measures. Proceeds from the bond will be used to implement a science-based approach, including marine spatial planning and protection of critical marine areas and ecological hotspots such as coral reefs, whilst also funding effective conservation and monitoring measures. For example, using a portion of funds to directly support fisherfolk to transition to activities that are aligned to the new measures, such as providing ecotourism services into marine protected areas or sustainably managed aquaculture activities, will gain the support of local stakeholders and deliver the necessary capacity for effective ocean health improvement measures. The activities that the Pacific Ocean Impact Bond will fund will have a direct and positive impact on marine life and protect the biodiversity and productivity of the ocean.

Issuer Characteristics

A sovereign issuer is most appropriate for this structure of bond, as only the government will be in a position to issue the necessary regulations. This means that the government is also the key source of repayment cashflows. As such, a sovereign issuer will still need a financial guarantor, particularly since they will have limited debt capacity. Such an issuer would still need to have a satisfactory guarantor with the necessary financial capacity, as the sovereign's limited debt capacity and rating could lead to higher funding costs. Furthermore, strong political will that is well-aligned with the ocean health objectives of the bond is important for success. International financial institutions such as the OPIC, World Bank and ADB would be appropriate guarantors, as they benefit from low funding costs, and a bond like the Pacific Ocean Impact Bond is consistent with their development ambitions in the Pacific region. Political Risk Insurance (PRI) also should be considered.

Investor Characteristics

As this is a very specific instrument focusing on impact, it is important to target a small universe of focused impact bond impact investors. While this is currently a limited group, there is increasing interest in impact investing and, if appropriately priced and de-risked, such a bond could fit the profile both of individual impact investors and of impact bond funds. In particular, investors interested in supporting SDG 14 may be suitable target investors. In the case of the Seychelles Blue Bond, the bond was partially guaranteed by the World Bank, and eventually successfully directly placed with three different bond impact investors.

Donor Characteristics

Given its strong focus on marine protection, this type of bond is likely to be of interest to philanthropic donors, ODA funders in the Pacific marine space and possibly the Global Environment Facility (GEF). This kind of support will be instrumental in funding ongoing governance requirements and in bringing down the bond's overall interest rate. However, its strong reliance on donor support and the complexity of the different components, such as effective ocean governance, means that it will be important to involve donors with significant conservation and ocean planning capacity and experience, possibly in conjunction with major international NGOs.

Eligible Projects

In order to fit the parameters of the bond and engage the relevant local Pacific stakeholders, it is critical to clearly identify and prescribe projects that directly, strictly, and quantifiably benefit marine protection and ocean health. This will require a clear regulatory framework to implement ocean conservation measures, as well as strong scientific engagement in defining an appropriate ocean strategy based on evidence-based marine spatial planning and ecological baselines. Funds from this bond structure could potentially fund any projects that evidently contribute to these measures. However, the bond will only be considered a success if accompanied by clearly-defined and robustly measured impacts, such as an improved score under the ocean health index. Broad-based marine and coastal science, environmental cost-benefit analysis, and other tools will help identify the direct impacts of such measures on habitat and biodiversity protection and the consequent ecosystem benefits in order to show the value of such interventions.

Investment Feasibility

The feasibility of a Pacific Ocean Impact Bond depends on the willingness and ability of the issuing nation to borrow in the global bond markets, and the attractiveness of both the scale and impact proposition to investors and donors. Several impediments make this more challenging for the POFN nations than for similar bonds, such as the Seychelles Blue Bond. If a nation has the ability to raise a bond, structuring it to appeal to both impact investors and donors is the key to success.

Whilst the universe of such bond impact investors and funds is still small, this is an emerging trend that is worth nurturing. Assuming the size requirements are met, impact investors generally look for risk mitigation on impact outcomes from donors and MDBs, rather than relying only on national commitments to ensure impact objectives are met. For example, both national commitments and MDB support were present in the Seychelles Blue Bond, with tools that guaranteed a percentage of capital return while reducing the sovereign payment burden. Markets also took confidence from the commitment demonstrated through the DfN swap structure, which included a locally-run independent trust, in concert with international audits for ESG compliance. With these governance provisions in place to ensure project compliance with ESG standards and the particular goals of the country, and an MDB guarantee, a sovereign-issued impact bond can be successful.

Key ESG considerations

Potential investors in the Pacific Ocean Impact Bond are most concerned with adherence to ESG considerations for the Pacific Ocean Impact Bond, ranking it third among the three bond structure options and look towards strong governance structures to gain confidence (Refer to *Annex III* for full ranking table of investor concerns).

In order to directly address prioritized issues in the ocean surrounding the Pacific Islands, the process starts with a marine spatial planning exercise that identifies ocean priorities. The funds raised will deliver direct, upfront funding to address governance, monitoring, and enforcement mechanisms to ensure that priorities are met.

The Pacific Bond Impact Bond would be most achievable under the format of a clear bond mandate with a strong contractual relationship providing deep incentives, rather than if similar efforts were to be put in place independently by different government agencies. Similarly, stakeholder engagement through additional and new funding from the bond allows for strong realignment with local needs, as funds can be used to help retrain fisherfolk, or to invest in alternative business opportunities. Support for economic activity that aligns with a new ocean conservation strategy is important in safeguarding its long-term success. This may require fisheries policy reform or a management strategy establishing limits to fishing and other necessary measures to incentivize fisherfolk to seek alternative employment and business opportunities. The bond should also be verified by a second party and fully monitored. In this sense, having a bond structure can prove advantageous for addressing the challenges mentioned above.

Specific details on sector-specific key reference standards and guidelines, case studies, and common ESG issues not covered by standards for the Pacific Ocean Impact Bond can be found in the Appendix of PACIFIC OCEAN BOND-ESG GUIDE.

Implementation – Challenges

The target impact investor's concerns underlie the three major implementation challenges of the Pacific Ocean Impact Bond. As a first step, the country will need to have a carefully planned approach to governance, with evidence that is scientifically sound and indicates that the measures or project will directly and positively impact marine health. Secondly, there needs to be sufficient buy-in by other stakeholders, such as those traditionally operating in the proposed marine protected area, to ensure successful implementation. Finally, the delivery of funds from the bond must be fully monitored and measurable.

Priority Next Steps⁴³

Despite these challenges, the Pacific Ocean Impact Bond format provides particular opportunities. By working with international partners within such a format, the country can draw on relevant international expertise and benefit from a global best practice in impact bond development.

First, the sovereign bond issuer will need to secure guarantor support, and so partnership with a multilateral development bank is critical. Next, collaboration with a multilateral bank and or an international donor will help identify co-financing partners and prospective investors.

The bond issuer should identify institutional capacity needs to design appropriate governance structure. For the Impact Bond, a multi-departmental approach, led by the Finance Ministry is preferable. Under this governance structure, there will need to be the following priorities:

On the financial side, priority should be given to establish a partnership with a multilateral development bank or equivalent institution to:

⁴³ While the immediate priority next step might be evident, there is no explicit reasons for any particular ordering beyond that.

- Undertake/review the financial feasibility analysis to assess opportunities available for credit enhancement and secure guarantees;
- Identify potential co-financing institutions such as GEF and potential impact investors;
- Identify capacity needs to proceed with the design of the bond transaction; and
- Identify activities and potential repayment sources (either through government budget or through taxes and fees)

On the use of the proceeds, priority should be given to:

- Stakeholder consultation to develop governance and sustainable fisheries as well as value chain activities;
- Assess the policy reform and legislation needed for ocean governance and transitioning to sustainable fisheries and value chains;
- Review options for governance arrangements for disbursing and reporting on the use of the proceeds; and
- Develop projects which generate ocean health benefits, including indicators development and a data collection, and ongoing monitoring program

In terms of technical support for project or activity development the bond issuer can reach out to regional organizations to assist.

Further guidance on bond issuance is available in the Guidance Notes and Next Steps for the Implementation of Pacific Ocean Bonds.

Pacific Ocean Impact Bond Summary Table

PACIFIC OCEAN IMPACT BOND		
Factor	Bond Feature	Notes
Model		Similar to the Seychelles Blue Bond
Issuer	Sovereign	The sovereign(s) need financial and planning capacity and political will. The analysis in <i>Annex II</i> , Section 5 demonstrates that few islands have the financial capacity. These are likely to be: Solomon Islands, Palau, Tuvalu. Additional consultation with The Nature Conservancy’s eligibility criteria will be conducted. Additional considerations on regional governance structures is addressed in the Guidance Notes.
Structure	Sovereign Bond	Sovereign’s ability to repay and the guarantor’s risk will be key.
Guarantor	WB, ADB	The guarantees will provide the borrower with cheaper rate financing. The guarantor will need to be investment grade and at least cover the repayment of principal.
Insurance	MIGA	Insurance coverage is required for political risk.

PACIFIC OCEAN IMPACT BOND		
Factor	Bond Feature	Notes
Support	NGO/Philanthropic Foundations	Philanthropic capital will be required to: fund ongoing governance requirements; provide debt forgiveness; and bring down the overall required interest rate for the bond. They will require strong demonstration of commitment to ocean governance improvements from the country.
Sectors	<p>The bond will finance governance mechanisms, monitoring, and enforcement measures to reduce negative impacts from existing and emerging sectors, as well as finance to facilitate the transition for sector diversification</p> <p>Stakeholder consultation highlighted the following:</p> <ol style="list-style-type: none"> Pan-sector governance/policy issues: <ul style="list-style-type: none"> Enhance marine spatial planning initiatives Strengthen management of designated MPAS/LMMAs and compliance of MSP provisions Develop National Adaptation Plans and comprehensive risk management strategies Develop early warning systems Fisheries policy and management: <ul style="list-style-type: none"> PNA area-based management Extend VDS to long liners in the PNA region Strengthen regional capacity for MCS and access by countries Strengthen countries' ability to prosecute through legislation, coast guards, intelligence sharing Fisheries value chain <ul style="list-style-type: none"> Strengthen the diversification of fisheries sector (e.g. processing, packing, merchandising) Sustainable tourism and nature-based tourism: <ul style="list-style-type: none"> Eco tourism regional strategy and implementation 	
Portfolio examples	<ul style="list-style-type: none"> Several governance and policy discussions around marine spatial planning and fisheries in relation to the countries that are within the PNA have commenced. Fiji, Tonga, Samoa, Palau are countries that could be covered in regional eco-tourism strategy 	
Ocean benefit source	Directly tied to use of proceeds	The first step is a marine spatial planning that sets out ocean priorities. Consequently, there is a strong link between the bond and ocean benefits. Benefits included improvements in water quality & biodiversity,
Social benefit source	Provided through adherence to ESG criteria	Social risks are reduced through stakeholder consultation in the initial mapping and the use of ESG criteria in the bond structure. Social benefits are directly delivered through finance for transitional businesses and paying for training and capacity building. In the case of water and sanitation projects, human health improvements will need to be assessed both scientifically and economically.

PACIFIC OCEAN IMPACT BOND		
Factor	Bond Feature	Notes
ESG criteria	Determined by sector, see POB ESG Guide	The MDB guarantor will also ensure process criteria.
Direct revenues	Limited	The activities are not directly creating additional cash flows, but there may be indirect income from activities supported or due to the reduction of costs.
Additionality	Yes	The planning process ensures that the funding addresses important needs, which otherwise would have to be covered from government budgets.
Timeframe	10-year bond	Time needed from structuring to ocean impacts showing. The bond itself could be shorter.
Investor interest	Impact investors	There should be good interest from impact investors. The low interest rate to provide cheap financing will likely deter commercial investors.
Financial risks	Limited through structure	Guarantor role is key.
Size	USD \$20-50mn	As the pool of impact buyers is smaller and the projects are bespoke, a smaller bond size is appropriate.
Terms	Aligned to guarantor rates	Interest rate will reflect investor grade rating of guarantor.
Repayment of principle	In full at the end	Standard for bonds.

Bond Option 2: Pacific Ocean Resilience Bond

Bond Concept Note

Objectives and Ocean Health Benefits

The aim of the Pacific Ocean Resilience Bond is to provide cost-effective and well-structured finance to projects and investments that protect or rehabilitate natural capital in oceanscapes and help the region adapt to climate challenges. Such infrastructure needs to be able to address ongoing adaptation challenges in a financially and environmentally sustainable way. Each of the activities are expected to be viable in their own right, and will deliver meaningful, sustainable development opportunities that strengthen the borrower's ability of the islands to adapt to climate change and improve ocean health. In addition, they will have a direct and positive impact on marine life and protect oceanic biodiversity and productivity. Reducing stress on marine spaces, including marine protected areas, from runoff from land and nutrients, waste, and toxic substances is crucial for the resilience of marine ecosystems. In turn, these natural systems provide critical protection against storm surges and other challenges to human life and the island environment alike.

Issuer Characteristics

To deliver on the above objectives, the issuer of such a bond would need to be an experienced international finance institution with a strong regional presence, have in-depth knowledge on the range of relevant regional sectors, and have a clear strategic approach to ocean protection and island resilience. Institutions such as the World Bank and the Asian Development Bank (ADB) fit this description. Not only do they hold significant experience in issuing bonds that target climate solutions and are able to raise funding at the lowest rates given their credit rating and experience, they also have dedicated ocean solution approaches and financing strategies, such as the World Bank's PROBLUE Blue Economy Program and the ADB Healthy Oceans Action Plan.

The experience of the Baltic Blue Bond, the world's largest blue bond, issued by multilateral finance institution the Nordic Investment Bank, is relevant to this bond structure. The Baltic Blue Bond raised approximately USD \$200m in January 2019. It successfully raised funding for multiple projects in a number of countries in the Mälars region of Europe, including both wastewater treatment and other water management investments.

Multilateral finance institutions can also (i) provide supplementary support, such as through the application of the recently announced ADB contingent disaster financing (CDF) mechanism; (ii) have the ability to support projects in multiple jurisdictions; and (iii) can handle financial disbursements at different points of time in the future, and of different sizes. These are all important attributes for this bond structure issuance. The institutions proposed have the capability to handle this and are already considering a number of relevant projects. The Pacific Ocean Resilience Bond provides a way to invest in many projects already under consideration forward more effectively.

Investor Characteristics

There is a significant pool of investors in the market who are familiar with multilateral development bank (MDB) issuers, such as the World Bank and ADB. These are attractive to investors because of the solid credit rating of these institutions, and their existing support of the bond mandates on ocean health and SDGs. Additional attraction of such a new bond in the broader sustainability bond world will be its ability to offer an additional 'flavor' in terms of

the ‘blue’ focus of these projects. A number of investors have already indicated their frustration that so few blue instruments at low risk are available in the market, and thus it is likely that such a bond would be easy to place, even with a low coupon.

Donor Characteristics

The role of donor support in a Pacific Ocean Resilience Bond transaction can be two-fold, on one hand supporting the development phase of individual projects and the overall structure, and on the other hand lowering the funding costs. Some potential donors include the Green Climate Fund (GCF), the Global Environment Facility (GEF), the European Union (EU), the United Nations Environment Programme (UNEP) and other bilateral ODA donors that have invested in waste management and water resource management in the region. This bond could benefit from a blended finance approach with additional grants from donors to support the underlying projects as well as the bond process. Additionally, results-based finance components could also be considered. A result-based approach would have a donor offer to pay out if any specific and previously defined project result is not sufficiently delivered, thereby reducing risk. As an example, the donor could commit to support the delivery of a certain water quality standard and decrease its funding support accordingly if the outcome is not delivered. A number of philanthropic foundations or ODA donors may find this attractive and would likely feel comfortable collaborating with MDBs by supporting technical assistance.

Eligible Projects

In order to convince Pacific Islands stakeholders and the potential issuer of the benefits and the viability of the proposed approach, it is important to clearly discuss each of the four sectors included in the approach individually, as well as how additional benefits will result from synergies.

Water management

The first sector relates to water management, including fresh water from desalination and sewage water treatment. The quality of the ocean is highly dependent on proper water treatment, and the effects of run-off from industry, households, and agriculture on some of the Pacific lagoons is severe. At the same time, climate change and development pressures require improved freshwater management. In many islands there is an issue of water scarcity, largely climate related due to drought and salt intrusion, which is exacerbated due to increased population and increased water consumption, losses in distribution, and no water storage capacity. Water reuse, especially in the context of commercial activity, can also be an option. Resilient structures are vital in some locations to prevent rising sea levels and storms from penetrating water infrastructure and aquifers. Nature-based solutions such as wetlands for water treatment, can also be considered, where cost and revenue efficiencies can be gained as these approaches reduce the cost of investment and help address planning and management issues. The Pacific Islands are also exploring desalination plants in an effort to address water scarcity concerns. While these plants have no direct positive impact on ocean health, we recognize that desalination is a key technology to address scarcity concerns. Desalination plants could be considered under the Pacific Ocean Climate Mitigation Bond given their use of renewable energy, however it is not applicable under the Pacific Ocean Resilience Bond.

There are a number of investable solutions in this area that might be too small to be considered for bond financing. The Pacific Ocean Resilience Bond provides a cost-effective funding, lower interest rate, format to do so. Whilst improvements to water infrastructure are likely to have financial implications for the water rate payers, the combination of better water management with reduced loss, the ability to differentiate prices for different

customers, and the benefit of the long term and low interest rate of the bond will all contribute to make this bond structure a very viable approach in the Pacific.

Waste management

The second sector is waste management, including design efforts around an island circular economy. This also includes collection, composting, recycling of household and business waste, like plastic, with the aim of (a) preventing leakage; (b) allowing full recovery; and (c) delivering energy from waste. While island governments of Islands will need to have a strong waste prevention strategy, this approach needs to be complemented with sufficient funding for managing the remaining waste through efficient collection and processing, including for energy production. Where waste management is not adequate, air and water quality suffer. As recent emphasis on combatting marine plastics and ocean pollution exemplifies, this issue is now at the forefront for policy makers and the public and will negatively impact sectors such as tourism, which will suffer if not addressed. Resilience in times of increased potential storm surges will also require many island nations to invest in this area, and the Pacific Ocean Resilience Bond can be an efficient way to finance this. Because of the scale of waste issues, some island states are dedicating an island or extending a coastal area to localize waste management operations. This may include waste to power facilities, which is an attractive feature for investors.

Coastal resilience and rehabilitation

The third sector relates to direct investments in ecosystem restoration and working with nature-based solutions, such as measures to protect and support coral reefs, mangroves, and seagrass. The direct impacts of such measures on habitat and biodiversity protection, and the consequent ecosystem services benefits of such activities are clear, and marine and coastal science, environmental cost-benefit analysis, and other tools can show the value of such interventions. However, these efforts will be location-specific. Not all islands have historical mangrove habitats or sea grasses to restore. So, nature-based solutions must be part of an overall strategy of coastal planning including protection and restoration and development measures. Likewise, specific steps are required, such as targeted replanting, protection, and monitoring, and there are a number of appropriate sites in the region. Traditionally, however, little consideration was given to these activities to deliver adequate cashflows to be commercially viable on a stand-alone basis. This concept note suggests that a combination of factors can alter this perception. The blue natural capital assets targeted here not only act as biodiversity hotspots and carbon sinks, they also deliver water management and storm protection. Therefore, we suggest developing adaptation credits to place a financial value on these areas. In due course, direct payments for ecosystem services, such as reef insurance, can integrate into this structure, but in the interim the cumulative impact of the various interventions proposed, the cost-effectiveness of the bond and the likely interest of donors in this aspect are likely to cover any shortfall.

Telecommunications

Finally, resilience and ocean protection require smart infrastructure. In particular, upgrades to the mobile data communications networks can improve connectivity, which in turn improves resilience through more effective early warning systems, and can improve monitoring and surveillance for fisheries management, and provide additional benefits and opportunities for the entire population. Specific opportunities include telecommunication coverage through additional cell sites, improving access to data for ocean management, providing monitoring, control and surveillance, as well as tools like smart meter water management. Investing in cost-effective telecommunications solutions will allow the use of remote sensing tools in real time for marine management. It will also give communities direct

access to information, from weather data for fisherfolk to educational opportunities for youth, reducing the population’s vulnerability to risks posed by the physical impacts of climate change, and offering improved environmental, economic, and social outcomes. Investment costs in the telecommunications sector have dropped considerably, making this likely to be one of the more financially attractive components of the Pacific Ocean Resilience Bond.

The cumulative and synergistic effects across the four sections will be best served through a financially and structurally sound format targeted to fund critical ocean resilience projects. Bundled in this way, the Pacific Ocean Resilience Bond could be an attractive investment for a broad range of bond buyers. It will be accessible to investors that already are comfortable with the issuer, but crucially it will also attract the growing market segment of sustainability bond buyers. Where projects can combine clear, measurable impacts as well as solid financials, this bond structure is likely to find significant demand. Successfully executed, it can stand as an example of how to address complex ocean resilience challenges.

Investment Feasibility

The Pacific Ocean Resilience bond attracted the most interest from investors. However, several important considerations are top of mind:

- **Commitment from countries:** While the ADB or WB were the most frequently-cited candidates for this role, there needs to be commitment to a successful issue and collaboration across Pacific Island nations and within the proposed sectors. This will take time.
- **Shorter term:** To attract investors, for projects that can be realized in less than 5 years, offering a 5-year tranche is recommended. An example of projects that could have payback within 5 years would be installing auxiliary power systems on local/regional ships
- **Scalable and diverse projects:** Threats from climate change and environmental degradation on top of community needs will continue to drive demand for major infrastructure projects. A project selection must be made to ensure that projects provide scale and diversification across the region. Portfolio diversification is already strong in the Pacific Ocean Resilience Bond, with water & sanitation, coastal management, and telecommunication projects. These are further broken down into three factors: time to revenue-generation, valuation and revenue certainty, and urgency. Diversification, as well as scale, could also result from combining these with the Pacific Ocean Climate Mitigation Bond sectors.
- **Valuing blue assets:** Natural capital asset valuation, such as for coral reefs, and mangroves, is a new field with several excellent standards but few proven models.⁴⁴ These assets face unprecedented threats from climate change, population pressures, and environmental degradation. Although proof of all solutions may not be complete, there is consensus among the policy and impact investment communities that new solutions must be implemented at scale, while there is time. Urgency and willingness to try new solutions was the theme at the recent Atoll Nations Resilience Dialogue, hosted by ADB. Insurance solutions are also being tested and may be integrated with the Pacific Ocean Resilience Bond.

⁴⁴ We note that there are on-going discussions and debates around methodologies for blue carbon credits. A recent issuance of mangrove rehabilitation related carbon credits in Kenya by UN Environment, the Kenya Forest Service, the Kenya Marine and Fisheries Research Institute (Vanga Blue Forests Project) is one reference point.

Key ESG considerations

Investors generally had least concern on ESG considerations under the Pacific Ocean Resilience Bond. In general, there is trust that issuers like the ADB and World Bank will also be able to assist in clearly assessing projects against their own stringent sustainability and ESG criteria, thereby helping to implement a strict prior process to analyze potential project impacts, as well as agreeing to deliver an appropriate monitoring and verification regime.

Specific details on sector-specific key reference standards and guidelines, case studies, and common ESG issues not covered by standards for the Pacific Ocean Impact Bond can be found in the Appendix of PACIFIC OCEAN BOND-ESG GUIDE.

Implementation – Challenges

The combination of multiple projects with different timelines and outcomes is a challenge mentioned by investors if it impacts cashflow visibility. It will require significant capacity, engagement and development resources, resulting in a need for some donor support particularly in the early phases, and in terms of covering potential risk components. On the other hand, these processes will provide multiple touchpoints for engagement with local partners and stakeholders, thereby offering the opportunity to adequately assess each proposed project’s benefits and viability, but also its appropriateness for bond finance.

The role of local governments to create the enabling conditions for private sector projects to succeed cannot be discounted. Sufficient funds and attention would need to be allocated to capacity-building especially for the hybrid public-private projects to be financed by the Pacific Ocean Resilience Bond. Additionally, it is a big challenge to identify and develop projects of sufficient scale to be both financially viable and impactful - particularly in coastal rehabilitation.

Priority Next Steps⁴⁵

Encouraging broader engagement with ocean resilience in the Pacific, both at the local level and internationally, is a pivotal feature of this bond. The Pacific Ocean Resilience Bond, through careful consideration of potential projects and in cooperation with a strong issuer, is a commitment to a solid financing and to the wider vision of Pacific Ocean resilience, sustainability, and a healthy ocean.

Priority next steps include:

- Negotiate with a Multilateral Development Bank operating in the region gauging interest in issuing a Pacific Ocean Resilience Bond, noting that existing initiatives make ADB and the World Bank likely candidates
- Review options for governance arrangements at the regional and national level for disbursing and reporting on the use of the proceeds
- Establish partnership arrangements with national and regional governments to assess capacity needs in terms of policy reform, legislation needs, skills, and information required
- Develop list of potential fundable projects in consultation with regional organizations and national governments ensuring it is consistent with international, regional, and national commitments

⁴⁵ While the immediate priority next step might be evident, there is no explicit reasons for any particular ordering beyond that.

- Identify potential co-financing institutions such as Global Environment Facility or Green Climate Fund, as well as potential impact investors
- Structure the bond based on understanding of project cashflows and ESG requirements
- Develop strong indicators and program monitoring to ensure ocean health benefits by first establishing baselines in the water and sanitation, waste management, and telecommunications sectors and an on-going monitoring program

Further guidance on bond issuance is available in the Guidance Notes and Next Steps for the Implementation of Pacific Ocean Bonds.

Pacific Ocean Resilience Bond Summary Table

PACIFIC OCEAN RESILIENCE BOND		
Factor	Bond Feature	Notes
Model	Baltic Blue Bond	The Nordic Investment Bank in Jan 2019 raised USD \$200mn for multiple waste and storm water treatment and other projects in a number of countries. This structure draws from the example of a bond proposal in California to improve forest resilience through pre-identified specific upfront interventions to reduce potentially high-cost impacts, such as from forest fires. Another example is the catastrophe bond used in Mexico to reduce hurricane risk.
Issuer	ADB	The Asian Development Bank (or a similar MDB, or bilateral agency) brings to the table relevant financial expertise, a good credit rating and the ability to disperse funds in multiple countries.
Structure	Multilateral Bank bond	This is a standard issue in line with other MDB bonds.
Guarantor	Not required	Given the credit rating of the issuer.
Insurance	Standard	No additional risk mitigation is required.
Support	Blended finance	The bond is likely to need grant support as it is unlikely to provide sufficient cashflows to allow full repayment, particularly in the early days.

PACIFIC OCEAN RESILIENCE BOND		
Factor	Bond Feature	Notes
Sectors		<p>Stakeholder consultation highlighted the following:</p> <ol style="list-style-type: none"> Coastal resilience and rehabilitation: <ul style="list-style-type: none"> Strengthen capacity for compliance and enforcement of coastal development planning Undertake shoreline processes and climate impact modelling Protect essential coastal habitats and restore degraded habitats Telecommunications: <ul style="list-style-type: none"> Provision of internet services (including undersea cable) to support improved access to data for ocean management, early warning systems, and Monitoring Control and Surveillance (MCS) capacity for compliance and enforcement including IUU Water quality and waste management <ul style="list-style-type: none"> Wastewater management (including wastewater treatment and artificial wetlands) Waste management activities (including collection, composting, recycling) Water supply (including desalination, especially solar-powered, and water storage)
Portfolio examples		<ul style="list-style-type: none"> Tuvalu Coastal Adaptation Project supported by GCF (USD \$36mn) Adding cellular network sites similar to that referenced by Micronesia's Infrastructure Development Plans (USD \$13mn) JICA supported waste management and recycling projects in 9 countries in the region (in 2nd phase) that has a focus on jobs Micronesia water, sanitation, and resilience project funded by the Adaptation Fund
Ocean benefit source	Sector specific KPIs	Refer to PACIFIC OCEAN BOND-ESG GUIDE for available metrics that have been developed in each sector and relevant standards to be applied to ensure ocean benefit.
Social benefit source	Likely and strong	This is both in the form of jobs from the projects, but also that increased resilience supports more stable incomes and communities.
ESG criteria	Green Bond Principles	The GBP offer more flexibility that can be applicable to a wide range of projects under the multilateral bond. Check PACIFIC OCEAN BOND-ESG GUIDE table for eligibility of other standards.
Direct revenues	Some	There is potential for direct cashflows from the project (e.g. tipping fees from better waste management services), whilst other benefits will come in the form of cost savings and as payments for ecosystem services contracts.
Additionality	Yes	There is limited current resilience financing in the market, this bond will provide important liquidity to an emerging market.
Timeframe	10-year bond	Shorter bonds could be considered if the project portfolio delivers strong returns (for instance, from telecommunications).
Investor interest	General investors	Investors with experience with the issuer are more likely to participate.

PACIFIC OCEAN RESILIENCE BOND		
Factor	Bond Feature	Notes
Financial risks	Investor has only MDB risk	The MDB will be taking significant risks on the underlying projects and will therefore aim to clearly structure underlying cash flows and assessments.
Size	USD \$100-250mn	Whilst a smaller amount is possible a larger amount is of interest to investors in terms of secondary market liquidity and also spreads transaction cost.
Terms	Standard for MDBs	MDBs have multiple bonds in place and work with experienced lead managers, they issue in multiple currencies, with EUR having the largest share in 2019.
Repayment of principle	In full at the end	To repay the principal the underlying assets (e.g. waste management facilities or telcos) may need to be sold to another party.

Bond Option 3: Pacific Ocean Mitigation Bond

Bond Concept Note

Objectives and Ocean Health Benefits

The concept of the Pacific Ocean Climate Mitigation Bond is to provide cost-effective finance to green projects that are commercially viable. Focusing on the more advanced, stable, and commercially viable segments of renewable energy and green shipping allows for showcasing a key investment thesis: the ability to finance the Pacific’s green transition with private funding. Such finance is additional to funding from public sources, including the Green Climate Fund. But as the overall amounts required are larger than what public sources can provide, this is an important opportunity that is well-aligned with the Pacific Island’s sustainable development priorities. Climate mitigation is key to the long-term health of the Pacific, and any investment to implement net-zero carbon emissions in the near- to medium-term is critical in order to address ocean health. Renewable energy has an important role to play in small island economies in terms of reducing dependency on fuel imports, which is a large part of government expenditure. Whilst the Pacific countries do not produce significant greenhouse gas emissions, they are among the most climate vulnerable and severely impacted by ocean warming, and need to position themselves at the forefront of solutions. Developing the key components of this bond can support, in line with national NDCs and IMO approaches, the commercial strength of the private sector in the region.

Issuer Characteristics

The approach to issuing this bond is to identify a strong commercial entity, which has the capacity and interest to pool further activities in the region. This could be an energy utility based in the region or the subsidiary of a shipping company. Depending on the size, financial capacity and experience of such an issuer a range of support structures, including potentially the guarantee of an international financial institution may be required. As a starting point, an issuer that has a commercial approach would be desirable for this transaction. Corporate issuance in the international green bond market is growing rapidly and energy companies, as well as transport and logistics companies, are growing increasingly familiar with this financial arrangement. Identifying a particular focus to the Pacific region would be a way for such an issuer to diversify and to potentially raise sufficient funds to rapidly invest in the region.

As described under the Pacific Ocean Resilience Bond, there is also a possibility of a multilateral issuer that funds both resilience projects and mitigation projects.

Investor Characteristics

With green and climate bond markets already growing rapidly, and in the Asia-Pacific region in particular, there are a growing number of investors in the market increasingly familiar with this form of finance that are keen to increase the percentage of commercial issuance in their investment portfolios. However, corporate credit ratings will almost certainly be less strong than that of multilateral banks and investors are attracted by a solid credit rating of the issuer. While such a new bond might be attractive in the broader sustainable bond world, investors will still require specific and clearly-identified cashflows to underpin such a transaction.

Donor Characteristics

Whilst this transaction does not significantly depend on donor support, it is likely to include blended finance approaches, such as support from the Green Climate Fund (GCF). There may be donor interest in specific components, such as to encourage the implementation of new marine energy technology. This could come from the European Union, as the European Union is keen to support development of such technologies in member countries first, followed by deployment on a global scale where appropriate.

Eligible Projects

This approach is best described as an alternative commercial strategy focused on the green shipping and renewable energy industries, as several technologies have already proven to be commercially viable.

Green Shipping

A particular emphasis of this bond could be marine-based solutions, such as specific marine energy renewables or cleaner energy for ships and ports. With modern and clean shipping fleets comes enhanced maintenance and management, so investment in this area could help to address broader ocean challenges associated with marine transport

Identifying projects that strictly adhere to green shipping principles is crucial. One qualifying project might be in electric shipping, where energy is produced through wind or solar, onshore or offshore, and in turn used to power shipping fleets. A second proposed project is the use of fuel hybrids, or liquefied natural gas (LNG), as a transition fuel to cleaner fuel sources, although this requires a more detailed assessment. Other measures could include improving fuel efficiency and reducing the overall impact of the shipping value chain on the ocean. Specific deployment could be for inter-island ferries, cargo, and cruise ships, supporting both new builds and retrofits.

Marshall Islands Ship Registry's (MISR) is the world's second largest ship registry (13,000 vessels), and they are reflecting on where they can position themselves in the Green Shipping theme. As MISR 's reviews its options regarding future management of the registry, it may need to consider upgrading local skills to handle more of green shipping business. This is certainly a growth theme for the industry, with USD \$200bn needed worldwide just for IMO compliance. At the same time, MISR will probably lose clients due to rapid consolidation of the shipping industry. This favors improving MISR with value-added propositions around green shipping, requiring investments in human and digital capital by MISR. This is a skills/data financing opportunity. However, these benefits would be general and not localized. Beneficiary companies are neither based nor generally sailing in the POFP region, and so ocean health impacts would be of a general, and non-region specific, nature. Another use of proceeds, if desired by a bank as issuer, may be direct funding of some MISR registered vessels for cleaner fuels and ballast water treatment.

Ports present a major opportunity in terms of infrastructure investment. Green port infrastructure could include waste management, clean onshore power, and data infrastructure upgrades for local monitoring of ships (especially cruise vessels) for IMO regulatory compliance. Data and skill upgrades are also required to implement the Green Shipping Index at the port/harbor level.

Renewable energy

On the renewable energy side, several smaller projects in wind and solar have already been implemented in the Pacific Islands. With continuing reduced costs, there is more opportunity in solar (both rooftop and floating) as well as onshore and offshore wind as predictable, low-

carbon energy sources. In particular, we note a few local examples where solar is used to lower the carbon intensity of energy for desalination plants that support water availability. Wave energy and tidal energy would be also eligible, but would need to pass strict financial viability assessments, as well as meet the ESG considerations set out in the PACIFIC OCEAN BOND-ESG GUIDE.

Investment Feasibility

While there are a growing number of investors in the market increasingly familiar with climate finance, issuer quality was the top concern regarding the Pacific Ocean Mitigation Bond. Connected to issuer quality were concerns around country risk and risk management. All these factors affect certainty of cashflows.

The credit rating of the issuer is the first diligence checkpoint and will determine the risk mitigation tools required to attract private capital. Several investors commented that they would need risk mitigation features regardless of the private issuer's identity. Despite the acknowledgement of the potential for commercially viable projects, investors still preferred a capital guarantee. There are several acceptable variations of this. The higher political and climate risk of SIDS drives this general requirement, which is not the case in privately-issued green bonds in OECD countries. This creates a potential role for philanthropic funding as well, ensuring ESG goals are met and supported by technical assistance in such a high-value environmental region. Another option would be an entity like ADB's, under its Ocean Health Initiative, leveraging its AAA rating and other tools to attract private capital to blue deals.

In terms of country risk, China was frequently mentioned as the logical base for a private, or public-private, issuer under the Pacific Ocean Climate Mitigation Bond scenario. Australia, Japan, Singapore, and South Korea are also potential base countries for an industrial or financial issuer. Deep resources and regional commitment are the foundation for successful private projects, which favors regionally-based issuers and is clearly the case for industrial issuers. China, as one of the region's major players, holds numerous strategic investments in the region. However, increased Chinese investment and acquisition of infrastructure globally, including Pacific infrastructure in recent years, has raised some concerns by investors about transparency and governance standards. This further indicates the need for transparency to safeguard POF community and environmental interests.

There was no clear preference between an industrial or financial issuer for the Pacific Ocean Climate Mitigation Bond. However, an industrial issuer has the advantage of project pipeline and technical support - with the disadvantage of limitations around its business model. A financial issuer has the advantage of more flexibility concerning project choices (capable of underwriting both energy and maritime projects) - but the disadvantage of no direct resources to influence positive outcomes and cash flows.

In terms of sector allocation, stakeholders engaged were favorable towards higher energy allocations in regions with which they are less familiar, assuming the issuer is credible, green bond standards are followed, scale is achieved, and risk mitigation features are included. Allocations to the energy sector, in particular for renewable energy, are the dominant theme for impact investing (up to 25 percent of total allocations) and sustainable investing at present. Investors are very familiar with the concept from both private, MDB, and public issuers. However, this also means there is substantial competition for energy green bonds and some investors may have reached their allocation limits for this sector. Within the region, Fiji's green bond has a substantial allocation to renewable energy projects. This precedent may work in favor of our Pacific Ocean Climate Mitigation Bond, especially if there is verifiable progress on Fiji's energy projects.

In contrast, discussions in the green shipping and green ports sector are new. However, it is very topical, due to new IMO regulations and awareness of how damaging the maritime industries are to ocean health. Also, the ADB has signaled Green Port upgrades as a key theme for its Ocean Health Initiative.

Key ESG considerations

Significantly, for privately issued green bonds, investors are especially keen to see verification of ESG concerns before and after issuance, by several methods:

- **External Reviews** are important in the green bond market, with 90 percent of issues subjected to second-party opinions, or audits and certifications.⁴⁸ Sustainalytics reviewed the Fiji green bond and has the second largest market share of such reviews. This is a necessary cost to the issuer (possibly to be covered by a donor); and
- **Post-issuance reporting** is optional but 66 percent of issuers do so.⁴⁹ More issuers offer Use of Proceeds reporting than Environmental Impact reports, while half of issuers offer both. That is the market status, and this is reflected in investor expectations. Without the security of an MDB or sovereign issuer, such verification becomes even more important. Funding for reporting and ongoing monitoring must therefore be included in the bond budget.

Investors are particularly keen to ensure that ESG standards, community, and ocean health benefits are derived from the projects. Hence, designing a specific monitoring and verification regime around ocean health benefits could be a way to address potential concerns regarding specific impacts achieved. The expected range for these costs can be wide, and is highly dependent on the project type and complexity.

Sector specific ESG issues that were raised by investors include:

- Shipping industry is subject to a relatively lax environment in terms of both its regulatory framework and its enforcement, tampering expectations around ocean health improvements. There is also additional concern regarding whether equipment will be properly maintained and still used for climate goals when sold at bond maturity.
- Offshore energy infrastructure can attract higher scrutiny around ESG issues given their direct impact on the ocean floor, and will require strong environmental impact assessments.

Specific details on sector-specific key reference standards and guidelines, case studies, and common ESG issues not covered by standards for the Pacific Ocean Impact Bond can be found in the Appendix of PACIFIC OCEAN BOND-ESG GUIDE.

⁴⁸ GIZ-SEB Joint Report, 2018. Green Bonds - Ecosystem, Issuance Process and Case Studies. [https://webapp.sebgroup.com/mb/mblib.nsf/a-w/3c57af239091dddfc125822400522b99/\\$file/giz_seb_greenbondpublication_web.pdf](https://webapp.sebgroup.com/mb/mblib.nsf/a-w/3c57af239091dddfc125822400522b99/$file/giz_seb_greenbondpublication_web.pdf)

⁴⁹ Climate Bonds Initiative, 2019. Post-Issuance Reporting in the Green Bond Market. https://www.climatebonds.net/files/reports/cbi_post-issuance-reporting_032019_web.pdf

Implementation – Challenges

At this early stage, it is challenging to assume that a stand-alone commercial transaction for such Pacific Ocean Climate Mitigation Bond could be easily achieved, as the pathway towards financial viability away from government support clearly needs to be considered. If an established commercial group would be willing to consider such a transaction, its impact on the region as an example for sound finance would be strong and would certainly be more attractive than equity from the parent company. Therefore, the critical challenge is to find a corporate issuer willing to engage in this process.

In addition, any government support that increases clarity of cashflows, for example, long-term government-guaranteed feed-in tariff for a renewable power utility, will be important.

Priority Next Steps⁴⁸

Despite the challenge, this approach provides a real opportunity to apply a well-developed climate bond framework and achieve a more solid funding for renewable energy and green shipping transition, given the significant upfront cost.

Priority next steps include:

- Identifying corporate entity or commercial bank with presence in the region of sufficient size and with appropriate credit interested in a commercial bond issuance. While this is envisioned to be a corporate or commercial bank issuance, alignment of projects available in support of international, regional, or national commitments is important.
- Consulting with the appropriate government entities or international groups to align goals. For example, most renewable energy projects are currently funded through public investment and scaling up will require a private entity's investment. There could be national renewable targets, or green port strategies that should be considered.
- Demonstrating how negative impacts on ocean health can be reduced through the projects would be important.

Financially, to consider the feasibility of a bond issuance would mean to:

- Develop a clear list of projects to be funded and an assessment of their readiness.
- Assess return on investments on projects that bond proceeds will be used for. Clear positive cashflows from the project will be essential
- Consider the need to have guarantor support from a multilateral development bank for credit enhancement, or an insurance company for project development risks.

From an impact perspective:

- Ensure close linkages between bond design and internationally-accepted ESG standards and requirements given the stringent expectations of investors in this space.
- Design a specific monitoring and verification regime around ocean health benefits

⁴⁸ While the immediate priority next step might be evident, there is no explicit reasons for any particular ordering beyond that.

Pacific Ocean Mitigation Bond Summary Table

PACIFIC OCEAN CLIMATE MITIGATION BOND		
Factor	Bond Feature	Notes
Models	ICBC Green Bond; AC Energy Renewables Bond; Huadian Fuxin Green Bond	These three models generate revenues primarily from renewable energy projects.
Issuer	Corporate (including public utility, Public Private Partnerships and SPVs) / Bank	Huadian Fuxin and AC Energy are corporate issuers. ICBC is a bank issuer. A bank issuer may have a pre-determined set of loans or have their own green bond principles that set out what loans are eligible.
Structure	Senior corporate bond. Project & country specific. Multiple tranches for different project phases and investor profiles.	Although a bond to support multiple projects is desirable for scale, it is most realistic to start with a pre-defined location and project. Feed-in tariffs for generation from solar-wind projects will secure the structure. For other mitigation projects, e.g. shipping, direct project revenues apply. Although assets may be public, they can be run by private concession (PPP creditor).
Guarantor	ADB, WB-IFC, AIIB	Investors noted the preference of guarantee, stemming from concerns around country specific risks. ADB could participate as a guarantor for infrastructure type projects. WB-IFC were involved in Asian corporate and bank green bond issues. AIIB is a possibility, given China's role in renewables exports.
Insurance	MIGA	Insurance coverage is required for political risk for fixed assets. Project insurance recommended, depending on bond guarantor terms, especially for climate/event risk. Ports are vulnerable to storms and sea level rise, so climate/CAT risk insurance at project level.
Support	If available and needed	For example, Australian Pacific Infrastructure Financing Facility (grants + concessional loans). Technical Assistance is common in project finance and often included by major impact investors.

PACIFIC OCEAN CLIMATE MITIGATION BOND		
Factor	Bond Feature	Notes
Sectors	<p>Stakeholder consultation highlighted the following:</p> <ol style="list-style-type: none"> Renewable energy: <ul style="list-style-type: none"> Feasibility studies of offshore wind and solar Solar projects, including for wastewater treatment, waste-to-power plants Fund battery storage capacity and grid updates to secure energy reliability Green shipping and ports: <ul style="list-style-type: none"> Reduce emissions of ships by 40 percent by 2050 Retrofitting ships Manage ballast water 	
Portfolio examples	<ul style="list-style-type: none"> GCF funded Vanuatu Green Energy Fund (USD \$10m) to achieve 100 percent electrification and by renewable energy by 2030 Kiribati's integrated energy Roadmap 2017-2025 requires support for PV solar Fiji and Marshall Islands are leading on a green shipping bond (USD \$200-300m, in discussion) that would reduce shipping emissions. <p>A preliminary list of corporate candidates for renewable energy were also considered in Annex II, Section 5 on <i>Corporate Capacity to Raise Bonds</i>. Further financial and investor attractiveness analysis on these candidates, and others that arise will be conducted in a later task.</p>	
Ocean benefit source	KPIs that are sector specific need to be developed	Refer to PACIFIC OCEAN BOND-ESG GUIDE for available metrics in each sector and relevant standards to be applied to ensure ocean benefit.
Social benefit source	Depending on sector	In terms of employment, energy sufficiency, gender, education
ESG criteria	Climate Bonds Standards	Using existing CBS sector criteria (with strong third-party verification requirements)
Direct revenues	Yes	As main source of repayment
Additionality	Yes	By bringing in additional private money
Timeframe	Average 10 year bond but multiple tranches may be appropriate	These should be linked to project timelines and life of equipment
Investor interest	Industry specialists and private investors who prefer non-sovereign credits	This will be project specific
Financial risks	Project/industry specific	Investors with appropriate expertise to assess these will be needed

PACIFIC OCEAN CLIMATE MITIGATION BOND		
Factor	Bond Feature	Notes
Size	\$50mn +	A larger bond size is desirable to deliver liquidity
Terms	Market	Internationally competitive
Repayment of principle	Depends on tranches issued & cash flows of projects	Depends on accumulated monies from cashflow, although underlying project assets (with lifetime >10 years) can also be sold

Section 6: Taking the Pacific Ocean Bond forward

The successful implementation of the three bond concepts requires an effective enabling environment, including policy relevance and a regulatory environment that provides certainty for markets to operate, governance arrangements, knowledge management, communication, capacity and skill development - all of which contribute to improving the success of the proposed activities and reducing risks to investors.

Next steps in the development of the three bond structures will need to reflect:

- Local socio-economic and sectoral realities
- Capacity and experience in financing
- Country-specific considerations, including governance, policy, and legislative considerations
- Implementation modalities that generally apply across all bond structures
- Modalities specific to each bond structure and reflecting sector needs

General considerations in the next steps in developing a Pacific Ocean Bond

Common implementation next steps which apply across all three bond structures include:

Raising regional awareness of bond finance

The limited awareness and understanding of bond finance in the region were a key learning point during initial regional consultations. Further in-depth regional and national stakeholder consultations should be undertaken. Critical consultations should focus on:

- Widening the awareness and value of bond finance with regional and national actors (government, private sector, national banks, regional organizations, civil society);
- Assessing capacity needs and developing the necessary
 - financial and technical skills
 - environmental socio-economic data and information collection systems to successfully implement and report on bond finance to the standards required
- Identifying possible projects, and geographies for bond financing which can generate returns and have positive impacts on ocean health and contributing to the resilience of Pacific communities.

Structuring governance arrangements

Good governance refers broadly to a set of qualitative characteristics relating to institutional arrangements, decision-making rules and values, transparency, accountability, and public access to information, all of which are of critical importance to prospective investors and the success of projects. These broad governance principles differ within each bond structure because of their different risk profiles, capacity, and circumstances:

- **The Pacific Ocean Impact Bond**, which proposes a Pacific sovereign bond issuer, has inherently higher risks related to transparency and accountability requirements. This is because of limited awareness and application of good governance principles, procedures, and technical capacity to demonstrate measurable impacts. Consideration should be given to establishing dedicated third-party institutional arrangements for the disbursement and the use of proceeds, such as a national bank or an independent trust with a multi-stakeholder membership, to ensure independence and transparency. Independent auditing and verification, and an independent expert panel would add value to the transparency of project development and assessment to ensure measurable impacts.

- **The Pacific Resilience Bond**, which proposes an MDB as the bond issuer, benefits from the MDB’s strong corporate governance mechanisms, and long-standing track record on transparency, accountability, and delivery of results. Governance arrangements would benefit from formalized partnerships with Pacific regional and national institutions to ensure project development is targeting regional priorities, and is cognizant of local socio-economic, environmental, and financial circumstances. An independent advisory expert mechanism across a range of sectors and geographies would add value to existing procedures and enhanced transparency and accountability.
- **The Pacific Ocean Mitigation Bond**, which proposes a corporate bond structure, will follow corporate governance standards as they relate to sustainability. Depending on the issuer’s listing status and location, there can be stronger safeguards through regulatory requirements for considering and reporting ESG risks. While these regulatory standards are typical and increasingly robust in European markets, the Asian markets are still in development phase. That said, Green Bond listing markets, even in Asia, specifically have required similar reporting and verification rules to international standards. This is largely driven by investors’ requirements. For example, even though China’s Green Bond Standards is slightly different from international standards, more than 70% of green bonds issued and tracked in China are aligned to international standards⁴⁹. The ASEAN Green Bond Principles noted in the PACIFIC OCEAN BOND-ESG GUIDE is another example and recommend more frequent reporting standards.

Local governance capacity, especially around financial and ESG management, will need to be supported. This is both at the national level - at regulatory bodies - and at the financial institutions. At the national level, this would include support for:

- Developing and implementing strong macro-prudential regulations, including capital account management techniques and increasing oversight by independent supervisory authorities
- Conducting debt analysis to identify risks and vulnerabilities in national fiscal plans, and identify cost-risk tradeoffs in borrowing decisions
- Managing currency risks
- Maintaining anti-money laundering and related standards
- Enhancing data quality by strengthening traditional data sources, including through surveys, and expanding upon new data sources, and including requiring data for sustainability reporting and impact measurement
- Improving transparency requirements, including financial exposure, ESG indicator verification, and third-party auditing expertise

Aligning policy relevance and regulatory framework

Bond finance needs to be embedded in a broader investment strategy which targets global, regional, and national strategic priorities. The Sustainable Development Goals (SDGs) and the Paris Agreement are the two main global policy drivers, which in turn guide the development

⁴⁹ Climate Bond Initiative. China 2018 H1 Report. https://www.climatebonds.net/files/files/China%202018%20H1%20Report_EN%20final%281%29.pdf

of regional strategies^{50,51} and national strategies, such as Nationally Determined Contributions. These policies provide strategic guidance against which to report, in addition to ESG standards.

Furthermore, a strong regulatory environment which sets rules governing sustainable access to ocean resources, and effective compliance and enforcement provisions, are necessary to secure ocean health benefits and to incentivize a public and private sector transition to sustainable development. In instances when an effective regulatory environment and capacity is not present, consideration should be given to allocating a portion of bond proceeds to support policy and regulatory reform and building and enforcing and compliance capability.

Building Partnerships and supporting organizations

Partnerships between the bond issuer, regardless of the bond structure, and supporting organizations is vital. Pacific Governments, MDBs, international and bilateral donors, regional Pacific organizations, philanthropic organizations, academia, civil society and the private sector all have a role to play either in terms of bond issuance, technical, or project support.

In the case of the Pacific Ocean Impact Bond, for example, the sovereign bond issuer will need to partner with MDBs in order to undertake financial feasibility analysis to secure guarantor support, and will then need to collaborate with similar institutions, or international donors, to secure co-financing partners and investors. More generally, Pacific regional organizations also have existing expertise and reach to support data collection, verification, and third-party auditing expertise of environmental and social indicators.

On insurance, the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI, established 2016) provides Pacific Island states with insurance against natural disasters such as tropical cyclones and tsunamis. COP23 in Bonn also saw the launch of the Resilience Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions of which Fiji, the Marshall Islands, ADB, the World Bank, UNDP, and GEF are currently members.

Ultimately, there is a wide-ranging network of stakeholder relationships on-the-ground in the Pacific at present, and for bond finance to truly add value these existing networks must be leveraged into partnerships in bond finance. This is particularly critical given the difficulties Pacific countries are likely to face to raise capital independently. Partnerships with institutions and organizations like the ones set out above will be vital in getting investor interest.

In addition to these general considerations, the Guidance Notes for Implementing Pacific Ocean Bonds provides additional considerations under the following implementation modalities for each proposed bond concepts

- Partnerships & Supporting Organizations
- Governance arrangements
- Stakeholder engagement
- Impact monitoring and evaluation

⁵⁰ Our sea of islands, our livelihoods, our Oceania: Framework for a Pacific Ocean scope: A catalyst for implementing of ocean policy 2010. <https://www.forumsec.org/wp-content/uploads/2018/03/Framework-for-a-Pacific-Oceanscape-2010.pdf>

⁵¹ Framework for Resilient Development in the Pacific region. An integrated framework for addressing climate change and disaster risk http://gsd.spc.int/frdp/assets/FRDP_2016_Resilient_Dev_pacific.pdf

- Research
- Financial data modeling
- Standards and verification requirement
- Capacity needs

Conclusion

Ultimately, the combination of ocean health needs and climate-related challenges facing the Pacific, particularly in terms of increased financial support, and the region's substantial and cross-sectoral economic, social, and environmental prioritization of the ocean, creates the right conditions for consideration of green/blue bond financing to support sustainable ocean outcomes in the region. Whilst this form of financing faces certain challenges both in terms of country capacity and investor confidence, there are some commercially viable economic activities across sectors that could successfully raise capital and benefit greatly from the introduction of bond finance.

This is clear and the growing interest in blue financing from the investor community and supporting organizations is clear. An effective bond instrument structure can leverage this interest and existing frameworks can safeguard the delivery of positive ocean impacts. While a bond is not a new financial instrument, it is relatively unused in the region. This creates a need for deeper regional and local engagement that can bring regional organizations and governments on board, aligning investor interests with local ocean health and development priorities. Existing projects already under discussion with MDBs or other regional and bilateral organizations that fall within sector priorities can undergo reviews and be considered systematically for eligibility. Proper design of governance arrangements, and local capacity building for this purpose need to happen in-step to safeguard the delivery of ocean impacts, the local economic benefits of investments, and the financial returns to investors.

Annex I: Project Deliverables & Approach

Project Deliverable	Approach
Stakeholder Consultation Plan	NA
Critical analysis of existing environmental bonds	Reviewed up to 10 relevant examples of existing environmental bonds, including a range of listed green bonds and climate bonds from sovereigns, corporates and MDBs to the more recent sustainability and resilience bonds of EIB and the World Bank and the first blue bond, a private placement for the Seychelles. Critically discussed these transactions, in terms of their use of proceeds, governance, differences and formats, processes, scale and structure, how well they have leveraged private capital, how credit default risk is ultimately allocated, and look at the context and procedures. The purpose is to derive potential alternative formats for Pacific Ocean Bond products.
Preliminary list of fundable activities and targets to support ocean health	Reviewed the current regional and national environmental and socioeconomic profile, activities to identify categories of activities that could derive net positive ocean impact. This was done through literature reviews, and outreach to regional stakeholders. Potential funding size is provided in ranges and potential ocean benefits are described qualitatively. Constraints in fundraising are identified.
Funding criteria in the form of a POB-ESG Guide	<p>We developed a set of standards and best practices in terms of ESG for reference for each fundable activity.</p> <p>This set of standards takes into account (i) existing or in development green bond and climate standards; (ii) the Global Environment Facility Adaptation Monitoring and Assessment Tool and other emerging efforts such as the Sustainable Blue Economy Financing Principles (iii) current pacific investment by other international organizations as well as any feedback received by stakeholder groups regionally and internationally.</p>

Project Deliverable	Approach
Three draft bond structure options	Starting with the preliminary list of fundable activities, we assessed the feasibility of packaging activities into a bond structure that would deliver net ocean impact. This considered commercial viability, bankability of relevant projects/ actors and the governance and monitoring needs. A range of structures will be considered, and their assessment would include discussion around the appropriate scale for impact, layers in capital structure, implementation requirements, and attractiveness across different capital provider types. This resulted in 3 concepts for stakeholder feedback.
Regional stakeholder engagement report	Regional stakeholder engagement was focused get agreement on the assessment of socio-economic realities and ocean priorities and needs as the foundation of the possible bond concepts prior to the further development of 3 bond concepts. We hosted a Blue Bond workshop in Fiji in May, and attended a series of regional workshops, connecting with and obtaining feedback from regional stakeholders through in-person discussions and emails.
Draft bond market analysis with suggested pricing for 3 bond structure options	Conducted a bond market analysis and reached out to potential credit guarantee providers and capital providers. The suggested pricing for each bond structure is currently theoretical and with assumptions made around expected placement targets, size of uptake, the ocean benefits and required monitoring and MRV processes.
ESG and risks analysis in the form of Annexes to the POB-ESG Guide	Provided additional qualitative analysis around perverse outcomes categories (e.g. governance, sovereign debt capacity, weather risk) and developed additional annexes for reference by any bond developer.

Project Deliverable	Approach
Proforma cashflows supporting each of the three bond structure options	<p>With the lack of specific projects, the proforma cashflows designs reference projects with similar characteristics to those the bonds are intended to finance. Where possible, past projects from the Pacific region were the first reference points, however, good levels of data were not always available to input into a cashflow model. In those cases, our reference points were either similar island states or developing countries that typically receive funds from the MDBs.</p> <p>The design of the 3 cashflow models are flexible spreadsheets that can receive inputs by knowledgeable project developers to understand the first order financial outcomes from their intended projects. An explanatory document on how to use cashflow spreadsheets and justifications.</p>
Stakeholder feedback on investment feasibility of bond options	Did online and phone outreach to 40 institutions and received high quality feedback from a good cross-section of 24 stakeholders that support the investor ecosystem from: MDBs, Commercial Banks, Impact Fund Managers, Insurance Companies (Asset Owners), Philanthropists, Impact Investors and Consultants.
Three bond concept notes	Summarized of the 3 bond concepts, including the feedback from stakeholders from various stages.
Three bond guidance notes	Laid out general considerations as well as option-specific priority next steps that will help move the concept towards implementation. There are also recommendations for partnerships, governance, data modelling, standards and verification, monitoring and evaluation, research, policy, marketing, stakeholder awareness, additional scientific data required.

Annex II: Regional and sectoral analysis

Annex II identifies and categorizes potential profit-generating activities and potential conservation or governance-oriented activities that can create a net positive ocean impact in the Pacific Island nations of the POFP11.

Sectors and potential ocean benefits

Eight sectors have been identified to have the potential to generate new revenue and provide ocean benefits.

- Sustainable fishers and seafood value chain
- Coastal resilience and rehabilitations
- Renewable energy
- Telecommunications
- Sustainable tourism and Nature Based Tourism
- Water quality and waste management
- Sustainable forestry / agriculture
- Green shipping / green port

The identifiable presence of ocean benefits as the activities in these sectors aligned strongly to global and regional sustainable development agendas, with each sector showing potential sources of cash flows that could support bond repayments.

Table: Sector Activities, Ocean Health Impacts, Potential Cashflow Source

<p>Sustainable Fisheries and Seafood Value Chain</p>	<p><i>Activities:</i> Improve MPA management (e.g. better fisheries enforcement) can protect and spawning grounds, thus protecting marine biodiversity; fisheries policy reform (e.g. moving from vessel day scheme to catch limits or customary rights approach for small fisheries); development of storage and processing facilities; achieving sustainable seafood certifications (e.g. MSC); developing small-scale aquaculture, mariculture ventures; and capacity building for maritime security</p> <p><i>Ocean Health Impact:</i> Investment in better fisheries management as well as in the value chain can reduce illegality and by-catch, and improve quality economic diversity, thus creating higher revenues without increasing fishing pressure on the ecosystems</p> <p><i>Cashflow source:</i> Higher direct payments to government from fisherfolk for licenses and international companies so that nations are maximizing revenue on their EEZs; higher agreed sales prices to international buyers based on sustainable labelling; higher value product sales; and tax generation (by treating fishing fuel in line with fuel on land) can repay funding for these measures</p>
<p>Coastal resilience and rehabilitations</p>	<p><i>Activities:</i> Developing national adaptation policy and coastal management plans that include physical infrastructure adaptation and increased natural protection (e.g. mangroves/ reefs); improved EIAs</p> <p><i>Ocean Health Impact:</i> Improves biodiversity of ocean at coastal areas, Reduces negative impacts on the ocean in case of storms and marine debris</p> <p><i>Cashflow source:</i> Encourages eco-tourism visits, therefore possible user fees, and improved taxes. For ports, reduce physical risk expenditures, might be savings from large “grey” infrastructure for protection, and be part of an insurance solution</p>

<p>Renewable energy</p>	<p>Activities: Policy reform to introduce an electricity tariff system that will support more renewable energy; investment in solar, wind, marine, as well as micro-grid infrastructure.</p> <p>Ocean Health Impact: Contributes to the global effort to reduce CO2 emissions that cause ocean warming and helps countries deliver on their PARIS Agreement NDCs</p> <p>Cashflow source: Electricity sales; lower fuel import balances for government</p>
<p>Telecommunications</p>	<p>Activities: Investment in comprehensive communications infrastructure</p> <p>Ocean Health Impact: Better storm warnings and ocean data help to reduce disaster cost; improved maritime surveillance reduces negative impacts of illegal fishing</p> <p>Cashflow source: Telecommunications services revenue; new SME business growth with telco support driving indirect taxes growth</p>
<p>Sustainable Tourism / Nature-based Tourism</p>	<p>Activities: Foster the development of nature-based tourism strategies; strengthen compliance and enforcement sustainable practices and accreditation to international standards, explore entrepreneurial MPAs led by for-profit tour operators</p> <p>Ocean Health Impact: Support for coastal rehabilitation and water and sanitation activities, reduced energy & water consumption from sector</p> <p>Cashflow source: Higher revenues for the government through fees, more revenues for hospitality sector which includes a large local, SME sectors</p>
<p>Water Quality and Waste Management</p>	<p>Activities: Investment in infrastructure such as sewage plants and waste collection value chain, feasible water storage, and artificial wetlands</p> <p>Ocean Health Impact: Better water quality and reduced coastal pollution; reducing eutrophication and E-coli pollution will improve fish habitat and biodiversity</p> <p>Cashflow source: Potential income from water and waste charges, tourism usage fees and lower costs on public health, which can be repaid by nomination of health insurance payments, new revenue streams from waste-to-product and waste-to-energy</p>
<p>Sustainable Forestry/ Agriculture</p>	<p>Activities: Investment in proper forestry management policies and services, better management of fertilizer on farms</p> <p>Ocean Health Impact: Reduce CO2 emissions from deforestation; improve water quality from reduced runoff</p> <p>Cashflow source: Forestry sector creates higher revenues, carbon credits, usage and administrative fees to government</p>
<p>Green Shipping/Green Port</p>	<p>Activities: Investments into greener (including renewable energy use) fishing fleets, cargo and cruise ships; green port strategies including implementation of ballast water/ invasive species management measures</p> <p>Ocean Health Impact: Reduction of CO2 from shipping; reduced particulate pollution and contamination from vessels affecting water quality and biodiversity; reduced risk of invasive species</p> <p>Cashflow source: Revenues coming from fees for pollution-based port entrance and savings coming from reduction in the risk of damages to port facilities during storms</p>

POFP11 countries need strong policy development support and enforcement capacity to achieve ocean health impacts. As the islands have limited capacity to support these activities, this analysis prioritizes (1) economic potential by analyzing a sector’s importance to a country based on proportion of income and national plans for the sector; and (2) whether there are existing and current international programmatic support for the sector. It is also important to note that within each sector, the priorities and needs might have unique aspects. Deeper analysis of this is available as country factsheets in Appendix IIB.

Table: Country priorities and Availability of Program support

	Sustainable Fisheries and Seafood Value Chain	Water Quality and Waste Management	Renewable Energy	Infrastructure (coastal & telco)	Sustainable Tourism / Nature-based Tourism	Sustainable forestry / Agriculture	Green shipping/ Green port*
Fiji	Green	Yellow	Green	Yellow	Green	White	Yellow
Kiribati	Green	Green	Green	Yellow	Green	White	Yellow
Marshall Islands	Green	Yellow	Yellow	White	Green	White	White
Micronesia	Green	Yellow	Green	White	Yellow	White	Green
Nauru	Green	Yellow	Green	White	White	Green	Yellow
Palau	Yellow	Yellow	Yellow	White	Green	White	White
Samoa	Green	Yellow	Yellow	Yellow	Green	Yellow	White
Solomon Islands	Green	Yellow	Yellow	Yellow	Green	Yellow	Yellow
Tonga	Yellow	Yellow	Yellow	Yellow	Green	Yellow	White
Tuvalu	Green	Yellow	Yellow	Yellow	Yellow	White	White
Vanuatu	Yellow	Yellow	Green	Green	Green	Yellow	Yellow

*We note that Micronesia has a large number of shipping fleet registered to it, however green shipping bonds for the shipping fleet registered will generate ocean health more generally and not specific to the region.

Legend: Green: Important to country + programmatic support available; Yellow: Important to country OR programmatic support available; White: Information of both not available

A further layer of analysis covers the current financial capacity of regional governments and corporates to raise bond finance. The potential to raise a bond varies significantly by country and issuer type. Many of the countries face debt burdens that make it impossible to issue more bonds. They are also fragile economies with a high vulnerability to ocean changes & weather events. The potential for corporate issuance is restricted to a few international companies with interests in the region and a few small companies listed in the Fijian market.

Table: Issuer capacity analysis

	Sovereign Bond	Corporate Bond	Regional Bond
Sustainable Fisheries and Seafood Value Chain	Possible for Solomon Islands / Tuvalu	Subsidiary of international seafood company	Most likely required for ocean health
Coastal resilience and rehabilitation	Low financial capacity in countries where this will be prioritized	Large international port developer	Can be considered
Renewable energy	No financial capacity in countries where this will be prioritized	International RE developers/ Local RE developer in Fiji	Can be considered
Telecommunications	Low financial capacity in countries where this will be prioritized	International telco / Local telco in Fiji	Can be considered
Sustainable Tourism / Nature-based Tourism	Possible for Solomon Islands / Palau	International hotel chain	Can be considered
Water Quality and Waste Management	No financial capacity in countries where this will be prioritized	No candidates	Can be considered
Sustainable Forestry/ Agriculture	Possible for Solomon Islands	No candidates	NA
Green Shipping/Green Ports	Low financial capacity in countries where this will be prioritized	No candidates	NA

*See section 5 for an explanation of feasibility for each issuer type

Current analysis of the size of the bond issuance is limited. It is based on the financial capacity of issuer entities to raise bonds, and needs to be augmented by confirming salient details on (1) size of programmatic aid financing available, (2) cost of investment of specific plans in each sector, (3) potential cashflow sizes (based on what can be charged as user fees, government budget savings etc.).

Introduction

The purpose of Annex II is to identify activities and sectors that have the potential to both generate new revenue and provide ocean benefits. Bond options should be informed by regional development priorities and be relevant to the socio-economic and environmental circumstances of the region. They should add value to current public and private investment vehicles & initiatives and consider a range of maritime sectors, scale and actors. In *Annex IV*, a range of environmental bonds are reviewed in terms of their financial architecture and use of proceeds, which provided some useful background for this Annex, more specifically on investors' priorities and key features to consider for a successful bond.

Annex II was informed by regional information and data, covering key ocean risks, regional and national ocean policy landscape and priorities, the socio-economic status and current investment landscape. The purpose is to identify potential investments, activities and geographies suitable for bond finance as a means to raise additional capital for activities benefiting ocean health and dependent communities.

Sources and data limitations

Sources used include international and regional environmental and socio-economic reports such as those from the UN, World Bank, ADB, OECD, IMF diagnostic, UN SDG Progress reports, FAO, World Health Organization (WHO), German Watch Climate Risk Indices, and Council of

Regional Organizations (CROP) agency reports. These were combined with regional policy documents and instruments such as PIF decisions and ocean policies and available POF11 national strategies including National Sustainable Development Strategies (NSDS), National Determined Contribution (NDC) and Climate Change Adaptation Strategies. Preliminary consultation with regional expert complemented the desktop exercise. This review helped develop a picture of the region and potential interventions suitable for bond finance.

Limited statistical information available hinders the analysis of the Pacific Island nations, a reflection of the gathering capacity of the island nations, given their funding and capacity constraints. This resulted in data gaps and incomplete or old data. Furthermore, there is no standardization of data fields and calculations across the countries, making comparisons across the region difficult. These challenges were evident in the datasets and information gathered by international bodies such as the UN, IMF, World Bank, ADB or OECD, where information fields were in many cases not updated or unavailable. Where there were conflicts between figures reported by various bodies or individual countries, figures from the most appropriate international body were used unless otherwise stated.

Details on projects and granular breakdowns of development plans for all of the Pacific Island countries were difficult to source. The national budgets varied in the levels of detail provided as well as in the level of tracking and reporting on actual expenditure and investment. Publicly available reports were of varying quality and detail. Analysis may be incomplete because of these data challenges, as this limited the ability to quantify potential funding sizes.

While information was not readily available with which to determine the size of investment needs, the financial capacity on the ground can inform the limit of any potential bond. Ranges were proposed to provide some context; however, there was little evidence for these ranges. While there are specific industries where there is potential for commercial cashflows to support a bond instrument, further analysis is required on actual feasibility.

In addition, net ocean benefits are only tangible in the longer term and as such difficult to quantify. Analytically, this would include a combination of benefits, both socio-economic as well as environmental. Consideration of intermediate indicators of ocean health will be necessary and considered in *Annex IV*.

High level observations

The below observations followed from an initial assessment of the region's key ocean risks, strategic priorities, current socio-economic status and investment profiles, bearing in mind the requirements for successful bond finance:

- The Pacific Ocean is economically and culturally significant to the Pacific region and priorities for action are well defined and focus on both ocean health, development opportunities and well-being outcomes (see Section 1)
- Overall, POF11 economies are relatively small and focused on one or two activities (e.g. fisheries, tourism), with the remainder consisting of remittances and external funding. (see section 2)
- Many countries have high budget deficits and/or have high debt to GDP ratios affecting financial stability and limiting the potential to raise additional debt
- Despite issues of access, eligibility, and capacity, the region receives significant external aid funding, including from the World Bank, EU, Australia, New Zealand and Japan.
- Given the size of economies, limited local commercial activities, and policy development support required around all ocean health activities, there is potential to use donor funding and guarantees to leverage private investment through creating

- structures with acceptable risk/ return profiles for investors
- The region is highly vulnerable to both economic and environmental shocks. Environmental risks include impacts of extreme weather or geological events on GDP, which requires any capital instrument structure to be protected by some form of catastrophe risk insurance
- Whilst SIDS contribution to global warming is negligible, the impacts of ocean warming and ocean acidification on their marine and coastal environments, economy and well-being are significant and threaten their long-term survival as sovereign nations.

Data on specific environmental improvements that contribute to ocean health not consistently available (e.g. baselines water quality levels to assess improvements). As such, a comprehensive and consistent framework around environmental impacts monitoring and analysis would need to be an underlying requirement for any bond raised to improve ocean health.

Section 1: A brief overview of the Pacific Ocean risks and strategic priorities for action

A Pacific Ocean Synthesis Report (2009) identified the most critical threats to the Pacific Ocean sustainability and health as:⁵²

- Marine pollution (land based and marine based)
- Habitat destruction (coastal and offshore)
- Overfishing /overexploitation or unsustainable use of marine resources (including in the deep seas)
- Natural and environmental disasters and climate change (extreme events, sea level rise, coral bleaching events)
- Ocean acidification
- Invasive species

The Ocean Health Index 2018 of Pacific Island countries, which measures key elements from all dimensions of the ocean’s health – biological, physical, economic and social - ranges between 59 to 73 out of 100, compared to the global average (OHI 70), indicating a slightly below average healthy ocean. Whilst it was not possible to assess the extent of ocean risks to individual POF11, it is fair to assume that these threats are widely distributed across the Pacific nations, with low-lying countries being most at risk.⁵³

The Pacific region, and other Small Island Developing States (SIDS), have for decades advocated for marine conservation, sustainable use of oceans and climate resilience. This reflects their dependency on ocean resources for their livelihoods and economic development, and vulnerability to climate change and their strong cultural association with oceans. Thanks to their advocacy in international fora,⁵⁴ the UN General Assembly adopted SDG 14 on oceans in 2015, and the Paris Agreement also refers to a global warming objective

⁵² Center for Ocean Solutions. 2009. Pacific Ocean Synthesis: Scientific Literature Review of Coastal and Ocean Threats, Impacts and Solutions. <https://www.centerforoceansolutions.org/sites/default/files/publications/PacificSynthesis.pdf>.

⁵³ Ocean Health Index. <http://www.oceanhealthindex.org>.

⁵⁴ United Nations General Assembly. 2012. Resolution 66/288: The future we want. https://www.icriforum.org/sites/default/files/UNGA_the_future_we_want.pdf.

of holding temperature rise to 1.5 degrees C.

The Pacific region, under the Auspices of PIF, was one of the first regions to develop a Regional Ocean Policy (PIROP-ISA, 2002)⁵⁵ and more recently a Pacific Oceanscape Framework (2010),⁵⁶ which sets out a Pacific vision and guide for the protection and use of ocean resources. This includes establishing an Ocean of the Pacific Ocean Commission (OPOC) and the appointment of an Ocean Commissioner, a role currently held by Dame Meg Taylor.

These regional policy documents and decisions have laid a shared vision for a ‘Blue Pacific’⁵⁷ reiterating the crucial role of the ocean and blue economy⁵⁸ to the livelihoods of Pacific people and the need for a more coordinated approach to ocean health decision making⁵⁹.

This is complemented by sector-based national strategies countries’ global commitments under a series of multilateral agreements. These include NDCs under the Paris Agreement, NAPs under the UNFCCC, and National Biodiversity Strategies and Action Plan under the Convention on Biological Diversity.

The Pacific regional governance architecture, through the CROP agencies provides additional mechanisms and fora for sector-based decision-making (e.g. FFA and SPC on fisheries management; SPREP for biodiversity and environmental management; SPC for health and education, water; and disaster risk reduction, PIF and SPREP for climate change). Their secretariats provide technical expertise services, capacity building and resource mobilization services and implement donor funded regional programs. Finally, a number of UN agencies operate in the Pacific Region, most importantly the Western Central Pacific Fisheries Commission, consisting of representatives of Pacific countries and distant fishing nations, which managed transboundary tuna fisheries under the UN FSA. Other groupings such as the Melanesian Spearhead Group (MSG), the PNA and PIDF add to the already complex tapestry of Pacific Ocean regional governance.

Based on those documents and other reports, the following strategic priorities for action are emerging, some sector based, others cross cutting and focused on enabling actions. Recurring themes for action relevant to good ocean governance and the sustainable management and

⁵⁵ Secretariat of the Pacific Community. 2002. Pacific Islands Regional Ocean Policy and Framework for Integrated Strategic Action. <https://www.forumsec.org/wp-content/uploads/2018/03/Pacific-Islands-Regional-Ocean-Policy-2002.pdf>.

⁵⁶ Pratt, Cristelle and Govan, Hugh. 2010. Our Sea of Islands, Our Livelihoods, Our Oceania: Framework for a Pacific Oceanscape - a catalyst for implementation of ocean policy. <https://www.forumsec.org/wp-content/uploads/2018/03/Framework-for-a-Pacific-Oceanscape-2010.pdf>.

⁵⁷ Taylor, Dame Meg. 2017. Samoa Observer. Blue Pacific a strong expression of Pacific Regionalism. <https://www.samoaoobserver.ws/category/columns/28247>.

⁵⁸ See Fiji Pacific Islands Development Forum high level conference on blue economy (2017)

⁵⁹ Pratt, Cristelle and Govan, Hugh. 2010. Our Sea of Islands, Our Livelihoods, Our Oceania: Framework for a Pacific Oceanscape - a catalyst for implementation of ocean policy. <https://www.forumsec.org/wp-content/uploads/2018/03/Framework-for-a-Pacific-Oceanscape-2010.pdf>.

use of marine resources and protection of marine environment include:⁶⁰

- i. The implementation of global and regional conventions and agreements (MEAs) and the finalization of maritime boundaries (UNCLOS)
- ii. The sustainable use of living resources (e.g. inshore and oceanic fisheries and marine genetic material), non-living resources (oil, gas and seabed mineral exploration), and energy resources (gas hydrates, wave and ocean thermal)
- iii. Sustainable tourism
- iv. Maritime transport
- v. Information and communication technology (ICT)
- vi. Trade
- vii. Maintaining a healthy ocean
- viii. Adaptation to climate change and disaster risk reduction
- ix. Maritime security (defense, surveillance, monitoring and enforcement)
- x. Traditional knowledge and intellectual property
- xi. Integrated ocean governance and management
- xii. Knowledge management and exchange
- xiii. Capacity building (training, education and awareness)
- xiv. Science and technology
- xv. Financial resources

Section 2: Regional/National Socio-economic and investment profile

2.1 Socio-economic profile

This section draws on a compilation of World Bank and IMF data on POF11, and a number of reports and practical data on selected sectors from PIF, SPC, SPREP, SPTO, RFMO/FFA/SPC and POF11 national ministries of finance.

Characteristics of the socio-economic and landscape of the POF11 include:

- Small undiversified economies dominated by one or two economic sectors
 - o Typically, tourism and fisheries are the main source of domestic revenue. In these two industries, there is a substantial informal sector
 - o Six countries have tourism receipts as >50% of exports, with receipt values ranging from USD \$30mn (Marshall Islands) - USD \$1.2bn (Fiji)
 - o Fish and seafood production receipts are >=10% of GDP in Marshall Islands GDP (27%, USD \$42mn), Kiribati (16%, USD \$26mn), Micronesia (10%, USD \$32mn)
- High dependence on external funding and programs (MDB and ODA), with Micronesia and Marshall Islands having ODA to GDP ratios >100%, and several countries have high debt per GDP ratios for their development levels, and many are in positions of fiscal deficit
- Vulnerability to external economic shocks, climate risks and an overall limited national capacity to cope. While the impact to GDP from extreme weather events can be as high as 6%, countries typically cannot spend more than 1% on disaster recovery
- The islands are generally doing reasonably well in terms of ocean health, with Ocean Health Index scores of 59 - 73
- Provision of clean water can still be a challenge

Pratt, Cristelle and Govan, Hugh. 2010. Our Sea of Islands, Our Livelihoods, Our Oceania: Framework for a Pacific Oceanscape - a catalyst for implementation of ocean policy. <https://www.forumsec.org/wp-content/uploads/2018/03/Framework-for-a-Pacific-Oceanscape-2010.pdf>.

- o Data on SDG 6 is limited, with 5 out of 11 countries having no data for progress analysis. Some data exists for Kiribati, Solomon Islands and Vanuatu, revealing major challenges, such as high mortality rates from unsafe water.
- Internet connectivity is still generally a problem with many places with <15% coverage and very high prices. The lack of telecommunications also hampers surveillance of overfishing

2.2. Financial management landscape

Of the POF11 island nations, only Fiji and Solomon Islands have sovereign ratings by the rating agencies, and both are not investment grade. This limits the ability of Pacific Island countries to raise bond finance. In addition, financial management is still a challenge in the region. In particular, several of the islands have been asked to strengthen their anti-money laundering and CFT regimes. Heightened due diligence by foreign banks and increased scrutiny has resulted in partial withdrawal of correspondent banking relationships (CBRs) in Samoa. Partial or full withdrawal of CBRs would disrupt external aid and remittance flows, essential to many countries, thereby causing a drag on the economy. Increasing governance and transparency over public finance is a repeated call from the IMF. Details of the socio-economic indicators for each country are in the Appendix IIA.

2.3 Regional investment landscape

Official Development Aid (ODA)

The Pacific region is one of the most aid-dependent regions in the world. ODA is higher in the Pacific than in any other region on a per capita basis, and 10 Pacific Island countries are among the 25 countries where ODA is highest as a proportion of national income. For example, the ODA received by Marshall Islands in 2017 is over 3 times the size of its GDP.

ODA to Pacific Island countries has increased in the last decade by approximately one-third in inflation adjusted terms after a long period of relative stability, despite significant year-to-year variations. Generally, Pacific Island countries with small populations tend to be provided with more aid. The main sources of ODA are Australia, followed by the US, China, New Zealand and Japan⁶¹. Changes in eligibility for ODA has had a detrimental impact on ODA flows for small islands countries as they graduate to middle to high income countries, an issue SIDS have raised in consideration of their vulnerability to economic and natural shocks.

Concessional finance, such as grants and concessional loans from bilateral and multilateral providers, remain a vital source of financing for development in many SIDS, accounting for the largest flow of external finance for three out of five SIDS in 2012-15 and for over 10% of GNI in 13 individual SIDS, reaching 90% in Tuvalu. SIDS receive 3% of global ODA. While, due to their small populations, in per capita terms SIDS receive 3.8 times more than other developing countries, the cost of delivering assistance in a SIDS context is estimated to be 4.7 times higher than in other developing countries.

SIDS receive the bulk of concessional finance by bilateral providers (79%), mainly influenced by proximity and geopolitical ties. Financing from multilateral providers was more modest (21%) but increasing and expected to further rise driven by the four-fold increase in resources

⁶¹ Dornan, Matthew; Pryke, Jonathan. 2017. Foreign Aid to the Pacific: Trends and Developments in the Twenty-First Century. Asia & the Pacific Policy Studies, Volume 4, Number 3. <https://onlinelibrary.wiley.com/doi/full/10.1002/app5.185>.

allocated to SIDS decided during the IDA 18 Replenishment. Non-DAC sovereign providers have become important partners for SIDS, and China is estimated to be the largest provider to some. Private philanthropy has also increased (USD \$54mn annually on average in 2013-15) as well as private finance mobilized through official interventions (USD \$234mn per year on average)⁶².

Private finance

Fiji is the only nation of the POFP11 that has a domestic stock exchange - the South Pacific Stock Exchange. It has 20 listed stocks with a total market cap of around FJD \$3.5bn (USD \$1.6bn) covering a wide range of sectors. There has been no public issuance in the corporate bond market in recent years, but the IFC together with the Reserve Bank of Fiji and Fiji's stock exchange, the SPSE, are looking to develop Fiji's domestic corporate bond market. Ten companies had already been identified.

Section 3: Sector specific investment opportunities

Bond instruments necessarily put obligations on the capital raising entities to meet some form of annual interest payment and repay the principal at the end of the term of the debt. The investments therefore need to create assets that maintain enough value to repay the principal and generate ongoing economic value to pay the annual installments. The economic value directly relates to the entity that makes the investment or through broader benefits to local economies. However, protection of the investments for bondholders and realization of both the economic benefits and the ocean impacts requires strong governance.

Government revenue may increase due to new or increased resource rent, taxes and fees, increased productivity, or long-term savings as the following examples show:

- Investment in better fisheries management including area-based management as well as in the value chain can reduce illegality and by-catch, improve quality and thus revenues without increasing fishing pressure on the ecosystems. Direct payments for licenses, higher agreed sales prices to international buyers based on sustainable labelling (such as the Marine Stewardship Council) as well as tax generation (by treating fishing fuel in line with fuel on land) can repay funding for these measures.
- Investment in renewable energy, solar, wind, marine, as well as micro-grid infrastructure directly delivers clean energy, making countries less dependent on fossil fuel imports. It contributes to the global effort to reduce GHG emissions that cause ocean warming and helps countries deliver on their PARIS Agreement NDCs.
- Investment in water infrastructure such as sewage plants delivers better water quality, thus potential income from tourism and fishing. Lower costs on public health can be repaid by from health insurance payments and user fees.
- Investment in coastal resilience and rehabilitation, green infrastructure such as the protection of coastal habitats (mangroves/ fewer stressors on reefs) protects hotel properties, encourages eco-tourism visits, can be paid for by tourism sector directly (user fees), or indirect (issuance scheme, taxes).

Some commercially viable economic activities can bring about sustainable ocean outcomes. This could include infrastructure investments for nature-based tourism, telecommunications, localized processing for fisheries. In some cases, these investments would improve economic resilience by diversifying national economies.

⁶² OECD. 2018. Making Development Co-operation Work for Small Island Developing States. <http://www.oecd.org/publications/making-development-co-operation-work-for-small-island-developing-states-9789264287648-en.htm>.

These economic outcomes require strong government support. Whilst governance-oriented activities, such as policy reform or transparency and reporting frameworks, may not generate a direct revenue stream, they contribute to the enabling environment necessary for bond finance.

- Investment in communications provides for better storm warnings, ocean data helps to reduce disaster cost and provides business opportunities for SMEs. Stronger communications systems also support surveillance, which is critical to fishery management. Thus, ICT investment can provide direct income, in the form of fee for services, and reduce negative impacts such as those from illegal fishing.
- A strong policy framework would also promote SMEs in various sectors, such as eco-tourism or fisheries. For many sectors, reforms would improve the ease of doing business or reduced competition from state-owned enterprises. Beyond this, there needs to be regulations, monitoring, and enforcement to ensure ocean impacts and economic benefits flow through. Such governance activities have to be included in the use of proceeds from the bond instrument. The Seychelles Blue Bond is a good example of this approach (see *Annex V*).

Given this understanding, that the analysis concludes that the following sectors may produce viable opportunities for bond financing. Each sector’s description covers both the need for policy reform and the potential for sector development. Appendix IIB includes more detail, with a country-by-country analysis of key industries, how they can improve the governance, sustainable ocean health benefits, and existing aid programs that support these industries.

3.1 Sustainable seafood value chain

Fishing is a major component of protein intake and food security in the region, where inhabitants consume an estimated 37kg of fresh fish per person per annum.⁶³ This is also a sector that provides a major contributes from an economic perspective and yet would have far more potential with governance reform and investment.

Overfishing and declining habitat condition remain an issue mostly in coastal areas^{64,65}. Coastal catch added over USD \$300 mn to regional GDP in 2014⁶⁶, suggesting that the value to the region of coastal catches is comparable to local offshore catch, which added USD \$323mn, and income from foreign license fees which were valued at USD \$325mn in 2014. Overall, access to coastal fisheries is customary and locally managed. These is a lack of monitoring data for informed management, reflected in limited budget allocations to coastal fisheries.

⁶⁴ Vousden, David. 2018. Oceanic Fisheries Management Project II Western and Central Pacific Ocean - Transboundary Diagnostic Analysis. <https://www.ffa.int/system/files/WCPO%20TDA%20OFMP%20%20Final.pdf>.

⁶⁵ Pacific Islands Forum Fisheries Agency. 2018. Tuna Fishery Report Card 2018. <https://www.ffa.int/node/2126>.

⁶⁶ Gillett, R; Tauato, M.I. 2018. FAO. Fisheries in the Pacific Islands: regional and national information. <http://www.fao.org/3/I9297EN/i9297en.pdf>.

Although tuna stocks appear to be fished sustainably, issues of weak management with lack of compliance and enforcement, monitoring and reporting capacity, as well as illegal fishing (IUU) particularly in the high seas undermine the long-term sustainability and profitability of fisheries to Pacific nations. Furthermore, the impact of climate change on fish stocks will create a need for improved and more adaptive management than is currently the case. Success stories such as the Parties to the Nauru Agreement (PNA) vessel day scheme⁶⁷ for tuna fisheries demonstrate how regional cooperation and a rights-based approach can significantly improve domestic revenue from tuna fishing and secure the long-term sustainability of fisheries resources. Moving from vessels day scheme as a measure to control effort to catch limits or an extension or replication of the PNA approach can provide ocean benefits and economic value add, making these interventions candidates for bond finance.

According to the World Bank⁶⁸, fisheries could generate more than USD \$300mn in additional revenue by 2040 and significantly boost incomes in Kiribati, Tuvalu, and the Federated States of Micronesia. These increases in revenue would require public investment in policy reform to include:

- Broadening participation in the Vessel Day Scheme (VDS) beyond the PNA to include major resource owners such as the Philippines and Indonesia
- Ensuring compliance with robust catch limits to maintain valuable tuna fisheries stocks-including limits in the high seas
- Flexible access, including through easier trading of vessel days among countries and companies and eventual pooling of access rights among countries, and a gradual move from a vessel-based to a catch-based system
- Strengthening e-reporting and e-monitoring of catches across the industry
- Developing IUU remote capability at regional and national level and strengthening FFA implementation of the regional MCS⁶⁹

Such robust policy setting would provide not only significant returns to government through value of licenses, fees and taxes, but also increase the value of the fisheries to the industry whilst at the same time reducing the impacts on fish stocks as well as providing certainty for potential private investors.

⁶⁷ Parties to the Nauru Agreement Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu.

⁶⁸ World Bank. 2017. Pacific Possible: Long-term Economic Opportunities and Challenges for Pacific Island Countries. <http://documents.worldbank.org/curated/en/168951503668157320/Pacific-Possible-long-term-economic-opportunities-and-challenges-for-Pacific-Island-Countries>.

⁶⁹ Palau in Partnership with the Pew Charitable Trust have developed an IUU strategy Eyes on the seas which could be used as a model

Fishing License Revenue and Value per Catch
(in USD millions)

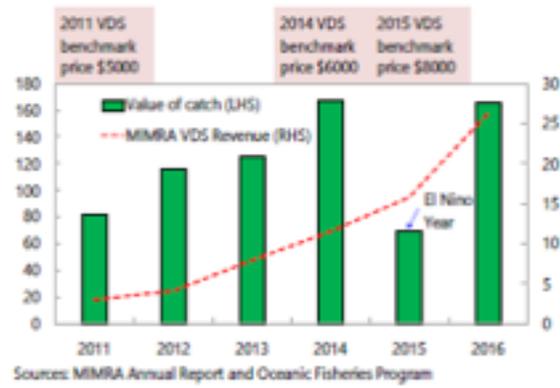


Table: Example of fishing license price increase from Marshall Islands

Investment could focus on sector diversification including:

- Establishing regional processing clusters and vessel support hubs, which could generate an additional USD \$80mn in value added fish waste for high value products and create between 7,500 and 15,000 new jobs. By 2040, fisheries opportunities could translate into an additional increase in per capita income of between 50 and 60 percent in Kiribati and Tuvalu, and around 20 percent in Micronesia⁷⁰
- Small scale fisheries transitioning to rights-based management based on customary rights and existing locally based Marine Managed Areas models, improving access near shore fish aggregating devices (FADs), retrofitting vessels for inshore FAD fishing, establishing local auction facilities, storage and services and better access to markets, as well as developing small scale sustainable aquaculture and mariculture. This would improve food security, create opportunity for local investment and jobs and reduce pressure on inshore fish stocks and marine ecosystems

3.2 Sustainable tourism

Tourism is important across the region, making up the largest contribution of national exports for several nations. The latest tourist visitor numbers show that Fiji and French Polynesia are the two main destinations⁷¹ in the region.

Island	International Tourism Receipts (USD)	% of exports
Fiji	\$1.2bn	49%

⁷⁰ World Bank. 2017. Pacific Possible: Long-term Economic Opportunities and Challenges for Pacific Island Countries. <http://documents.worldbank.org/curated/en/168951503668157320/Pacific-Possible-long-term-economic-opportunities-and-challenges-for-Pacific-Island-Countries>.

⁷¹ South Pacific Tourism Organization. 2017. Annual Review of Visitor Arrivals in Pacific Island Countries. <https://www.corporate.southpacificislands.travel/wp-content/uploads/2017/02/2017-AnnualTourist-Arrivals-Review-F.pdf>.

Vanuatu	\$245mn	79%
Samoa	\$170mn	60%
Palau	\$148mn	87%
Tonga	\$48.5mn	48%
Marshall Islands	\$30mn	66%

Source: World Bank

Overall, the tourism sector is still relatively small, although potentially a source of revenue and future employment given the growing Asian middle-class markets project to increase from 54 million in 2005 to 1 billion by 2030, with projections of continuously growing outbound tourism from China. This represents an important opportunity for the POF11 to grow their tourism sector.⁷² This in turn would lead to increased demand for highly specialized technical and managerial skills. While, at present, many of these skills are imported, with adequate investments in education and training it should be possible to fill many of these positions locally.

A few islands already have sustainable tourism strategies in place, such as Palau’s Responsible Tourism Framework. Fiji has a 2021 timeline to develop a sustainable tourism development framework, supporting the designation of Fiji’s EEZ as a sanctuary since 2003. Seven countries have already declared their EEZ as whale sanctuaries, and some have a healthy whale tourism industry, like Tonga. A regional tourism strategy would ensure a coordinated approach to the development of this emerging opportunity in order to maximize revenue, avoid between inter-island competition, and ensure best practice standards are in place. Tonga’s ongoing whale watching industry and models from other regions could be considered, such as the Indian Ocean Vanilla Islands and the Seychelles. Only Fiji has large international brand hotel chains, while other islands’ tourism economies consist of small tour operators and privately held hotels. Fiji also recently noted an interest in raising green bonds for green hotels⁷³.

Investment could focus on:

- Promoting a nature-based brand, taking advantage of the region’s natural assets, and promoting hotels and hospitality providers’ accreditation and best practice in energy efficiency, waste management and coastal rehabilitation efforts.
- Diversification of the tourism sector to include nature-based tourism facilities and opportunities and associated services
- Strengthening enforcement of infrastructure safeguards/ standards and impact assessment procedures for coastal tourism infrastructure development to minimize impacts on island resources and coastal habitats.

⁷² World Bank. 2017. Pacific Possible: Long-term Economic Opportunities and Challenges for Pacific Island Countries. <http://documents.worldbank.org/curated/en/168951503668157320/Pacific-Possible-long-term-economic-opportunities-and-challenges-for-Pacific-Island-Countries>.

⁷³ Pacific Region Infrastructure Facility. 2018. Fiji Sun. Big Investments Needed in Region’s Renewable Energy Market. <https://fjisisun.com.fj/2018/08/05/big-investments-needed-in-regions-renewable-energy-market/>.

- Developing specialist skills in hospitality, environmental and coastal management and monitoring

There are several programs that are in support of this, including the designation of shark habitat conservation areas in Fiji, Kiribati and Samoa. Other programs might not be targeted at the tourism industry but are important to the development of sustainable tourism, including the PacSIDS Ridge to Reef Programme Partnership and Pacific Mangroves Initiative.

3.3 Water quality / waste management infrastructure

Pacific Islands and small, low-lying atolls are vulnerable to marine pollution from land-based sources, resulting from high-density population, poor sanitation, limited waste management and water treatment facilities, and an overall limited supply of fresh water. Poor water quality not only affects human health and the spread of disease, it is also detrimental to coral reef health, which fisheries depend on.

Improved water supply/waste management infrastructure would help alleviate pressure on national budgets dedicated to health, generate local community health benefits and improve coral reef health (Table 2).

Island	Mortality rate attributed to unsafe water
Fiji	2.9%
Kiribati	16.7%
Micronesia	26.7%
Samoa	1.5%
Solomon Islands	6.2%
Tonga	1.4%
Vanuatu	10.40%

Table 2-Water quality and health

Investment could focus on:

- A regional or national regulatory framework (water quality standards and guidelines), and protocols and capacity for monitoring of marine water quality, and education programs for recycling. Regional organizations such as SPREP have technical capacity in waste management training and capacity building, and SPC has the lead on health.
- Establishing water treatment infrastructure, dual reticulation water system, waste collection and recycling facilities. Typically for this industry, recoverable revenue is low, but it could generate savings in health expenditure, generate new economic activity and income through improved fisheries productivity due to improved reef water quality and opportunities for local SMEs
- Development of waste-to-materials and waste-to-energy economy and infrastructure

IT is also worth noting the recently accounted Pacific-EU Waste Management Programme program, on top of existing programs on waste management at SOPAC.

3.4 Telecommunications

According to the World Bank, improved internet access and connectivity could translate into additional GDP of more than USD \$5bn and close to 300,000 additional jobs by 2040. In recent years, the Pacific Island countries have liberalized their telecommunications markets and invested heavily in fiber optic cable connections. This creates the basis for significant increases in mobile and internet penetration over the next 25 years. Current data show penetration is low, with the highest at 40% and astounding prices for connectivity in some countries, such as 237% of GNI per capita in the Solomon Islands⁷⁴.

Country	Mobile broadband		Fixed broadband		Capacity	
	Access Mobile- broadband subscriptions per 100 inhabitants	Affordability Mobile-cellular prices as % of GNI per capita	Access Fixed- broadband subscriptions per 100 inhabitants	Affordability Fixed- broadband prices as % of GNI per capita	Broadband International Internet bandwidth per Internet user	Economic GNI per capita PPP (current international \$)
Tonga	56.0	2	2.8	2	33,947	5,760
Fiji	54.3	4	1.4	4	23,726	9,140
Samoa	26.6	5	1.2	12	13,159	6,200
Marshall Islands	0.0	6	1.9	13	34,571	5,280
Vanuatu	22.6	10	1.6	24	21,921	3,050*
Kiribati	0.9	5	0.1	66	4,426	3,240
Federated States of Micronesia	0.0	9	3.0	11	23,192	4,330
Solomon Islands	12.9	9	0.2	237	11,971	2,150
Papua New Guinea	9.2	9	0.2	4	20,112	2,700*
Pacific average (simple)	20.3	6.7	1.4	41.5	20,780	4,650

Source: Produced by ESCAP, based on data from ITU's World Telecommunication/ICT Indicators Database 2016.
Note: * = latest available data is from 2014.

Telecommunications are critical for economic development and ocean benefit, supporting a range of enabling activities such as maritime surveillance, IUU, emergency services responses, monitoring of ocean health, and knowledge management that would be essential for reporting on impact or investment.

Potential investments could include:

- Telecommunication towers that can add value to existing economic activities like tourism, create new markets like business process outsourcing, and support improved surveillance capacity of fishing vessels and catch.
- Smart devices that rely on new telecommunications protocols can support improved port efficiency and improve environmental monitoring capacity. This would also require policy support around development of communications protocols.

3.5 Climate finance

⁷⁴ United Nations ESCAP. 2014. ESCAP Annual Report 2014. <https://www.unescap.org/sites/default/files/ESCAP-Annual-Report-2014.pdf>.

Due to their location, many SIDS are highly exposed to temporary natural shocks, in particular cyclones, earthquakes, tsunamis and volcano eruptions. Smallness exacerbates the exposure, as natural hazards often affect a significant part of or even the whole country. Consequently, negative impacts often last longer in SIDS than in countries where hazards have more localized effects. Many SIDS are also highly exposed to permanent shocks associated with climate change, in particular to sea level rise, ocean acidification and global warming of atmosphere and oceans.

These phenomena threaten coastal and marine resources on which the economies of many SIDS depend, aggravate resource scarcity, and further increase the exposure to natural shocks such as storm surges. This is in addition to the long-term human-caused environmental pressures on marine ecosystems, such as over exploitation, habitat destruction and marine pollution. Climate change and natural disasters affect all aspects of development and are a significant risk to the region's economy adding a significant burden on Pacific Islands' GDPs. The World Risk Index (2018) ranks five of the Pacific Island countries among the top 20 most at-risk countries in the world, including Vanuatu and Tonga, which are ranked first and second respectively⁷⁵. Based on available disclosure, the islands only allocated ~1% of government budget on disaster and recovery.

Addressing the impacts of climate change is a priority for action, which requires both regional and national actions, in terms of emergency and disaster relief and prevention and adaptation planning to reduce vulnerability. Whilst improving coastal management responses and infrastructure development can reduce vulnerability, climate change remains the single most important threat to the long-term future of many islands especially in low-lying areas.

Low carbon development is one of the key goals of the Pacific Framework for Resilient Development (PFRD), and proposes a number of priority actions.

- Investment in more energy-efficient modes of transport (e.g. shipping) and reducing energy consumption and other sources of greenhouse gas emissions in the agriculture, tourism and fisheries sectors, considering the growing emissions from these sectors.
- Investment in clean and affordable energy including renewable energy can diversify the sources of energy, and thereby strengthen resilience to economic shocks. This also aligns to the Islands efforts to address climate change
- Blue economies hold opportunities for stimulating ocean-based development and creating new jobs. Conservation of marine and terrestrial ecosystems, sustainable management of coastal and marine areas and enhancement of blue carbon stocks are also essential components of low carbon development, leading to a more resilient natural marine environment

Public investment funds like the GCF and other bilateral and international programs can fund the development and implementation of national adaptation strategies with the above focus, improve preparedness measures which would reduce the burden on national expenditure. These could be considered, independently or in conjunction with insurance instruments and facilities such as the World Bank Pacific Catastrophe Insurance Facility and building on the EU Climate Change Alliance (GCCA+) and concessional funding from the GCF.

3.5.1 Renewable energy

⁷⁵ World Bank. 2019. The World Bank in Pacific Islands: Overview. <https://www.worldbank.org/en/country/pacificislands/overview>.

In 2010, the energy, transport and industrial sectors accounted for over three-quarters of total energy demand of Pacific Island Countries and Territories (PICTs). Oil is the main energy source, meeting over two-thirds of the primary and final energy demand. The increase in the price of petroleum from 2002 to early 2008 cost most PICTs about 10% of their gross national incomes, with impacts falling disproportionately on those with low incomes. For the period 1990-2010, total energy supply in PICTs (fossil fuels and local sources, such as hydropower and biomass) grew at a rate of 4.6% per year. Total carbon dioxide emissions grew by 3.9%. The annual average growth rate in carbon dioxide intensity (tonnes of carbon dioxide per constant 2000 million dollars) was 0.5% between 1990 and 2010.

There are several international programs supporting the transition to renewable energy like the Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation Program (EU), ADB's Pacific Renewable Energy Investment Facility and the Lighthouse Initiative. Several countries, including Vanuatu, Fiji and Kiribati, also have their own renewable energy plans and targets.

Investment could focus on:

- Increasing the scalability of current small scale solar and wind
- Developing new marine renewable energy solutions customized to local needs and configuration of the near shore environment, like tidal, solar, geothermal

There is much to learn from the Fiji Green Bond, which included funding for renewable energy projects. Whilst not having direct benefits to ocean health, investment in renewable energy reduces dependence in fuels imports and can potentially generate savings.

3.5.2 Sustainable forestry and agriculture

Most of the islands have only subsistence level agriculture except for the Solomon Islands, which has an active forestry sector that accounted for 2/3 of exports of goods in 2017, 22% of total government revenue. It is over-exploited and rapidly depleting, and its timber typically sells below international prices, representing lost revenue.

Investment could focus on:

- Proper forestry management policies and stronger enforcement capacity
- Better management of fertilizer on farms can be explored

Aside from the reduced CO2 emissions from unmanaged deforestation, there would be significant improvement in water quality from reduced runoff and chemical contamination.

3.5.3 Green shipping and green ports logistics

Recently green bond raising by shipping companies to 'green' their vessels show that the momentum towards green shipping is picking up steam. Similar ideas are under consideration:

- Green fishing vessels, inter-island ferries and cargo in the region, including new builds and retrofits for cleaner fuels and ballast water treatment.
- Green port management policies, including the consideration of Emission Control Areas and anti-ballast dumping regulations.
- Green Port infrastructure: waste management (also included in the Resilience Bond), clean onshore power, local monitoring of ships (especially cruise vessels) for IMO regulatory compliance

While the Marshall Islands Ship Registry (MISR) is the second largest ship registry in the world (13,000 vessels), and could position themselves with a green shipping theme, the ocean health impacts from that is significant but will largely be non-localized to the region. It is certainly a growth theme for the industry and could provide skills training and job opportunities.

3.5.4 Coastal resilience and marine conservation

Coastal habitat degradation and coastal erosion, as a result of poorly regulated urban and coastal development, high density population, sand mining, seawall infrastructure development, is compounded by the impacts of cyclones, flooding and longer-term sea-level rise salt intrusion, putting at risk water supply and marine water quality for fringing coral reefs ecosystems (GCRMN 2018) and dependent island communities.

The protection of coastal and offshore marine environments through marine spatial planning and marine protected areas, including the high seas, although high on the agenda of the Pacific region, remains a key challenge despite some impressive declarations of large marine protected areas⁷⁶ and community based marine managed areas (LMMAs). Marine and coastal protected areas provide essential ecosystems services contributing to coastal and marine climate resilience (the object of a separate project). The costs of managing marine protected areas remains a challenge for most of the island countries. Interesting initiatives include:

- The Phoenix Island Protected Areas Conservation Trust (PIPA Trust) established under the republic of Kiribati law for the sustainable financing of the conservation of the terrestrial and marine biodiversity of the Phoenix Island group
- The Micronesia Challenge, a commitment by the Federated States of Micronesia, the Republic of the Marshall Islands, the Republic of Palau, Guam, and the Commonwealth of the Northern Marianas Islands to preserve the natural resources that are crucial to the survival of Pacific traditions, cultures and livelihoods, to effectively conserve at least 30% of the near-shore marine resources and 20% of the terrestrial resources across Micronesia by 2020
- The Micronesia Conservation Trust (2002) is supporting biodiversity conservation and related sustainable development for the people of the Federated States of Micronesia (FSM) by providing long-term sustained funding

Investment could focus on:

- Compliance and enforcement of coastal planning, regulations and standards and impact assessment for coastal and urban development, including tourism facilities, and appropriately designed coastal defenses to protect key infrastructure assets
- Green ports strategies and grey infrastructure improvements
- Nature based green infrastructure, such as wetlands, coral reefs conservation and restoration, alongside regional programs implemented by Pacific Regional Environment Programme (SPREP) including the EU Global Climate Change Alliance (GCCA)+
- Nature-based tourism ventures which could generate revenue, contribute to coastal and marine conservation, and provide local jobs and support financial cashflows for the Government, such as Palau’s tourism charges, and airport taxes and park entry fees. Green port strategies can drive revenues coming from fees for pollution-based port entrance and savings coming from reduction in the risk of damages to port facilities during storms

⁷⁶ Kiribati, Palau, Fiji

Section 4: Other challenges and opportunities

4.1 Vulnerability

The Pacific Island region faces significant vulnerabilities including smallness; remoteness from markets, narrow resource and export base; and exposure to environmental shocks (including climate change and natural disasters) and external economic shocks. These can impact ocean resources, coastal ecosystems, and long-term prospects for sustainable development. Impacts of natural hazards on GDP reach up to 6% annually (Global Risk Index).

For most island states, expenditure volatility due to the impacts of natural disasters and extreme weather events pose a significant challenge. In its consultations with individual countries, the IMF has repeatedly underscored the need for fiscal space and tightened public spending in order to meet potential reconstruction needs.

The limited resource base - both natural and human - leads to a small production base for SIDS economies, in particular resulting in low economic diversification and increased exposure to shocks. For smaller and fragmented SIDS, a lack of infrastructure poses major constraints to the diversification of economic activities. Within agriculture and fisheries, countries often concentrate on few commercial products, in addition to subsistence activities. The same seems to apply to services. Many SIDS specialize in a limited number of service activities, predominantly tourism but also increasingly financial and business services. SIDS endowed with exploitable non-renewable resources are involved in significant mining activities, such as Papua New Guinea, and oil exploration, though the range of products is limited, and the rapid exploitation of these resources has led to their depletion and the collapse of mining in some SIDS, such as phosphate mining in Nauru or Kiribati. Major industrial activities are limited to larger SIDS.

Many SIDS also export labor services, making remittances, including compensation of employees working abroad, a major source of foreign currency. At the same time, long-term and permanent migration, in particular of skilled labor, often implies a significant loss in human capital, exacerbating problems of limited resource base and smallness. The low production base also leads to high import dependency, even for SIDS facing high transportation costs due to remoteness and fragmentation. In many SIDS, import dependency is high for manufacturing and energy, and food. The need to finance these imports makes exports of goods and services all the more important, but in view of their limited production base as described above, many SIDS also exhibit high levels of external indebtedness or high dependency on ODA.⁷⁷

4.2 Mobilizing domestic resources

SIDS face significant challenges in mobilizing domestic resources and in accessing capital markets. They tend to have small and erratic domestic revenues, which combined with high costs for providing public services and the fiscal impacts of natural disasters, often result in limited fiscal space for development investments. The debt situation of the five SIDS that benefitted from the Heavily Indebted Poor Countries Initiative has drastically improved in the past 15 years, but for the remaining SIDS debt over gross national income (GNI) ratios have

⁷⁷ Bruckner, Matthias. 2013. Effectively addressing the vulnerabilities and development needs of small Islands developing States. UN Department of Economic and Social Affairs. https://www.un.org/en/development/desa/policy/cdp/cdp_background_papers/bp2013_SIDS2.pdf.

increased. Overall 20 SIDS are at moderate risk, high risk or in debt distress, according to the IMF. Foreign direct investments and other private finance flows are highly volatile and on average contribute little to SIDS' external financing: only 12% in 2012-15. This reflects the lack of creditworthiness to raise funds in capital markets for many SIDS, especially in the Pacific, and the recent deterioration in international capital-market ratings and debt sustainability issues for other SIDS, such as in the Caribbean. Owing to large diasporas, remittances represent the largest flow of external finance for SIDS: 52% in 2012-15 (OECD 2018).

Furthermore, many SIDS rely on a handful of providers for the bulk of their financing for climate and disaster resilience while the remainder of this support splinters across several small projects from various sources. This combination makes SIDS extremely vulnerable to shifts in the priorities of the dominant provider(s), while also burdening their limited administrative capacity. In aggregate, over half of concessional finance reaching SIDS was provided by just five providers (58% in 2012-15): Australia, United States, the EU, France, and

IDA. Reliance on top providers is even more extreme for individual SIDS, which rely on average on a single provider for 46% of their concessional finance and on the top three providers for 74% thereof (OECD 2018).

Although more sources have become available, many SIDS struggle to access these, owing to low absorption capacity and the complex array of accreditation and application processes to access the global funds. Access to finance is further constrained by a complex web of eligibilities and that includes ad hoc exceptions, resulting at times in inconsistent treatment across SIDS. Overall, improvements to concessional finance could better address some of the major vulnerabilities and issues that hinder further development in SIDS, such as climate vulnerabilities, lack of fiscal space, energy and infrastructure. As SIDS embark on a path of sustainable development, they will need to mobilize more financing from a broader array of both public and private sources. Concessional funds will need to play a significant role in leveraging and catalyzing those flows.⁷⁸

4.3 External drivers for increased concessional fund support

Global drivers for financing SIDS including the POFP11 strategic priorities for ocean based sustainable development include:

- The SDGs 2030 and in particular SDG 14 which in target 14.7 specifically references the economic benefits sustainable use of marine resources will bring to SIDS (and least developed countries). This is in tandem with new agendas on sustainable and inclusive blue economy
- The Paris Agreement and its target of keeping temperature increase by 2100 within 2 degrees, and ideally 1.5 degrees, will drive public and private investment over the coming decade in SIDS
- The Addis Ababa Conference on financing development will encourage the use of private finance to take the short fall in public funding for development
- Other geopolitical factors can also drive new capital flows, such as China's Belt and Road Initiative on infrastructure development especially ports

⁷⁸ World Bank. 2017. Pacific Possible: Long-term Economic Opportunities and Challenges for Pacific Island Countries. <http://documents.worldbank.org/curated/en/168951503668157320/Pacific-Possible-long-term-economic-opportunities-and-challenges-for-Pacific-Island-Countries>

4.4 Measuring oceans benefits & impacts

Positive impacts on ocean health will not be evident in short term indicators. Intermediate indicators can measure adoption of good practices, policy change, and changes in socio-economic indicators using existing national or global indicators. Data limitations will need to be addressed to assess the quantitative benefits of interventions.

Section 5: Bond feasibility and design considerations

Using synthesized information from Sections 1-4, the following key considerations were identified in terms of the feasibility for certain types of issuers.

Issuer considerations - Sovereign capacity to raise bonds

Given the POF11 islands' economic and financial situations, most countries have weak to medium capacity to raise a sovereign bond. The analytical starting point is deficit positions, which give an indication of whether a country will have the ability to service annual interest payment from a bond.

	Fiscal position (% GDP)			
Public Debt/GDP ratio	+ve >10%	+ve	-ve	-ve >10%
>50%		Nauru	Samoa Vanuatu	
40-50%			Fiji^ Tonga	
<40%		Marshall Islands Micronesia Palau Tuvalu**	Solomon Islands	Kiribati*

[^]Public debt to GDP ratio is as at 2018 and should have taken into account the USD \$50mn sovereign green bond Fiji raised at the end of 2017

^{*}Fiscal position of Kiribati is highly variable going from 49% in 2015 to -20% in 2018

^{**}Fiscal position of Tuvalu ranged between -6% to 15%

For some of the countries already suffering from a deficit, their government debt to GDP ratios are also considered high. In particular, Nauru, Samoa, and Vanuatu are at >50%, with Fiji and Tonga nearing 50%.

	Fiscal position (% GDP)			
Net Receipts / GDP ratio	+ve >10%	+ve	-ve	-ve >10%
>50%				
>100%		Marshall Islands Micronesia		
50-100%		Tuvalu		

<50%		Nauru Palau	Samoa Vanuatu Fiji Tonga Solomon Islands	Kiribati
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*Net Receipts= ODA, Other Official Flows (OOF) and Private Flows from Development Assistance Countries

Another fiscal vulnerability is that countries are overly dependent on development assistance from other governments. The table above shows the countries where should such assistance taper off, any replacement of financial needs by commercial financing would not be viable.

Given this analysis, there are two categories of feasibility for raising a sovereign bond: Weak and Reasonable.

Weak Candidates	Reasonable Candidates
<u>GDP >USD \$1bn</u> Fiji Vanuatu <u>GDP = USD \$500mn - USD \$1bn</u> Samoa <u>GDP = USD \$100mn - USD \$500mn</u> Tonga Nauru Kiribati Marshall Islands Micronesia	<u>GDP >USD \$1bn</u> Solomon Islands <u>GDP = USD \$100mn - USD \$500mn</u> Palau <u>GDP < USD \$100mn</u> Tuvalu

Given both the fiscal and debt positions, even among the countries listed under Reasonable, it would be unlikely that a bond can be comfortably supported if its size is >10% of GDP.

Please refer to Appendix IIA for the full data set of financial indicators of the countries.

Issuer considerations - Corporate capacity to raise bonds

The considerations of the possibility of raising a corporate bond include:

- size of commercial markets in the POF11 countries
- the likelihood that a corporate entity might derive commercial benefit while the country can derive ocean health benefits
- existing entities in operation in country that can be reasonable candidates

As mentioned, Fiji is the only country that has a domestic stock exchange with 20 listed entities. No countries any bond raising experience, but IFC is supporting the development of the domestic bond market by raising bonds for local corporates in local currency. As such, our analysis of corporates includes Fijian listed companies as well as large international corporates that have known activities in the Pacific Islands.

Industry Area	Corporate Possibility	Remarks
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Sustainable Tourism	Marriott Market Cap (NASDAQ): USD \$45bn	Has bond raising experience Only international brand with Pacific Island presence that has experience with reef rehabilitation programs under their Andaman brand in Malaysia
Telecommunications	Intelsat Market Cap (NASDAQ): USD \$2.6bn <u>Communications (Fiji) Ltd</u> Market Cap (South Pacific): ~USD \$10mn	Has bond raising experience Key telecommunications provider in Pacific Islands. Has had specific one-off philanthropic activities providing satellite enabled education and healthcare in Africa Largest radio broadcaster in South Pacific. No bond raising experience.
Port infrastructure	DP World Market Cap (NASDAQ): USD \$11bn	Has bond raising experience including sukuks which are very amenable to green bonds 2014 port upgrade plan for Marshall Islands noted
Renewable Energy	Vision Investments Limited Market Cap (South Pacific): ~USD \$200mn Energy Fiji Limited Still unlisted but has intention for a listing on South Pacific Stock Exchange	Owns Vision Energy Solutions a renewable energy provider in Fiji. No bond raising experience. Currently government owned, responsible for Generation, Transmission and Retail of electricity. Have been involved in one wind power project.
Sustainable Forestry	<u>Future Forests (Fiji) Ltd</u> Market Cap (South Pacific): ~USD 12mn	Sustainable large-scale planting & harvest of teak

The size of a corporate bond will be highly dependent on whether it is a local issuer or an international multinational corporation issuer. The local issuer is likely to be <USD \$50mn and given the lack of corporate rating, will need to be anchored with domestic investors. For an international multinational corporation, the size will align with to the capital expenditure needs.

Issuer considerations - Regional structures

For certain sectors like fisheries and water and sanitation, where economic benefits accrue to government or where investment is unlikely to generate profit, the countries in most need of capital injection in these sectors are largely too small to issue sovereign bonds. Regional scale structures will help boost the size of the capital raised, reduce transaction costs, and build on

the existing regional network of agencies, which are already implementing regional donor programs and providing technical services to countries.

For example, improved tuna fisheries management through introduction of a vessel day scheme has resulted in an increase in the price of fishing licenses and thus government revenue of parties to the PNA. However, these are weak candidates to raise a sovereign bond. In such cases, a regional MDB would be a suitable party to engage to seek feedback on such a possibility.

Structure considerations - blended finance

There are several reasons to consider blended financial structures, which combine philanthropic, public and commercial funds, such as:

- the lack of capacity of individual countries as well as the domestic corporate sector to raise funds
- that revenue benefits that are derived directly from investment, such as improved fish stocks, are going to take time to materialize
- the clear need to support the policy infrastructure development in these countries to ensure improved ocean health outcomes and commercially viable projects

Notably, the Seychelles Blue Bond had participation from impact capital as well as commercial capital which is guaranteed by the World Bank, and this may be replicable in Pacific contexts.

There is also increasing interest in clear social impact bond (SIB) structures. These typically take some form of pay-for-success structure where payouts increase (and/or switch payout responsibility) when certain environmental benchmarks are achieved. These can be considered, however the requirements for baselining to support bond structure design, as well as supporting systemic on-going data monitoring, which creates a longer lead-time and may create high overall costs.

Structure considerations - insurance for extreme weather risk

The vulnerabilities that we have alluded to in the previous section have clear impacts on the countries' income levels. These cascade down to individual sectors particularly fisheries and tourism incomes. Infrastructure like renewable energy and telecommunications are also vulnerable to damage. The ability to continue payouts, such as during or following extreme weather events, is an important consideration. The Mexico MultiCat Bond reviewed in *Annex IV* provides a structure as a reference.

Structure considerations - Others

Given that several of the eventual recipients of funds to make investments into improved facilities are going to be small and medium sized enterprises, while bonds can be listed offshore, the credit quality of these implementers are likely to improve if we involve a local bank that has intimate understanding of the organizations. The IFC noted that a few of the islands have domestic pension funds with investment capacity that could provide support for a

domestic listed bond and act an anchor investor in an offshore bond - like in the Fiji Green Bond⁷⁹.

As ocean benefits become tangible over a long period, bond structures may need to allow for flexible interest repayments.

Governance, regulatory certainty and accountability

Annex IV addresses these issues in greater detail. There are some existing institutional arrangements (for e.g. PIPA trust fund, Micronesia trust fund) that could be leveraged for disbursing proceeds.

⁷⁹ Phone interview with IFC Aaron Levine by Xinying Tok on 5 April 2019.

Conclusion

The review and analysis conducted paints a picture of high dependence on concessional funding for achieving development and ocean health outcomes, and a narrowed scope of opportunities for bond finance, given the financial constraints and vulnerabilities experienced in the region. However, some areas for potential investment have been identified, with the potential economic value or savings and hence support financial returns for investors.

- Investing the sustainability and diversification of existing economic sectors (like fisheries and tourism), which will generate both new economic value and reduce negative impacts on ocean health
- Investing in new and emerging infrastructure such as telecommunications and renewable energy, which will generate economic activity in their own right and support, improve the profitability of existing sectors and reduce expenditure on imports.
- Investing in improved water quality and waste management infrastructure, which could generate government savings
- Investing in climate resilience and green infrastructure, which will improve the profitability of ocean resources-based sectors, generate additional revenue and build climate resilience

While the review indicated the presence of commercially viable opportunities, the vulnerable economies and limited number of large corporates in the region suggest there are few actors with strong enough balance sheets to attract significant debt financing. This suggests that bond issuance may require the involvement of multiple actors and potentially at the regional level. Structures could include MDBs, donor governments and the international philanthropic community to provide the right mix of risk and return for investors and governance mechanisms, to ensure ocean benefits are realized.

Annex IIA: Socio-Economic Indicators by Country

Fiji

	Factor	Unit	2014	2015	2016	2017	2018
I . Econ omic	GDP	current USD \$ mn	4,483	4,362	4,671	5,061	
	Personal remittances, received (% of GDP)	%	5	6	6	5	
	GDP Growth (annual)	%	6	4	0	4	
	GNI	current USD \$ mn	4,244	4,186	4,495	4,817	
	Central government debt, total (% of GDP)	%	-	46	48	48	50
	Fiscal Balance (% of GDP)	%		(4)	(1)	(2)	(4)
	Net Receipts (% of GDP)	%				5	
	International tourism, receipts	current USD \$ mn	1,034	1,038	1,049	1,188	
	International tourism, receipts (% of total exports)	%	42	47	48	49	
	Fishing & Ports						
	Fish & seafood production (value)	USD \$ mn		66			
	Fish & seafood production (% of total GDP)	%		2			
	Country agricultural investment statistics						
	DFA Commitment to Agriculture, Forestry and Fishing	USD \$ mn	5	11	1		

	Factor	Unit	2014	2015	2016	2017	2018
I I . Social	Population						
	Total population	-	885,806	892,149	898,760	905,502	
	Employment indicators						
	Labor force, total		370,549	371,824	374,560	377,262	379,967
	Unemployment, total (% of total labor force) (modelled ILO estimate)	%	6	6	6	6	6
	Health indicators						
	Mortality rate attributed to unsafe water (per 100,000 population)	%	-	-	3	-	-
	Current health expenditure (% of GDP)	%	4	4			
	Others						
	Renewable electricity output (% of total electricity output)	%	47	45	-	-	-
	Internet Users	%					47
	Mobile-Cellular prices (% of GNI per capita)	%		4	4		
	Fixed-Broadband prices (% of GNI per capita)	%		4	4		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%				1.97	
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						yellow

	Factor	Unit	2014	2015	2016	2017	2018
	Goal 7 - Affordable and Clean Energy						yellow
	Goal 13 - Climate Action						green
	Goal 14 - Life below Water						orange
	Ocean Health Indices						
	Other indices						
	Ocean Health Overall Goal Score	1-100	69	69	69	70	70
	Ocean Health Index - Biodiversity	1-100	84	84	85	85	84
	Ocean Health Index - Clean Waters	1-100	72	76	72	74	75

*Net receipts = ODA, Other Official Flows (OOF) and Private Flows from Development Assistance Countries
SDG Ratings

SDG achieved	Challenges remain	Significant challenges	Major challenges remain
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All scores range from zero to 100.

'100' means that the evaluated system has achieved its defined target (reference point), is sustainably delivering all of the specified benefits that it can and is likely to continue doing so in the near future.

'0' means that global data were available; but that the country did not achieve any of the available benefits or that the benefits it did obtain were gained in a manner that was not sustainable

Intermediate scores mean that the optimal benefit is not obtained and/or is not obtained in a sustainable way. The higher the score, the closer a country is to obtaining optimal sustainable benefits.

Kiribati

	Factor	Unit	2014	2015	2016	2017	2018
I . Economic	GDP	current USD \$ mn	180	171	178	186	
	Personal remittances, received (% of GDP)	%	9	9	10	10	
	GDP Growth (annual)	%	(1)	10	5	0	
	GNI	current USD \$ mn	342	351	347	364	
	Central government debt, total (% of GDP)	%	-	20	24	23	22
	Fiscal Balance (% of GDP)	%		49	3	12	(20)
	Net Receipts (% of GDP)	%				41	
	International tourism, receipts	current USD \$ mn	3	2	3	-	
	International tourism, receipts (% of total exports)	%	13	11	17	-	
	Fishing & Ports						
Fish & seafood production (value)	USD \$ mn	26					
Fish & seafood production (% of total GDP)	%	16					
Country agricultural investment statistics							
DFA Commitment to Agriculture, Forestry and Fishing			4	2	1		
II . Social	Population						
	Total population	1000	110,458	112,407	114,395	116,398	

	Factor	Unit	2014	2015	2016	2017	2018
	E m p l o y m e n t indicators						
	Labor force, total	1000	-	-	-	-	-
	Unemployment, total (% of total labor force)	%	-	-	-	-	-
	Health indicators						
	Mortality rate attributed to unsafe water	%	-	-	17	-	-
	Current health expenditure (% of GDP)	%	10	8			
	Others						
	Renewable electricity output (% of total electricity output)		-	7	-	-	-
	Internet Users	%					0
	Mobile-Cellular prices (% of GNI per capita)	%		6	5		
	Fixed-Broadband prices (% of GNI per capita)	%		66	66		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%			6.60		
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						red
	Goal 7 - Affordable and Clean Energy						red
	Goal 13 - Climate Action						green
	Goal 14 - Life below Water						grey

	Factor	Unit	2014	2015	2016	2017	2018
	Ocean Health Indices						
	Ocean Health Overall Goal Score	1-100	64	64	60	59	59
	Ocean Health Index - Biodiversity	1-100	86	86	84	82	83
	Ocean Health Index - Clean Waters	1-100	28	28	28	28	28
	Ocean Health Index - Fisheries	1-100	46	46	47	46	46

Marshall Islands

	Factor	Unit	2014	2015	2016	2017	2018
I . Economic	GDP	USD \$ mn	183	180	194	204	
	Personal remittances, received (% of GDP)	%	14	15	15	14	
	GDP Growth (annual)	%	(1)	(0)	2	4	
	GNI	USD \$ mn	232	248	260	269	
	Central government debt, total (% of GDP)	%	50	49	50	35	33
	Fiscal Balance (% of GDP)	%		3	4	3	2
	Net Receipts (% of GDP)	%				326	
	International tourism, receipts	USD \$ mn	5	5	30	-	
	International tourism, receipts (% of total exports)	%	6	11	66	-	
	Fishing & Ports						
	Fish & seafood production (value)	USD \$ mn	42				
	Fish & seafood production (% of total GDP)	%	27				
	Country agricultural investment statistics						
	DFA Commitment to Agriculture, Forestry and Fishing		9	1	0		
II . Social	Population						
	Total population	1000	52,898	52,994	53,066	53,127	
	Employment indicators						
Labor force, total	1000	-	-	-	-	-	

	Factor	Unit	2014	2015	2016	2017	2018
	Unemployment, total (% of total labor force)	%	-	-	-	-	-
	Health indicators						
	Mortality rate attributed to unsafe water	%	-	-	-	-	-
	Current health expenditure (% of GDP)	%	19	22			
	Others						
	Renewable electricity output (% of total electricity output)		0	0			
	Internet Users	%					0
	Mobile-Cellular prices (% of GNI per capita)	%		6	6		
	Fixed-Broadband prices (% of GNI per capita)	%		13	13		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%			6.66		
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						grey
	Goal 7 - Affordable and Clean Energy						orange
	Goal 13 - Climate Action						grey
	Goal 14 - Life below Water						orange
	Ocean Health Indices						
	Ocean Health Overall Goal Score	1-100	75	74	71	66	64

	Factor	Unit	2014	2015	2016	2017	2018
	Ocean Health Index - Biodiversity	1-100	88	88	88	88	88
	Ocean Health Index - Clean Waters	1-100	55	55	55	54	54
	Ocean Health Index - Fisheries	1-100	74	72	72	70	71

Micronesia

	Factor	Unit	2014	2015	2016	2017	2018
I . Econ omic	GDP	current USD \$ mn	318	315	330	336	
	Personal remittances, received (% of GDP)	%	7	7	7	7	
	GDP Growth (annual)	%	(2)	5	1	3	
	GNI	current USD \$ mn	343	375	384	391	
	Central government debt, total (% of GDP)	%	23	30	26	24	22
	Fiscal Balance (% of GDP)	%		10	9	9	9
	Net Receipts (% of GDP)	%				164	
	International tourism, receipts	current USD \$ mn	29	25	-	-	
	International tourism, receipts (% of total exports)	%	23	-	-	-	
	Fishing & Ports						
Fish & seafood production (value)	USD \$ mn	32					
Fish & seafood production (% of total GDP)	%	10					
Country agricultural investment statistics							
DFA Commitment to Agriculture, Forestry and Fishing		6	1	1			
II . Socia l	Population						
	Total population	1000	104,015	104,433	104,937	105,544	

	Factor	Unit	2014	2015	2016	2017	2018
	E m p l o y m e n t indicators						
	Labor force, total	1000	-	-	-	-	-
	Unemployment, total (% of total labor force)	%	-	-	-	-	-
	Health indicators						
	Mortality rate attributed to unsafe water	%	29	28	27	27	
	Current health expenditure (% of GDP)	%	12	13			
	Others						
	Renewable electricity output (% of total electricity output)		2	2			
	Internet Users	%					n/a
	Mobile-Cellular prices (% of GNI per capita)	%		9	9		
	Fixed-Broadband prices (% of GNI per capita)	%		11	11		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%			0.90		
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						grey
	Goal 7 - Affordable and Clean Energy						red
	Goal 13 - Climate Action						grey
	Goal 14 - Life below Water						red

	Factor	Unit	2014	2015	2016	2017	2018
	Ocean Health Indices						
	Ocean Health Overall Goal Score	1-100	64	65	64	64	63
	Ocean Health Index - Biodiversity	1-100	88	88	88	88	88
	Ocean Health Index - Clean Waters	1-100	48	55	58	58	58
	Ocean Health Index - Fisheries	1-100	57	55	55	54	54

Nauru

	Factor	Unit	2014	2015	2016	2017	2018
I . Econ omic	GDP	current USD \$ mn	117	100	102	114	
	Personal remittances, received (% of GDP)	%	-	-	-	-	
	GDP Growth (annual)	%	37	3	10	4	
	GNI	current USD \$ mn	140	124	128	145	
	Central government debt, total (% of GDP)	%	-	78	65	60	62
	Fiscal Balance (% of GDP)	%		9	24	10	9
	Net Receipts (% of GDP)	%				40	
	International tourism, receipts	current USD \$ mn	-	-	-	-	
	International tourism, receipts (% of total exports)	%	-	-	-	-	
	Fishing & Ports						
Fish & seafood production (value)	USD \$ mn	2					
Fish & seafood production (% of total GDP)	%	1					
Country agricultural investment statistics							
DFA Commitment to Agriculture, Forestry and Fishing		1	0	0			
II . Socia l	Population						
	Total population	1000	11,853	12,475	13,049	13,649	

	Factor	Unit	2014	2015	2016	2017	2018
	E m p l o y m e n t indicators						
	Labor force, total	1000	-	-	-	-	-
	Unemployment, total (% of total labor force)	%	-	-	-	-	-
	Health indicators						
	Mortality rate attributed to unsafe water	%	-	-	-	-	-
	Current health expenditure (% of GDP)	%	6	5			
	Others						
	Renewable electricity output (% of total electricity output)		0	0			
	Internet Users	%					n/a
	Mobile-Cellular prices (% of GNI per capita)	%		n/a	n/a		
	Fixed-Broadband prices (% of GNI per capita)	%		n/a	n/a		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%			n/a		
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						grey
	Goal 7 - Affordable and Clean Energy						grey
	Goal 13 - Climate Action						yellow
	Goal 14 - Life below Water						orange

	Factor	Unit	2014	2015	2016	2017	2018
	Ocean Health Indices						
	Ocean Health Overall Goal Score	1-100	70	70	67	67	67
	Ocean Health Index - Biodiversity	1-100	85	83	82	84	83
	Ocean Health Index - Clean Waters	1-100	45	45	45	44	45
	Ocean Health Index - Fisheries	1-100	73	71	71	70	70

Palau

	Factor	Unit	2014	2015	2016	2017	2018
I . Economic	GDP	current USD \$ mn	246	293	304	290	
	Personal remittances, received (% of GDP)	%	1	1	1	1	
	GDP Growth (annual)	%	5	10	1	(4)	
	GNI	current USD \$ mn	238	275	290	281	
	Central government debt, total (% of GDP)	%	22	61	67	30	31
	Fiscal Balance (% of GDP)	%		5	3	6	5
	Net Receipts (% of GDP)	%				15	
	International tourism, receipts	current USD \$ mn	131	156	148	-	
	International tourism, receipts (% of total exports)	%	83	87	-	-	
	Fishing & Ports						
	Fish & seafood production (value)	USD \$ mn	12				
	Fish & seafood production (% of total GDP)	%	5				
	Country agricultural investment statistics						
	DFA Commitment to Agriculture, Forestry and Fishing			1	1	7	
II . Social	Population						
	Total population	1000	21,094	21,288	21,503	21,729	

	Factor	Unit	2014	2015	2016	2017	2018
	E m p l o y m e n t indicators						
	Labor force, total	1000	-	-	-	-	-
	Unemployment, total (% of total labor force)	%	-	-	-	-	-
	Health indicators						
	Mortality rate attributed to unsafe water	%	-	-	-	-	-
	Current health expenditure (% of GDP)	%	12	11			
	Others						
	Renewable electricity output (% of total electricity output)		-	-			
	Internet Users	%					n/a
	Mobile-Cellular prices (% of GNI per capita)	%		n/a	n/a		
	Fixed-Broadband prices (% of GNI per capita)	%		n/a	n/a		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%			0.02		
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						grey
	Goal 7 - Affordable and Clean Energy						yellow
	Goal 13 - Climate Action						grey
	Goal 14 - Life below Water						yellow

	Factor	Unit	2014	2015	2016	2017	2018
	Ocean Health Indices						
	Ocean Health Overall Goal Score	1-100	69	67	66	65	64
	Ocean Health Index - Biodiversity	1-100	85	86	86	85	85
	Ocean Health Index - Clean Waters	1-100	82	82	82	75	75
	Ocean Health Index - Fisheries	1-100	62	61	61	60	61

Samoa

	Factor	Unit	2014	2015	2016	2017	2018
I . Economic	GDP	current USD \$ mn	805	804	787	841	
	Personal remittances, received (% of GDP)	%	17	16	17	16	
	GDP Growth (annual)	%	1	1	7	3	
	GNI	current USD \$ mn	775	788	768	814	
	Central government debt, total (% of GDP)	%	54	58	53	49	50
	Fiscal Balance (% of GDP)	%		(4)	(0)	(1)	(2)
	Net Receipts (% of GDP)	%				16	
	International tourism, receipts	current USD \$ mn	148	142	149	169	
	International tourism, receipts (% of total exports)	%	65	62	60	60	
	Fishing & Ports						
Fish & seafood production (value)	USD \$ mn	0					
Fish & seafood production (% of total GDP)	%	3					
Country agricultural investment statistics							
	DFA Commitment to Agriculture, Forestry and Fishing		1	1	2		
II . Social	Population						
	Total population	1000	192,290	193,759	195,125	196,440	

	Factor	Unit	2014	2015	2016	2017	2018
	Employment indicators						
	Labor force, total	1000	38,638	38,888	38,951	39,277	39,286
	Unemployment, total (% of total labor force)	%	9	9	8	8	8
	Health indicators						
	Mortality rate attributed to unsafe water	%	-	-	2		
	Current health expenditure (% of GDP)	%	6	6			
	Others						
	Renewable electricity output (% of total electricity output)		34	30			
	Internet Users	%					0
	Mobile-Cellular prices (% of GNI per capita)	%		5	5		
	Fixed-Broadband prices (% of GNI per capita)	%		12	12		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%			1.00		
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						yellow
	Goal 7 - Affordable and Clean Energy						orange
	Goal 13 - Climate Action						green
	Goal 14 - Life below Water						orange

	Factor	Unit	2014	2015	2016	2017	2018
	Ocean Health Indices						
	Ocean Health Overall Goal Score	1-100	62	63	68	66	66
	Ocean Health Index - Biodiversity	1-100	90	90	90	90	90
	Ocean Health Index - Clean Waters	1-100	90	89	88	89	91
	Ocean Health Index - Fisheries	1-100	13	13	13	12	12

Solomon Islands

	Factor	Unit	2014	2015	2016	2017	2018
I . Economic	GDP	current USD \$ mn	1,172	1,155	1,233	1,303	
	Personal remittances, received (% of GDP)	%	1	2	2	1	
	GDP Growth (annual)	%	2	3	3	3	
	GNI	current USD \$ mn	1,100	1,121	1,161	1,224	
	Central government debt, total (% of GDP)	%	10	8	7	9	12
	Fiscal Balance (% of GDP)	%		-	(4)	(4)	(4)
	Net Receipts (% of GDP)	%				14	
	International tourism, receipts	current USD \$ mn	65	60	71	79	
	International tourism, receipts (% of total exports)	%	11	11	13	13	
	Fishing & Ports						
Fish & seafood production (value)	USD \$ mn	73					
Fish & seafood production (% of total GDP)	%	7					
Country agricultural investment statistics							
DFA Commitment to Agriculture, Forestry and Fishing			25	19	2		
II . Social	Population						
	Total population	1000	575,504	587,482	599,419	611,343	

	Factor	Unit	2014	2015	2016	2017	2018
	Employment indicators						
	Labor force, total		248,011	254,126	260,604	267,203	273,577
	Unemployment, total (% of total labor force)	%	2	2	2	2	2
	Health indicators						
	Mortality rate attributed to unsafe water	%	-	-	6		
	Current health expenditure (% of GDP)	%	8	8			
	Others						
	Renewable electricity output (% of total electricity output)		2	2			
	Internet Users	%					0
	Mobile-Cellular prices (% of GNI per capita)	%		9	9		
	Fixed-Broadband prices (% of GNI per capita)	%		237	237		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%			0.68		
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						red
	Goal 7 - Affordable and Clean Energy						red
	Goal 13 - Climate Action						green
	Goal 14 - Life below Water						orange

	Factor	Unit	2014	2015	2016	2017	2018
	Ocean Health Indices						
	Ocean Health Overall Goal Score	1-100	61	64	65	66	65
	Ocean Health Index - Biodiversity	1-100	84	84	84	84	84
	Ocean Health Index - Clean Waters	1-100	60	65	72	73	72
	Ocean Health Index - Fisheries	1-100	45	44	44	43	44

Tonga

	Factor	Unit	2014	2015	2016	2017	2018
I . Economic	GDP	current USD \$ mn	444	435	401	428	
	Personal remittances, received (% of GDP)	%	27	34	31	37	
	GDP Growth (annual)	%	2	4	3	3	
	GNI	current USD \$ mn	447	440	404	434	
	Central government debt, total (% of GDP)	%	47	51	52	48	49
	Fiscal Balance (% of GDP)	%	6	(3)	(0)	(0)	(2)
	Net Receipts (% of GDP)	%				19	
	International tourism, receipts	current USD \$ mn	38	46	53	49	
	International tourism, receipts (% of total exports)	%	51	47	51	48	
	Fishing & Ports						
Fish & seafood production (value)	USD \$ mn	19					
Fish & seafood production (% of total GDP)	%	4					
Country agricultural investment statistics							
DFA Commitment to Agriculture, Forestry and Fishing			3	3	1		
II . Social	Population						
	Total population	1000	105,782	106,364	107,122	108,020	

	Factor	Unit	2014	2015	2016	2017	2018
	E m p l o y m e n t indicators						
	Labor force, total	1000	39,848	40,061	40,582	41,220	41,811
	Unemployment, total (% of total labor force)	%	1	1	1	1	1
	Health indicators						
	Mortality rate attributed to unsafe water	%	-	-	1		
	Current health expenditure (% of GDP)	%	5	6			
	Others						
	Renewable electricity output (% of total electricity output)		5	6			
	Internet Users	%					0
	Mobile-Cellular prices (% of GNI per capita)	%		3	2		
	Fixed-Broadband prices (% of GNI per capita)	%		2	2		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%			1.57		
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						grey
	Goal 7 - Affordable and Clean Energy						yellow
	Goal 13 - Climate Action						green
	Goal 14 - Life below Water						red

	Factor	Unit	2014	2015	2016	2017	2018
	Ocean Health Indices						
	Ocean Health Overall Goal Score	1-100	65	67	70	70	69
	Ocean Health Index - Biodiversity	1-100	89	89	89	88	89
	Ocean Health Index - Clean Waters	1-100	63	63	70	70	69
	Ocean Health Index - Fisheries	1-100	21	20	20	19	20

Tuvalu

	Factor	Unit	2014	2015	2016	2017	2018
I . Economic	GDP	current USD \$ mn	37	36	37	40	
	Personal remittances, received (% of GDP)	%	11	11	11	11	
	GDP Growth (annual)	%	1	9	3	3	
	GNI	current USD \$ mn	50	56	55	59	
	Central government debt, total (% of GDP)	%	64	57	47	37	28
	Fiscal Balance (% of GDP)	%	(6)	15	7	(4)	6
	Net Receipts (% of GDP)	%				67	
	International tourism, receipts	current USD \$ mn	-	-	-	-	
	International tourism, receipts (% of total exports)	%	-	-	-	-	
	Fishing & Ports						
Fish & seafood production (value)	USD \$ mn	2					
Fish & seafood production (% of total GDP)	%	5					
Country agricultural investment statistics							
DFA Commitment to Agriculture, Forestry and Fishing		13	1	5			
II . Social	Population						
	Total population	1000	10,908	11,001	11,097	11,192	

	Factor	Unit	2014	2015	2016	2017	2018
	E m p l o y m e n t indicators						
	Labor force, total	1000	-	-	-	-	-
	Unemployment, total (% of total labor force)	%	-	-	-	-	-
	Health indicators						
	Mortality rate attributed to unsafe water	%	-	-	-	-	-
	Current health expenditure (% of GDP)	%	15	15			
	Others						
	Renewable electricity output (% of total electricity output)		-	28			
	Internet Users	%					n/a
	Mobile-Cellular prices (% of GNI per capita)	%		n/a	n/a		
	Fixed-Broadband prices (% of GNI per capita)	%		n/a	n/a		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%			8.50		
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						grey
	Goal 7 - Affordable and Clean Energy						orange
	Goal 13 - Climate Action						grey
	Goal 14 - Life below Water						green

	Factor	Unit	2014	2015	2016	2017	2018
	Ocean Health Indices						
	Ocean Health Overall Goal Score	1-100	73	74	74	72	73
	Ocean Health Index - Biodiversity	1-100	89	89	89	88	88
	Ocean Health Index - Clean Waters	1-100	63	63	64	63	63
	Ocean Health Index - Fisheries	1-100	71	69	69	67	67

Vanuatu

	Factor	Unit	2014	2015	2016	2017	2018
I . Economic	GDP	current USD \$ mn	815	738	788	863	
	Personal remittances, received (% of GDP)	%	3	3	2	2	
	GDP Growth (annual)	%	2	(1)	4	5	
	GNI	current USD \$ mn	815	722	781	854	
	Central government debt, total (% of GDP)	%	29	42	49	51	54
	Fiscal Balance (% of GDP)	%	(5)	(10)	(6)	(8)	(8)
	Net Receipts (% of GDP)	%				16	
	International tourism, receipts	current USD \$ mn	284	254	-	-	
	International tourism, receipts (% of total exports)	%	72	79	-	-	
	Fishing & Ports						
Fish & seafood production (value)	USD \$ mn	11					
Fish & seafood production (% of total GDP)	%	2					
Country agricultural investment statistics							
DFA Commitment to Agriculture, Forestry and Fishing			2	4	3		
II . Social	Population						
	Total population	1000	258,850	264,603	270,402	276,244	

	Factor	Unit	2014	2015	2016	2017	2018
	Employment indicators						
	Labor force, total	1000	115,213	118,551	121,790	124,882	127,721
	Unemployment, total (% of total labor force)	%	5	5	5	5	5
	Health indicators						
	Mortality rate attributed to unsafe water	%	-	-	10		
	Current health expenditure (% of GDP)	%	4	4			
	Others						
	Renewable electricity output (% of total electricity output)		15	21	-	-	-
	Internet Users	%					0
	Mobile-Cellular prices (% of GNI per capita)	%		10	10		
	Fixed-Broadband prices (% of GNI per capita)	%		3	24		
	Global Climate Risk Index						
	Global Climate Risk Index - Losses per unit GDP (avg. 1997-2016)	%			2.96		
	SDG Goal Dashboard						
	Goal 6 - Clean Water and Sanitation						orange
	Goal 7 - Affordable and Clean Energy						red
	Goal 13 - Climate Action						green
	Goal 14 - Life below Water						red

	Factor	Unit	2014	2015	2016	2017	2018
	Ocean Health Indices						
	Ocean Health Overall Goal Score	1-100	66	66	68	69	70
	Ocean Health Index - Biodiversity	1-100	89	88	89	89	90
	Ocean Health Index - Clean Waters	1-100	65	65	65	65	65
	Ocean Health Index - Fisheries	1-100	33	34	35	33	34

Annex IIB: Country Factsheets of Areas of Investment with Commercial Potential

FIJI

Given the high GDP contribution of the tourism industry and its existing efforts to protect marine species and create sanctuaries within its exclusive economic zones and the development of a Sustainable Tourism Development Framework, a corporate bond within the tourism sector could leverage off existing priorities to transition towards sustainable tourism. Bond issuance in supporting sectors could also be an option. In particular, in ICT as it would not only support tourism but would also increase monitoring and surveillance capacity of fisheries activity at both local and national levels, to prevent illegal or unregulated activities. Well-developed and well-supported eco-tourism could increase tourism revenue, with a portion allocated to address ocean health issues. Fiji is one of the few markets in the Pacific Islands that is large enough to support a bond issuance.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	What = specific activities needed	Can be newly reported but not yet started. Programs that have ceased are left out	

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
FISHERIES	<p>YES</p> <ul style="list-style-type: none"> • Fisheries & aquaculture contribute ~ USD \$48mn to GDP (2.1%) • Member of Pacific Islands Oceanic Fisheries Management Partnership that helps implement & enforce global, regional & sub-regional arrangements for conservation & management of transboundary oceanic fisheries 	<ul style="list-style-type: none"> • Better monitoring and surveillance capacity • Resource management via locally managed marine areas (LMMAs)- Fiji has the most project sites of any country in the network. • Local surveillance & community stewardship mitigates country's limited capacity to regulate at national level • Communities are motivated as they benefit from greater fish biomass in the reserves and sustainable food supplies 	<ul style="list-style-type: none"> • Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement) • Prohibition of Destructive Offshore Fishing Practices (Ministry of Economy, Fijian Navy, Ministry of Foreign Affairs & Fiji Fishing Industry Association (FFIA)) • Pacific Island Roundtable for Nature Conservation and the Biodiversity and Protected Areas Management (BIOPAMA) programme (IUCN's Oceania Regional 	<ul style="list-style-type: none"> • No dollar value

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
WATER & SANITATION	<p>YES</p> <ul style="list-style-type: none"> Mineral water is by far its largest domestic export item (22% in 2018) 	<ul style="list-style-type: none"> Improved wastewater treatment that reduces wastewater treatment effluent that contributes to ocean hypoxia Results in greater environmental health in waterways that disperse into the ocean Reduction in the effects of soil erosion on coastal waters. Measured lower levels of nutrient pollution (nitrogen, phosphate) or algal bloom leading to eutrophication 	<ul style="list-style-type: none"> Pacific-European Union Waste Management Programme (EU) Pacific Integrated Water Resource Management Network to address water resource, catchment & coastal management challenges 	<ul style="list-style-type: none"> EUR €17mn No dollar value

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
RENEWABLE ENERGY	<p>YES</p> <ul style="list-style-type: none"> Partly funded by Green Bond proceeds Diesel fuel is the single largest import item at 9% of total imports (2018) National development plan targets electricity generation from renewable sources at 100% by 2036 from 67% in 2015 and renewable energy share in electricity consumption of 25% by 2031 from 13% in 2015 Provides tax incentives for investments in renewables Member of the Lighthouse 	<ul style="list-style-type: none"> Use of renewable energy technologies for desalination plants in remote areas Shipping and fishing vessels fueled by renewable energy (Fiji is trial-testing this) Potential low-carbon domestic shipping (Fiji is studying this) Reduction in fossil fuel reliance equates to less fuel import & reduced risk of oceanic pollution via accidental spillage or sewage dump from ships Improvements measured by annual fuel import figures, 	<ul style="list-style-type: none"> Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation program (EU) 	<ul style="list-style-type: none"> No dollar value available EUR €15mn

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE TOURISM	<p>YES</p> <ul style="list-style-type: none"> • Shark & Ray eco-tourism & diving provides over USD \$40mn in revenue • Tourism is major sector (total receipts are 23% of GDP) • Fijian Exclusive Economic Zone as a whale sanctuary since 2003 • <i>Sustainable Tourism Development Framework by 2021</i> 	<ul style="list-style-type: none"> • Promote shark & ray eco-tourism and prevent overfishing and loss of habitat • Conservation and management of LMMAs increases and preserves biodiversity • Protected areas are promoted as eco-tourism destinations • Increased tourism revenue feeds back into the cost of protecting the marine areas and ecosystems. 	<ul style="list-style-type: none"> • Conservation and Management of all Species of Sharks and Rays and their Critical Habitats within Fijian Waters (WWF, WCS, IUCN, University of South Pacific (USP), Resort Owners Regional Organizations, SPREP, SPC, FFA, WCPFC) • PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC) • Protection and Management of All Marine Mammal Species in Fiji (WCS, WWF, IUCN, USP, Resort Owners, Dive Operators Association, Fiji Tuna Industry Association) 	<ul style="list-style-type: none"> • No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE AGRICULTURE	N			

KIRIBATI

Kiribati has a relatively aggressive target to increase sustainable tourism to 50% of GDP by 2036 and to do this via higher-yielding tourism. This focus could be set the basis for bond issuance of l niche-style tourism corporates with a focus on eco-tourism and interest in the region. This could have an inter-funding relationship with both the infrastructure sector (through development of a transshipment hub and transit port to the rest of the region, playing off its unique location of being outside the cyclone belt and gateway to the region from the east) and the renewable energy sector (where tourism investment would partially go into funding infrastructure build for alternative energies that then supply energy to resorts or feed into the grid). Bond issuance could also focus on infrastructure and shipping firms interested in building or using the hub. Ocean health would benefit from reduced fossil fuel reliance in the energy sector, whilst the benefit from increased sustainable tourism revenue, which could contribute to funding ocean management programs, must be weighed against the cons of increased traffic in its waterways from hub development.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how c o u l d improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	What = specific activities needed	Can be newly reported but not yet started. Programs that have ceased are left out	

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
FISHERIES	<p>YES</p> <ul style="list-style-type: none"> • Aims to increase fisheries & marine resource revenue from AUD \$154mn in 2016 to AUD \$1.2bn by 2036 • Member of Pacific Islands Oceanic Fisheries Management Partnership • Party to the Nauru Agreement 	<ul style="list-style-type: none"> • Improved management through changing to Vessel Day Scheme through auction method, improvements measured by increased prices of licenses sold, hence increasing revenue • Increase monitoring and surveillance capacity to ensure no illegal or over-fishing • Results in less volatility in tuna fish spawning, population numbers • Resource management via locally managed marine areas. • Local surveillance & community stewardship mitigates country's limited capacity to regulate at 	<ul style="list-style-type: none"> • Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement) 	<ul style="list-style-type: none"> • No dollar value

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
WATER & SANITATION	<p>YES</p> <ul style="list-style-type: none"> ▪ Goal of potable water to 75% of population by 2019, 100% by 2036; and access to suitable sanitation to 50% by 2019 and 100% by 2036 	<ul style="list-style-type: none"> • Waste to energy solutions • Improved wastewater treatment that reduces wastewater treatment effluent that contributes to ocean hypoxia • Results in greater environmental health in waterways that disperse into the ocean • Reduction in the effects of soil erosion on coastal waters. • Measured lower levels of nutrient pollution (nitrogen, phosphate) or algal bloom leading to eutrophication • Mangrove rehabilitation and re-planting to improve water quality 	<ul style="list-style-type: none"> • Pacific-European Union Waste Management Programme (EU) • Pacific Partnership for Atoll Water Security (New Zealand, Australia, IFRC, UNICEF, NIWA, NOAA, SPREP, WHO, UNOCHA) • Pacific Integrated Water Resource Management Network to address water resource, catchment & coastal management challenges 	<ul style="list-style-type: none"> • EUR €17mn • No dollar value • No dollar value

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
RENEWABLE ENERGY	<p>YES</p> <ul style="list-style-type: none"> ▪ The focus is less on climate change mitigation but rather to promote development and to secure adequate energy supply & reduce fossil fuel reliance and save millions on imported fuels ▪ Government estimates if no adaptation measures taken, by 2050 economic damages due to climate change would be USD 8-16 million/year 	<ul style="list-style-type: none"> • Reduction in fossil fuel reliance equates to less fuel import & reduced risk of oceanic pollution via accidental spillage or sewage dump from ships • Improvements measured by annual fuel import figures, measurements of water contamination 	<ul style="list-style-type: none"> • Scaling Up Renewable Energy Investment Plan. USD 5 million grant from the Climate Investment Fund, with remaining funding from ADB, bilateral partners and the Government of Kiribati • Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group • Global Climate Alliance Plus - Scaling-up Pacific Adaptation program (EU) • The Pacific Renewable 	<ul style="list-style-type: none"> • Total Funding required is USD 76.4 million (Phase 1 - USD 15.4 million, Phase 2 - USD 61 million) • No dollar value available • EUR €15mn • Total facility is USD \$200mn

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
<p>INFRASTRUCTURE (COASTAL REHABILITATION & TELCOMMS)</p>	<p>YES</p> <ul style="list-style-type: none"> ▪ Government aims to increase number of foreign investment firms from 18 to 100 from 2016-36 ▪ Private sector small compared to public, but contributes 55% to GDP & growing, & employing more people at growth of >12% p.a since 2010 	<ul style="list-style-type: none"> • Kiribati's location in the central Pacific region and lying outside of the cyclone belt, makes it an ideal location for a transshipment hub and transit port (for goods and ecotourism) • Communications infrastructure build could improve internet connectivity, thereby assisting in fisheries surveillance 		

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE TOURISM	<p>YES</p> <ul style="list-style-type: none"> ▪ Aims to increase contribution to GDP from 4% to 50% by 2036 ▪ Focus on high yielding tourism 	<ul style="list-style-type: none"> • Protected areas are promoted as eco-tourism destinations • Promote shark related eco-tourism and prevent loss of habitat • Increased tourism revenue feeds back into the cost of protecting marine areas and eco-systems. 	<ul style="list-style-type: none"> • PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC) • Kiribati Shark Sanctuary - all waters declared a sanctuary in 2015 (SPREP, FFA) 	<ul style="list-style-type: none"> • No dollar value available
SUSTAINABLE AGRICULTURE	N			

MARSHALL ISLANDS

Tuna fishing and the protection of tuna populations is of high priority to the Marshall Islands. Fish and seafood production account for over a quarter of total GDP and the country has benefitted greatly from the introduction of the Vessel Day Scheme minimum benchmark price as a party to the Nauru Agreement. However, its relatively small economy and high dependency on external aid make its sectors unlikely candidates for corporate bond issuance. It could however participate in a regional solution with a common interest to support a sustainable fisheries sector.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	What = specific activities needed	Can be newly reported but not yet started. Programs that have ceased are left out	

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
FISHERIES	<p>YES</p> <ul style="list-style-type: none"> • Member of Pacific Islands Oceanic Fisheries Management Partnership • Party to the Nauru Agreement 	<ul style="list-style-type: none"> • Improved management through changing to Vessel Day Scheme through auction method, improvements measured by increased prices of licenses sold, hence increasing revenue • Increase monitoring and surveillance capacity to ensure no illegal or over-fishing • Results in less volatility in tuna fish spawning, population numbers • Resource management via locally managed marine areas. • Local surveillance 	<ul style="list-style-type: none"> • Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement) 	No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
WATER & SANITATION	N		<ul style="list-style-type: none"> • Pacific-European Union Waste Management Programme (EU) • Pacific Partnership for Atoll Water Security (New Zealand, Australia, IFRC, UNICEF, NIWA, NOAA, SPREP, WHO, UNOCHA) 	<ul style="list-style-type: none"> • EUR €17mn <p>No dollar value available</p>

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
RENEWABLE ENERGY	N		<ul style="list-style-type: none"> • Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation program (EU) • The Majuro Power Network Strengthening Project through The Pacific Renewable Energy Investment Facility (ADB) • Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group 	<ul style="list-style-type: none"> • EUR €15mn • US D \$2mn allocation out of a total facility of US D \$200mn • No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
INFRASTRUCTURE (COASTAL REHABILITATION & TELCOMMS)	N			
SUSTAINABLE TOURISM	N		<ul style="list-style-type: none"> • The Micronesia Challenge (The Nature Conservancy, Conservation International, GEF) • PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC) 	<ul style="list-style-type: none"> • Goal was to raise USD \$41mn • • • • No dollar value available
SUSTAINABLE AGRICULTURE	N			

MICRONESIA (FEDERATED STATES OF)

Two sectors for potential corporate bond issuance would be infrastructure and sustainable tourism. The former would focus on maritime infrastructure such as port and dock maintenance and upgrade, or surveillance (the country is experiencing high levels of fraudulent ship registrations); whilst the latter could be developed through promotion of its heritage listed sites to provide a unique eco-tourism experience. Benefits to ocean health would come from improved waste and pollution management at docks, ensuring safety and environmental standards are upheld by vessels, and support of marine programs through appropriation of a portion of increased tourism revenues.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	What = specific activities needed	Can be newly reported but not yet started. Programs that have ceased are left out	

FISHERIES	N		<ul style="list-style-type: none"> • Locally Managed Marine Areas (LMMA) Network, Pacific Island Roundtable for Nature Conservation and the Biodiversity and Protected Areas Management (BIOPAMA) Programme (IUCN's Oceania Regional Office, SPREP and the EU's 11th European Development Fund) • Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement) 	<ul style="list-style-type: none"> • No dollar value available • No dollar value available
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<p>WATER & SANITATION</p>	<p>N</p>		<ul style="list-style-type: none"> • Pacific-European Union Waste Management Programme (EU) 	<ul style="list-style-type: none"> • EUR €17mn
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<p>RENEWABLE ENERGY</p>	<p>YES</p> <ul style="list-style-type: none"> • The Infrastructure Development Plan 2016-2025 allocates 10% of the USD 1082 million to electric power generation • Targeting renewable energy share of energy supply to 30% & increase of energy efficiency by 50% by 2020 	<ul style="list-style-type: none"> • Water development using renewable energy such as solar water desalination • Desalination process contributes to global warming given need for large amounts of energy. Using renewable energy sources mitigates this and allows countries to adapt to the effects of global warming • Improvement is measured by freshwater produced, versus fossil fuel consumed to produce it • Reduction in fossil fuel reliance equates to less fuel import & reduced risk of oceanic pollution via accidental 	<ul style="list-style-type: none"> • Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation program (EU) • The Pacific Renewable Energy Investment Facility (ADB) • Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group 	<ul style="list-style-type: none"> • EUR €15mn • Total facility is USD \$200mn • No dollar value available
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<p>INFRASTRUCTURE (COASTAL REHABILITATION & TELCOMMS)</p>	<p>YES</p> <ul style="list-style-type: none"> ▪ Government prioritized climate-change related spending in its Infrastructure Development Plan (USD 31 million over 10 years) and its State Action Plans 	<ul style="list-style-type: none"> • Maritime transportation investment in port & dock facilities to help meet fisheries needs, manage waste & pollution and better manage spills & emergency incidents • Investment in surveillance, identification and prosecution of fraudulent ship registrations. Thereby reducing risk of safety and environmental standards not being met by vessels • Measurement would be reduced number of vessels found to be illegally flying its flag (150 cases in 2017) 	<ul style="list-style-type: none"> • Currently applying to World Bank for a grant for its Micronesia Maritime Investment Project (FSMMIP) to improve maritime infrastructure 	<ul style="list-style-type: none"> • Unspecified
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<p>SUSTAINABLE TOURISM</p>	<p>YES</p> <ul style="list-style-type: none"> ▪ UN World Heritage site, unique experiences & cultural heritage sites can add to growth ▪ New direct flights from South Pacific to Asia can help support growth 	<ul style="list-style-type: none"> • Promotion of heritage sites as unique eco-tourism experience (e.g. Nan Madol site, Lelu ruins, Chuuk lagoon for diving and Rai site in Yap) • Conservation and management of LMMA's increases and preserves biodiversity • Local management is especially effective here as Micronesia has a loose federal structure & decisions & surveillance at national level are difficult • Increased tourism revenue (measured by spend \$ and visitor numbers) feeds back into the cost of protecting the marine areas and 	<ul style="list-style-type: none"> • LMMA network through IUCN and BIOPAMA (IUCN's Oceania Regional Office, SPREP and the EU's 11th European Development Fund) • The Micronesia Challenge (The Nature Conservancy, Conservation International, GEF) • <i>PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC)</i> 	<ul style="list-style-type: none"> • No dollar value available • Goal was to raise USD \$41mn • • • • No dollar value available
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SUSTAINABLE AGRICULTURE	N			
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NAURU

Nauru’s very small economy and its reliance on revenue from Australia’s Regional Processing Centre and a diminishing phosphate mining industry, make bond issuance here less viable than in its regional peers. Having said that, it has laid foundations for private sector development in fisheries, a priority sector for the country. Bond issuance could also focus on infrastructure development that supports fishery activities such as port upgrade, development, and ICT infrastructure to increase surveillance capabilities (it currently depends on regional co-operation to help in fisheries day-to-day management due to poor internet connectivity). Ocean health benefits include supporting fish spawning, population numbers, and reduced risk of pollution through pipe leakage at its Port of Nauru.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	What = specific activities needed	Can be newly reported but not yet started. Programs that have ceased are left out	

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
FISHERIES	<p>YES</p> <ul style="list-style-type: none"> ▪ Member of Pacific Islands Oceanic Fisheries Management Partnership ▪ Party to the Nauru Agreement ▪ Foundation laid for private-sector development of fisheries; Nauru Fishers Association set up. Potential for high-value, low-volume aquarium fish export ▪ Has National Plan of Action on IUU fishing 	<ul style="list-style-type: none"> • Improved management through changing to Vessel Day Scheme through auction method, improvements measured by increased prices of licenses sold, hence increasing revenue • Increase monitoring and surveillance capacity to ensure no illegal or over-fishing • Results in less volatility in tuna fish spawning, population numbers • Resource management via locally managed marine areas. • Local surveillance & community stewardship mitigates country's limited capacity to regulate at 	<ul style="list-style-type: none"> • Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement) 	<ul style="list-style-type: none"> • No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
WATER & SANITATION	N		<ul style="list-style-type: none"> Pacific-European Union Waste Management Pilot Programme (EU) 	<ul style="list-style-type: none"> EUR €17mn
RENEWABLE ENERGY	<p>YES</p> <ul style="list-style-type: none"> Medium to long-term goal of at least 50% of energy demand to be provided by alternative sources by 2015 and a viable power generating capacity which includes renewables by 2025 Using solar & have piloted wind 	<ul style="list-style-type: none"> Reduced reliance on petroleum shipments reduces risk of oceanic pollution via spillage or sewage dump from ships and leakage or contamination from old pipelines in need of repair Improvements measured by annual fuel import figures, measurements of water contamination 	<ul style="list-style-type: none"> Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation program (EU) The Pacific Renewable Energy Investment Facility (ADB) Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group 	<ul style="list-style-type: none"> EUR €15mn Total facility is USD \$200mn No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
<p>INFRASTRUCTURE (COASTAL REHABILITATION & TELCOMMS)</p>	<p>YES</p> <ul style="list-style-type: none"> • Old infrastructure hindering trade and economic growth • Rebuilding seaport infrastructure is a priority 	<ul style="list-style-type: none"> • Improved internet connectivity positively impacts fisheries surveillance, which would lead to greater prosecution for illegal activities (currently relies on regional cooperation for fisheries day-to-day management due to poor connectivity) • The Port of Nauru does not have a quayside for direct ship port interface & cargo is transferred to shore by barge, cantilever arm or pipeline. Fuel pipelines are in need of upgrade or repair of fuel tank farm and pipeline to decrease fuel supply 		

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE TOURISM	N		<ul style="list-style-type: none"> PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC) 	<ul style="list-style-type: none"> No dollar value available
SUSTAINABLE AGRICULTURE	N			

PALAU

Like many of its peers, Palau is focusing on developing a high-end, high-yielding tourism industry through which it could support the conservation and preservation of the biodiversity in its locally managed marine areas. Tourism receipts constitute more than 80% of its total exports and the country has created a Responsible Tourism Policy Framework and established a National Tourism Board to further develop the sector. This could create possible corporate bond issuance opportunities where part of the revenues feed back into the cost of protecting marine areas.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	What = specific activities needed	Can be newly reported but not yet started. Programs that have ceased are left out	

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
FISHERIES	N		<ul style="list-style-type: none"> • Locally Managed Marine Areas (LMMA) Network, Pacific Island Roundtable for Nature Conservation and the Biodiversity and Protected Areas Management (BIOPAMA) Programme (IUCN's Oceania Regional Office, SPREP and the EU's 11th European Development Fund) • Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru 	<ul style="list-style-type: none"> • No dollar value available • No dollar value available • Members contribute USD \$ 5 k annually (>25 members), have catalyzed USD \$150mn for action since 2006

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
WATER & SANITATION	N		<ul style="list-style-type: none"> Pacific-European Union Waste Management Programme (EU) 	<ul style="list-style-type: none"> EUR €17mn

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
RENEWABLE ENERGY	N		<ul style="list-style-type: none"> • Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation program (EU) • The Pacific Renewable Energy Investment Facility (ADB) • Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group 	<ul style="list-style-type: none"> • EUR €15mn • Total facility is USD \$200mn • No dollar value available
INFRASTRUCTURE (COASTAL REHABILITATION & TELCOMMS)	N			

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE TOURISM	<p>YES</p> <ul style="list-style-type: none"> ▪ Has a Palau Responsible Tourism Policy Framework which envisages high-end, environment ally sustainable tourism & establishment of National Tourism Board 	<ul style="list-style-type: none"> • Conservation and management of L M M A s increases a n d preserves biodiversity • Protected areas are promoted as eco-tourism destinations • Increased tourism revenue feeds back into the cost o f protectin g the marine areas and e c o - systems. 	<ul style="list-style-type: none"> • L M M A network through IUCN and BIOPAMA (IUCN's Oceania Regional Office, SPREP and the EU's 1 1 t h European Development Fund) • T h e Micronesia Challenge (T h e Nature Conservancy , Conservati o n International, GEF) • <i>PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC)</i> 	<ul style="list-style-type: none"> • N o dollar value available • G o a l was to raise U S D \$41mn • N o dollar value available • e
SUSTAINABLE AGRICULTURE	N			

SAMOA

Samoa already derives over 60% of its total export dollars from tourism receipts and it will no doubt use its hosting of the Pacific Games in 2019 to further promote and boost the sector. The country is also already involved in the protection and conservation of shark, whale, dolphin and turtle populations within its waters and this could be used to promote diving and eco-tourism activities in its marine sanctuaries. Corporate bond issuance could be through international tour operators focused on responsible tourism. Ocean health benefits would be appropriation of part of the profits to extend conservation efforts.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	What = specific activities needed	Can be newly reported but not yet started. Programs that have ceased are left out	

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
FISHERIES	<p>YES</p> <ul style="list-style-type: none"> • Fisheries & aquaculture contribute ~ USD \$27mn to GDP (3.4%) • Member of Pacific Islands Oceanic Fisheries Management Partnership 	<ul style="list-style-type: none"> • Increase monitoring and surveillance capacity to ensure no illegal or over-fishing • Resource management via locally managed marine areas. • Local surveillance & community stewardship mitigates country's limited capacity to regulate at national level • Communities benefit from greater fish biomass in the reserves and sustainable food supplies 	<ul style="list-style-type: none"> • Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement) • Samoa Community - Base Fisheries Management Program (SPC, FFA) 	<ul style="list-style-type: none"> • No dollar value available • No dollar value available
WATER & SANITATION	N		<ul style="list-style-type: none"> • Pacific-European Union Waste Management Programme (EU) 	<ul style="list-style-type: none"> • EUR €17mn

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
RENEWABLE ENERGY	N		<ul style="list-style-type: none"> • Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation program (EU) • The Pacific Renewable Energy Investment Facility (ADB) • Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group 	<ul style="list-style-type: none"> • EUR €15mn • Total facility is USD \$200mn • No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
INFRASTRUCTURE (COASTAL REHABILITATION & TELCOMMS)	N		<ul style="list-style-type: none"> • Waste Segregation, Storage and Disposal at Source (SPREP, JICA, UNEP, World Bank - IFC) • Pacific Regional Navigation Initiative (LINZ, South West Pacific Hydrography Commission, SPC, New Zealand, Australia, World Bank, IFC, ADB, EU, EIB, JICA, DFAT, PRIF PCO) • Pacific Mangroves Initiative (SPREP, IUCN, WWF-SPPO, UNDP) 	<ul style="list-style-type: none"> • No dollar value available • • • No dollar value available • • • • • • No dollar value available • • No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE TOURISM	<p>YES</p> <ul style="list-style-type: none"> ▪ 2019/20 boost to growth from hosting of Pacific Games in July 2019 	<ul style="list-style-type: none"> • Promotion of marine sanctuaries, whale watching and diving for regulated eco-tourism • Increased tourism revenue feeds back into the cost of protecting the marine areas and eco-systems. • Improvements measured by increased shark, whale, dolphin & turtle numbers 	<ul style="list-style-type: none"> • Enhancing the protection, conservation & management of sharks, whales, dolphins and turtles in Samoa's EEZ and Marine Protected Areas & Samoa Marine Sanctuary (SPREP, PEW Charitable Trust) • <i>PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC)</i> 	<ul style="list-style-type: none"> • No dollar value available • No dollar value available
SUSTAINABLE AGRICULTURE	N			

SOLOMON ISLANDS

The Solomon Islands are highly dependent economically on logging, over-exploiting the sector in order to drive its GDP growth. Logging makes up two thirds of total exports. More sustainable practices could benefit ocean health by preventing soil erosion and runoff. Corporate bond issuance could be through operators of sustainable plantations and farm forestry.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	What = specific activities needed	Can be newly reported but not yet started. Programs that have ceased are left out	

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
FISHERIES	<p>YES</p> <ul style="list-style-type: none"> • Member of Pacific Islands Oceanic Fisheries Management Partnership • Party to the Nauru Agreement • Fish and seafood production is over 7% of GDP at USD 73 million 	<ul style="list-style-type: none"> • Improved management through changing to Vessel Day Scheme through auction method, improvements measured by increased prices of licenses sold, hence increasing revenue • Increase monitoring and surveillance capacity to ensure no illegal or over-fishing • Results in less volatility in tuna fish spawning, population numbers • Resource management via locally managed marine areas. • Local surveillance & community stewardship mitigates country's limited capacity to 	<ul style="list-style-type: none"> • Locally Managed Marine Areas (LMMA) Network, Pacific Island Roundtable for Nature Conservation and the Biodiversity and Protected Areas Management (BIOPAMA) Programme (IUCN's Oceania Regional Office, SPREP and the EU's 11th European Development Fund) • Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement) 	<ul style="list-style-type: none"> • No dollar value available • No dollar value available • No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
WATER & SANITATION	N		<ul style="list-style-type: none"> Pacific-European Union Waste Management Programme (EU) 	<ul style="list-style-type: none"> EUR €17mn
RENEWABLE ENERGY	N		<ul style="list-style-type: none"> Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation program (EU) The Pacific Renewable Energy Investment Facility (ADB) Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group 	<ul style="list-style-type: none"> EUR €15mn Total facility is USD \$200mn Norwegian dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
INFRASTRUCTURE (COASTAL REHABILITATION & TELCOMMS)	N		<ul style="list-style-type: none"> • Local Climate Adaptive Living Facility - a climate change adaptation facility (UNCDF, EU, Liechtenstein, Luxembourg, GEF, SIDA) • Pacific Mangroves Initiative (SPREP, IUCN, WWF-SPPPO, UNDP) • Pacific Risk Resilience Programme (UNDP, Australia's DFAT, Climate Adaptation Network) 	<ul style="list-style-type: none"> • Total project cost is USD \$40mn (USD \$12mn is funded) • • • • No dollar value available • USD \$16.1 mn

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE TOURISM	<p>YES</p> <ul style="list-style-type: none"> International tourism receipts account for 13% of total exports at a value of USD 79 million 	<ul style="list-style-type: none"> Conservation and management of LMMAs increases and preserves biodiversity Protected areas are promoted as eco-tourism destinations Increased tourism revenue feeds back into the cost of protecting the marine areas and ecosystems. 	<ul style="list-style-type: none"> L M M A network through IUCN and BIOPAMA (IUCN's Oceania Regional Office, SPREP and the EU's 11th European Development Fund) <i>PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC)</i> 	<ul style="list-style-type: none"> No dollar value available No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE AGRICULTURE	<p>YES</p> <ul style="list-style-type: none"> • Focus on sustainable forestry and promotion of the agricultural sector • Logging is over-exploited to drive GDP growth - it's 2/3 of exports, 1.1 percentage points of GDP growth and 22% of revenues 	<ul style="list-style-type: none"> • Reduced fertilizers and pesticides in agricultural run-off into ocean waters • Preservation of coastal forests mitigates the effect deforestation may have on redistribution of atmospheric moisture from the ocean to inland areas. 		

TONGA

The tourism sector would be the most feasible option for corporate bond issuance in Tonga. It is a priority sector for the government given it constitutes 13% of GDP and receipts make up nearly half of total exports. In particular, the country has declared its waters a whale sanctuary, which the country could promote to attract eco-tour operators and support further conservation efforts from profits.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	What = specific activities needed	Can be newly reported but not yet started. Programs that have ceased are left out	
FISHERIES	N		<ul style="list-style-type: none"> • Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement) • Tonga marine spatial plan (IUCN, VEPA, Waitt Institute, Ocean 5) 	<ul style="list-style-type: none"> • No dollar value available • No dollar value available •

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
WATER & SANITATION	N		<ul style="list-style-type: none"> Pacific-European Union Waste Management Programme (EU) 	<ul style="list-style-type: none"> EUR €17mn
RENEWABLE ENERGY	N		<ul style="list-style-type: none"> Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation program (EU) The Pacific Renewable Energy Investment Facility (ADB) Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group 	<ul style="list-style-type: none"> EUR €15mn Total facility is USD \$200mn N o dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
<p>INFRASTRUCTURE (COASTAL REHABILITATION & TELCOMMS)</p>	<p>N</p>		<ul style="list-style-type: none"> • IHO Hydrography Capacity Building Programme for Coastal States (IGO, UN Maritime Org., UN World Meteorological Org, International Association of Marine Aids to Navigation & Lighthouse Authorities) • Forum Compact - Pacific Regional Enabling Mechanism to Achieve Sustainable Development. Effected through the Pacific Islands Forum Secretariat (ADB, EU, UN System, PFTAC, PRIF, PIPSO, PIANGO & a host of countries) • Pacific Regional Navigation Initiative 	<ul style="list-style-type: none"> • No dollar value available • • • • • • • No dollar value available • • • • • No dollar value available • USD \$16.1 mn

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE TOURISM	<p>YES</p> <ul style="list-style-type: none"> Tourism accounts for around 13% of GDP and international tourism receipts are around 48% of exports 	<ul style="list-style-type: none"> Promotion of marine sanctuaries, whale watching for eco-tourism Increased tourism revenue feeds back into the cost of protecting the marine areas and ecosystems. Increased whale population numbers, whale watching industry revenue, tourism numbers 	<ul style="list-style-type: none"> PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC) Whale Sanctuary within Tongan waters (Whale watching industry, SPREP, International Whaling Commission) 	<ul style="list-style-type: none"> No dollar value available No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE AGRICULTURE	YES	<ul style="list-style-type: none"> • Reduced fertilizers and pesticides in agricultural run-off into ocean waters • Preservation of coastal forests mitigates the effect deforestation may have on redistribution of atmospheric moisture from the ocean to inland areas. 		

TUVALU

The smallest of the eleven Pacific Islands, Tuvalu's economy is limited and highly dependent on fishing revenues, which make up around half of total GDP. Given its market size, bond issuance does not look viable, but it could be a party to a region-wide solution in the fisheries sector.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	<ul style="list-style-type: none"> What = specific activities needed 	Can be newly reported but not yet started. Programs that have ceased are left out	

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
FISHERIES	<p>YES</p> <ul style="list-style-type: none"> Member of Pacific Islands Oceanic Fisheries Management Partnership Party to the Nauru Agreement Fish and seafood production is nearly 5% of GDP at around USD 2 million 	<ul style="list-style-type: none"> Increase monitoring and surveillance capacity to ensure no illegal or over-fishing Results in less volatility in tuna fish spawning, population numbers Resource management via locally managed marine areas. Local surveillance & community stewardship mitigates country's limited capacity to regulate at national level Communities benefit from greater fish biomass in the reserves and sustainable food supplies Reduced pressure on reef resources by 	<ul style="list-style-type: none"> Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement) Tuvalu - Near-shore Fish-Aggregating Devices (FADs) (using LDCF resources, UNDP) 	<ul style="list-style-type: none"> No dollar value available No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
WATER & SANITATION	N		<ul style="list-style-type: none"> • Pacific-European Union Waste Management Programme (EU) • Sustainable Waste Management Programme, to implement Tuvalu's Integrated Waste Policy • Pacific Partnership for Atoll Water Security (New Zealand, Australia, IFRC, UNICEF, NIWA, NOAA, SPREP, WHO, UNOCHA) 	<ul style="list-style-type: none"> • EUR €17mn • EUR €6.8mn • No dollar value

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
RENEWABLE ENERGY	N		<ul style="list-style-type: none"> • Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation program (EU) • The Pacific Renewable Energy Investment Facility (ADB) • Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group 	<ul style="list-style-type: none"> • EUR €15mn • Total facility is USD \$200mn • No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
INFRASTRUCTURE (COASTAL REHABILITATION & TELCOMMS)	N		<ul style="list-style-type: none"> Pacific Mangroves Initiative (SPREP, IUCN, WWF-SPPPO, UNDP) Tuvalu Coastal Adaptation Project (Climate Change Policy Unit, UNDP & GCF) 	<ul style="list-style-type: none"> No dollar value available No dollar value available
SUSTAINABLE TOURISM	N		<ul style="list-style-type: none"> PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC) 	<ul style="list-style-type: none"> No dollar value available
SUSTAINABLE AGRICULTURE	N			

VANUATU

Development in Vanuatu’s core priority sectors of sustainable tourism, infrastructure, renewable energy and sustainable agriculture have the potential to support connected sectors and have positive flow-on effects for ocean health. Its National Energy Roadmap sets a 100% renewable energy target by 2030, which could be achieved through a patchwork of renewable sources from biomass, solar, wind, biofuel, geothermal and hydro energy. This in turn could support eco-tourism as it targets 65% of rural tourism bungalows to be using renewable energy by 2030. Infrastructure such as ICT cables and mangrove rejuvenation and protection could also support tourism by increasing communication capabilities and helping to protect shorelines from extreme weather conditions and natural disasters (which Vanuatu is very vulnerable to). Finally, creating an agri-tourism market would combine its two main economic drivers and create economies of scale. This would bring benefits to oceans by decreasing Vanuatu’s reliance on fossil fuels and their necessary import, thereby reducing risk of spillage and sewage dump, providing shoreline protection, reduced contaminated run-off from non-sustainable agriculture, and feedback of increased tourism income into funding further marine conservation activities.

Industry analysis

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
	Either large part of their income (provide stat), or appears strongly in their development plans	What = specific activities needed	Can be newly reported but not yet started. Programs that have ceased are left out	

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
FISHERIES	N		<ul style="list-style-type: none"> • Locally Managed Marine Areas (L M M A) Network, Pacific Island Roundtable for Nature Conservation and the Biodiversity and Protected Areas Management (BIOPAMA) Programme (IUCN's Oceania Regional Office, SPREP and the EU's 11th European Development Fund) • Pacific Islands Oceanic Fisheries Management (UNDP, FAO, GEF, FFA, Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement) 	<ul style="list-style-type: none"> • No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
WATER & SANITATION	N		<ul style="list-style-type: none"> Pacific-European Union Waste Management Programme (EU) 	<ul style="list-style-type: none"> EUR €17mn

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
RENEWABLE ENERGY	<p>YES</p> <ul style="list-style-type: none"> ▪ It is National Energy Road Map (NERM) 2016-30 sets a new target of 65% for 2020 and 100% for 2030 ▪ It is looking at (high priority): a biomass strategy (to be done in conjunction with department of Agriculture; incorporating energy efficiency measures into its National Building Code; energy efficiency in transport sector & establishing an energy audit-program ▪ It had set a 2015 	<ul style="list-style-type: none"> • Harnessing Vanuatu's alternative fuel sources to decrease reliance on fossil fuels • Reduced reliance on petroleum shipments reduces risk of oceanic pollution via spillage or sewage dump from ships and leakage or contamination from old pipelines in need of repair • Improvement is measured by annual fuel import figures, measurements of water contamination 	<ul style="list-style-type: none"> • Global Climate Change Alliance Plus - Scaling-up Pacific Adaptation program (EU) • The Pacific Renewable Energy Investment Facility (ADB) • Lighthouse Initiative: New Zealand, EU, Norway, France, SE4ALL, Germany, UAE, Indian Ocean Commission, US, IRENA, UNDP, Japan & World Bank Group • Melanesia's Million Miracle Programme (M3P) (SPC, NGOs, Women Groups, Sunlabob Renewable Energy) 	<ul style="list-style-type: none"> • EUR €15mn • Total facility is USD \$200mn • No dollar value available • No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
<p>INFRASTRUCTURE (COASTAL REHABILITATION & TELCOMMS)</p>	<p>YES</p> <ul style="list-style-type: none"> ▪ Vanuatu Infrastructure Strategic Investment Plan 2015-2024 aimed at developing both urban & rural areas ▪ Its high probability of severe natural disasters means infrastructure investment is necessary 	<ul style="list-style-type: none"> • Protection & rehabilitation of mangroves prevents soil erosion, filters pollutants & provides shoreline protection from natural disaster and extreme weather • Improved transport and communication (submarine cables) infrastructure has & should continue to support eco-tourism 	<ul style="list-style-type: none"> • IHO Hydrography Capacity Building Programme for Coastal States (IGO, UN Maritime Org., UN World Meteorological Org, International Association of Marine Aids to Navigation & Lighthouse Authorities) • Pacific Mangroves Initiative (SPREP, IUCN, WWF-SPPO, UNDP) • Pacific Risk Resilience Programme (UNDP, Australia's DFAT, Climate Adaptation Network) 	<ul style="list-style-type: none"> • No dollar value available • No dollar value available • USD \$16.1 mn

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE TOURISM	<p>YES</p> <ul style="list-style-type: none"> ▪ Has high concentration of economic activity here, with receipts at ~25-26% of GDP ▪ The 2016-30 NERM sets a target of 25% of rural tourism bungalows using renewable energy sources for 2020 & 65% for 2030 	<ul style="list-style-type: none"> • Conservation and management of LMMAs increases and preserves biodiversity • Protected areas are promoted as eco-tourism destinations (e.g. Nguna-Pele Marine and Land Protected Area Network) • Increased tourism revenue feeds back into the cost of protecting the marine areas and ecosystems. 	<ul style="list-style-type: none"> • L M M A network through IUCN and BIOPAMA (IUCN's Oceania Regional Office, SPREP and the EU's 11th European Development Fund) • PacSIDS Ridge to Reef Programme Partnership (GEF, UNDP, FAO, UNEP, SPC) 	<ul style="list-style-type: none"> • No dollar value available • No dollar value available

Industry	High priority for country? Y/N	Actions to improve ocean health, how could improvements be measured	Which country is aid coming from? Name of program	\$ of existing programs
SUSTAINABLE AGRICULTURE	<p>YES</p> <ul style="list-style-type: none"> ▪ Agriculture, Forestry and Fishing combined, were 27% of GDP ▪ Agri-tourism is seen as potential incentive to move outer-island farmers away from subsistence farming ▪ Main export products are coconut oil, copra, kava & beef 	<ul style="list-style-type: none"> • Strengthening link between its two main economic drivers of tourism and agriculture sectors via promotion of agri-tourism • Increased revenue feeds back into the cost of protecting oceans • Reduced fertilizers and pesticides in agricultural run-off into ocean waters • Preservation of coastal forests mitigates the effect deforestation may have on redistribution of atmospheric moisture from the ocean to inland areas. 		

Annex III: Comprehensive stakeholder findings

Section 1: Pacific Bond In-Country Regional Stakeholder Consultation Feedback

Introduction

This section outlines the in-country regional engagement with diverse stakeholders in Fiji between 30 April-13 May 2019 to generate feedback on the outputs of the project.

The regional consultation served to:

- Validate initial findings on regional and national priority sectors;
- Consolidate knowledge and understanding of the financial and investment landscape in the region; and
- Identify on going or new investment opportunities suitable for blue bond finance based for further development.

Approach

Prior to the in-country visit, initial contact with a list of regional stakeholders was made. This initial contact list was augmented during this visit. We participated in a series of regional meetings in Fiji, listed at the end of this Annex. There were several opportunities meet face-to-face with key regional and international actors. This included country officials from various departments, MDBs and donors, regional organizations, academic institutions and non-government organizations. A Pacific Ocean Bond workshop was also convened jointly with Office of the Pacific Ocean Commission, in partnership with the Insurance Project.

The consultation focused on confirming priorities for investment, which were incorporated in the development of the three bond concepts. The scope of the consultation covered:

- Background to bond financing
- Eight proposed priority sectors and eligible activities
- Three bond structure descriptions

It was not always possible to conduct long interviews as many of the in-person meetings were held alongside regional events. Furthermore, the regional events did not attract many fisheries and/or local environmental stakeholders. Consequently, consultations was supplemented with additional, targeted emails from June-August 2019.

Key learnings on priorities sectors, activities and related investment projects

Overwhelmingly, climate change is a matter of urgency for the region, framing all other issues including ocean health and sustainability. Climate resilience, in both adaptation and mitigation, is the main policy driver for investment. For example,

- Significant emphasis was placed on infrastructure investment to reduce vulnerability over the short term (emergency finance) and long term (resilience finance).
- Climate Action Pacific Partnership (CAPP), an initiative of Fiji's COP23 Presidency, clearly articulated the importance of the linkages between ocean and climate resilience.

With this backdrop in mind, stakeholders shared activities and projects that are of priority to them. Discussions focused on currently occurring activities, activities that were being planned, and where possible, specific projects that are partly funded.

Based on the consultations, an additional cross-sector category on ocean governance and policy was added to the list of eligible activities to specifically cover larger, nation-wide or

region-wide governance and capacity needs that are important to delivering ocean health across sectors.

The consultation surfaced some activities not previously considered, for example land reclamation projects, which are critical for the survival of low-lying island communities. After seeking input (including FFA) on whether this activity category would meet the criteria for inclusion in the Pacific Ocean Bond project, land reclamation was not included in the list of eligible activities as it would have significant negative impacts on the local marine environment.

The projects discussed had a wide range of specificity, as well as applicability towards bond financing. For example, where technology is just coming out of testing and has yet to demonstrate possibility of positive cashflows, bond financing would not be suitable.

Of all the proposed activities and projects considered, only one sector was explicitly seeking bond finance - green shipping⁸⁰. This is a key area for follow up.

Key learnings on the financial and investment landscape

The consultations provided perspectives on the level of knowledge and interest of the region in bond finance. The ADB Annual Meeting and the Forum Economic Ministers Meeting (FEMM) were important platforms of engagement.

Key learnings include:

- Countries were not familiar with bond financing and had relatively low interest, noting several concerns
- In contrast, MBD and bilateral funds were more enthusiastic, with several programs that would support blue bonds

Familiarity, availability and interest in bond financing

While Pacific Island countries have accessed USD \$1.1bn in climate finance over the last 10 years, bond finance is very new concept for islands, and grants and loans are the primary financial tool in use. There is limited incentive or appetite for debt-based instruments from the countries. In contrast, insurance was much more attractive in the context of climate change and disaster risk management.

Most of the countries' discussion at FEMM focused on climate and disaster finance including the GCF. With declining concessional financing, the countries were challenged to find workable solutions which are flexible enough to account for shocks, such as natural disasters, and meet requirements.

Given that USD \$ 1 invested in resilience saves USD \$ 7 in recovery expenditure⁸¹, the focus on insurance and resilience financing was high. The following was discussed at the FEMM:

- Regional solutions to pool resources, reduce risks, transaction costs and build critical mass in financial capacity. The Pacific Islands Climate Change Facility and the Pacific Resilience Facility are two such examples of regional mechanisms

⁸⁰ The relevant contact persons are Taholo Kami (Fiji Ministry of Economy) and Francois Martel (Pacific Island Development Forum).

⁸¹ 46 billion needed (ADB 2018) 2016-2030 for infrastructure investment, 9% of GDP investment needed

- Dedicated sovereign funds for resilience projects (examples of such trusts include the Cook Island Superannuation Pension fund⁸², the Tuvalu Climate and Disaster Risk Survival Fund, the Vanuatu National Green Energy Fund, the Fiji Bonds).

The Pacific Island Investment Forum (PIIF)⁸³ is one regional solution of resource pooling. It brings together 18 member funds and represent over USD \$50bn. While there are remaining regulatory and legislative challenges to fully support free flow of capital across the members, PIIF offers a mechanism for co-investing. PIIF is actively identifying infrastructure projects for co-investment. Deeper review is needed whether this pooled fund is a feasible target investor for a Pacific Bond.

Concerns of taking on bond financing

The countries mentioned the following barriers in accessing bond finance:

- Debt sustainability as a key issue for most Pacific Island countries to raise additional capital, in part because of poorly diversified economies but also a weak relationship between investment and growth⁸⁴
- The high cost of finance and the ability to make bond repayments, particularly in the context of climate change and natural disasters
- Financial management and meeting accountability requirements of green and blue bonds
- How blended finance and insurance can assist in reducing costs and risks to investors

MBD and bilateral funds support for blue bonds

Financial institutions such as the ADB and the World Bank were more enthusiastic about green and blue bond finance than countries. Multilateral and bilateral funds are supporting blue bond finance in the region. Some examples:

- ADB launched at its annual meeting an [Action Plan for Healthy Oceans and Sustainable Blue Economies](#) to expand financing and technical assistance for ocean health and marine economy projects to USD \$5bn from 2019 to 2024, including co-financing from partners. The investment areas highly coincide with the priority areas we have identified
- The ADB [Oceans Financing Initiative](#) will provide technical assistance grants and funding from ADB and other donors to reduce the technical and financial risks of projects. This will be done through instruments such as credit risk guarantees and capital market “blue bonds”.
- The ADB also announced that it will raise a green bond to support the development of Fiji local capital markets in an effort to promote domestic bond markets as an alternative to bank lending. ADB will mobilize Fijian dollar funding from international investors for investments in Fiji through a currency-linked structure.
- ADB has a USD \$100bn guarantee for a under the Pacific Renewable Energy Program (PREP) to encourage private sector investment through mitigating short-term liquidity

⁸² Note that the Cook Island Fund cannot fund projects within Cook Islands, only in NZ.

⁸³ It was established in May 2018, in the Cook Islands to “promoting economic prosperity in the Pacific through financial stability and the use of international investment best practice to best support the free flow of capital in pursuit of long-term Pacific economic and environmental prosperity”.

⁸⁴ For example, the ADB and World Bank has recently revised their Joint-Bank Debt Sustainability Analysis for Kiribati and Solomon Islands, and assessed them to high risk and moderate risk of debt distress, respectively.

risk with partial risk guarantees, direct loans and letter of credits and technical assistance

- The Australian Infrastructure Financing Facility for the Pacific (AIFFP) has an AUD \$2bn program for critical infrastructure in the Pacific region, including AUD \$500mn in grant funding

These discussions surfaced key partners for further engagement.

Incorporating key learnings

The development of the three final bond concepts, incorporated the stakeholder finds in the following ways:

- Bond concepts were grounded in the priorities of the region to ensure buy in
- Multi-country bond structure that can support existing regional grouping with shared interests (e.g. the PNA or low-lying atolls)
- Insurance noted as critical support for bonds
- Multi-sector proposals within or across countries to reduce transaction costs and take advantage of synergies and achieve multiple benefits (e.g. the Fiji Green Bond)
- Incorporate blended finance to ensure affordability
- Ensure a legislative and policy framework is in place to ensure bond investment is meeting sustainability and resilience objectives. Most countries have in place the appropriate policy settings, but limited capacity for monitoring and enforcement.

Given the level of familiarity and financial concerns raised by countries, a staged approach by focusing bond options on well supported activities first would be beneficial. Lessons learnt from those can raise awareness of bond finance and help t progress to other options.

Section 2: Investment Feasibility Stakeholder Consultation Feedback

Introduction

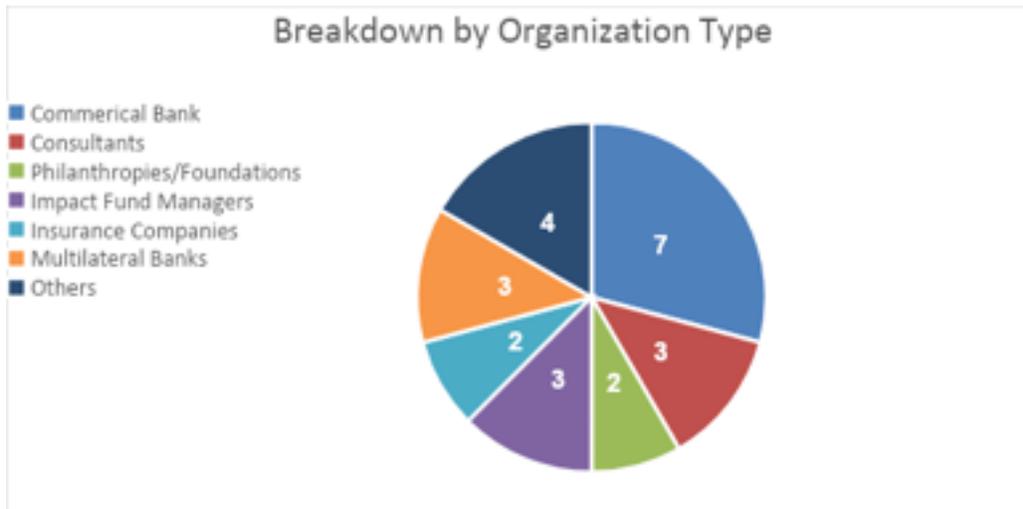
This section summaries the investor feedback received, assessing the feasibility for the three Pacific Ocean Bonds (POB) options. Since a primary goal of POB is to attract private investment to sustainable projects in the region, it is imperative that the options design also respond to the needs and recommendations of target investors.

Approach

Engagement took place with a good cross-section of 24 stakeholders that support the investor ecosystem from: MDBs, commercial banks, impact fund managers, insurance companies (asset owners), philanthropists, impact investors and consultants.

As a follow up to the in-country regional stakeholder engagement in Section 1, at least three regional parties who indicated interest were contacted to get further feedback on the bond concepts. However, no further follow-up comments were received despite several attempts. The difficulty could be due to the perception of the lack of applicability of bond finance to the region, especially with the need to focus on managing other existing financing options already available to them. Furthermore, limited capacity to engage in clarifications online likely also played a role.

Given the difficulty in obtaining regional stakeholder response, this section is focused on summarizing the perspectives of international stakeholders who have the potential, or are considering, arranging or purchasing a bond. Local perspectives were captured through input provided from international organizations with a Pacific regional presence and understanding, including the International Union for Conservation of Nature (IUCN), ADB and Mirova and EIB.



The engagement process included in-person meetings, emails, survey forms and phone interviews. Despite the constraints of busy people and summer holidays in Europe and US, 60% of those approached provided high-level and thoughtful responses from. In fact, given the broadness of the feedback received, it is unlikely there would be a material difference in the feedback with more inputs.

Key learnings from investment community

High level of consensus from investors around critical elements

Consensus was found in the investment community on six key elements that are needed in order to attract private capital to any POB issue:

1. **MDB issuer:** An MDB issuer, as proposed in the Resilience Bond was overwhelmingly preferred versus a sovereign or private issuer. Investors generally trust these issuers to take responsibility for the investment structure, governance and project development and overall risk management, including ESG risk management. ADB or the World Bank were frequently cited as the preferred issuer in all cases. China's Asian Infrastructure Investment Bank (AIIB) could also be a potential issuer if the projects are clearly infrastructure, with little dependence on natural capital models that have not been sufficiently proven. If a sovereign or private issuer were to be chosen, however, investor support would require risk mitigation features like capital guarantee, first-loss provision or coupon guarantee - plus project-level insurance. Integrity of project cash flows and governance are also essential. Findings also revealed that only a few sovereign or corporate entities that have the borrowing capacity, credit standing and project capacity to issue a green bond with desirable features.
2. **Scale:** For most institutions on all bond options, demand begins at USD \$100mn due to minimum ticket and maximum share of total issue requirements - even when the impact story is strong. According to bankers engaged, and Climate Bonds Initiative, a green/blue bond must be at least USD \$20mn in order for an issuance to be feasible, and furthermore, it is advisable that if the scale of a green or blue bond is less than USD \$50mn, a loan should be employed rather than a bond. In terms of institutional

investors, a minimum of USD \$100mn is required. To note, there are exceptions to these rules: a single sovereign issue bond, the Seychelles Blue Bond of USD \$15mn was able to attract the required 3 impact investors and at least one donor. Second, the role of an MDB was also critical to reduce interest payments and provide some investor security. For the Impact Bond, this scale is unlikely for the other single POFN nations - unless they coordinate under a third-party issuer to reach necessary scale. Governance and project coordination issues make this a difficult path, which was not modelled for the Impact Bond. Hence there was more interest in the Resilience Bond, which can reach the critical mass of projects and investor interest at USD \$100mn.

3. **Revenue-generating projects:** Revenue-generation is the focus of both the Resilience Bond and the Climate Mitigation Bond, however without feasible projects with detailed information and high potential, investors are not able to comment as to levels of possible finance. The challenge, therefore, is to build on-the-ground capacity to develop and operate projects with potential for high-yield. Some projects have proven models for commercial viability, including renewable energy and telecommunications, while others do not, such as natural capital and coastal rehabilitation.⁸⁵ All are seen as potentially valuable sources of revenue-generating and impactful projects, however they require support from outside of the region and collaboration in order to acquire the necessary skills and capacity for effective project delivery. An advantage of the Pacific Ocean Bond project is that it requires region-wide collaboration under expert financial and scientific guidance. Different time frames and capital needs will also have to be addressed to create realistic, balanced portfolios for the Resilience and Climate Mitigation Bonds, developing them to meet the standards of sustainable investors is the overall challenge that requires ongoing guidance from an expert team.
4. **Sustainability as an overall theme:** Investors are interested in sustainability in general, and do not necessarily feel that sectoral distinctions are necessary. Some commented that distinctions of sectors and themes are more useful in developed markets. Most investors currently have little or no investments specifically in the blue economy, such as coastal resilience. In the past, sustainable and impact investments have focused on renewable energy, agriculture, health and education. The interest is clearly growing - the blue finance gap is increasingly recognized, as are the resilience insurance gap and the SDG funding gap, which require private capital to meet 90% of their financing needs. There is a window of opportunity to address the nascent interest in Blue Economy, together with Asian growth, by investors with a commitment to sustainability.
5. **ESG standards:** Since one-third of global liquid assets have signed the Principles of Responsible Investment (PRI), there is investor demand for all sustainability themes - yet all must meet relevant financial and ESG requirements. This will be the same for the emerging theme of Blue Economy. Ocean health is in the process of being defined, and so references to broad ESG standards and industry best practice is expected for new blue investments. Projects should be aligned to and practice ESG standards for two reasons: to increase investments through internal mandates; and because risk/return has been shown to improve when ESG metrics are included. That said, investors prefer short and succinct KPIs that project leaders and investors can apply and follow with ease and would prioritize the existence of a reliable issuer with effective risk mitigation mechanisms rather than prescribed ESG standards. Broadly speaking, the

⁸⁵ A focus on natural capital may be incorporated into the Resilience Bond, as the resilience theme embraces many strategies that require such enabling conditions.

key factors, in order of importance to investors, are issuer quality, cash flow quality, country risk, sector risk, insurance and risk management, and ESG metrics.

KEY FACTORS FOR INVESTORS	Bond Rankings (1 st = most attractive to investors)
Issuer Quality (1 st)	Resilience Bond (1 st) Impact Bond (2 nd) Mitigation Bond (3 rd)
Cash Flow Quality (2 nd)	Mitigation Bond (1 st) Resilience Bond (2 nd) Impact Bond (3 rd)
Country Risk (3 rd)	Resilience Bond (1 st) Impact Bond (2 nd) Mitigation Bond (3 rd)
Sector Risk (4 th)	Mitigation Bond (1 st) Resilience Bond (2 nd) Impact Bond (n/a)
Insurance/Risk Management (5 th)	Resilience Bond (1 st) Impact Bond (2 nd) Mitigation Bond (3 rd)
ESG Metrics (6 th)	Resilience Bond (1 st) Mitigation Bond (2 nd) Impact Bond (3 rd)

This perspective points to Climate Mitigation Bond option having more scrutiny given its risks around private issuers. However, without actual projects to consider at this time, more specific investor feedback on standards was not possible. In contrast, for the Climate Resilience Bond investors look to the MDB issuer to resolve sustainability and risk management issue.

Economics driving financial instrument choices

There is a wide range of financial instrument choices that could be applied to achieve Pacific Ocean health objectives, including bonds, loans and Debt-for-Nature Swaps (DfN), and investors will carefully consider the underlining economics of each. For the Impact Bond, a loan structure is a cheaper and faster funding source than a bond, given the realities of POFP nations. There is also strong interest from many nations in exploring DfN to fund conservation measures and reduce sovereign debt payments without taking on new debt. While this is a redirection of capital, not a new funding source overall, it is very appealing to Least Developed Countries with strong natural assets like the POFP region. For example, Seychelles introduced a DfN simultaneously with a blue bond for new capital, with the success of the strategy dependent on both instruments - a point sometimes lost on sovereign issuers.

In general, investors will prioritize financial instruments that have the appropriate scale, effective risk management mechanisms, and that have issuer and targeted projects that instill investor confidence. The Resilience and Climate Mitigation Bonds involve direct project

revenues at a scale worthy of broader institutional support than the Pacific Ocean Impact Bond. It is important to note that, in the Pacific context, project urgency and timelines are also pivotal in determining the most applicable financial mechanism, since climate urgency is increasing for the Pacific Islands. With these economic factors considered, for project and ocean health objectives under the Impact Bond, in some cases a loan may be more efficient than a bond or DfN. Conversely, for the objectives under the Resilience and Climate Mitigation Bonds, a syndicated loan would be the preferable tool for single-sector projects. However, for cross-country sectoral projects, a bond issued by an MDB may be most attractive to both investors and issuers. Under Climate Mitigation Bond projects specifically, the preferred financial instrument depends on the scale of the project. If the portfolio targets less than USD \$50mn, a loan is the best fit. If the portfolio targets more than USD \$50mn, with aggregated countries and a robust risk management system, a bond is preferable.

Incorporating key learnings

The development of the three final bond concepts, incorporated the stakeholder finds in the following ways:

- The minimum size of the Pacific Ocean Resilience Bond was enlarged to US\$100M
- Flexibility to combine the climate mitigation and climate resilience goals within one bond
- Ensure to include higher verification costs for the Pacific Ocean Climate Mitigation Bond

Section 3: Suggested next steps from stakeholder feedback

The growth of bond finance will require a change of mindset from countries, a better understanding of the role of private sector investment, as well as some of the systemic barriers facing most island countries (e.g. small economies and private sector, high risk, debt sustainability, skills capacity).

Further consultation and workshops may be required in a later phase of the Pacific Ocean Bond project to build awareness of bond finance opportunities and to develop a pipeline of eligible projects into “bankable” projects for the purpose of bond finance.

On-the-ground capacity is needed to identify, develop and manage projects with potential for returns. In that light, deeper engagement with MBDs that can supplement local capacity will be beneficial.

Structure Specific Feedback and Suggestions

Next, critical investor feedback and research is summarized on the financial feasibility of each bond option. While this feedback process highlighted challenges, policymakers and advisors will be better prepared to find solutions by considering the recommendations of experienced investors. Where the feedback has provided a clear direction, it has informed the final Bond Concept Notes.

In general, there was agreement among investors that bonds need to be at a certain scale to be viable, and that an MDB is the preferred bond issuer on grounds of investor certainty both in terms of financial capability and alignment of objectives. Several investors recommended blending the Resilience Bond with the Climate Mitigation Bond.

1. **Pacific Ocean Impact Bond:** This strategy depends on the willingness and ability of a nation to borrow in the global bond markets, and the attractiveness of both the scale

and impact proposition to investors and donors. Several impediments make this more challenging for the POFN nations than it was for our model, the Seychelles Blue Bond. If a nation indeed has the ability to raise a bond, structuring the bond to appeal to both impact investors and donors is the key to success. Assuming the size requirements are met, impact investors generally look for risk mitigation on impact outcomes from donors and MDBs, rather than relying only on national commitments to ensure impact objectives are met. Both national commitments and MDB support were present in the Seychelles Blue Bond, with tools that guaranteed a percentage of capital return whilst reducing the payment burden for the sovereign. Markets also took confidence from the commitment demonstrated through the DfN swap structure, which included a locally-run independent trust, in concert with international audits for ESG compliance. With these governance provisions in place to ensure project compliance with ESG standards and the particular goals of the country, and an MDB guarantee, a sovereign-issued impact bond can be successful.

2. **Pacific Ocean Resilience Bond:** This concept attracted the most interest from investors. However, several important comments were made, and solutions proposed:
 - a. **MDB issuer** is ideal and essential. ADB or the World Bank were the most frequently cited candidates for this role, which is consistent with our recommendation. This will create a discipline in project choice and management that may exclude some projects falling short of financial or impact criteria. Also, the target MDBs must be persuaded to take on the role of issuer (when they are already heavily solicited). Commitment to a successful issue and collaboration across nations and sectors must be clear to MDBs. This will take time.
 - b. **Combine for Size:** The easiest way to reach the minimum USD \$100mn size is to combine projects modeled in the Pacific Ocean Resilience and Climate Mitigation Bonds into one bond.
 - c. **Shorter term:** Following the Fiji bond model, at least $\frac{3}{4}$ of assets should be in a 10-year tranche. To attract investors for projects that can be realized in less than 5 years, offering a 5-year tranche is recommended.
 - d. **Capacity:** It is the role of local governments to create the enabling conditions for private sector projects to succeed. Sufficient funds and attention must be allocated to capacity-building for all options but especially the Pacific Ocean Resilience Bond, which has hybrid public-private projects. It is a big challenge to identify and develop projects of sufficient scale to be both financially viable and impactful - particularly in coastal rehabilitation.
 - e. **Scalable Projects:** A project selection must be made to ensure that projects provide scale and diversification across the region. Developing a limited number of scalable projects, across the three segments identified by the Pacific Ocean Resilience Bond, is a big challenge. However, threats from climate change and environmental degradation on top of community needs will continue to drive demand for major infrastructure projects.
 - f. **Portfolio Diversification:** The diversity and scale of the Pacific Ocean Resilience Bond model, the Baltic Blue Bond, illustrates the need for commercial integrity and investor diversification. Portfolio diversification is already strong in the Pacific Ocean Resilience Bond, with water & sanitation, coastal management and telecommunication projects. These are further broken down into three factors: time to revenue-generation, valuation and revenue certainty, and urgency. Diversification, as well as scale, would result from combining these with the Pacific Ocean Climate Mitigation Bond sectors.
 - g. **Valuing blue assets:** Natural capital asset valuation, such as for coral reefs, and mangroves, is a new field with several excellent standards but few proven

models⁸⁶. These assets face unprecedented threats from climate change, population pressures and environmental degradation. Although proof of all solutions may not be complete, there is consensus among the policy and impact investment communities that new solutions must be implemented at scale, while there is time. Urgency and willingness to try new solutions was the theme at the recent Atoll Nations Resilience Dialogue, hosted by ADB. Insurance solutions are also being tested and may be integrated with the Pacific Ocean Resilience Bond.

3. Pacific Ocean Climate Mitigation Bond

Allocation for energy: Some fund managers favor private issues because they are more return-oriented, with fewer government constraints. Overall, stakeholders engaged were favorable towards higher energy allocations in regions with they are less familiar, assuming the issuer is credible, green bond standards are followed, scale is achieved, and risk mitigation features are included. Allocations to the energy sector, in particular for renewable energy, is the dominant theme for impact investing (up to 25% of total allocations) and sustainable investing at present. Investors are very familiar with the concept from both private, MDB and public issuers. However, this also means there is substantial competition for energy green bonds and some investors may have reached their allocation limits for this sector. Within the region, Fiji’s green bond has a substantial allocation to renewable energy projects. This precedent may work in favor of our Pacific Ocean Climate Mitigation Bond, especially if there is verifiable progress on Fiji’s energy projects. It is, however, is a privately issued bond. This potentially increases both return and risk.

Allocation for Green Shipping & Green Ports: Discussions in this sector are new but very topical, due to new IMO regulations and awareness of how damaging the maritime industries are to ocean health. Also, the ADB has signaled Green Port upgrades as a key theme for its Ocean Health Initiative. The same caveats apply here as for energy projects, as noted above. The maritime segments mentioned as appropriate for Pacific Ocean Climate Mitigation Bond are:

- Green Port infrastructure: waste management (also included in the Resilience Bond), clean onshore power, local monitoring of ships (especially cruise vessels) for International Maritime Organization (IMO) regulatory compliance. Data and skill upgrades are required to implement the Green Shipping Index at the port/harbor level.
- Inter-island ferries and cargo: New builds and retrofits for cleaner fuels and ballast water treatment. These shorter hauls are the first movers on zero-emission shipping and, together with cruise ships, the most publicly visible maritime segment.
- Marshall Islands Ship Registry (MISR): Beneficiary companies are neither based nor generally sailing in the POFP region, and so ocean health impacts would be of a general, and non-region specific, nature, just as the positioning of MISR as the world’s dominant green flag is also positive for ocean health, but in a non-localized way. The world’s second largest ship registry (13,000 vessels) is reviewing its options regarding future management of the registry, which may include upgrading local skills to handle more of this lucrative business. This is a skills/data financing opportunity. Part of this reflection by MISR, which makes this a mitigation story, is to see where they can position themselves in the Green Shipping theme. This is certainly a growth theme for

⁸⁶ We note that there are on-going discussions and debates around methodologies for blue carbon credits. However, a recent issuance of mangrove rehabilitation related carbon credits in Kenya by UN Environment, the Kenya Forest Service, the Kenya Marine and Fisheries Research Institute (Vanga Blue Forests Project) is one reference point.

the industry, with USD \$200bn needed worldwide just for IMO compliance. At the same time, MISR will probably lose clients due to rapid consolidation of the shipping industry. This favors improving MISR with value-added propositions around green shipping, requiring investments in human and digital capital by MISR. A second use of proceeds, if desired by a bank as issuer, may be direct funding of some MISR registered vessels for cleaner fuels and ballast water treatment. It is also worth noting that the shipping industry is subject to a relatively lax environment in terms of both its regulatory framework and its enforcement, and as such ambition towards improving ocean health in this area must be realistic.

Reporting: For privately issued green bonds, investors are especially keen to see verification before and after issuance, by several methods:

- **External Reviews** are important in the green bond market, with 90% of issues subjected to second-party opinions, or audits and certifications⁸⁷. Sustainalytics reviewed the Fiji green bond and has the second largest market share of such reviews. This is a necessary cost to the issuer (possibly to be covered by a donor) and
- **Post-issuance reporting** is optional but 66% of issuers do so⁸⁸. More issuers offer Use of Proceeds reporting than Environmental Impact reports, while half of issuers offer both. That is the market status, and this is reflected in investor expectations. Without the security of an MDB or sovereign issuer, such verification becomes even more important. Funding for reporting and ongoing monitoring must therefore be included in the bond budget.

The expected range for these costs can be wide and is highly dependent on the project type and complexity.⁸⁹

Issuer Type: The choice is between an industrial or financial issuer for the Pacific Ocean Climate Mitigation Bond. There was no clear preference for either one. However, an industrial issuer has the advantage of project pipeline and technical support - with the disadvantage of limitations around its business model. A financial issuer has the advantage of more flexibility concerning project choices (capable of underwriting both energy and maritime projects) - but the disadvantage of no direct resources to influence positive outcomes and cash flows. In either case, impact investors are keen to ensure that ESG standards, community and ocean health benefits accrue from the projects. Hence the need for initial and ongoing verification, as noted above.

Issuer Country: China was frequently mentioned as the logical base for a private, or public-private, issuer under the Pacific Ocean Climate Mitigation Bond scenario. Australia, Japan, Singapore and South Korea are also potential base countries for an industrial or financial issuer. Deep resources and regional commitment are the foundation for successful private projects, which favors regionally-based issuers and is clearly the case for industrial issuers. China, as one of the region's major players, holds numerous strategic investments in the region. However, increased Chinese investment and acquisition of infrastructure in globally, including in the Pacific infrastructure in recent years, has raised some concerns by investors about transparency and governance standards. This further indicates the need for transparency to safeguard POFP community and environmental interests.

⁸⁷ GIZ-SEB Joint Report, 2018. Green Bonds – Ecosystem, Issuance Process and Case Studies.

⁸⁸ Climate Bonds Initiative, 2019. Post-Issuance Reporting in the Green Bond Market.

⁸⁹ OECD. 2016. Green Bonds: Country Experiences, Barriers and Options. http://unepinquiry.org/wp-content/uploads/2016/09/6_Green_Bonds_Country_Experiences_Barriers_and_Options.pdf.

Risk Mitigation: The credit rating of the issuer is the first diligence checkpoint and will determine the risk mitigation tools required to attract private capital. Several investors commented that they would need risk mitigation features regardless of the private issuer's identity. This is an opportunity sought by ADB's Ocean Health Initiative, leveraging its AAA rating and other tools to attract private capital to blue deals with positive impacts for the region. A capital guarantee is top on the wish list for most investors but there are several acceptable variations of this. The higher political and climate risk of SIDS drives this general requirement, which is not the case in privately-issued green bonds in OECD countries. This creates a role for philanthropic funding as well, ensuring ESG goals are met and supported by technical assistance in such a high-value environmental region.

Overview of Organizations Engaged

1. **MDBs:** MDBs have the potential to play multiple roles in bond finance. One critical role in the context of the region is of a bond issuer. They also have the potential to be involved as guarantors of a sovereign bond issuance, and to a lesser extent as investors.
2. **Commercial Banks:** Typically involved as arrangers or placement agents, the commercial banks have the network and capacity to package the structure of the bond, and source investors. Through their direct interaction with the investors they will recommend the appropriate size, pricing of the bond's, ensuring the bond is not undersubscribed. They also have the ability to underwrite the bond to guarantee a certain level of bond purchase.
3. **Insurance Companies:** Insurance companies are large asset owners that are direct investors. Several have responsible investment mandates and are important players in the investment ecosystem looking for green or SDG related investment instruments to invest in.
4. **Philanthropies/Foundation:** Foundations can provide complementary grants and technical assistance to support the success of the bond's projects. Some foundations also have a mission investing department that can participate as impact investors.
5. **Impact Fund Managers:** These are organizations that manage philanthropic monies looking to create impact. Typically, the funds are already invested significantly into a single fund and fund managers allocate these funds across a range of different investments to acquire the promised return.
6. **Consultants:** Individuals or organizations who support the green and blue bond ecosystem through providing services to ensure bond and projects achieve certain standards, or private wealth managers who provide advice on how to manage the funds.
7. **Other:** These include ESG Ratings/Audits and Standard Bearers, as well as investor associations or national bilateral funds that support development work internationally.

Overview of Meetings attended in Regional Stakeholder Consultation

The 2019 Pacific Resilience Meeting (1-3 May)

Hosted by the Pacific Resilience Taskforce, and held at the University of South Pacific in Suva which highlighted the centrality of people and culture in building long term resilience in the face of natural events and the concept of survival in the face of climate change. Agenda and concepts notes are at <http://www.resilientpacific.org> and a copy of the Pacific Resilience partnership Statement is at <http://www.resilientpacific.org/wp-content/uploads/2019/05/Final-PRM-Outcomes-Statement.pdf>).

The ADB Annual meeting held in Nadi, Fiji (1-5 May)

The 2019 annual meeting had an increased focus on the Pacific region, oceans and climate resilience.

Highlights:

- Agenda: <https://www.adb.org/annual-meeting/2019/main>
- Closing session speech at <https://www.adb.org/news/speeches/closing-address-52nd-annual-meeting-takehiko-nakao> .

- Announcement of the Healthy Oceans Action Plan at: <https://www.adb.org/news/adb-launches-5-billion-healthy-oceans-action-plan> with information on the supporting Ocean Financing initiative at: <https://www.adb.org/sites/default/files/related/145041/Oceans%20Financing%20Initiative.pdf>;
- Announcement of ADB- Fiji agreement to support local bond markets in Fiji at: <https://www.adb.org/news/adb-fiji-agree-initiative-develop-capital-markets-and-boost-private-sector-investment>.

These provide excellent opportunities for a Pacific Ocean bond and there was a lot of interest in the FFA OPOC project.

The Because the Ocean Initiative Pacific workshop (6-7 May)

Lead by Fiji, Sweden and Chile, this is a preparatory meeting in the lead up to the UNFCCC COP 25 in Chile, promoting a strong emphasis on ocean and climate linkages and inclusion of ocean in national NDCs. The outcomes of the workshop are at: <https://www.becausetheocean.org/the-fiji-workshop/>

It recommended the inclusion in NDCs of carbon sequestration and storage (blue Carbon), the decarbonization of maritime transport, blue energy and Sustainable fisheries management, conservation and adaptation to climate changes as key elements, which we had identified in *Annex II* as areas for bond investment. This informed the Pacific negotiations meeting for COP 25. An interesting point on whether to have a dedicated item on ocean in the UNFCCC agenda was raised.

The Pacific Island Finance Ministers Meeting (FEMM) (7-9 May)

Hosted at the Pacific Island Forum which focused on Pacific resilience and infrastructure, but included topics on economic diversification and social infrastructure (education and skills). Highlights included:

- Emerging economic issues
 - global context, debt issues and access to finance
- Update on regional financing mechanisms for climate change and disaster risk finance
 - Pacific Islands Climate Change Facility (PICCFR) the Pacific Resilience Facility and the Pacific Islands Investment Forum (PIIF)
 - substantial discussion on insurance as instruments for resilience
- A private sector dialogue and a CSO dialogue statements were presented to Ministers
- Quarterly report on the implementation of the Region's Sustainable Development Roadmap and priorities for donor partners and stressing the importance of donor harmonization. <http://www.forumsec.org/wp-content/uploads/2019/01/2018-Pacific-Sustainable-Development-Report.pdf>

Of note was a proposal for a study on a moratorium for deep sea mining which countries cautiously supported, but not the moratorium.

A public forum was also hosted by USP.

The Climate Action Partnership (CAPP) (13-14 May)

Held in Suva coinciding with the visit of the UNDG (15 May). Agenda included:

- a dedicated session on ocean and climate priorities convened by the Ocean Pathway including the preparation for UNFCCC COP 25 as the blue COP;
- discussion of a Pacific blue shipping bond and financing sustainable domestic shipping supported by those countries with a large shipping registry (e.g. FSM, RMI)
- a session on climate finance innovations and the role of finance providers as part of the Talanoa call for action (COP 23).

Agenda and papers are at <https://cop23.com.fj/capp-2019/> .

Key themes included that climate change is a matter of survival. There is a climate and an ocean crisis which the region sees as a global emergency and they face an unreasonably high costs due to slow progress globally towards the 1.5 degree set in the Paris Agreement. The

issue of human rights and litigation as a tool for climate resilience was raised. A blue shipping bond close meeting was held in the margin, to be followed up.

Annex IV: Review of Existing Environmental Impact Bonds

Section 1: Introduction

Annex IV provides a snapshot of the global landscape in bonds of potential interest, offering some observations to guide the work going forward. Applying a wide definition of environmental impact ensures that the range of examples covers a breadth of relevant bond transactions. These also take into account the main transformational economic opportunities of the region, such as those outlined by the World Bank⁹⁰.

1. Overview and sources

The primary aim of *Annex IV* is to identify a small yet representative set of relevant bond examples from the sustainable bond universe, and to draw meaningful conclusions about features that are relevant for designing a future Pacific Ocean Bond. 14 such bond examples were identified, covering a range of bond types and geographies, and lessons were learned from the prioritization process as well as the bond designs themselves. Finally, a bond matrix captures the salient features, where available, of priority bonds for further consideration.

Existing data information on bond issuance was applied, including the following studies:

- GIZ's Green Bonds - Ecosystem, Issuance Process and Case Studies Draft (2018)⁹¹
- Climate Bond Initiative's regular market updates (Bonds and Climate Change, The State of the Market 2018)⁹²
- World Bank's Green Bond Impact Report 2018⁹³
- Environmental Finance's Sustainable Bond Insight 2019⁹⁴
- Climate Bond Initiative's Best Practices on post-issuance reporting report⁹⁵

⁹⁰ World Bank. 2017. Pacific Possible: Long-term Economic Opportunities and Challenges for Pacific Island Countries. Washington, DC: World Bank.
<http://documents.worldbank.org/curated/en/168951503668157320/pdf/ACS22308-PUBLIC-P154324-ADD-SERIES-PPFullReportFINALscreen.pdf> [documents.worldbank.org]

⁹¹ Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, 2018. Green Bonds - Ecosystem, Issuance Process and Case Studies.
[https://webapp.sebgroup.com/mb/mblib.nsf/a-w/3c57af239091dddfc125822400522b99/\\$file/giz_seb_greenbondpublication_web.pdf](https://webapp.sebgroup.com/mb/mblib.nsf/a-w/3c57af239091dddfc125822400522b99/$file/giz_seb_greenbondpublication_web.pdf)

⁹² Climate Bonds Initiative, 2018. Bonds and Climate Change: The State of the Market 2018.
<https://www.climatebonds.net/resources/reports/bonds-and-climate-change-state-market-2018>

⁹³ World Bank, 2018. Green Bond Impact Report 2018.
<http://pubdocs.worldbank.org/en/916521543500726747/report-impact-green-bond-low-re-2018.pdf>

⁹⁴ Environmental Finance, 2019. Sustainable Bonds Insight 2019.
<https://www.environmental-finance.com/pages/sustainable-bonds-insight-2019.html>

⁹⁵ Climate Bonds Initiative, 2019. Post-Issuance Reporting In The Green Bond Market.
<https://www.climatebonds.net/resources/reports/post-issuance-reporting-green-bond-market>

- Sustainable Development Verified Impact Standard's verification standards (2019)⁹⁶

Apart from assessing the wider issuance universe, criteria used to distinguish such instruments also needed to be identified. One early observation relates to the breadth of the universe. Environmental bonds include “green bonds,” “blue bonds,” and/or “climate bonds”. These are not well-defined or mutually exclusive terms⁹⁷. Green bonds usually target terrestrial environmental benefits, and can include climate change benefits. Climate bonds usually target renewable energy but can include projects that address climate impacts to biodiversity. Blue bonds are similar to green bonds, yet may have more of a focus on coastal and ocean environmental benefits.

⁹⁶ [Verra, 2019. Verra Launches Sustainable Development Verified Impact Standard. https://verra.org/verra-launches-sustainable-development-verified-impact-standard/](https://verra.org/verra-launches-sustainable-development-verified-impact-standard/)

⁹⁷ Wildlife Conservation Society, 2018. Finance Tools for Coral Reef Conservation: A Guide. <https://www.icriforum.org/sites/default/files/50+Reefs+Finance+Guide.pdf>

2. 14 bond examples

The following bond examples were analyzed, with primary characteristics of the bonds displayed in the standardized matrix in tables in Section 2:

- Seychelles Blue Bond
- NIB Baltic Blue Bond
- Fiji Green Bond
- EIB Sustainability Awareness Bond
- Mexico MultiCat Bond
- ICBC Green Bond
- Huadian Fuxin Green Bond
- World Bank Kangaroo Green Bond
- AC Energy Renewables Bond
- Miami Forever Bond
- DC Water Green Bond
- Rhino Impact Bond
- Kenya's Green Student Housing Bond
- EBRD Climate Resilience Bond

We excluded a number of other bond examples in order to avoid duplication and to make sure the examples were of most relevance for the Pacific region. We list them here as they may have components that may be interesting to consider at a later stage:

- San Francisco Salesforce Transit Center Green Bond(s)
- Ontario Green Bond
- Access Bank Nigeria Green Bond
- Taiwan Power Green Bond
- Star Geothermal Green Bond
- NYK Shipping Green Bond
- Sustainable Rubber Bond

3. Exclusions

There is a wide range of bonds, bond concepts, and other debt financing examples that were not included in the final selection of bonds in order to focus on a set of examples with the greatest relevance to a potential Pacific Ocean Bond, and to provide clarity and cohesiveness. Nonetheless, there were useful lessons in the process of considering the different examples. The main categories of exclusion are in the following list:

- Greenwashing and fraud
The first category of exclusions relates to bonds that do not naturally fit into the universe. They may have been (mis-) labelled as green, or potentially linked to fraud, such as the Mozambique Tuna Bond. Drawing the line as to what makes an environmentally sustainable bond and what is green washing is a matter of debate at the margin, with the application of ESG standards and verification hopefully addressing any potential concerns. The Pacific Ocean Bond should adhere to the highest standards and, therefore this project focuses on those that meet these standards.
- Availability of information

In some cases, there was too little information about the bond for the example to be of meaningful benefit to the overall exercise, and as such they were not included in the list of 14 bond examples.

- **Early concept stage**
Blueprints and other examples of deals contemplated but not yet delivered were also excluded. Some of those, such as the Coalition for Private Investment in Conservation (CPIC) blueprints⁹⁸ may be of real interest to the Pacific, but as they have not yet been tested in the market, lessons cannot be drawn. Others, such as the proposed California Water Bond⁹⁹, may have interesting features however its scale (USD \$8.9bn) makes them less relevant to the Pacific region. An emerging category under the climate bonds framework is fisheries criteria, which is currently undergoing a consultation process to define criteria for this specific category¹⁰⁰.
- **Requiring initial industry development**
For some sectors, the industry needs nurturing to reach a point where bond finance is appropriate. For example, in Europe the offshore wind industry had a broad package of support for a number of years before bond financing was introduced. In December 2015, Meerwind issued EUR €978mn in bonds to a group of around 20 international institutional investors in a first-of-its-kind offering in offshore wind. This benefitted from investment grade ratings from the three main rating agencies. Proceeds paid off approximately EUR €850mn of existing bank debt from a previous financing round in August 2011, which financed the construction of the 288 MW Meerwind offshore wind farm.
- **Loans**
As this project focuses on bonds, loans and other forms of finance have been excluded from this exercise. Loans and equity will be more suitable for individual smaller projects as they can have lower transaction costs and more banks, including local institutions, provide such services. However, there are interesting loan financing structures that may hold useful lessons.
 - The Sustainable Oceans Fund by Althelia-Mirova is a EUR €50mn fund that makes loans to blue SMEs in the Least Developed Countries, particularly for the seafood value chain. The fund has a private equity structure, while the investments are made into corporate blue-green loans.

⁹⁸ Blue Forest Conservation, 2019. Conservation Investment Blueprint: Forest Resilience Bond. <http://cpicfinance.com/wp-content/uploads/2019/01/CPIC-Blueprint-Forest-Resilience-Bond-by-Blue-Forest-Conservation.pdf>

⁹⁹ KQED Inc, 2018. The \$8.9 Billion California Water Bond That Has Environmentalists Divided. <https://www.kqed.org/science/1932078/the-8-9-billion-california-water-bond-that-has-environmentalists-divided>

¹⁰⁰ Climate Bonds Initiative, 2019. Sector Criteria. <https://www.climatebonds.net/standard/sector-criteria>

- The GEF funded Meloy Fund administered by RARE¹⁰¹ invests in sustainable fisheries reform (see EDF/Rockefeller report on financing fisheries reform)¹⁰².
- Other relevant examples of loan funding include:
 - Marine Protected Area projects¹⁰³
 - Marine Plastics: No bond issues yet but some private equity funds focus on this and there are several initiatives underway that will require financing.
 - Green shipping: Quantum Pacific Shipping green loan, which is for USD \$40 mn, and is the first green loan for shipping in the Pacific region. It complies with IMO regulations.
 - Ports: The Port of Rotterdam set a basic model with a EUR €5mn financing facility for green port & shipping projects. These should reduce emissions to meet IMO goals.
 - GloFouling Partnerships: This is a new collaboration between the GEF, UNDP and IMO to address bio-invasion through ships' hulls and other marine structures.

4. Developing a matrix

Key features of the 14 bond examples selected were considered to present in a matrix or data table for these bonds. The focus was on which features are of the greatest interest to the design of a Pacific Ocean Bond. The features are not publicly available for all of the bonds, but cover key areas such as:

- The backing for interest and principal payments: the primary concern for the bond buyer is the certainty of interest payment and final repayment. In some cases, these payments will come directly out of cash flows delivered from the activity funded by the bond. In many other cases, the repayment comes from other sources, such as general taxation in the case of public issuances such as municipal bonds.
- The issuer/guarantor relationship and credit rating: this is key to the risk assessment for the bond buyer, and in most cases this will aim to be investment grade, which will be the primary determinant of the certainty of repayment and thus determine the cost of the bond which will be reflected in terms and structure. There are also a range of further risk mitigation strategies employed by investors, focusing on detailed due diligence of a specific bond and diversification across their overall portfolio, with

¹⁰¹ Global Environment Facility, 2017. Innovative finance project for sustainable fisheries launched with leading investors.
<https://www.thegef.org/news/innovative-finance-project-sustainable-fisheries-launched-leading-investors>

¹⁰² [Rockefeller Foundation, 2014. Sustainable Fisheries Financing Strategies: Save the Oceans Feed the World Project.](https://www.rockefellerfoundation.org/report/sustainable-fisheries-financing-strategies-save-the-oceans-feed-the-world-project/)
<https://www.rockefellerfoundation.org/report/sustainable-fisheries-financing-strategies-save-the-oceans-feed-the-world-project/> EDF/Nicholas institute report
 Conservation Finance Network, 2018. Investing in Sustainable Fisheries
<https://www.conservationfinancenetwork.org/2018/06/20/investing-in-sustainable-fisheries>

¹⁰³ BlueFinance Loan average size US\$2million, 5-8 years, 6% plus some revenue share at term end.

higher risk appetite reflected in higher interest rates. For issuers with projects that can only deliver lower returns, this means they may need to find additional funding support in the form of blended finance.

- The focus, target and use of proceeds are relevant for those buyers interested in the ‘purpose;’, which may be reinforced through appropriate standards, monitoring and verification. Whilst the correct ‘use of proceeds’ will help to deliver the overall aim of the beneficiary, it does not necessarily provide sufficient funds for repayment.
- Other features are likely to support the previous points and are therefore relevant, but are unlikely to unilaterally change bond buyer’s primary interest in acquiring a financial instrument with a specific associated sustainability purpose.

Section 2 - Relevant Bonds

This section includes a description for each of the selected bonds, with some key observations.

1. Seychelles Blue Bond

The ‘Seychelles Blue Bond’ was launched in October 2018 by the Republic of the Seychelles (which has a BB- credit rating from Fitch) for an amount of USD \$15mn 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 USD \$5mn 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 of the impact investors, and by reducing the effective interest rate of 6.5% for Seychelles to 2.8% by subsidizing the coupons. The Seychelles will pay the bond holders from the central budget.

Bond 1	Seychelles Blue Bond
Issuer	The Republic of Seychelles (rated BB-)
Risk	Reduced by World Bank guarantee for a third of the funds (USD \$5mn)
Focus	Sustainable marine and fisheries projects
Size	USD \$15mn
Format	Private placement The placement agent is Standard Chartered Bank and the trustee is the Bank of New York.
Development time	Work on the concept for the bond began in 2014, with funding from the Prince of Wales’s International Sustainability Unit, and it was officially issued in October 2018.
Use of proceeds	<p>Implement the Seychelles Blue Economy Strategic Policy and Roadmap (2018)</p> <p>USD \$3mn blue grant fund towards fisheries reform and fisheries management in 15% of marine protected areas (administered by SeyCCAT)</p> <p>USD \$12n blue investment fund (administered by the Development Bank of Seychelles) to fund eligible activities aimed at fisheries diversification and fisheries sustainability projects.</p> <p>The proceeds from the bond also contribute to the World Bank’s South West Indian Ocean Fisheries Governance and Shared Growth Program, which supports countries in the region to sustainably manage their fisheries resources and increase economic benefits from their fisheries sectors.</p> <p>Funds were disbursed to Development Bank of the Seychelles for on-lending to SEYCCAT for grant funding</p>

Structure	Loans will be provided by the Blue Investment Fund, which will be managed by the Development Bank of the Seychelles. Grants will also be provided through the Blue Grants Fund, managed by the Seychelles' Conservation and Climate Adaptation Trust.
Terms	6.5% interest. The bond will be repaid from the Seychelles central budget in full in 10 years
Repayments	Repaid by taxes
Other support	GEF Non-Grant Programme provided USD \$5mn concessional loan to subsidize coupon payments, reducing interest cost to issuer to 2.8%
Buyers	Calvert Impact Capital, Nuveen, Prudential Financial
Process	Complex direct engagements, following previous debt swap. The debt swap was negotiated with the Club of Paris and the technical support of TNC, and the blue bond was set up with the technical support of ISU and the World Bank Treasury.
Trading information	Not applicable since there is no trading
Standards	No verification standards but World Bank internal processes adhered to.
Relevance	Highly relevant as potential option for the POB as it was carefully targeted to deliver specific policy outcomes whilst at the same time providing direct funding for sustainable local business

2. NIB Baltic Blue Bond

In January 2019, the Nordic Investment Bank (NIB), an MDB established between the Nordic and Baltic countries, issued a SEK Kr2bn (USD \$200mn) blue bond to protect and rehabilitate the Baltic Sea. The bond was issued under the NIB Environmental Bond Framework and concentrates on water projects. Through this bond, the NIB will support lending to wastewater treatment and water pollution prevention projects, storm water systems and flood protection (e.g. for Stockholm water locks), protection of water resources, protection and restoration of water and marine ecosystems and related biodiversity (wetlands, rivers, lakes, coastal areas and open sea zones). The bond has a maturity of five years and a coupon of 0.375%.

Bond 2	NIB Baltic Blue Bond
Issuer	Nordic Investment Bank (rated AAA)
Focus	Water resource management and protection
Size	SEK 2bn (USD \$200mn)
Format	Listed on Nasdaq Stockholm

Development time	This bond benefited from a joint and integrated development approach, with key stakeholders discussing the concept in some detail in a workshop in the summer, before the launch six months later. This approach and the use of existing formats and structures also kept transaction costs down.
Use of proceeds	Various sewage treatment plants as well as project to redevelop the water locks and provide clean transport solutions
Terms	0.375% coupon 5-year term
Repayments	Repaid through project returns
Buyers	Storebrand Asset Management and others
Process	SEB arranged the issue and served as advisor
Standards	Green Bond principles
Relevance	Highly relevant as potential option for the POB as a regional approach was taken, using a regional development finance institution as an umbrella format to borrow cost-effectively, and then on-lend directly to improve water quality at a range of locations

3. Fiji Green Bond

Fiji issued a sovereign green bond at the end of 2017, which was the first-ever green bond issued by a developing country.¹⁰⁴ This green bond focuses on both climate mitigation and adaptation, with some use of proceeds towards 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, wastewater management and sustainable agriculture to reduce fertilizer run-off into the ocean, avoiding damage to coastal ecosystems. The dual-tranche green bond transaction includes an FJD \$20mn (USD \$10mnequivalent) tranche which will mature in 2022 at a yield of 4 percent, and FJD \$40mn (USD \$20mn equivalent) tranche to mature in 2030 at a yield of 6.30 percent. The bond was issued in two tranches with both tranches being oversubscribed. The Fiji Green Bond was listed on the London Stock Exchange in April 2018.

Bond 3	Fiji Green Bond
Issuer	Government of Fiji (rated BB-)

¹⁰⁴ London Stock Exchange Group, 2017. London Stock Exchange welcomes Fiji's first international green bond.
<https://www.lseg.com/resources/media-centre/press-releases/london-stock-exchange-welcomes-fiji's-first-international-green-bond>

Focus	Climate change mitigation and adaption
Size	FJD \$100mn (USD \$50mn)
Format	Listed on LSE
Development time	The Government of Fiji announced the bond would be raised on 13 July 2017, and the issuance took place at the end of October 2017.
Use of proceeds	Solar Installations at Maritime and Rural Stations Sugarcane Infield Drainage Reforestation of Indigenous Species Rehabilitation for Schools Projects to help Fiji achieve 100% renewable energy, and reduce CO2 emissions in the energy sector by 30% by 2030
Terms	5-year tranche at 4% 13-year tranche at 6.3%
Repayments	Repaid through project returns
Other support	World Bank supported the issuance through the establishment of a sustainable finance roadmap, steering committee, developing a green bond policy framework for Fiji, supporting a second party opinion provider (Sustainalytics Inc.) and providing technical support in identifying criteria for eligible projects and reporting standards

4. EIB Sustainability Awareness Bond

EIB has launched its first ‘Sustainability Awareness Bonds’ in September 2018, with an initial funding target of EUR €500m to invest in social and environmental projects around the world. According to EIB, the bonds 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. Funds raised from the first bond initially apply to water related investments, like drinking water, sanitation and flood protection projects. Future Sustainability Awareness Bonds may focus on other sectors like health, education, or gender. The Sustainability Awareness Bond aligns with EIB Climate Awareness Bonds, through which the EIB helped raise EUR €23bn over the past 11 years.

Sustainable bonds, a term usually applied as a broader term beyond green and social bonds, are a growing category, with long-term investors such as pension funds looking to link their portfolios with the SDGs¹⁰⁵. The Nasdaq Sustainable Bond Market launched in July of 2015 with a total volume of EUR €740mn and has grown at an impressive pace ever since. A subset of these specifically align to the SDGs. The largest single sustainability bond was issued in 2018

¹⁰⁵ VDBO, 2018. Pension funds and Sustainable Development Goals. <https://www.vbdo.nl/wp-content/uploads/2018/11/SDG-A5-E.pdf>

by the German Federal State of NRW, with a value of USD \$2.5bn¹⁰⁶. This funding allows the public entity to deliver a range of impact projects based on their sustainability framework and an agreed list of eligible projects¹⁰⁷. The bond uses an independent second-party opinion for verification¹⁰⁸. After the bond closed and the money was spent a detailed report on the outcomes was made public.¹⁰⁹

Bond 4	EIB Sustainability Awareness Bond
Issuer	European Investment Bank
Focus	Water supply Sanitation Flood protection
Size	EUR €500mn
Format	Listed in Luxembourg
Development time	Plans for the bond were formally announced on 20 April 2018 on the margins of the IMF/World Bank Group Spring Meetings, and the bonds were issued in September 2018.
Use of proceeds	Initial focus on the water sector, expanding into health and education once detailed reporting frameworks are in place
Terms	0.375% coupon 8-year term
Repayments	Repaid through project returns

¹⁰⁶ Ministry of Finance of the State of North Rhine-Westphalia, 2018. Sustainability Strategy for North Rhine-Westphalia
https://www.nachhaltigkeit.nrw.de/projekte/nachhaltigkeitsanleihe/sustainability_bond_1/

¹⁰⁷ Ministry of Finance of the State of North Rhine-Westphalia, 2015. Inaugural Sustainability Bond of the State of North Rhine-Westphalia. Use of Proceeds. Eligible Assets.
https://www.umwelt.nrw.de/fileadmin/redaktion/PDFs/150219_Sustainability_Bond_NRW_project_list.pdf

¹⁰⁸ Oekom Research, 2015. Verification of the sustainability quality of the inaugural Sustainability Bond issued by the State of North Rhine-Westphalia (NRW)
https://www.umwelt.nrw.de/fileadmin/redaktion/PDFs/SPO_oekom_-_NRW-2.PDF

¹⁰⁹ Ministry of Finance of the State of North Rhine-Westphalia, 2016. Inaugural Sustainability Bond of the State of North Rhine-Westphalia. Reporting on the Eligible Projects.
https://www.nachhaltigkeit.nrw.de/fileadmin/download/160224_Sustainability_Bond_2015_reporting.pdf

Buyers	ABN Treasury, Achmea Investment Management, Actiam, Alecta, Banca Popolare Di Sondrio, Banca Profilo SpA, Bankhaus Lampe, Candriam Investors Group, Danske Bank Asset Management, De Volksbank, PGGM, APG Asset Management and Union Investment
Process	Managed by: BAML, Commerzbank, Credit Agricole, UniCredit, SEB, BNP Paribas, DEKA, DZ Bank, HSBC, Natixis
Relevance	Highly relevant as it covers funding for a range of sectors, using the emerging sustainability bond approach. It also has effective low cost structure, liquidity through listing and access to wide range of high-quality bond buyers

5. Mexico MultiCat Bond

In 2012, Mexico structured a catastrophe insurance bond. The Fund for National Disasters of Mexico (FONDEN) bought insurance from Mexican insurer Agroasemex, which passed on this risk through a reinsurance contract with Swiss Re. The structure involved establishing a special purpose vehicle (MultiCat Mexico 2012 Ltd.) with a derivative counterparty contract with Swiss Re. MultiCat issued floating rate notes (Cat Bonds) to capital markets investors to hedge its obligations to Swiss Re under the counter party contract. A separate event payment account was established with a third-party bank to allow FONDEN to receive parametric loss payments directly from the special purpose vehicle, subject to the insurance contract.

Resilience bonds, like the Mexico MultiCat Bond, are a variation on conventional catastrophe bonds, that link insurance and resilience projects to monetize avoided losses such as a reduction of hurricane insurance costs and claims through a rebate structure¹¹⁰. Resilience bonds can serve as a mechanism for aligning proactive development resources and disaster risk reduction investments with reactive aid for reconstruction and post-disaster recovery.

MDBs and international aid agencies have invested billions in foreign assistance to support basic economic and social programs in developing nations and marginalized communities. These development investments and gains are often threatened by natural disasters. Hurricanes Irma, Jose, and Maria in the Caribbean are devastating recent examples, where, for example, the island of Barbuda was fully evacuated and left uninhabited for the first time in 300 years. The World Bank has also created two regional risk pools for small islands in the Caribbean and the Pacific— the Caribbean Catastrophe Risk Insurance Facility (CCRIF) and the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) with the PCRAFI Facility.

The US National Flood Insurance Program (NFIP) recently launched a pilot to transfer USD \$1bn of flood risk to a set of private insurers. For a program near insolvency that relies on ad-hoc political decisions about its funding, shifting a segment of the NFIP’s risk to the capital markets is an important step toward creating some certainty in an otherwise uncertain political and funding landscape. Strategically incorporating Resilience Bonds into this type of public reinsurance portfolio could have several additional benefits, including: (1) directly incentivizing local risk reduction, (2) expanding insurance coverage, and (3) helping to transition especially high-risk areas to private insurance, where it would otherwise be

¹¹⁰ Refocus Partners, 2017. A Guide For Public-Sector Resilience Bond Sponsorship. <http://www.refocuspartners.com/wp-content/uploads/pdf/RE.bound-Program-Report-September-2017.pdf>

unavailable or unaffordable without risk reduction. This approach could also benefit state insurance programs.

Bond 5	Mexico MultiCat Bond
Issuer	MultiCat Mexico Ltd 2012
Focus	Catastrophe insurance
Size	MXN \$315mn
Format	Listed on Cayman Islands Stock Exchange
Development time	The world's first parametric Cat bond issued by a sovereign country was issued by Mexico in 2006. This then led to the 2009 issuance of a MultiCat bond using the World Bank's newly established process, which then led to the 2012 bond with a larger coverage area and more detailed structure.
Use of Proceeds	To cover the risk of a hurricane or earthquake in Mexico
Structure	<p>The Fund for National Disasters of Mexico (FONDEN) buys insurance through a Mexican insurer (Agroasemex), who in turn enter a reinsurance contract with Swiss Re.</p> <p>Swiss Re enters into a derivative counterparty contract with a Cayman Islands-based special purpose vehicle (MultiCat Mexico 2009 Ltd. and MultiCat Mexico 2012 Ltd.) to transfer the catastrophe risk.</p> <p>The SPV issues floating rate notes (Cat Bonds) to capital markets investors to hedge its obligations to Swiss Re under the counterparty contract. The proceeds received from investors are invested in US Treasury money market funds and deposited in a collateral account.</p> <p>A separate event payment account is established with a third-party bank to allow FONDEN to receive parametric loss payments directly from the SPV, subject to the insurance contract.</p>
Terms	<p>Class A notes (MXN \$140mn), 8% coupon, rated B</p> <p>Class B notes (MXN \$75mn), 7.75% coupon, rated B+</p> <p>Class C notes (MXN \$100mn), 7.5% coupon, rated B-</p> <p>All notes had a term of just over 3 years</p>
Repayments	Repaid by insurance company if unclaimed
Process	Placement / structuring agent/s: Swiss Re Capital Markets, Goldman Sachs and Munich Re are co-lead structurers. Swiss Re Capital Markets and Goldman Sachs are joint bookrunners
Feedback	<p>The class C bond notes lost 50% of their principal.</p> <p>The lesson is that catastrophe bond parametric triggers need certainty, for both sponsors and investors, meaning they need to be transparent and they need to settle rapidly with as little chance of dispute as possible. This one didn't have those traits, likely due to it being a fairly old design.</p>

Relevance	Potentially relevant if connection can be made with insurance working group to identify appropriate disaster insurance contract
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6. ICBC Green Bond

ICBC London Branch issued a senior secured 5-year bond in 2018. Funds are earmarked to be used by a list of projects such as transport, offshore wind and solar that have been approved to meet the organization’s own green bond framework. The financing achieved very competitive pricing. Pre-issuance verification was completed based on Climate Bond Standards Version 2.0.

The Climate Bond Standards provide a useful overall framework for assessing climate related bonds. There are also ASEAN Green Bond Standards¹¹¹ based on the International Capital Market Association (ICMA)’s Green Bond Principles¹¹². The ASEAN Capital Markets Forum, which developed this standard, comprises capital market regulators from ASEAN countries whose primary task is to promote greater integration and connectivity of regional capital markets.

Bond 6	ICBC Green Bond
Issuer	ICBC London Branch
Focus	Solar, Wind, Low Carbon Transport, Marine Renewable Energy
Size	USD \$1bn; EUR €500mn (USD \$578mn)
Format	Listed on the London Stock Exchange
Use of proceeds	The bond will finance 3 railways in China, Onshore wind and solar farms in China and Pakistan, and the Beatrice Offshore Wind farm project in Scotland.
Structure	Senior unsecured bond by a financial corporate. Funds are earmarked to be used by a list of projects that have been approved to meet the organization’s own green bond framework.
Terms	5 years maturity (Nov 2023), floating rate note, no pricing data on LSE
Repayments	Repaid through project returns
Process	Underwritten by CACIB, HSBC, Citi, ICBC, Mizuho, StanChart

¹¹¹ Asia Asset Management, 2017. ASEAN Capital Markets Forum launches green bond standards. https://www.asiaasset.com/news/acmf-gte_nim_final_DM0911.aspx

¹¹² International Capital Market Association, 2018. Green Bond Principles (GBP). <https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>

Trading information	No trading info on LSE
Standards	Pre-issuance verification completed based on Climate Bond Standards Version 2.0
Feedback	Bond priced at the tightest level ever achieved by ICBC in USD and EUR in a comparable floating rate notes format
Relevance	Marine renewable energy financed by a Chinese bank

7. Huadian Fuxin Green Bond

The Huadian Fuxin Green Bond is an example of a corporate transaction with multiple tranches. The structure is secured on the feed-in tariff receivable from solar and wind power projects of seven subsidiaries of Huadian Fuxin Energy Corporation Limited. The transaction had no formal verification process, but assurance was sought from the Climate Bonds Initiative as to equivalence. This is of particular relevance given the increasing concern that Belt and Road Initiative investments in transportation infrastructure carry environmental risks.¹¹³

Bond 7	Huadian Fuxin Green Bond
Issuer	Huadian Fuxin Energy Corporation
Focus	Solar PV and Wind projects
Size	CNY ¥840mn (USD \$133mn)
Use of proceeds	The proceeds will be used for the development and operation of green industry projects
Structure	The green ABS comprises of 12 tranches. The subordinated tranche 12 has a 12-year tenor, while the senior 11 tranches have an initial term of three years and will be redeemed and refinanced every three years on adjusted terms in accordance with an expected rate of return mechanism. The structure is secured on the feed-in tariff receivables from solar and wind power projects of seven subsidiaries of Huadian Fuxin Energy Corporation Limited. The underlying assets comprise benchmark price, as well as partially and purely subsidized electricity revenue rights.
Terms	12 years (March 2030) for 12 th tranche, for 1-11 th tranche, 3years renewable terms, effective interest rate: 5.10%
Repayments	Repaid through project returns

¹¹³ World Bank, 2019. Reducing Environmental Risks from Belt and Road Initiative Investments in Transportation Infrastructure
<http://documents.worldbank.org/curated/en/700631548446492003/pdf/WPS8718.pdf>

Buyers	Looks like fully underwritten and bought by Ping An Securities Limited
Process	Underwritten by Ping An Securities Limited
Standards	No standards, although Climate Bonds Initiative have commented they are comfortable with the green credentials
Feedback	An example of how corporates can aggregate smaller funding requirements and combine different types of revenue streams across their group
Relevance	Aggregation of several smaller green power project cash flows

8. World Bank Kangaroo Green Bond

An example of a multi-country World Bank bond, this transaction raised AUD \$300m in the Australian market, showing that an AAA issuer can tap a wide range of markets to fund green projects. The bond was placed entirely with investors following environmentally and socially-focused investment principles.

Bond 8	World Bank Kangaroo Green Bond
Issuer	World Bank (rated AAA)
Focus	Climate change related projects
Size	AUD \$300mn
Use of proceeds	Eco farming in China Waste Management in Colombia Urban transport in India
Terms	5-year term 3.5% coupon (semi-annual)
Repayments	Repaid through project returns
Buyers	15 investors including: Aberdeen Asset Management, AMP Capital, Australian Ethical Investment Ltd, Colonial First State Global Asset Management, Local Government Super, QBE Insurance Group Ltd and UniSuper
Process	Lead Managers: RBC Capital Markets and Westpac Institutional Bank Clearing system: Austraclear
Standards	World Bank issued
Relevance	Relevant as a world bank bond with multi-country user, solid structure and format

9. AC Energy Renewables Bond

An interesting comparison to the Huadian Bond is the Ayala Corp Renewables bond, which likewise has multi-country projects in Asia and in future in the Pacific, and which applies the Climate Bond Initiative standards.

Bond 9	AC Energy Renewables Bond
Issuer	Ayala Corp
Focus	Renewables
Size	SGD \$410mn
Format	Listed on Singaporean Stock Exchange
Use of proceeds	Solar PV and Wind projects in Vietnam Solar PV in the Philippines and Indonesia Other projects that can help AC Energy achieve 5GW of renewable projects in SE Asia and the Pacific by 2025
Terms	5-year tranche of SGD \$300mn with 4.75% coupon 10-year tranche of SGD \$110mn with 5.25% coupon
Repayments	Repaid through project returns
Buyers	ADB, World Bank's International Finance Corporation
Process	HSBC was the sole global coordinator of the transaction, while Bank of America Merrill Lynch served as the sole green structuring agent
Standards	Climate Bonds Standards (CBI)
Relevance	Relevant as this bond applies the climate bond standards and combines a range of renewables projects. Question will be whether the size of Pacific renewables projects will be sufficient to warrant this approach

10. Municipal Green Bond: Miami Forever

Cities have for some time offered municipal bonds for specific purposes, such as in Sweden through Kommuninvest¹¹⁴, and some have developed their own green bond frameworks such as in the Swedish city of Malmo¹¹⁵.

¹¹⁴ Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, 2018. Green Bonds - Ecosystem, Issuance Process and Case Studies. [https://webapp.sebgroup.com/mb/mblib.nsf/a-w/3c57af239091ddd4c125822400522b99/\\$file/giz_seb_greenbondpublication_web.pdf](https://webapp.sebgroup.com/mb/mblib.nsf/a-w/3c57af239091ddd4c125822400522b99/$file/giz_seb_greenbondpublication_web.pdf)

¹¹⁵ City of Malmo, 2017. Green Bond Framework. <https://malmo.se/download/18.3bf12ae215f9d265979db3f3/1511166814294/City+of+Malmo+Green+Bond+Framework+final.pdf>

The US also provides an example. In February 2019, the City and County of San Francisco brought a USD \$152mn30-year green bond to market to fund a portion of the Salesforce Transit Center. The Preliminary Official Statement (POS) details the “AA+” Fitch rated Special Tax Bonds, Series 2019A and Series 2019B for investors. The proceeds of the Series 2019B (Federally Taxable - Green Bonds) will be used to finance green projects as part of the development of this new regional transportation hub. This new facility expects to achieve at least a LEED Silver certification due to its sustainable design features.

A USD \$400mn Miami Forever Bond¹¹⁶ raised in 2018 authorized the city government to borrow money on the municipal bond market to address sea-level rise and the city’s affordable housing crisis, levying a new property tax to repay the debt.¹¹⁷ City officials have set broad outlines for how the bond proceeds will be spent: they have earmarked USD \$192mnfor storm drain upgrades, flood pumps and seawalls to curb flooding; USD \$100mnfor affordable housing and economic development; USD \$78mnfor parks and cultural facilities; USD \$23mnfor road improvements; and USD \$7mnfor public safety.

Bond 10	Municipal Green Bond: “Miami Forever”
Issuer	City of Miami (2018)
Focus	Climate mitigation and resilience
Size	USD \$400mn
Format	Municipal bond (general obligation)
Development time	Voters in Miami approved plans for the Miami Forever bond in 2017, and it was issued in 2018.
Use of proceeds	USD \$192mn for sea level rise / flood prevention USD \$100mnfor affordable housing USD \$78mnfor parks and cultural facilities USD \$23mnfor road improvements USD \$7mnfor public safety
Structure	Supervised by a Bond Committee (a recommendation of the Regional climate action plan on community awareness)
Terms	Low cost funding
Repayments	Repaid through taxation.
Other support	Plans to leverage Federal and State funding for innovating financing solutions

¹¹⁶ Southeast Florida Regional Climate Change Compact, 2017. Financing resilience: City of Miami invests \$400 million to build a stronger future.
<http://www.southeastfloridaclimatecompact.org/news/financing-resilience-city-miami-invests-400m-build-stronger-future/>

¹¹⁷ Medium, 2018. Making the “Miami Forever Bond” a Model for Equitable Climate Adaptation.
<https://medium.com/@UrbanResilience/making-the-miami-forever-bond-a-model-for-equitable-climate-adaptation-c4826b4b209c>

Relevance	Example of a public sector issuer that focuses proceeds on adaptation
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11. DC Water Green Bond

This bond was added as an example of the type of infrastructure spending funded through a bond issuance that is required to prevent negative impacts on the population, for instance health effects of polluted water. In a sense, this bond delivers societal savings of costs that would otherwise burden, such as the health care system in terms of water-borne diseases.

DC Water felt that a green bond had some additional costs in terms of time and money relative to non-green bond issuance, but that the benefits outweighed the costs. Both the administrative and monetary costs were comparable to all the other costs of going to market with any bond issuance, such as obtaining credit ratings, financial consultants, and conducting roadshows. Adding the green bond second opinion provider Vigeo to the working group mix did not really make it more challenging. DC Water also found the timeframe manageable: it took six weeks from when they decided on a green bond until it was in place, which fit neatly into the deal schedule with no need to extend the deal process time.

Bond 11	DC Water Green Bond
Issuer	District of Columbia Water & Sewer Authority (rated AA+)
Focus	Water and sewage
Size	USD \$350mn
Format	Private
Use of proceeds	To construct a tunnel to transport stormwater and sewage to a wastewater treatment plant and reduce sewage overflows to waterways. The length of the bond is designed to match the useful life of the project. This transaction marked the first sale of a century bond by a municipal water and sewer utility, the first certified green bond issued in the U.S and the first 100-year green bond issued globally.
Terms	100-year tenor 4.814% coupon
Repayments	Repaid through project returns
Buyers	Goldman Sachs, Calvert Foundation
Standards	2nd opinion provided by Vigeo
Relevance	This is an example of an impact bond.

12. Rhino Impact Bond

The recently launched Rhino Impact Bond (RIB) will be the world’s first financial instrument specific to the conservation of a species at risk of extinction. Expected to launch in the first quarter of 2020, it aims to boost the black rhino population by 10% globally through an ‘outcome payments’ model, meaning investors receive financial returns only upon the successful and measurable completion of the objective. The challenge is persuading investors to take the upfront risk and convincing traditional donors to agree to a five-year deferred liability - longer than the usual practice of three to four years.¹¹⁸

Bond 12	Rhino Impact Bond
Issuer	Zoological Society of London and Conservation Capital
Focus	Increase black rhino population by 10%
Size	USD \$50mn
Format	TBD (likely to be private placement)
Development time	Expected to launch in the first quarter of 2020
Use of proceeds	Conservation efforts at 5 sites in South Africa and Kenya, where 12% of the world’s black rhinos are located.
Structure	Investors pay back capital and coupon only upon measurable increase in black rhino population targets. Funds and portfolio are managed by the Rhino Impact Partnership and site managers.
Terms	5-year term, on completion
Repayments	On completion of the term, an independent evaluator verifies whether the RIB conservation target is reached, the performance relative to the RIB target determines the investors’ return. If conservation targets are not met, investors take a loss. If conservation targets are met, investors are paid back with by pledges of outcome payers.
Other support	UK Government, Global Environment Facility, Credit Suisse Group AG, DLA Piper LLP
Buyers	Still in marketing phase
Standards	There is an independent verification party.

¹¹⁸ <https://www.ft.com/content/2f8bf9e6-a790-11e9-984c-fac8325aaa04>

Relevance	A pay for success model that helps attract impact investors. It is very specific and measurable given it is one species in specified sites.
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13. Kenya's Green Student Housing Bond

Kenya's Green Bond Programme aims to promote financial sector innovation by developing a green bond market, in collaboration with the Kenya Bankers Association (KBA), Nairobi Securities Exchange (NSE), Climate Bonds Initiative, Financial Sector Deepening (FSD) Africa, and FMO - Dutch Development Bank. The program objectives are to support the issuance of Kenya's first green bond, and to develop a domestic green bond market.

Kenya approved and closed the issuance of its first green bond in Oct 2019, which will raise KES 4.3 billion (USD \$40mn) for 'sustainable and climate-resilient student hostels'. It will be issued by Nairobi-based property developer Acorn.

Bond 13	Kenya's First Green Bond
Issuer	Acorn (Nairobi-based property developer)
Focus	Sustainable and climate-resilient infrastructure
Size	KES \$4.3 billion shillings (USD \$40mn)
Format	Unlisted bond, restricted public offer
Development time	Launched on August 16, 2019 and closes on September 27, 2019. Allotments on September 30, 2019, with the minimum-level of subscription set at 40%.
Use of proceeds	Construction of up to 6 green-certified student properties developed by Acorn in Nairobi, creating clean, safe and affordable accommodation for 5,000 students in Nairobi
Structure	50% guarantee from Guarantco on both investments and interest, Moody's rated B1
Repayments	Expected project cashflows
Other support	<p>Wider Kenya Green Bond Programme supporters: Kenya Bankers Association (KBA), Nairobi Securities Exchange, Climate Bonds Initiative (CBI), Financial Sector Deepening (FSD) Africa and FMO - Dutch Development Bank</p> <p>Other partners who provide technical assistance and guidance include International Finance Corporation (IFC) and the WWF - Kenya.</p>
Buyers	Targeted sophisticated (institutional) investors

<p>Process</p>	<p>Structured by Stanbic Bank Kenya. The Capital Markets Authority (CMA), under the Treasury Economic Secretary, will be responsible for the regulatory framework and guidelines.</p>
<p>Standards</p>	<p>Kenyan Government Policy Guidance Note on Green Bonds in February 2019 designed to guide the issuance of national green bonds. The bond will also be certified as green in accordance with the IFC's EDGE requirements for sustainable buildings; certified as a green bond by Climate Bonds Initiative. DNVGL undertook the verification.</p>
<p>Relevance</p>	<p>A local corporate issuance in emerging market that is receiving support by bilateral agencies.</p>

14. EBRD Climate Resilience Bond

EBRD's Climate Resilience Bond is the world's first ever climate resilience bond, raising USD \$700mn to finance investments in climate resilience.¹¹⁹ The proceeds of the bond will be used to finance EBRD's existing and new climate resilience projects, falling under 3 categories: climate-resilient infrastructure, climate-resilient business or commercial operations, and climate-resilient agriculture and ecological systems.¹²⁰ The bond will align with the Green Bond Principles, and its projects will be selected and managed in alignment with CBI's Climate Resilience Principles.

Bond 14	EBRD Climate Resilience Bond
Issuer	EBRD
Focus	Climate resilience projects
Size	USD 700mn
Use of proceeds	The proceeds will be used for projects in 3 categories: climate-resilient infrastructure, climate-resilient business or commercial operations, and climate-resilient agriculture and ecological systems.
Terms	5 years (maturity in September 2024), coupon 1.625% fixed
Repayments	Repaid through project returns
Buyers	Over 40 accounts from 15 countries, with Asset Managers, Central Banks/Official Institutions, and Banks making up the majority
Process	BNP Paribas, Goldman Sachs International, and Skandinaviska Enskilda Banken AB were mandated as joint lead managers on the transaction
Standards	Based on CBI's Climate Resilience Principles, and issued in conformity with the four core principles of the Green Bond Principles, as well as EBRD's Environmental and Social Policy
Relevance	World's first climate resilience bond

¹¹⁹ EBRD. 2019. 1.625% US\$700 Million 5-Year Climate Resilience Bond due 27 September 2024. <https://www.ebrd.com/documents/treasury/1>.

¹²⁰ EBRD. 2019. World's first dedicated climate resilience bond, for US\$ 700m, is issued by EBRD. <https://www.ebrd.com/news/2019/worlds-first-dedicated-climate-resilience-bond-for-us-700m-is-issued-by-ebrd-.html>.

Section 3 - Observations

The review of literature and inspection of the bond examples support the following observations.

1. Policy relevance/context

Various existing environmental bonds were developed within policy frameworks that were clearly described. It is important that bond use of proceeds contributes and aligns with those priorities. This can be through reference to global or national standards.

Examples of global sustainability standards include:

- The 2030 SDGs and targets, which provide the overall global framework for development
- The Paris Agreement under the UNFCCC, which sets the global framework for bonds in support of climate mitigation and adaptation projects and transition to low carbon economies

There are also national strategies implementing global commitments (e.g. sustainable development strategies, national biodiversity strategies and action plans, and NDCs to UNFCCC). These provide policy settings for use of bond proceeds at either national or local scale.

Oceans are an integral part of development and a low carbon economy and contribute to climate regulation and reduction of CO₂ emissions. For example, coastal ecosystems play an important role in absorbing CO₂ and are increasingly included in NDCs under the Paris Agreement.

There are also green and social bonds standards, such as those from the Climate Bond Initiative, the International Capital Markets Association (ICMA) (2018)¹²¹, and from the ASEAN Capital Markets Forum.

2. Investor priorities and the choice of issuer

Issuers needed to have adequate credit ratings to offer investors sufficient comfort that bonds will be repaid. MDBs and other established issuers can rely on the track record of their existing bonds, such well-known issuers are likely to find ready buyers for further issuance, including for environmental and blue bonds.

As the examples show, larger issues tend to come from entities with solid credit quality. This could include public bodies in major economies that can rely on their tax base or other existing income streams to repay any borrowing or large corporates with strong histories and balance sheets. Larger issuers will focus on these strengths in raising finance, particularly their reputation and the strength of their asset backing. They need to be persuaded that creating a new bond category will offer benefits, such as achieving specifically agreed policy goals, access to cheaper funding, or the opportunity to attract new buyers for their issuances.

¹²¹ International Capital Market Association, 2018. Mapping to the Sustainable Development Goals. <https://www.icmagroup.org/green-social-and-sustainability-bonds/mapping-to-the-sustainable-development-goals/>.

Investors in most cases look primarily to the inherent financial strength of the issuer and are unlikely to agree to any trade-off between credit quality on the one hand versus environmental goals on the other. Therefore, non-investment grade issuers are in need of strong guarantors so that investors gain comfort from that backing. Even in the very small category of dedicated impact bond buyers whose exclusive focus is on financing environmental outcomes there is a need for such support, as the example of the Seychelles shows.

Given the above, the choice of issuer primarily depends on its credit rating. Sovereign issuers are likely to require MDB risk guarantees and in addition to such de-risking, MDBs and philanthropies can help to lower the overall cost through blended finance.

Sovereign issuers can benefit from the guidance issued by the International Finance Corporation (IFC)¹²². Corporates can be considered, in particular if they are already rated in the bond markets and have sufficient exposure in the blue space. This is likely to be a small universe. It may include some marine companies, certain subsidiaries of large utilities, coastal real estate owners such as hotel chains and sustainable commodity businesses.

3. Focus, format and market

As the analysis above shows, there is a broad range of acceptable purposes and sectors to allocate bond finance towards, the main constraint being the need to repay the bond, either from revenues expected in some way from project outcomes or from broader funding sources, often the taxpayer. Lists of focus areas and use of proceeds include renewables, green infrastructure, marine governance, climate-resilient real estate, sustainable commodities, blue business, maritime security, capacity-building, and social and educational goals.

Therefore, the labeling of these bonds also varies according the formats and categories chosen, with green and climate bonds as established categories and sustainability, resilience and blue bonds as emerging categories of focus. Given the overarching format provided by the SDGs it can be expected that they will be increasingly used to provide a consistent impact assessment framework.

As the overall need of financing the transition to a sustainable economy is estimated to be in the many trillions, the size of opportunity is huge. The broader unlabeled 'climate-aligned' bond market was valued at USD \$600bn in June 2015¹²³. Climate Bonds Initiative's "Bonds and Climate Change: The State of the Market 2018" report identifies a universe of USD \$1.45tn climate-aligned bonds¹²⁴:

- USD \$389bn in green bonds

¹²² International Finance Corporation, 2018. Guidance for Sovereign Green Bond Issuers With Lessons From Fiji's First Emerging Economy Sovereign Green Bond https://www.ifc.org/wps/wcm/connect/4e657e50a5f6-4ed8-87a0-68d3a55f0647/20180320_Guidance-for-Sovereign-Green-Bond-Issuers_v1.pdf?MOD=AJPERES

¹²³ OECD, 2015: Green bonds: Mobilising the debt capital markets for a low-carbon transition. Policy Perspectives <http://www.oecd.org/environment/cc/Green%20bonds%20PP%20%5Bf3%5D%20%5Blr%5D.pdf>

¹²⁴ Climate Bonds Initiative, 2018. Bonds and Climate Change. <https://www.climatebonds.net/resources/reports/bonds-and-climate-change-state-market-2018>

- USD \$497bn in bonds from fully-aligned issuers
- USD \$314bn in issuance from strongly-aligned issuers

4. Structure and process

A key distinction needs to be made between liquid public bonds from strong issuers with clear repayment profiles based on sure fees, general revenues and other clearly identified sources and small private placements that aim to deliver specific environmental impact, but do not have stringent project cash flows that can provide support for the ultimate repayment. These aspects impact both the terms of the transaction in terms interest and principal and the repayment profile. In either case bond issues require resolving first a whole range of legal and regulatory issues, which requires the involvement of investment banks, lawyers, consultants and the client team. These, in turn, raise transaction costs and time factors.

5. Impact

Buyers looking for impact will generally require external monitoring and verification, have an interest in the standards, governance and accountability approaches of the issuer and guarantor. The World Bank has developed a comprehensive approach for this area¹²⁵. There is an emerging industry of external verification expertise, and in line with the proposal by the European Task Force, it can be expected that this sector will in future be requiring accreditation and other supervisory approaches. Already, clear market leaders with significant expertise in relevant subsections are emerging and issuers will want to make sure to fully take their methodologies on board, though cost and effort can be significant.

Section 4 - Conclusions

4.1 Supply and demand for bond finance

Global capital markets are the major funding mechanism for the global economy. The bond market delivers global capital flows based on concepts of predictability, liquidity, transparency and return. It is therefore understandable and desirable that this market is increasingly called upon to deliver funding for major societal challenges such as the transformation to a sustainable economy, the delivery on global climate targets, national development policies, and SDG implementation and other societal goals.

However, matching investor expectations of solid and predictable cash flows with beneficiaries' strategic investment priorities is a significant challenge. The bond markets have shown significant potential for innovation through structured products and there is certainly significant pent-up demand for bonds that finance positive environmental impact. Major long-term bond holders such as pension funds and other asset managers represent a global population engaged in these areas. Nevertheless, the strength of the bond markets in terms of capacity, liquidity and speed of innovation are also presenting significant hurdles for the integration of environmental impact bonds into this universe.

The examples provided show that where there are strong backers such as investment grade issuers and guarantors, clear funding streams such as solar installations based on feed-in tariffs and other regulatory support or existing and consistent income at a significant scale,

¹²⁵ World Bank. The World Bank Green Bond Process Implementation Guidelines. <http://pubdocs.worldbank.org/en/217301525116707964/Green-Bond-Implementation-Guidelines.pdf>

bond markets were quickly able to integrate new formats such as green, climate and sustainability. However, solid credit ratings for issuer and/or guarantors are key. Bond issuance can be severely constrained by external factors, such as overall debt capacity, legal regime, access to well-structured projects and identifiable and secured cash flows.

4.2 The case for environmental impact bonds

Despite the challenges described above, the analysis of the market also confirms the opportunity for environmental impact bonds, that is transactions defined by their impact outcome, and then explicitly structured in a bond format in order to take advantage of the capital markets. For such bonds to take hold, the purpose, that is the impact component, needs to be clearly articulated, measurable, quantifiable and, if possible, validated through third party verification and monitoring of observable indicators.

If this can be achieved, then the next step will require translating these results into clear cash flows. This needs to specify who pays whom upon the achievement of specific results, and what is the credit quality of the party paying, or, if need be, who guarantees such a payment. As the examples show, the range of purposes in this emerging field of bond finance is wide, and the methodologies are still being developed, so there is scope for a broad range of structures. However, there is no scope for any uncertainty as to who the legal payer will be and how, when, and what amount will need to be delivered.

An Environmental Impact Bond (EIB) is an innovative financing tool that uses a Pay for Success approach to provide up-front capital from private investors for environmental projects, either to pilot a new approach whose performance is viewed as uncertain or to scale up a solution that has been tested in a pilot program. In its most basic form, investors pay the upfront costs for deploying these environmental solutions. Following deployment and program evaluation, the “payer”—whether it’s the public agency or private institution that benefits from these solutions—repays investors an amount linked to the achievement of agreed-upon outcomes of the program. The bond structure is designed to meet the payer’s needs—whether that’s providing risk coverage in the case of underperformance, or a benefits share with investors and contractors to incentivize exceeding performance.

If the project performs as expected, the intervention is proven effective. If outcomes are better than expected, the payer knows an even greater return than expected on their investment is likely, and they can alter future investment plans to recognize savings from doing fewer, more effective projects. If the project underperforms, some projects require investors to make a performance payment back, providing some insurance to the payer and room to change course by allocating the recouped costs. By identifying, quantifying, and transferring project risks, the EIB creates incentives to deploy innovative solutions¹²⁶.

4.3 Bond transaction cost and benefits

As the examples also show, bond finance has significant process and transaction costs and other constraints. There needs to be careful consideration of whether bonds are the preferred financing option in any particular case. It also needs to be considered that while alternatives such as grant and concessional funding or user pay arrangements deliver direct benefits, a bond always needs to be repaid with interest. This often puts the future taxpayer

¹²⁶ Quantified Ventures, 2019. Sharing Risk, Rewarding Outcomes: The Environmental Impact Bond. <http://www.quantifiedventures.com/environmental-impact-bonds>

on the hook for projects whether they have been successful or not. There are many examples where bond issuance has used up national debt capacity while providing uncertain benefits.

On the other hand, as the matrix shows, well-structured bonds deliver accountability and can have governance and reporting regimes that compare positively to those of other funding approaches. Therefore, a detailed structuring exercise is required to deliver both the necessary clarity for the investor and the expected benefits for the issuer.

Whilst such savings on future costs to the government can be economically quantified, they generally do not deliver specific cash flows into bond structures and therefore other ways, such as third-party payments on the back on indicators, need to be identified to fully capture such benefits. The proposed Louisiana EIB is such an example¹²⁷.

4.4 Implications for the other tasks

Blue bonds can be part of a specific ocean-centric effort to finance broader sustainable blue economy strategies, in particular for Small Island Developing States (SIDS), whilst at the same time being part of the broader sustainable bond landscape. The final concepts may therefore need to embed the blue bonds into the implementation of national strategies and global commitments to the sustainable development goals (SDG), in particular SDG 14 and other agreements including the Paris Agreement on Climate Change and the Sendai Framework for Disaster Risk Reduction 2015. In the examples analyzed there is a range of policy settings, at various scale from local to national government.

A constraint for blue bond issuance is the lack of familiarity of potential issuers and buyers. By applying the Green Bond Principles which are voluntary best practice guidelines established in 2014 by private banks and now overseen by the International Capital Market Association (ICMA) bonds that meet these criteria have broad market acceptance. Other sources of guidance could include the Sustainable Blue Economy Financing Principles recently adopted by a number of IFIs and impact investors and the relevant sector criteria that have been developed or under consultation by the Climate Bond Initiative.

Apart from making sure that the use of proceeds is relevant for the POB, the format chosen can also provide additional financial benefits by encouraging efficiency and results-based delivery. Environmental Impact Bonds are an interesting example as they aim to combine three components of repayment to investors: principal, interest and a performance payment tied to the achievement of project outcomes. This could for instance include savings to the broader economy through the delivery of better ocean outcomes. This feature offers a way to further incentivize project success.

¹²⁷ Conservation Finance Network, 2018. Louisiana Environmental Impact Bond May Reduce Coastal Land Loss
<https://www.conservationfinancenetwork.org/2018/09/25/louisiana-environmental-impact-bond-may-reduce-coastal-land-loss>

Annex V: Stakeholder engagement summary

This is a consolidated list of stakeholder outreach and engagement methods throughout the project.

Stakeholder Type	Organization Name	Contact Person	How we engaged
Regional Pacific Organization/ CROP agencies	PIF	Riibeta Abeta (OPOC Ocean Management)	Attended Blue Bond Workshop in Fiji - 9 May 2019
Regional Pacific Organization/ CROP agencies	PIF	Peni Suveinaka (OPOC Ocean Analyst and Manager)	Short discussion
Regional Pacific Organization/ CROP agencies	PIF	Scott Hook (Economic Infrastructure Advisor)	Short discussion
Regional Pacific Organization/ CROP agencies	PIF	Raymond Prasad (Senior Economist)	Short discussion
Regional Pacific Organization/ CROP agencies	PIF	Salome Taufu (Resource Economist)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Timothy Bryar (Senior Advisor)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Aholotu Plau (PFM Advisor)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Andrew Anton (Economic Officer)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Benjamin Czapnik (Trade Advisor)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Daniel Lund (Consultant)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Janette Handyside	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Nikola Komaievuka	Shared information

Regional Pacific Organization/ CROP agencies	PIF	Exsley Taloiburi (Climate Finance Advisor)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Ledua Vakaloloma (PFM Officer)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Penisoni Naupoto (NSA Advisor)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Ribanataake Awira	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Charmina Saili (SDG Advisor)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Mereseini Marau (OPIC Com Officer)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Tasha Siaosi (SIS Advisor)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Teea Tiira (Resilient Coordinator)	Shared information
Regional Pacific Organization/ CROP agencies	PIF	Tupe Solomon-Tanoa’I (Development Cooperation Advisor)	Shared information
Regional Pacific Organization/ CROP agencies	F o r u m Fisheries Agency	Tony Sullivan (Fisheries Finance)	Obtained feedback on bond structures and discussed processing plants for sustainable fisheries
Regional Pacific Organization/ CROP agencies	F o r u m Fisheries Agency	Raymond Prasad	Shared information
Regional Pacific Organization/ CROP agencies	F o r u m Fisheries Agency	Judy Arumae (PROP Coordinator)	Shared information
Regional Pacific Organization/ CROP agencies	P N A Secretariat	Transform Aquorau (Former CEO)	Shared information

Regional Pacific Organization/ CROP agencies	SPREP	Espen Ronneberg (Climate Advisor)	Short discussion around feasibility of climate bond in the Pacific region
Regional Pacific Organization/ CROP agencies	SPREP	Tagaloa Cooper-Halo (Director, Climate Change Division)	Shared information
Regional Pacific Organization/ CROP agencies	SPREP	Herman Timmermans (Pacific EBA Manager)	Shared information
Regional Pacific Organization/ CROP agencies	SPREP	Nanette Woonton	Shared information
Regional Pacific Organization/ CROP agencies	SPC Deputy Director	Cameron Diver	Short discussion
Regional Pacific Organization/ CROP agencies	SPC	Sylvie Goyet (Director Climate and Sustainability)	Short discussion
Regional Pacific Organization/ CROP agencies	SPC	Adrian Lauranceau-Moineau (Energy and Maritime Division)	Short discussion
Regional Pacific Organization/ CROP agencies	SPC	Ore Tola (Maritime Technology Research Centre)	Short discussion
Regional Pacific Organization/ CROP agencies	SPC	Raphael Bille (Coastal Fisheries Programme)	Obtained feedback
Regional Pacific Organization/ CROP agencies	SPC	Jens Kruger (Manager - Ocean and Maritime)	Shared information
Regional Pacific Organization/ CROP agencies	SPC	Vuki Buadromo (Manager - IS Adaptation to Climate Change)	Shared information
Regional Pacific Organization/ CROP agencies	SOPAC	Marc Wilson	Shared information
Regional Pacific Organization/ CROP agencies	Pacific Island Development Form (PIDF)	Francois Martel (CEO)	Short discussion
Regional Pacific Organization/ CROP agencies	South Pacific Tourism Organization	Christina Leala-Gale (Manager of Sustainable Tourism Development)	Short discussion

Regional Pacific Organization/ CROP agencies	South Pacific Tourism Organization	Elisabeth Ragimana (CEO)	Short discussion
Private Sector - Regional	Blue Pledge	Jonathan Landrey (CEO)	Short discussion
International Donors and Programmes	UNDP Pacific Office	Arthur Webb (Tuvalu Consultant)	Short discussion
International Donors and Programmes	UNDP Pacific Office	Michael Carr (Regional Inclusive Insurance Specialist)	Attended Blue Bond Workshop in Fiji - 9 May 2019
International Donors and Programmes	UNDP Pacific Office	Kevin Petrini (Head of Climate Change)	Shared information
International Donors and Programmes	UNDP Pacific Office	Krishnan Narasimhan (Deputy Program Manager)	Shared information
International Donors, Public Institutional Investors	Global Environment Facility	Christian Holde Severin	Shared information
International Donors, Public Institutional Investors	World Bank - RMI PREP 2	Helene Jacot des Combes and John Norton (Consultants)	Short discussion
International Donors, Public Institutional Investors	World Bank	Cary Anne Cadman (Sydney Manager)	Email, introduced us to appropriate colleagues.
International Donors, Public Institutional Investors	World Bank	Habiba Gitay (Climate Specialist)	Short discussion
International Donors, Public Institutional Investors	World Bank	Miguel Angel Jorge (Fisheries Specialist)	Email, introduced us to appropriate colleagues.
International Donors, Public Institutional Investors	World Bank	Gianfranco Berzotti (Treasury)	Obtained feedback

International Donors, Public Institutional Investors	World Bank	Robert Utz	Short discussion
International Donors, Public Institutional Investors	IFC	Aaron Levine	Short discussion on Fiji's Green Bond and local companies' bond listing potential
International Donors, Public Institutional Investors	ADB	Timothy Meany and James Lynch (Deputy Director General, Pacific Department)	Short discussion around ports and renewable energy projects potential, introduced us to other appropriate colleagues
International Donors, Public Institutional Investors	ADB	Bambang Susantono (Vice President)	Short discussion
International Donors, Public Institutional Investors	ADB	Bruce K. Dunn (Director of Safeguards Division)	Short discussion
International Donors, Public Institutional Investors	ADB	Noelle O'Brien (Head of Pacific Regional Office and Principal Climate Change Specialist)	Short discussion
International Donors, Public Institutional Investors	ADB	Erik Aelbers (Pacific Department)	Attended Blue Bond Workshop in Fiji - 9 May 2019
International Donors, Public Institutional Investors	ADB	David Lloyd (Canberra-based consultant)	Short discussion
International Donors, Public Institutional Investors	ADBI	Naoyuki Yoshino (Director)	Short discussion
International Donors, Public Institutional Investors	ADB	Deb Robertson and Bruce Dunn (Ocean Health Initiative)	Obtained feedback
International Donors, Public Institutional Investors	ADB	Hanna Uusimaa	Shared information

International Donors, Public Institutional Investors	AIIB	Courtney Lowrance (Principal Environmental Specialist)	Obtained feedback
International Donors, Public Institutional Investors	European Union - GCCA+ Initiative Team Leader (Christophe Legrand)	Christophe Legrand (GCCA+ Initiative Team Leader)	Short discussion
International Donors, Public Institutional Investors	EU Delegation to the Pacific	Christoph Wagner (Head of Cooperation)	Shared information
International Donors, Public Institutional Investors	EU Delegation to the Pacific	Marta Brignone (Programme Officer)	Shared information
International Donors	GCF	Coral Pasisi Regional Adviser for Pacific	Shared information
International Donors	GIZ	James Macbeth Forbes (GIZ Pacific Director of Programs)	Short discussion
International Donors	GIZ	Ledua Vakaloloma (Climate Finance Advisor CCFRP)	Short discussion
International Donors	GIZ	Francis Staub	Email
International Donors	GIZ	Jan Steffen (Director Marine Program)	Shared information
International Donors	Australia - DFAT	Marco Salvio (Climate Analytics and Partnerships)	Short discussion
International Donors	Australia - DFAT	Celeste Powell (Director of Pacific Climate Change)	Short discussion
International Donors	United Kingdom - DFID	Jean Paul Penrose (Senior Water Resources Advisor)	Attended Blue Bond Workshop in Fiji - 9 May 2019

International Donors	U n i t e d Kingdom - British High Commission Fiji	Samantha Harrison (Legal Counsellor)	Shared information
Civil Society Organizations/ NGOs	Conservation International	Sue Taei (Pacific Programme Director) and Brigid Kennedy (Fiji Project Officer)	Obtained feedback
Civil Society Organizations/ NGOs	Conservation International	Emily Pidgeon (Senior Director Blue Climate Program)	Short discussion
Civil Society Organizations/ NGOs	Conservation International	Semisi Meo	Shared information
Civil Society Organizations/ NGOs	WWF Pacific	Kesiai Tabukanawai (Representative)	Short discussion
Civil Society Organizations/ NGOs	WWF Pacific	Francis Areki (Director of Conservation)	Shared information
Civil Society Organizations/ NGOs	IUCN	Leanne Fernandes and Kate Davey (MACBIO Programme Manager)	Short discussion
Civil Society Organizations/ NGOs	IUCN	Jurgen Zeitlberger (Blue Natural Capital Finance Facility)	Obtained feedback
Civil Society Organizations/ NGOs	R M I Conservation Society	Mark Stege	Short discussion around health bond
Civil Society Organizations/ NGOs	WRI	Lauren Sidner (Sustainable Finance Centre Research Analyst)	Attended Blue Bond Workshop in Fiji - 9 May 2019
Civil Society Organizations/ NGOs	Oxfam	Jale Samuwai (Climate Finance Advisor)	Shared information
Ocean health and blue economy initiatives	World Ocean Council	Paul Holtus	Obtained feedback
Ocean health and blue economy initiatives	O c e a n Conservancy	Susan Ruffo (Director)	Short discussion

Ocean health and blue economy initiatives	Independent Consultant	Russell Baker (Whale expert)	Obtained feedback
Ocean finance experts	TNC	Rob Weary (NatureVest Director)	Shared information
P r i v a t e institutional investors	Bank of America Merrill Lynch	Abyd Karmali (Managing Director, Climate Finance)	Obtained feedback
P r i v a t e institutional investors	UBS	Sieste Wouters (Director of Innovative Finance)	Obtained feedback
P r i v a t e institutional investors	Credit Suisse Singapore	Impact Advisory and Finance Department APAC	Obtained feedback
P r i v a t e institutional investors	Credit Suisse Zurich	Maryanne Umoren-Selfe (Impact Investment and Wealth Management)	Obtained feedback
P r i v a t e institutional investors	Swiss Re		Obtained feedback
P r i v a t e institutional investors	Zurich Group		Obtained feedback
P r i v a t e institutional investors	ABN AMRO		Shared information
P r i v a t e institutional investors	Citi		Obtained feedback
P r i v a t e institutional investors	Standard Chartered		Obtained feedback
P r i v a t e institutional investors	ANZ		Short discussion
P r i v a t e institutional investors	Investor Group on Climate Change		Short discussion
P u b l i c institutional investors	EIB		Obtained feedback
Philanthropic Foundations	Ocean5		Shared information

Philanthropic Foundations	Moore		Shared information
Philanthropic Foundations	Bloomberg		Shared information
Philanthropic Foundations	PEW		Short discussion
Philanthropic Foundations	The Ocean Foundation		Shared information
Philanthropic Foundations	Walton Family Foundation		Obtained feedback
Impact Capital Providers	Calvert Capital		Shared information
Impact Capital Providers	Third Sector Capital		Shared information
Impact Capital Providers	Althelia - Mirova Capital		Obtained feedback
Public Sector	RMI Energy Office	Angeline Heine	Short discussion
Public Sector	Palau Budget and Planning	Casmir Remengesau	Short discussion
Public Sector	New Caledonia Regional Cooperation and External Relations	Sandrine Bellier	Short discussion
Public Sector	Kiribati Ministry for Finance & Economic Development	Hon. Dr. Teuea Toatu and Permanent Secretary Benjamin Tokataake	Short discussion
Public Sector	Tuvalu Department for Planning	Nuiatui Nuiatui (Director)	Shared information
Public Sector	Solomon Islands Finance and Treasury	Rictor Luaboe	Short discussion
Public Sector	Fiji Ministry of Economy	Pankaj Singh and Kushaal Raj	Short discussion around Existing green bond, regional blue bond and coral reef insurance proposals

Public Sector	Fiji COP23 Secretariat	Taholo Kami	Short discussion around interest in green shipping bond
Independent consultant	Erickseonglobal	Andrew Frankling (Investment Consultant)	Short discussion
Academia	USP	Elisabeth Holland and Morgan Wairiu (Pacific Centre for Environment and Development)	Short discussion
Academia	USP	Jeremy Hills (Institute of Marine Resources)	Shared information
Academia	Australian National Centre for Ocean Resources and Security (ANCORS) University of Wollongong	Quentin Hanich	Short discussion around tuna fisheries
Academia	ANCORS	Kamal Aziz	Fisheries bond/PNA options
Academia	USP	Cherie Morris	Shared information
Independent consultant	Hugh Govan		Short discussion around feasibility of resilience bond
Independent consultant	Better Finance		Obtained feedback
Independent consultant	Ocean Fox Advisory		Obtained feedback
Independent consultant	Marita Manley		Shared information
Independent consultant	Zaidi Afrin		Shared information
Consultant	Jacquelin Wharton	POI Project Consultant	Short discussion around climate resilience and inter linkages between insurance and bond project
Consultant	Simon Young	POI Project Consultant	Short discussion around climate resilience and inter linkages between insurance and bond project

Consultant	A n g e l i c a Dealino	International Institute of Energy Conservation	Short discussion around renewable energy projects in the Pacific Islands
ESG Ratings, Audits and Standard Bearers	ISS Ocean Governance	Viola Lutz (Climate Finance)	Obtained feedback
ESG Ratings, Audits and Standard Bearers	Climate Bonds Initiative	Katie House	Obtained feedback
ESG Ratings, Audits and Standard Bearers	Climate Bonds Initiative	Lionel Mok	Obtained feedback
Other	Rathbones		Obtained feedback
Other	S w i s s Sustainable Finance President		Obtained feedback
Other	SECO - Swiss Secretariat for Economic Affairs		Obtained feedback

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PACIFIC OCEAN BOND

The Pacific Ocean Bond project under the Pacific Ocean Finance Program (POFP) explores how carefully designed bond structures can meet the strategic priorities of mitigating risks to ocean health, increasing the resilience of Pacific communities, generating sustainable economic development opportunities across multiple sectors, and attracting longer-term capital to the Pacific region. It also seeks to build support and develop guidance for potential issuers and project developers for issuance of such a bond instrument.

