【Articles】

Blue Bonds in Sustainable Finance: Frameworks, Market Development, and Future Prospects

水・海洋分野のサステナブルファイナンス：ブルーボンドの制度構造と市場形成

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Contents

(Abstract)

Sustainable finance has expanded beyond climate-related projects to include ocean and water-related investments, driving the emergence of blue bonds. While these instruments are expected to mobilize capital for the sustainable blue economy, their institutional and market

infrastructure remains less established than that of green bonds. This study examines blue bonds through the lens of credibility mechanisms—eligibility criteria, disclosure practices, KPI design, and external reviews—and discusses implications for market development in Japan and the Asia–Pacific region.

The paper defines blue bonds as use-of-proceeds instruments and reviews how international guidance operationalizes "blue eligibility" through sector criteria and exclusion approaches. It then compares issuer types: the Seychelles sovereign blue bond as a blended-finance model linking market funding with public governance; MDB-issued blue bonds supported by standardized reporting and safeguard systems; and corporate blue bonds in fisheries/aquaculture, water treatment, shipping, and offshore renewable energy, where credibility depends on project boundaries and KPI-based reporting. The analysis highlights persistent data constraints, limited comparability of disclosures and KPIs, and the practical reliance on external reviews to mitigate blue-washing. Finally, the paper outlines pathways for building credible blue bond markets in Japan and Asia, emphasizing consistent eligibility interpretation and robust disclosure and verification practices.

Keywords: Blue bonds, Sustainable finance, Use-of-proceeds, Blended finance, Debt conversion

1. Introduction: Research Background, Purpose, and Methodology

In recent years, sustainable finance has expanded as a framework that incorporates environmental, social, and governance (ESG) factors into investment decisions and promotes sustainable economic activities through capital markets. Beyond climate change mitigation and adaptation, water-related challenges—such as water resource conservation, marine ecosystem restoration, and strengthening the resilience of water-related infrastructure—have also been positioned as one of the most urgent policy areas for the international community. Furthermore, meeting the enormous funding needs in these areas solely through public sources is difficult, leading to growing interest in mechanisms to mobilize private capital.

Against this backdrop, blue finance, targeting the sustainability of oceans and water bodies, is gaining attention, with blue bonds emerging as one of its core instruments. While blue finance inherently encompasses a broad range of investment and financing activities beyond bonds—including blue-labeled loans, credit guarantees, equity investments, and debt-for-nature swaps (DFNS)—blue bonds, as a representative capital-market instrument, are attracting significant attention from policymakers and investors. Blue bonds are use-of-proceeds instruments whose proceeds are earmarked for the conservation and sustainable use of marine resources and, more broadly, for ocean- and water-related projects. Many recent issuance cases have involved coastal states and Small Island Developing States (SIDS). Issuers have diversified to include sovereigns, development finance institutions, financial institutions, and corporations.

However, the market remains in an early stage of formation, presenting challenges in institutional design, eligibility determination, disclosure requirements, external review processes, and the selection of credible impact metrics. Given that oceans cover approximately 70% of the Earth's surface and vast inland water systems exist, capital allocation to ocean- and water-related sectors has significant growth potential, though the market is still at an early stage.

The objective of this study is to systematize the concept and institutional framework of blue bonds, outline the market's fundamental characteristics and challenges, and, through comparative analysis of major cases, clarify how credibility mechanisms differ across issuer types and what these differences imply for market formation. Simultaneously, by situating blue bonds within the broader context of blue finance and examining their relationship with other blue-related schemes such as blue debt-for-nature swaps (B-DFNS) and sustainability-linked bonds, this study aims to develop a multidimensional picture of the institutional structure of sustainable finance in ocean and water sectors.

Specifically, this study clarifies the definition of blue bonds, their eligibility criteria, their relationship with international principles and activity classifications, and their positioning within the broader sustainable bond market. It also identifies key features of issuance trends, issuers, and structures. Using the Seychelles sovereign blue bond as a representative case, this study examines implications for institutional design and implementation through policy documents, bond frameworks, external reviews, and case studies. For corporate and financial-institution issuance, it compares practices in use of proceeds, KPI design and impact metrics, disclosure, and external reviews by referencing cases in fisheries/aquaculture, water treatment, shipping, and marine renewable energy. Additionally, using Belize's case as an example of B-DFNS, this study examines linkages and institutional differences between blue bonds and debt restructuring–based nature conservation schemes. Through these analyses, the paper clarifies how the combination of creditworthiness, institutional design, substantive criteria, and external reviews builds credibility in blue bond markets.

To avoid confusion in terminology, this paper uses "sustainable finance" as an umbrella term encompassing markets, systems, and products as a whole, and "ESG" as a framework indicating how corporate environmental, social, and governance information is used in investment decisions. Furthermore, green bonds, social bonds, sustainability bonds, sustainability-linked bonds, and other labeled instruments are collectively referred to as "sustainable bonds" for convenience. Among these, use-of-proceeds (UoP) bonds whose proceeds are designated for ocean- and water-related purposes are positioned as blue bonds, while blue finance is understood broadly to include blue-related instruments and mechanisms beyond bonds.

2. Concept and Institutional Framework of Blue Bonds

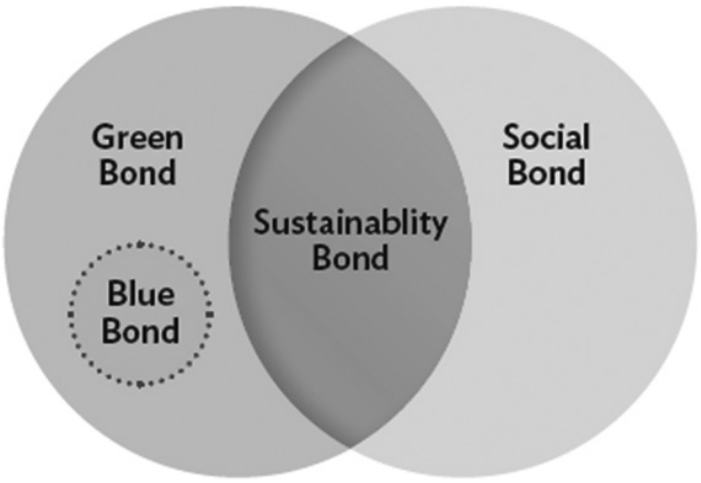
2-1 Definition of Blue Bonds and "Eligibility"

This section clarifies the concept and institutional framework of blue bonds by defining their eligibility criteria, explaining their relationship to international principles and activity

taxonomies, and positioning them relative to other labeled sustainable bonds.

Blue bonds are UoP bonds whose proceeds are earmarked for eligible ocean- and water-related activities, particularly those aimed at the conservation and sustainable use of marine, coastal, and freshwater resources. In this paper, green bonds, social bonds, sustainability bonds, and sustainability-linked bonds are collectively referred to as Green, Social, Sustainability and Sustainability-Linked (GSS+) bonds for convenience, and blue bonds are positioned as one category within this broader sustainable bond market. In terms of issuance procedures, blue bonds generally follow the Green Bond Principles (GBP) and Green Loan Principles (GLP) established by the International Capital Market Association (ICMA), and no independent "Blue Bond Principles" have been formulated to date. In practice, therefore, the Guidelines for Blue Finance published by the International Finance Corporation (IFC) and the practitioner's guide published by Asian Development Bank (ADB) et al. (2023) play an important supplementary role in applying ICMA's procedural standards to ocean- and water-related projects (IFC, 2022; ADB et al., 2023).

As illustrated in Figure 1 of ADB et al. (2023), blue bonds are sometimes treated as a subset within the thematic label taxonomy of green bonds (ADB et al., 2023, p. 9). The objectives of reducing marine pollution, strengthening coastal resilience, conserving ecosystems, and managing fishery resources overlap substantially with those of green bonds, and the boundary between the two is not always clear. Projects that incorporate social dimensions—such as improving coastal livelihoods and supporting small-scale fishers—may also overlap with sustainability and social bond categories, making these distinctions cross-cutting rather than mutually exclusive. In addition, activities frequently discussed under "blue" labels include offshore wind power and low-carbon maritime transport—projects associated with climate mitigation and adaptation—alongside natural-capital restoration such as coral reef and man-



Source: ADB et al., 2023, p.9.

Figure 1. Positioning of Blue Bonds

grove conservation. Blue-labeled projects are thus often characterized by their potential to generate co-benefits for climate and nature. ADB et al. (2023) note that label classification should be determined by issuers based on the primary objective of the underlying project, and that no international consensus has yet emerged on whether blue bonds should constitute an independent category or be incorporated into the thematic classification of green bonds.

From the perspective of issuance processes, blue bonds follow the four core components of the GBP: (1) use of proceeds, (2) project evaluation and selection, (3) management of proceeds, and (4) reporting. They also share with green bonds the practice of enhancing transparency and credibility through external reviews, including second-party opinions and verification (ADB et al., 2023). The IFC's Guidelines for Blue Finance provide a systematic mapping of ocean- and water-related activity types—such as water supply, wastewater and drainage management, sustainable fisheries and aquaculture, sustainable ports and shipping, marine ecosystem conservation and restoration, and blue carbon—and present illustrative examples of how these activities may correspond to the environmental objective categories of the GBP and GLP (IFC, 2022, pp. 10–11). While highly practical as a reference, this mapping is illustrative in nature and does not, by itself, define binding eligibility criteria.

When determining blue eligibility, it is essential to consult not only positive lists of supported activities but also exclusion lists specifying activities that must not receive funding. ADB et al. (2023) and the IFC guidelines explicitly exclude, for example, deep-sea mineral exploration and mining, fishing practices that adversely affect endangered species, and development involving the conversion of critical habitats such as mangroves and wetlands (ADB et al., 2023; IFC, 2022). Blue eligibility is thus supported not only by the selection of eligible activities but also by the exclusion of ineligible ones.

From a normative perspective, the Sustainable Blue Economy Finance Principles issued by the United Nations Environment Programme Finance Initiative (UNEP FI) provide guidance on what should be considered "blue," complementing the procedural frameworks of the Green Bond Principles (GBP) and the Green Loan Principles (GLP) (UNEP FI, 2018). These principles were published in March 2018, and the Sustainable Blue Economy Finance Initiative was launched at the Our Ocean Conference (Bali) in October 2018 to support their implementation (UNEP FI, 2018). The UNEP FI framework also encourages assessment of impacts not only in terms of reducing environmental burdens, but also in relation to coastal livelihoods, biodiversity, coastal infrastructure, and community resilience.

At the same time, if the definition and eligibility scope of blue bonds are set too broadly, general environmental projects with limited ocean relevance—or refinancing structures associated with DFNS—could be labeled as blue bonds, creating conditions conducive to bluewashing. By contrast, definitions that are overly narrow may constrain issuer participation and slow market formation. SYSTEMIQ (2024) argues that the world needs not merely "more blue bonds" but "higher-quality blue bonds," and emphasizes the importance of strengthening eligibility criteria and governance frameworks to enhance investor confidence (SYSTEMIQ, 2024, p. 10). In the marine sector in particular, structural constraints exist: environmental impacts

are often harder to assess than in land-based projects due to limited ecosystem data and monitoring challenges. Establishing eligibility based on the latest scientific knowledge and demonstrating it through measurable and verifiable impact metrics are increasingly crucial for preventing blue-washing and securing investor trust.

Although defined as UoP bonds, blue bonds are increasingly designed within a broader blue finance framework in practice. On the periphery of the blue bond market, instruments such as sustainability-linked bonds (SLBs) and B-DFNS also exist as related approaches within the broader domain of blue finance. In this paper, labeled UoP bonds whose proceeds are earmarked for blue purposes are referred to as "blue bonds in the narrow sense," whereas the broader framework that includes SLBs and B-DFNS is described as "blue finance in the broad sense." SLBs are performance-linked bonds whose coupons and/or redemption terms vary depending on whether the issuer meets predefined sustainability performance targets, typically defined through KPIs such as greenhouse gas emissions or marine pollution loads. This structure differs from that of UoP blue bonds, where proceeds are fully allocated to specified blue purposes. By contrast, B-DFNS refers to arrangements in which creditors restructure or purchase a portion of sovereign debt at a discount in exchange for commitments by the debtor country to allocate resources to designated purposes such as marine conservation and climate-related measures. In SIDS such as Belize and Seychelles, there are cases in which blue bonds have been issued against the backdrop of fiscal space and guarantees created through such arrangements (Visser, 2025; SYSTEMIQ, 2024). When blue bonds are integrated into B-DFNS schemes, a layered relationship may emerge: B-DFNS provides the framework for debt restructuring and marine-governance commitments, while blue bonds function as a concrete financing tool within that framework. This structural characteristic suggests that blue bonds can serve not merely as labeled instruments but as institutional mechanisms linked to fiscal reform and marine policy.

Beyond these institutional frameworks, however, blue bonds issued in practice display substantial heterogeneity that cannot be explained by institutional design alone. Some projects are relatively small-scale, focusing on marine ecosystem conservation or local livelihoods, whereas others involve large-scale capital investment, such as sewage treatment or port infrastructure. Moreover, some designs—such as those combined with sovereign debt restructuring through B-DFNS—are explicitly integrated with fiscal reforms or debt-structure improvements. Although these instruments may be categorized under the same "blue bond" label, they differ markedly in issuer type, use of proceeds, scale, and policy objectives, producing a multi-layered market structure (e.g., conservation-oriented, infrastructure-oriented, and debt-restructuring-oriented forms). This heterogeneity is an important prerequisite for interpreting the market trends discussed in the next section.

In sum, the definition and eligibility framework for blue bonds remains under development. It builds on the procedural standards of the GBP and GLP, incorporates marine-specific considerations such as externalities, inclusivity, and cumulative impacts emphasized by UNEP FI, and is increasingly interpreted within broader blue finance approaches, including B-DFNS.

Blue bonds are thereby increasingly positioned as financial schemes intended to address complex sustainability challenges in marine and coastal domains.

Finally, the blue bond framework is constructed at the intersection of multiple normative systems: ICMA's procedural standards, activity classifications developed by ADB and IFC, and the normative principles and exclusion criteria articulated by UNEP FI. Determining blue eligibility therefore requires careful examination of which standards issuers reference and how they apply them in practice. The next section clarifies the relationship between these international principles/taxonomies and blue bonds.

2-2 Alignment with International Principles and Taxonomies

The definition and basic structure of blue bond eligibility outlined in the previous section materialize at the intersection of three normative frameworks: ICMA's market principles, the activity classifications by ADB and IFC, and the normative principles and exclusion criteria outlined by UNEP FI. Below, we clarify how blue bond eligibility (hereafter referred to as "blue eligibility") and market credibility are formed through the interaction of these three layers.

The first layer consists of procedural norms, represented by ICMA's GBP and GLP, which standardize the issuance process for UoP bonds (ICMA, 2025a). In practice, blue bonds specify the use of proceeds, project evaluation and selection processes, management of proceeds, and reporting under a GBP-aligned framework, and enhance transparency and credibility through external reviews. Regardless of whether a bond is labeled "blue," credibility as a labeled sustainable bond cannot be established without procedural legitimacy. In this respect, blue bonds share a structure similar to that of green bonds and sustainability bonds.

The second layer concerns substantive criteria that determine what activities are considered "blue" within this procedural framework. ADB present a typology of blue-related projects in the sustainable blue economy, including marine pollution reduction, coastal and marine ecosystem conservation and restoration, sustainable fisheries and aquaculture, resilient coastal infrastructure, and decarbonized shipping and ports, and indicate how these activities correspond to the environmental objectives of the GBP (ADB et al., 2023, pp. 6–7). IFC (2022) broadens the scope of blue activities by including SDG 6 (Clean Water and Sanitation) alongside SDG 14 (Life Below Water), aligning freshwater and sanitation sectors such as water supply, sewage treatment, and wastewater management with the environmental objectives of the GBP/GLP. Here, "blue use of proceeds" refers to the activity areas to which funds may be allocated, whereas "blue eligibility" refers to whether a given activity meets relevant normative principles and exclusion criteria and is therefore acceptable to label as blue. Both guidance documents provide positive lists of eligible activities, but explicitly note that these lists are illustrative rather than binding taxonomies. Interpretation based on regional context and technological standards remains essential for project-level assessments.

The third layer consists of normative principles and exclusion criteria. UNEP FI's Sustainable Blue Economy Finance Principles impose multifaceted norms—such as respect for

scientific knowledge, application of the precautionary principle, transparency, inclusivity, and a long-term perspective—on financial activities aimed at the conservation and sustainable use of marine resources (UNEP FI, 2018). These principles are intended to position investment and financing decisions as part of ocean governance. Furthermore, ADB et al. (2023, Appendix 1), IFC (2022), and UNEP FI (2018) identify activities such as deep-sea mineral exploration and mining, development involving the destruction of critical habitats, and fishing practices that significantly impact endangered species as activities that should be excluded from sustainable blue economy finance. These exclusion lists form a minimum normative boundary. They do not imply that any activity with some ocean linkage is "blue" by default; rather, they delineate guardrails—at minimum, these activities should not be financed under a blue label—and thereby deter blue-washing.

Thus, the normative principles and exclusion criteria outlined by UNEP FI and others systematize the behavioral guidelines financial institutions should adhere to when making investments or loans related to oceans and water bodies. They incorporate multifaceted requirements, particularly emphasizing conservation, inclusivity, the precautionary principle, and science-based decision-making. Figure 2 summarizes the core UNEP FI 14 Principles.

Furthermore, in line with advances in international discussions on natural capital and biodiversity, blue bonds are increasingly framed as part of a broader family of nature-themed bonds. ICMA's Sustainable Bonds for Nature (ICMA, 2025b) extends ICMA's existing labelled-bond frameworks—namely the Green Bond Principles (GBP), Social Bond Principles (SBP), Sustainability Bond Guidelines (SBG), and Sustainability-Linked Bond Principles (SLBP) by providing activity classifications for nature-related projects and proposing corresponding impact metrics. The guidance reflects the premise that projects such as mangrove and coastal wetland conservation, including those involving blue carbon, may contribute simultaneously to multiple environmental objectives, including climate change mitigation and adaptation, biodiversity conservation, and water resource conservation. Against this backdrop, blue bonds are increasingly integrated into broader natural-capital finance while retaining a distinct focus on the marine, coastal, and freshwater domains that define the "blue" space.

From the above, the international consistency of blue bonds can be understood as supported by a three-tiered, mutually complementary framework: procedural legitimacy through ICMA principles, substantive eligibility and activity classification via ADB/IFC guidance, and normative legitimacy and boundary setting through UNEP FI principles and exclusion lists. For future market expansion and enhanced credibility, it is crucial not merely to "reference" these frameworks formally, but for issuers to demonstrate—within their frameworks and impact reporting—which standards, and from which layer, provide the basis for claiming blue eligibility, in a manner that is verifiable by investors.

2-3 Blue Bond Label Design and Relationship with Other Sustainable Bonds

As discussed in 2-1, blue bonds are UoP bonds whose proceeds are earmarked for marine, coastal, and freshwater purposes, issued under frameworks aligned with ICMA's GBP and

Figure 2. Sustainable Blue Economy Finance Principles

No.	Principle	
1	Protective	Support investments that restore, protect, or maintain the diversity, resilience, and overall health of marine and freshwater ecosystems and dependent livelihoods.
2	Compliant	Finance only activities that comply with relevant international, regional, and national laws and frameworks underpinning sustainable development and ocean health.
3	Risk-aware	Base decisions on holistic, long-term assessments of economic, social, environmental, and systemic risks (including cumulative impacts).
4	Systemic	Identify and consider system-wide and cumulative impacts across value chains and project portfolios.
5	Inclusive	Enhance local livelihoods and engage affected stakeholders effectively to identify, respond to, and mitigate issues.
6	Cooperative	Collaborate with financial institutions and stakeholders to share knowledge and scale best practices for the Blue Economy.
7	Transparent	Disclose investments and their positive/negative impacts, and report progress on implementation of these Principles.
8	Purposeful	Direct capital to projects that contribute directly to SDG 14 and related SDGs, especially those improving ocean governance.
9	Impactful	Aim beyond “do no harm” to generate measurable social, environmental, and economic benefits for current and future generations.
10	Precautionary	Apply the precautionary principle and act on best available science; err on the side of protection when evidence is incomplete.
11	Diversified	Broaden financing to reach SMEs and both traditional and emerging maritime sectors, across small- and large-scale projects.
12	Solutiondriven	Back innovative, commercially viable solutions (land- and ocean-based) with positive effects on marine ecosystems and ocean-dependent livelihoods.
13	Partnering	Work with public, private, and civil-society entities to advance coastal and marine spatial planning and implementation.
14	Science-led	Use scientific evidence and data on risks and impacts; promote knowledge sharing and data transparency on the marine environment.

Source: Author’s compilation based on UNEP Finance Initiative (UNEP FI), Sustainable Blue Economy Finance Principles (2018).

GLP and supported by external reviews. In practice, complementary guidance such as the IFC Guidelines and the ADB et al. (2023) practitioner guide is often referenced. This basic structure is common to green bonds and sustainability bonds. Because issuance processes and contractual forms are similar, investors often treat them as belonging to the same asset class, and yields and spreads largely depend on issuer creditworthiness and market liquidity. Within labeled sustainable bonds such as green bonds, social bonds, sustainability bonds, and sustainability-linked bonds, blue bonds are positioned as a thematic label that specifies ocean- and water-related uses of proceeds.

The blue label is often added to existing green labels as a supplementary attribute emphasizing marine and water-related uses of proceeds. Many international organizations and multilateral development banks position blue-related projects within their existing green or

sustainability bond frameworks and manage portfolios in an integrated manner under a single framework (ADB et al., 2023). The primary significance of the "blue" label is that it attracts investors interested in ocean and water issues, including SDG 14 (marine resources) and SDG 6 (water and sanitation), diversifies the funding base, and serves as a signal to raise awareness of water and marine challenges.

However, from the perspective of use-of-proceeds characteristics, blue bonds entail several inherent risk factors. Projects in marine, coastal, and freshwater sectors are often located in small island developing states and coastal developing countries, making them more exposed to sovereign credit risk, currency risk, and institutional risk. Ecosystems and fishery resources are complex and dynamic. The absence of standardized metrics, together with data constraints and delays in developing indicators, makes measuring and verifying environmental effects challenging (SYSTEMIQ, 2024). Moreover, because these projects are closely linked to coastal livelihoods, stakeholder engagement design is directly tied to social acceptance. Accordingly, beyond environmental indicators, disclosure of distributional impacts—such as local living conditions and intergenerational access to resources—can support the credibility of blue bonds.

Regarding label design, two approaches coexist: treating blue bonds as a subcategory of green bonds, and applying the blue label in a cross-cutting manner alongside green, social, and other sustainability-related labels. The former offers a simpler structure and is easier to communicate. By contrast, when multiple labels are combined, the relationship between eligibility criteria and indicators for each label may become unclear, potentially confusing investors and potentially leading to "label fatigue." It is therefore important to systematize both approaches. Defining how blue bonds fit into the overall set of labeled sustainable bonds is a key design issue for market statistics and investor communication.

In practice, some issuers label a bond as a sustainability bond when only part of the use of proceeds qualifies as blue, while emphasizing a blue sub-label for the qualifying portion. In such cases, it is desirable for issuers to specify clearly within the framework the blue eligibility criteria, areas of overlap with green and other labels, and categories of activities that fall outside these categories, and to present the correspondence between labels and contribution targets on a project-by-project basis in a table or matrix. Organizing this information is a prerequisite for investors to assess the substantive meaning of the blue label.

The relationship with broader blue finance approaches such as SLBs and B-DFNS also matters for label design. When incorporating ocean- or water-related indicators into an SLB, unless the step-up or step-down conditions are demonstrably linked to marine and water-related sustainability performance, the blue label risks becoming merely formal. For blue bonds associated with DFNS, issuers are expected to clarify the degree of additionality attributable to blue uses within the broader debt-restructuring scheme (Visser, 2025; SYSTEMIQ, 2024).

In summary, what matters in label design is not merely naming a bond "blue," but providing investors with verifiable information—such as the basis for eligibility determinations, impact metrics, and the explicit scope of eligible projects—by clearly specifying the use of

proceeds and associated indicators, positioning the blue label systematically relative to other labels, and maintaining consistent alignment with broader blue finance approaches. The concepts, eligibility criteria, international principles, taxonomies, and label design issues outlined in this chapter form the institutional foundation for understanding the trends in the blue- and water-labeled sustainable bond market discussed in the next chapter.

3. Formation and Issuance Trends of the Blue Bond Market

3-1 Market Origins and Quantitative Expansion

The modern blue bond market began to take shape in earnest with the issuance of the Seychelles sovereign blue bond in 2018. The transaction combined a partial credit guarantee from the World Bank Group's International Bank for Reconstruction and Development (IBRD) with concessional resources linked to the Global Environment Facility (GEF). Although small in scale at USD 15 million, the bond attracted global attention as the world's first sovereign blue bond explicitly earmarked for marine ecosystem conservation and sustainable fisheries management (World Bank, 2018a). According to the World Bank case study and the implementation and completion materials of the associated SWIOFish3 program, the bond was structured as blended finance that combined a partial credit guarantee of USD 5 million with USD 5 million in concessional funding linked to the GEF, and was implemented alongside policy measures such as the expansion of marine protected areas and strengthened fisheries management (World Bank, 2025a; World Bank, 2025b). The final evaluation published in 2024 confirms that the target of designating 30% of the Exclusive Economic Zone (EEZ) as marine protected areas was achieved, presenting the transaction as a policy model for reconciling marine conservation and fiscal constraints in Small Island Developing States (SIDS) (Bandiaky, 2024; World Bank, 2025b).

From 2019 to 2020, issuers expanded from multilateral and development finance institutions to a broader set of actors, including the private sector. The Nordic Investment Bank (NIB) issued blue bonds aimed at improving Baltic Sea water quality and preserving marine ecosystems, signaling the expansion of blue-labeled issuance within the community of multilateral and regional development financiers (SYSTEMIQ, 2024). In the corporate sector, fisheries and aquaculture firms began to use capital markets for blue-related investments. For example, Norway's Mowi ASA issued bonds to finance sustainability-related aquaculture investments, illustrating early adoption of blue-economy themes by non-financial corporates (SYSTEMIQ, 2024).

Market formation is particularly pronounced in Asia. In 2020, Bank of China issued what has been widely described as Asia's first blue bond by a commercial bank, at a size close to USD 1 billion. Subsequently, Chinese issuers including Weihai City Commercial Bank and Qingdao Water Group have issued blue loans and blue bonds on an ongoing basis in areas such as port infrastructure, water treatment, and seawater desalination (SYSTEMIQ, 2024). These developments reflect the broadening of the blue finance base in economies with large marine

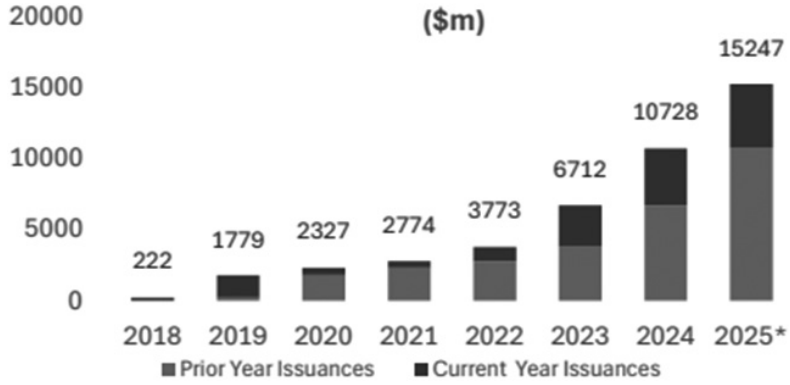
and coastal activity, while also raising concerns regarding definitional breadth and the risk of blue-washing, an issue revisited later in this chapter.

Since 2021, both geographical expansion and diversification of schemes have progressed further. Blue finance initiatives have emerged across Europe, Asia, Latin America, and Africa, spanning themes such as offshore renewables and port-related decarbonization, sustainable fisheries and aquaculture value chains, and marine conservation programs supported by multilateral development banks (SYSTEMIQ, 2024). In parallel, debt-related conservation schemes have gained visibility. In Belize, Barbados, Ecuador, Gabon, and other cases, B-DFNS have been implemented with support from organizations such as The Nature Conservancy (TNC), combining sovereign debt refinancing or restructuring with dedicated funding streams for marine conservation (OECD, 2023; SYSTEMIQ, 2024).

As the market expanded, efforts to standardize definitions and eligibility criteria for what constitutes "blue" also advanced. In September 2023, ICMA, IFC, ADB, UNEP FI, and the United Nations Global Compact, among others, jointly published a practitioner guide on financing the sustainable blue economy. The guide positions blue bonds within the sustainable bond framework while presenting specific eligible categories and exclusion criteria for marine- and water-related projects (ADB et al., 2023). Enatsu and Kadokura (2023) note that the guide contributes to the healthy expansion of the market by curbing variation in blue bond definitions and enhancing transparency and predictability for investors.

Against this backdrop of institutional development, issuance has continued to accumulate in both the Asia–Pacific region and advanced markets. Korea Exim Bank (KEXIM) issued a blue bond targeting decarbonization in shipbuilding and shipping-related sectors, while in the Philippines, RCBC and Land Bank structured blue bonds focused on disaster prevention and water infrastructure (SYSTEMIQ, 2024). For Japanese investors, Indonesia's yen-denominated "Blue Samurai Bonds" issued between 2023 and 2024 attracted attention as an example of combining sovereign financing with marine-related policy objectives (SYSTEMIQ, 2024). In Japan, examples of blue or blue-related issuance include Maruha Nichiro's issuance of a blue bond (JPY 5 billion) by a fisheries company in 2022 and the Tokyo Metropolitan Government's issuance of the "Tokyo Green Blue Bond" in 2024, aimed at initiatives such as revitalizing Tokyo Bay and improving urban water circulation (SYSTEMIQ, 2024).

This accumulation of individual transactions is reflected in the quantitative expansion of the blue bond market. According to World Bank estimates (Figure 3), cumulative blue bond issuance increased from USD 222 million in 2018 to USD 1.779 billion in 2019 and USD 3.773 billion in 2022, reaching USD 10.728 billion in 2024 and approximately USD 15.25 billion as of June 2025 (World Bank, 2025a). The World Bank compilation is based on Environmental Finance data and can be interpreted as capturing the broadening issuer base across regions and sectors, building from the Seychelles pioneering sovereign issuance (World Bank, 2025a). Although the market remains niche in absolute scale relative to the overall sustainable bond market, blue bonds can be characterized as a high-growth segment that has expanded both geographically and in issuer diversity. Section 3-2 examines the underlying



Source: World Bank (2025a), based on Environmental Finance data.
Note: Data as of 15 June 2025

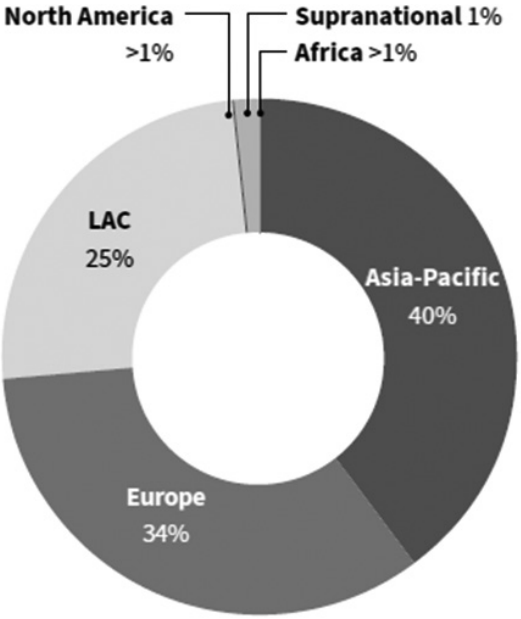
Figure 3. Cumulative Blue Bond Volume, 2018–2025

market structure behind this expansion, focusing on regional and issuer characteristics and the positioning of blue and water labels within the broader sustainable bond universe.

3-2 Market Structure and Issuer Characteristics

With respect to regional distribution, issuance of blue- and water-labeled sustainable bonds is concentrated in regions where sustainable bond markets are already relatively well established, particularly Asia–Pacific and Europe. Climate Bonds Initiative (CBI) reports that, on a cumulative basis, Asia–Pacific accounts for roughly 40% (around USD 10.5 billion) and Europe for around 34% of total blue- and water-labeled issuance, while Latin America and the Caribbean (LAC) represents approximately 25%; other regions—including North America, Africa, and supranational issuers—remain at around 1% each (Climate Bonds Initiative, 2025; Figure 4). This concentration is consistent with the presence of pre-existing market infrastructure for labeled sustainable debt, including a broader and more experienced investor base, more established disclosure and post-issuance reporting practices, a deeper ecosystem of external review providers, and accumulated issuer know-how. In other words, blue- and water-labeled instruments have tended to scale first in jurisdictions where the institutional and informational foundations of sustainable bond markets were already in place.

Within the Asia–Pacific region, China's issuance volume is particularly prominent. A notable share of issuance has been associated with local government–linked investment vehicles (including entities akin to LGFVs), port infrastructure–related issuers, water utilities, and related public or quasi-public investment vehicles. While many transactions are presented under environmental narratives such as marine protection or water infrastructure improvement, some projects appear to function primarily as conventional coastal infrastructure and urban development finance. In such cases, alignment with internationally emerging "blue" concepts may remain ambiguous, raising concerns about blue-washing—namely, the use of environmental labels to legitimize projects whose environmental additionality is unclear (Cli-



Source: Climate Bonds Initiative, 2025, p.26
Note: LAC = Latin America and the Caribbean; supranational issuers refer to international organizations. Shares are cumulative.

Figure 4. Regional Distribution of Blue/Water-Labelled GSS+ Bond Issuance

mate Bonds Initiative, 2025; SYSTEMIQ, 2024). Maintaining market credibility therefore requires that major issuing jurisdictions apply eligibility interpretations consistent with emerging guidance, including the practitioner-oriented framework discussed in the previous chapter (ADB et al., 2023), and demonstrate substantive ocean- and water-related contributions at the project level. Cross-country comparisons of issuance volumes that ignore these structural differences risk overstating environmental and social impacts.

Turning to issuer composition, CBI (2025) reports that government-related entities, including sovereigns, sub-sovereigns, and government agencies, together with non-financial corporates, constitute roughly two-thirds of cumulative blue and water-labeled issuance (Climate Bonds Initiative, 2025). On a transaction basis, issuance by non-financial corporates such as port operators, shipping companies, water utilities and treatment providers, and fisheries and aquaculture firms has become increasingly visible. This expansion suggests that blue labels are being used not only as policy finance tools but also as instruments for corporate capital market fundraising and reputational signaling. Visser (2025), in an analysis published by the asset management firm T. Rowe Price, similarly notes the growing prominence of corporate issuers in recent years and argues that increased investor attention implies a gradual incorporation of blue-related instruments into mainstream investment universes (Visser, 2025). It should also be noted that some blue-economy-related companies issue green bonds rather than blue-labeled bonds. For example, Norwegian aquaculture firms such as Mowi ASA and Grieg Seafood have

issued green bonds that may be discussed within “blue finance” in a broad sense, but are not blue label bonds in the strict sense.

From a temporal perspective, official and development-related lenders—including multilateral development banks (MDBs) and development finance institutions (DFIs) such as the World Bank, ADB, KEXIM and NIB, as well as other public-sector lenders—played central roles in the early stages of market formation. These institutions have provided long-term funding for marine conservation and water infrastructure and supported market credibility through framework development and investor engagement (International Finance Corporation, 2022). Over time, participation by the private sector expanded, including commercial banks, port operators, and fisheries- and water-infrastructure-related corporates. This has contributed to greater diversity among issuers, with examples spanning commercial banks and non-financial corporates in multiple jurisdictions (SYSTEMIQ, 2024).

Sovereign blue finance has also diversified among coastal and island economies. Sovereign-led schemes can be broadly distinguished into two types. One type designates specific uses, such as marine conservation, climate resilience, and water infrastructure, within conventional sovereign issuance frameworks. Another type links blue finance to debt-related schemes such as B-DFNS, as observed in the Seychelles and in other cases including Belize, Barbados, Ecuador, and Fiji. The latter represents a more complex model supported by organizations such as TNC and multilateral institutions. It uses guarantees, insurance, and related credit enhancement mechanisms to refinance or restructure sovereign debt on discounted terms and reallocates the resulting fiscal space to marine conservation funds and blue economy projects, positioning the scheme as a policy response that simultaneously addresses fiscal constraints and environmental objectives (World Bank, 2018a; The Nature Conservancy, 2021; SYSTEMIQ, 2024).

In sum, the blue bond and blue and water-labeled sustainable bond market exhibits a multilayered structure. Issuance is geographically concentrated in Asia–Pacific and Europe, while issuer participation spans multilateral institutions, sovereign and sub-sovereign entities, commercial banks, and non-financial corporates. To illustrate dynamics that cannot be fully captured by aggregate issuance statistics alone, the next section examines scheme and issuer typologies in greater detail using a comprehensive mapping of representative cases.

3-3 List of Representative Blue Bond Cases and Typology Mapping

Transactions observed in the blue bond market can be grouped into several types depending on issuer attributes and scheme structure. Figure 5 maps representative blue finance cases announced since 2018 along two axes: issuer type and scheme type. The mapping covers sovereign blue bonds, blue bonds issued by multilateral development banks (MDBs) and development finance institutions (DFIs), blue bonds issued by private financial institutions and non-financial corporates, and complex schemes linked to DFNS. In terms of scale, the cases range from relatively small transactions in the tens of millions of dollars to issuances in the hundreds of millions to around one billion dollars, as well as large-scale DFNS transactions such as those

Figure 5. Major Blue Finance Issuances Worldwide (2018–2025)

Date	Issuer	Country	Type	Amount	Overview / Use of Proceeds
2018.01	Republic of Seychelles	Seychelles	Bond	15m USD	Sovereign Blue Bond supported by World Bank/GEF. [World First]
2019.01	Nordic Investment Bank (NIB)	Nordic	Bond	2bn SEK	Baltic Sea protection (NIB Environmental Bond framework).
2020.01	Mowi ASA	Norway	Bond	200m EUR	World's largest salmon farmer. Sustainable aquaculture. [First Corporate]
2020.06	Grieg Seafood	Norway	Bond	1bn NOK	Green Bond dedicated 100% to blue projects (aquaculture).
2020.07	Bank of Qingdao	China	Loan	150m USD	Blue loan supported by IFC. [First in China]
2020.09	Weihai City Commercial Bank	China	Bond	2bn RMB	Oyster farming, sewage treatment. [First Domestic Chinese Bond]
2020.09	World Bank (IBRD)	Intl.	Bond	200m EUR	Sustainable Development Bond highlighting water/ocean plastic.
2020.01	Industrial Bank (CIB)	China	Bond	450m USD	Issued via Hong Kong branch. Water resources/desalination.
2020.11	Bank of China (BOC)	China	Bond	~940m USD	Dual-currency (USD/CNH) via Macau/Paris branches. [Mega Size]
2020.12	Weihai City Commercial Bank	China	Bond	1bn RMB	Second issuance domestic blue bond.
2021.04	Rizhao Port Group	China	Bond	2bn RMB	Green port infrastructure upgrades.
2021.06	Terna Energy	Greece	Bond	150m EUR	Offshore wind and shipping. [First in Greece]
2021.07	Hainan Provincial Gov.	China	Bond	1.2bn RMB	Offshore Dim Sum bond by local gov. Marine ecosystem restoration.
2021.08	Seaspan Corp	Canada/ HK	Bond	750m USD	Decarbonization of shipping vessels (LNG containment).
2021.09	Asian Development Bank (ADB)	Intl.	Bond	~300m USD	Dual tranche (AUD/NZD). Ocean health in Asia-Pacific.
2021.09	Qingdao Water Group	China	Bond	300m RMB	Seawater desalination projects.
2021.11	Government of Belize	Belize	Swap	364m USD	Supported by TNC. Marine conservation funding. [Debt Conversion]
2022.01	Jiangsu Communications Holding	China	Bond	1bn RMB	Coastal transport infrastructure.
2022.02	Huaxia Bank	China	Bond	~170m USD	Issued via Hong Kong branch. Blue economy support.
2022.04	Government of Bahamas	Bahamas	Guarantee	385m USD	Blue Bond with IDB Guarantee.
2022.05	BDO Unibank	Philippines	Bond	100m USD	Subscribed by IFC (Private Placement). [First in Philippines]
2022.06	China Construction Bank (CCB)	China	Bond	(Undisclosed)	Blue tranche within a larger Green Bond issuance (Euro).
2022.06	KB Kookmin Bank	S.Korea	Bond	500m USD	Blue projects within Sustainability Bond framework.
2022.07	Banco Internacional	Ecuador	Bond	79m USD	Subscribed by IFC. Sustainable fisheries.
2022.08	KEXIM (Korea Eximbank)	S.Korea	Bond	1bn USD	Global Green Bond with "Blue" allocation (Shipbuilding).
2022.09	Government of Barbados	Barbados	Swap	147m USD	Debt-for-Nature Swap (TNC/IDB).
2022.01	Maruha Nichiro	Japan	Bond	5bn JPY	Land-based aquaculture/fisheries. [First Japanese Corporate]
2022.11	Produbanco	Ecuador	Bond	50m USD	Subscribed by IDB Invest.
2022.11	SeABank	Vietnam	Bond	75m USD	Subscribed by IFC. [First in Vietnam]
2022.12	Yantai Marine Development	China	Bond	500m RMB	Marine ranching (aquaculture) infrastructure.
2023.02	Fiji Water Authority	Fiji	Bond	(Small)	Bond issued by national water authority.
2023.05	Republic of Indonesia	Indonesia	Bond	20.7bn JPY	Public offering in Japan. [Blue Samurai Bond]
2023.05	Republic of Ecuador	Ecuador	Swap	656m USD	Galapagos Marine Bond. [Largest Swap]
2023.06	Ørsted	Denmark	P.P.	100m EUR	Offshore wind & marine biodiversity.
2023.06	BRAC Bank	Bangladesh	Loan	50m USD	IFC Loan. Wastewater management. [First in Bangladesh]
2023.06	Bank of Communications	China	Bond	500m USD	Via Hong Kong branch. Shipbuilding/Water treatment.
2023.08	Republic of Gabon	Gabon	Swap	500m USD	Debt-for-Nature swap. [First in Africa]
2023.09	Agricultural Bank of China	China	Bond	300m USD	Via London branch. Pollution control.
2023.01	TMBThanachart (ttb)	Thailand	Bond	50m USD	Subscribed by IFC. [First in Thailand]
2023.11	Banca Transilvania	Romania	Bond	100m EUR	Subscribed by IFC. Black Sea protection.
2023.12	Republic of Cabo Verde	C. Verde	Bond	(Linked)	Sustainability-Linked Bond with Blue KPIs.
2024.01	MOL (Mitsui O.S.K. Lines)	Japan	Bond	20bn JPY	Wind propulsion vessels (Wind Challenger). [First Shipping Co.]
2024.01	GD Power Development	China	Bond	(Large)	Offshore wind power projects.
2024.02	RCBC	Philippines	Bond	100m USD	Second issuance in Philippines.
2024.04	Shenzhen Water Group	China	Bond	1bn RMB	Urban water infrastructure/flood control.
2024.05	East West Bank	Philippines	Loan	(Private)	Blue finance framework with IFC.
2024.06	Zhejiang Seaport Group	China	Bond	2bn RMB	Green/Blue port initiatives (Ningbo Port).
2024.07	San Miguel Global Power	Philippines	Bond	(Partial)	Portion of proceeds allocated to water projects.
2024.09	Fujian Investment & Dev. Group	China	Bond	1bn RMB	Offshore wind power.
2024.01	Tokyo Metropolitan Gov.	Japan	Bond	10bn JPY	"Tokyo Green Blue Bond". Tokyo Bay restoration. [Municipal]
2024.01	Saur Group	France	Bond	550m EUR	Desalination/Water treatment. [First Euro Water Co.]
2024.12	DP World	UAE	Bond	500m USD	Global port operator. Decarbonization/Ocean protection.
2024.12	Ayala Land	Philippines	Bond	(Partial)	Sustainable tourism/resort marine conservation.
2025.01	Republic of Indonesia	Indonesia	Bond	25bn JPY	Second Blue Samurai Bond (Part of larger issuance).
2025.02	BIDV	Vietnam	Bond	100m USD	Bank for Investment and Development of Vietnam.
2025.03	Banco do Brasil	Brazil	Repo	95m USD	New financial structure for water portfolio. [Blue Repo]
2025.05	CABEI	Intl.	Bond	30m EUR	Lake Yojoa conservation (Honduras).
2025.06	CAF (LatAm Dev Bank)	Intl.	Bond	100m EUR	Water security in Latin America.
2025.09	Saur Group (2nd)	France	Bond	500m EUR	Second issuance following 2024 success.

Source: Compiled by the author from publicly available information from the World Bank, IFC, ADB, IDB/IDB Invest, TNC, CBI, and issuer disclosures.

Notes:

m = million; bn = billion. USD equiv = approximate USD equivalent at issuance.

P.P. = Private placement; Repo = Blue repurchase agreement (short-term funding secured by eligible assets).

The transactions listed are representative blue finance deals that have been publicly disclosed; the table is illustrative and not exhaustive.

observed in Ecuador and Gabon. This wide dispersion suggests that the risk–return profile and the degree of additionality of "blue" instruments can differ substantially depending on the combination of issuer attributes and structural design (SYSTEMIQ, 2024; World Bank, 2025a).

From the perspective of use of proceeds and policy intent, a first cluster comprises conservation-oriented cases that aim to secure long-term funding streams for expenditures tied to marine protection and related governance. This includes the Seychelles sovereign blue bond, as well as DFNS-type blue finance implemented in Belize, Ecuador (Galápagos), and Gabon, which is designed to finance expenditures linked to projects such as expanding marine protected areas and diversifying livelihoods in coastal communities (World Bank, 2018a; World Bank, 2018b; TNC, 2021). These schemes exhibit high additionality in that they generate stable, long-term resources that are difficult to secure through national budgets or conventional ODA alone by combining debt operations with explicit conservation commitments. Although the bond issuance component is often modest in size, this cluster can be positioned as emblematic cases that closely reflect the normative image of blue bonds.

A second cluster consists primarily of infrastructure development and business-investment cases. Issuance by Chinese port operators and water utility groups, power-related entities, commercial banks in Korea and the Philippines, and European power companies and water infrastructure firms typically finances activities such as wastewater treatment and water purification facilities, port and logistics infrastructure, renewable energy projects, and the decarbonization of maritime transport (CBI, 2025; SYSTEMIQ, 2024). These transactions may have substantive linkages to oceans and water systems while also serving corporate financing strategies and reputational signaling through environmental labeling. At the same time, because some funded activities may be close in substance to conventional infrastructure investment, careful project-level verification is required to assess the degree of alignment with internationally emerging interpretations of "blue" and to evaluate whether additionality is credible. In this segment, concerns about blue-washing have been raised (UNEP FI, 2020; SYSTEMIQ, 2024).

A third cluster comprises blue use-of-proceeds bonds issued by MDBs and DFIs, including the World Bank, the Asian Development Bank, the Nordic Investment Bank, and regional development banks such as CABEI and CAF. These issuances are characterized by being backed by portfolios of ocean- and water-related projects—such as marine protected area support and coastal ecosystem restoration, improvements in fisheries management, investments in wastewater treatment and water supply infrastructure, and financing for low-carbon vessels and shipping-related decarbonization—while being implemented under frameworks and disclosure standards comparable to those used for green bonds (ADB et al., 2023; IFC, 2022). Through MDBs and DFIs, diverse actors such as fisheries-related entities, local governments, and shipping companies have begun to participate in blue finance, and the diffusion of such participation is also visible in the Figure 5 mapping.

However, the representative cases visualized in Figure 5 constitute only part of blue finance as a whole. In practice, substantial volumes of water-related finance support water sup-

ply and wastewater infrastructure investment without being labeled, including municipal water and sewer bonds and water infrastructure lending by international development finance institutions (OECD, 2023; CBI, 2025). Whether these flows are included within a broad definition of "blue finance" can materially change assessments of market size.

Overall, the blue bond market comprises qualitatively diverse cases, ranging from conservation-oriented schemes with high additionality represented by Seychelles and DFNS-linked transactions, to infrastructure and business-investment projects using blue or water labels, and to unlabeled but water-relevant financing. Accordingly, not only quantitative expansion but also the definition of "better blue bonds" depends increasingly on qualitative dimensions, including the appropriateness and additionality of uses of proceeds, the robustness of governance and disclosure, and the quality of verification practices (SYSTEMIQ, 2024). In the latter part of this paper, we examine these qualitative dimensions and credibility mechanisms in greater detail through comparative case analyses of sovereign, corporate, and MDB/DFI issuers.

4. Design and Reliability Assurance in Key Cases

4-1 Case Study of Sovereign Blue Bonds

The Seychelles sovereign blue bond is characterized by an institutional design that combines credit enhancement from international development institutions with concessional funding. This structure enabled a small island developing state (SIDS) with high dependence on the marine environment to implement marine conservation policies under severe fiscal constraints. The issuance terms and the basic structure of credit enhancement were outlined in Section 3-1. Building on that foundation, this section examines credibility mechanisms in sovereign blue bonds through three lenses: (i) market access and the effective reduction in borrowing costs enabled by credit enhancement; (ii) governance arrangements for allocating proceeds to designated channels and end-users; and (iii) bottlenecks that emerged during implementation and that ultimately determine whether credibility can be sustained beyond the fundraising stage.

(1) Seychelles: Blended-Finance Sovereign Blue Bond

Seychelles is a small island developing state (SIDS) in the western Indian Ocean. While its exclusive economic zone (EEZ) spans approximately 1.3 million square kilometers, its land area is small, and tourism and fisheries constitute the core of its economy and employment (Commonwealth Secretariat, 2018, p. 3). Consequently, changes in the marine ecosystem—such as coral reef degradation, illegal, unreported, and unregulated (IUU) fishing, and climate change-related coastal erosion—have manifested as structural vulnerabilities that directly affect foreign exchange earnings and fiscal balances (Commonwealth Secretariat, 2018). Against this backdrop, since the 2010s the government has advanced marine spatial planning (MSP) and the expansion of marine protected areas (MPAs) as part of its Blue Economy strategy, and introduced a sovereign blue bond in 2018 as a financing mechanism to support implementation

(World Bank, 2018a, 2018b; Commonwealth Secretariat, 2018).

The Seychelles sovereign blue bond, issued in 2018 (hereafter, the Seychelles blue bond), is a USD-denominated sovereign bond totaling about USD 15 million, with a 10-year maturity and a 6.5% coupon; World Bank (2018b) reports that it was placed with investors, including international impact investors (Bandiaky, 2024; Government of Seychelles, 2024). The core of its institutional design lies in a blended-finance structure that combines a partial credit guarantee (PCG) from the International Bank for Reconstruction and Development (IBRD) and concessional financing linked to the Global Environment Facility (GEF) (World Bank, 2018b; Government of Seychelles, 2024). In this structure, the PCG facilitates market access by partially guaranteeing principal repayment and lowering investors' perceived sovereign credit risk, while the concessional component functions as an interest-subsidy element that reduces the government's net funding burden (World Bank, 2018b). The transaction is described as maintaining a nominal coupon of 6.5% while reducing the government's effective interest rate to 2.8% (World Bank, 2018b; Government of Seychelles, 2024). Because the effective burden is determined by the overall package of credit enhancement and public funding inputs—including the IBRD guarantee, the concessional component, and arrangements related to transaction costs—the bond should not be assessed solely on headline issuance terms (World Bank, 2025b; Government of Seychelles, 2024).

In terms of proceeds governance, the Seychelles blue bond adopts a two-tier allocation structure. Proceeds are divided into the Blue Grants Fund (BGF), a grant channel managed by the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT), and the Blue Investment Fund (BIF), a loan channel managed by the Development Bank of Seychelles (DBS) (World Bank, 2018b; Government of Seychelles, 2024). Fund transfers began gradually after issuance, and implementation is reported to have started in 2019 (Bandiaky, 2024). The BGF builds on funding channels originating from the 2015 debt-for-nature swap (DFNS) and expands support for marine conservation and blue economy projects implemented by coastal communities, NGOs, and research institutions by combining those resources with blue bond proceeds (Government of Seychelles, 2024; Bandiaky, 2024). The BIF, in contrast, is designed to promote private investment by providing longer-term financing for sustainable fisheries and aquaculture, fish processing, tourism-related services, and other blue-economy activities, thereby extending the allocation mechanism from grants to loans (Government of Seychelles, 2024).

However, the operational trajectory of the BIF has not been entirely smooth. The Government of Seychelles reports that, as of the end of 2022, only two loans had been approved under the BIF, with a total amount of about Seychelles rupees (SCR) 45.6 million (approximately USD 3.3 million; illustrative conversion based on 2022 exchange rates) (Government of Seychelles, 2024). This suggests that, while establishing a loan channel is institutionally significant, the mechanism's effectiveness ultimately depends on whether viable projects are originated and funds are disbursed at scale.

This proceeds governance design advanced in parallel with MSP formulation and the insti-

tutionalization of MPA designation. The Seychelles government set a target to designate 30% of its EEZ as MPAs and presented a zoning framework for MSP Phase 1 (Smith et al., 2018). The framework defines three zones for the EEZ and territorial waters—Zone 1 (High Biodiversity Protection), Zone 2 (Medium Biodiversity Protection and Sustainable Use), and Zone 3 (Multiple Use)—thereby clarifying boundaries between conservation and use (Smith et al., 2018). According to the SWIOFish3 assessment, 30% of the EEZ was designated as protected areas by 2020, alongside progress in management plans, governance structures, catch data collection, and co-management arrangements (Bandiaky, 2024; World Bank, 2025b). While blue bond proceeds supported protected-area management capacity and community-led projects through SeyCCAT and DBS, implementation challenges were also highlighted, including distributional adjustments affecting fishers, limited administrative capacity, and the need to secure a stable revenue base for the fund (Bandiaky, 2024).

Moreover, the split between grants and loans generated asymmetric outcomes during implementation. For the BIF in particular, Bandiaky (2024) reports that project origination and loan disbursement remained sluggish for much of the project period due to equity contribution requirements, complex application and screening procedures, and delays in administrative processes (e.g., land-lease arrangements). The COVID-19 shock further compounded these frictions, and Bandiaky (2024) characterizes BIF outcomes as limited for much of the period. Conversely, completion-stage documentation indicates that the BIF approved additional projects and made funding commitments (World Bank, 2025b). Taken together, these observations suggest that credit enhancement can facilitate market access at the fundraising stage, but sustained credibility depends on implementation-stage capacity—allocation discipline, pipeline formation, disbursement execution, results measurement, and disclosure (Bandiaky, 2024; World Bank, 2025b).

(2) Belize: Debt-Conversion Blue Finance and Conservation Clauses

The above points can be illustrated more concretely by the case of Belize, where marine conservation commitments are embedded in contractual provisions linked to a sovereign debt operation. Belize's blue finance transaction was structured as a debt-conversion operation targeting an outstanding commercial Eurobond. The Belizean economy, highly dependent on tourism and services, experienced a sharp contraction during the COVID-19 period, and public debt vulnerabilities intensified (IMF, 2022).

A central component of Belize's external debt was the so-called "Superbond," with a face value of about USD 553 million, which traded at a deep discount amid debt-sustainability concerns. Concluding that conventional renegotiation alone would not deliver sufficient relief, the government pursued a scheme that brought together an environmental NGO and development-finance-related risk mitigation.

Within this context, The Nature Conservancy (TNC) collaborated with the Belizean government to structure a "Blue Loan" to finance the repurchase of the Superbonds at a

substantial discount. TNC's subsidiary, Belize Blue Investment Company (BBIC), extended a Blue Loan of about USD 364 million to the government, and the government used these proceeds to redeem the existing Eurobond through a public tender offer at about 55 cents on the dollar (TNC, 2021). The Blue Loan itself was funded in full by blue bonds issued to institutional investors via a special purpose vehicle (SPV) arranged by Credit Suisse, with political risk insurance provided by the U.S. International Development Finance Corporation (DFC); DFC (2021) and TNC (2021) report that the notes were rated Aa2, about 16 notches above Belize's sovereign rating at the time. In effect, the SPV issuance financed the Blue Loan, and the Blue Loan financed the discounted buyback of the Superbonds, while the insurance package reshaped the risk profile perceived by investors (DFC, 2021; TNC, 2021).

Through this debt conversion, Belize refinanced the USD 553 million Superbonds into the USD 364 million Blue Loan, reducing outstanding principal by about USD 189 million (TNC, 2021). The transaction also capitalized an independent Conservation Fund by providing an initial endowment of about USD 23.5 million (TNC, 2021; OECD, 2023). In terms of allocation, TNC explains that roughly USD 301 million of the USD 364 million was used for the Superbonds repurchase, roughly USD 24 million for the Conservation Fund's initial endowment, and the remainder for liquidity reserves, transaction costs, and related uses (TNC, 2021).

TNC estimates that the operation lowered the debt-to-GDP ratio by about 12 percentage points and could reduce debt service by about USD 200 million cumulatively over 20 years (TNC, 2021). IMF Article IV consultation reports acknowledge that the transaction contributed to an improvement in debt sustainability, while also emphasizing that medium- to long-term debt risks remain elevated without continued fiscal reforms and strengthened expenditure management. This suggests that the transaction does not eliminate the structural drivers of debt distress by itself (IMF, 2022).

A distinctive feature of the Belize case is that debt-relief effects are contractually converted into long-term conservation finance flows. Belize signed a 20-year Conservation Funding Agreement that commits the government to redirect part of the fiscal space generated by lower debt service into an independent Conservation Fund through annual contributions in local currency, equivalent on average to about USD 4.2 million (TNC, 2021). Together with the USD 23.5 million endowment provided through the transaction, and assuming a 7% annual return, the endowment alone is projected to grow to over USD 90 million after 20 years (TNC, 2021; OECD, 2023). TNC projects that the combination of government contributions and investment returns could generate on the order of USD 180 million for marine conservation over the 20-year period (TNC, 2021; OECD, 2023).

Conservation commitments include designating 30% of Belize's waters as marine protected areas by 2026 and zoning half of that area as high-protection zones (including no-take areas), with the remainder designated as multi-use areas under a sustainable-use framework. Additional commitments include permanent protection of mangroves within the Belize Barrier Reef Reserve System and the development and implementation of science-based marine spatial planning (MSP) (TNC, 2021). Importantly, these commitments are embedded in contractual

provisions. The agreement includes a penalty mechanism under which failure to meet specified milestones by the relevant deadlines can increase the government's annual contribution to the fund by up to about USD 1.25 million (TNC, 2021). Codifying conservation targets and specifying an explicit fiscal consequence for non-achievement functions as a governance device that strengthens credibility.

From an institutional-architecture perspective, the transaction is also characterized by layered risk mitigation, combining political risk insurance and natural-disaster-related protection. The political risk insurance provided by DFC is designed to isolate sovereign-specific risks and support placement to investors (DFC, 2021; TNC, 2021). In addition, reflecting the country's exposure to hurricanes, parametric insurance is incorporated so that, upon the occurrence of storms above a specified threshold, insurance proceeds are paid out and can be used to support servicing obligations under the scheme (TNC, 2021; OECD, 2023). The distinctiveness of the Belize structure lies in integrating commercial debt refinancing, risk transfer, the creation of an independent conservation fund, and the institutionalization of MSP into a single package.

Both Seychelles and Belize therefore share an approach of embedding marine conservation targets—such as a 30% protected-area commitment—into sovereign-level financing arrangements and seeking transparency and governance through independent funds (Government of Seychelles, 2024; TNC, 2021). At the same time, the mechanisms differ materially. Seychelles is a prototype of blended finance that mobilizes capital through an IBRD guarantee and concessional inputs linked to the GEF. Belize is a prototype of debt conversion that leverages market discounts on an outstanding Eurobond to reduce debt stock and debt service, and converts part of the resulting fiscal space into long-term conservation funding flows (Government of Seychelles, 2024; TNC, 2021).

As indicated by the implementation bottlenecks observed in Seychelles' loan channel and the IMF's continued emphasis on fiscal reforms in Belize, outcomes hinge less on labels or structures themselves than on institutional foundations such as administrative capacity, legal frameworks, and stakeholder coordination mechanisms (Bandiaky, 2024; IMF, 2022). Sovereign blue bonds should therefore be treated not as universally scalable templates but as policy options whose applicability and limits must be assessed in light of each country's fiscal conditions and governance capacity.

In what follows, using this sovereign case as a reference point, we compare it with corporate and MDB/DFI-issued blue bonds.

4-2 Structure and KPIs of Corporate Blue Bonds

This section examines the structure and KPI (and impact metric) design of corporate blue bonds through four case studies: Maruha Nichiro, Kurita Water Industries, Mitsui O.S.K. Lines (MOL), and Ørsted. These issuers span fisheries/aquaculture, water-related services, shipping, and offshore renewable energy. The comparison highlights how sector characteristics shape the definition of eligible expenditures and the selection of metrics used to substantiate

"blue" outcomes.

Unlike sovereign blue bonds—where credibility may be reinforced by public governance arrangements and, in some cases, credit enhancement—corporate blue bonds rely more directly on the internal discipline of the issuer's framework: a clear project boundary for eligible expenditures, a defensible approach to "blue eligibility," and ex post reporting that allows investors to verify allocation and outcomes. In corporate issuance, credibility is thus supported not only by the issuer's credit standing but also by the quality of disclosure, the measurability of metrics, and the practical effectiveness of external reviews.

Corporate blue bonds are typically structured as UoP bonds aligned with ICMA's Green Bond Principles (and, where relevant, the Green Loan Principles). Within that procedural architecture, issuers operationalize "blue eligibility" by referencing international guidance on water- and ocean-related activities, such as the IFC guidelines and the practitioner guidance prepared by ADB et al. (2023), and by explaining how sector-specific categories and exclusions are applied to their own capital expenditures and projects. External reviews (e.g., second-party opinions and thematic evaluations) then function as a market-based credibility device, assessing the coherence of the framework and the plausibility of allocation and reporting commitments.

Maruha Nichiro (fisheries/aquaculture). Maruha Nichiro's first unsecured corporate bond labeled as a blue bond represents an early corporate case in Japan. The bond was issued on 2 November 2022 in the amount of JPY 5 billion, with a 0.55% annual coupon and a five-year maturity (2 November 2027). Proceeds were earmarked for environmentally sustainable fishing and aquaculture-related purposes. The issuer's framework and disclosure architecture articulate (i) the eligible categories, (ii) procedures for project selection, (iii) management of proceeds, and (iv) allocation and impact reporting, supported by an external review. This case illustrates a "core corporate" pattern in which credibility rests on a transparent mapping between eligible expenditures and water/ocean-related outcomes, together with reporting commitments that allow investors to assess the integrity of the label.

Kurita Water Industries (water-related services and industrial water). In the water-related sector, Kurita's blue-labeled issuance provides a contrasting profile in which eligible expenditures are defined in relation to water treatment and supply functions associated with industrial activity. Public issuance information indicates a five-year labeled bond of JPY 10 billion, for which the terms were determined in August 2025 and settlement took place on September 4, 2025. The coupon was set at 1.466%, and proceeds were allocated to capital investment related to an ultrapure-water business. In this sector, the credibility logic tends to depend on whether the issuer can specify measurable, auditable indicators that connect investment (capacity, treatment process, reuse, efficiency) to environmental outcomes in water stewardship and the reduction of burdens associated with water intake and discharge.

Mitsui O.S.K. Lines (shipping and offshore-related activities). In shipping, MOL's corporate bond information identifies its Straight Bond No.26 as a blue bond, issued on 25 January 2024 in the amount of JPY 20.0 billion, with a 0.639% annual coupon and a five-year tenor. As a sector, shipping and adjacent offshore activities raise an important boundary-setting chal-

lenge: many investments may be environmentally relevant while still being close to conventional fleet or logistics investment. The credibility of a corporate blue bond in this domain therefore depends on the issuer's ability to define eligible categories narrowly and to report metrics that plausibly track outcomes—such as the deployment of vessels and equipment linked to offshore wind services, the adoption of lower-carbon or alternative-fuel vessels, and measures addressing marine pollution.

Ørsted (offshore renewable energy and biodiversity). Ørsted issued a five-year EUR 100 million blue bond via private placement in June 2023, positioning it as the first blue bond by an energy company and linking the proceeds to offshore biodiversity-related initiatives. This case highlights a different "credibility pathway": rather than water treatment or fisheries management, the issuer frames blue outcomes via nature-related interventions in marine and coastal ecosystems, thereby bringing biodiversity metrics and restoration-related reporting closer to the center of the disclosure strategy.

Cross-case implications for KPI and impact reporting. Across these corporate cases, the common structural elements are: (i) a UoP framework aligned with ICMA's procedural architecture; (ii) an explicit articulation of "blue eligibility" through sector-relevant categories and exclusions; and (iii) reliance on external reviews as a practical credibility mechanism. At the same time, the KPI and metric design necessarily varies with sector characteristics. Fisheries/aquaculture emphasizes resource and production systems and their sustainability constraints; water-related services emphasize volumes, efficiency, and treatment outcomes; shipping/offshore emphasizes project boundaries and the environmental attributes of targeted assets and operations; and biodiversity-oriented offshore initiatives emphasize restoration and nature-related outcomes.

A persistent challenge is that many marine and water outcomes are harder to measure and verify than typical land-based climate indicators, and data continuity is often limited. This makes it difficult to rely solely on short-horizon KPIs and increases the importance of (a) explicit project boundary setting, (b) disclosure of measurement assumptions, baselines, and methodologies, and (c) verification arrangements that allow investors to assess whether reported outcomes are commensurate with the "blue" label. In this sense, corporate blue bonds can be understood as substituting public governance mechanisms with a combination of disclosure discipline, metric design, and external reviews as the core credibility infrastructure.

4-3 Disclosure, External Review, and Pricing in Multilateral Development Bank and Corporate Blue Bond Issuances

The blue bond market has expanded beyond sovereign issuers to include issuances by MDBs and corporate entities/financial institutions. While credit enhancement and public governance were positioned as the core of credibility in the sovereign cases examined in Section 4-1, framework design, KPIs, external review, and information disclosure emerge as functional substitutes in the corporate cases examined in Section 4-2. Given the significant differences in issuers' creditworthiness, disclosure capabilities, and the nature of fund use, the structure of

market assessment through disclosure, external review, and pricing is not uniform. Figure 6 summarizes differences in reliability assurance mechanisms by issuer type (ADB et al., 2023; IFC, 2022; UNEP FI, 2018, 2021).

Blue bonds issued by MDBs are among the areas that were institutionalized earliest in the labeled bond market, backed by high ratings and public mandates. The NIB, ADB, World Bank Group, and others have positioned blue bonds as an extension of their existing green bond issuance practices and have established processes for fund management, disclosure, and reporting as UoP bonds (ICMA, 2025a; ADB et al., 2023). These issuers tend to report on fund allocation and performance indicators through annual impact reports and other channels, presenting quantitative indicators to the extent possible in areas such as reducing marine pollution, improving water quality, and decarbonizing ports and shipping. This systematic disclosure transplants the standardization framework developed in the green bond market to the blue sector, enhancing comparability and traceability for investors (ICMA, 2025a; ADB et al., 2023).

Regarding external review, MDBs often adopt a two-tier structure that combines a sec-

Figure 6. Differences in Credibility Foundations, Disclosure, External Review, and Pricing across Blue Bond Issuer Types

Issuer Type	Main Foundations of Credibility	Disclosure	External Review	Pricing
Multilateral Development Banks (MDBs)	• High credit quality (often AAA/AA-range) and public mandates • Institutionalized environmental and social safeguard systems • Long track record in sustainable finance and strong data-collection capacity	• Standardized annual impact reports • Time-series disclosure of ocean-related indicators (e.g., protected areas, beneficiaries) • High comparability with existing green bond reporting	• Combination of Second-Party Opinions (SPOs) and internal environmental and social safeguard reviews • Eligibility assessed against taxonomies and internal safeguard policies • Relatively low risk of blue-washing	• Spreads typically close to those of conventional MDB bonds • Pricing driven mainly by issuer credit quality and market conditions • Blue label primarily broadens ESG-oriented investor demand rather than generating a distinct premium
Corporates / Financial Institutions	• Consistency between core business activities and ocean- or water-related projects • Demonstration of additionality and credibility of blue projects • Corporate governance and coherence with sustainability strategy	• Project-by-project disclosure with heterogeneous indicators and boundary definitions • Continued reliance on qualitative descriptions in some cases • Limited comparability and verifiability of KPIs	• SPOs function as the main disciplining mechanism • Blue eligibility often depends on reviewer judgment and data availability • Differences in review quality can directly affect investor assessment	• Spreads largely determined by issuer credit risk, sector, size, and liquidity • Evidence of a distinct "blue premium" or "discount" is mixed and statistically weak • The label can nevertheless help attract ESG- and impact-oriented investors

Source: Author's compilation based on ADB et al. (2023), IFC (2022), UNEP FI (2018, 2022), and publicly available blue bond issuer reports.

Note: This figure provides a stylized comparison of blue bond issuance structures across issuer types. Observed pricing effects associated with the blue label are generally indirect and context-dependent, reflecting investor composition and demand dynamics rather than a systematic reduction in funding costs.

ond-party opinion (SPO) with an internal review by their environmental and social safeguards departments. The SPO verifies whether the use of funds is appropriate in light of blue eligibility, while the internal review confirms consistency with existing environmental and social policies and the appropriateness of risk management. As a result, MDB-issued blue bonds tend to maintain a high level of label reliability, thanks to a combination of the issuer's creditworthiness and the rigor of procedures (ADB et al., 2023; UNEP FI, 2021). In particular, since the blue domain includes fields where natural-science data and indicator systems are less established than in the green domain, the multilayered nature of internal safeguards and external reviews tends to function as an institutional mechanism that underpins verifiability from investors' perspectives (IFC, 2022; UNEP FI, 2021).

From a pricing perspective, MDB blue bonds are often categorized as not consistently exhibiting a label-driven yield advantage (i.e., systematically lower spreads) compared to conventional bonds or green bonds from the same issuer. This is because issuers with high ratings and liquidity already have strong investor demand, and macro market conditions and interest rate expectations have a greater impact on yields than the presence or absence of a label. On the other hand, the presence of investors with marine-themed investment policies has been pointed out as having the potential to expand the issuer's investor base and thus affect issuance conditions for some bonds from a supply–demand perspective. Thus, the MDB model is positioned as a "procedural strength" model of credibility formation that leverages existing label-market infrastructure to expand funding allocation to blue uses, rather than mechanically lowering funding costs through the blue label (ADB et al., 2023; UNEP FI, 2021).

In contrast, when blue bonds are issued by operating companies or financial institutions, the actual use of funds and the quality of disclosure have a relatively greater impact on label credibility. Issuers in sectors such as shipping and ports, water and sanitation, fisheries and aquaculture, and beverages and food have business portfolios closely related to oceans and freshwater. However, there is considerable variation in the extent to which they can quantitatively demonstrate the physical boundaries of individual projects and the causal relationship between investment/financing and environmental effects. In particular, the impacts on biodiversity and natural capital can be more difficult to assess for blue-bond eligibility than for green-bond eligibility, due to the complexity of impact pathways and the difficulty of comparison across time (IFC, 2022; UNEP FI, 2021). As seen in Section 4-2, corporate projects place importance on explaining outcomes through KPIs, but KPIs in the marine and water sectors face significant constraints in measurability and continuous data acquisition, making ex post verification difficult (ADB et al., 2023; IFC, 2022).

External review plays a role in compensating for this information asymmetry. For blue bonds issued by companies and financial institutions, SPOs often function as a practical entry requirement, defining the scope of eligible uses of funds for a "blue" label and delineating activities that should be excluded. Review bodies assess frameworks based on criteria such as the strength of the link to oceans, the presence of additionality, alignment with UNEP FI principles and exclusion criteria, and responses to climate- and nature-related risks. They may

attach conditions or reservations to their eligibility determinations. When companies seek to enhance their reputation or broaden their investor base through blue bonds, the external review process itself acts as a guardrail to deter blue-washing (UNEP FI, 2018; ADB et al., 2023; ICMA, 2025b).

Regarding pricing, even for blue bonds issued by companies and financial institutions, spreads are often primarily explained by the issuer's creditworthiness, the presence or absence of collateral/guarantees, and issuance currency and market liquidity. It is difficult to assert that the presence of a blue label alone leads to a significant spread-reduction effect. On the other hand, it is noted that in sectors closely tied to the ocean, such as water-related infrastructure and ports/shipping, demand from thematic and impact investors is strong, potentially enabling tight pricing through supply–demand dynamics. However, this is less an effect of the label itself and more the result of a complex interplay of project-specific factors —such as credit profile, investment narrative, and market conditions—making it difficult to draw a simple causal relationship such as *"blue equals cheaper financing"* (ADB et al., 2023; UNEP FI, 2021).

Considering the above, while both MDB and corporate/financial institution blue bonds rely on procedural frameworks based on GBP/GLP, they have structurally different foundations supporting credibility. For MDBs, positioning blue uses atop inherently high creditworthiness and established safeguard systems means that the combination of "creditworthiness × procedural rigor" itself underpins label credibility. In contrast, corporate and financial institution issuances, where the issuer's creditworthiness is relatively limited, rely more heavily on substantive criteria: whether the use of funds truly qualifies as blue, what exclusion criteria are applied, and how measurable and verifiable impact metrics are. In essence, the former model relies fundamentally on "institutional trust" and "procedural rigor," while the latter relies on "substantive criteria" and "external review" (ADB et al., 2023; IFC, 2022; UNEP FI, 2018, 2021).

Common to both is that in marine, coastal, and freshwater sectors, ecosystem data remain scarce compared to land-based climate-related projects, making the measurability of environmental and social effects a persistent structural constraint. Even with advancements in impact reporting and refinements in activity classifications (taxonomies), substantial uncertainty in underlying natural-science knowledge limits investors' ability to verify the substance of blue labels. In this sense, analyzing the market valuation of blue bonds is not merely about confirming the presence or absence of a label effect; it is also an exercise in examining what kind of disclosure, review, and indicator design can compensate for reliability under data constraints (IFC, 2022; UNEP FI, 2021; ICMA, 2025b).

The discussion in this section suggests research topics concerning market formation and institutional establishment for blue bonds. These include the extent to which disclosure quality and external review are reflected in investor composition and supply–demand dynamics; how ocean-specific data constraints are incorporated into markets as limitations on impact assessment; and what differences in market segmentation arise among issuers due to variations in reliability assurance mechanisms. Analysis of issuance data and key cases provides exploratory

verification for these issues and is expected to contribute to concretizing the "economics of credibility" for the institutional maturation of blue bonds.

5. Conclusion and Institutional Implications

This paper examines the structural characteristics and challenges of the blue bond market, focusing on differences in institutional design, issuer attributes, and reliability assurance mechanisms. Specifically, by comparing the Seychelles sovereign blue bond, corporate blue bonds, and issuances by MDBs, it has clarified that blue bonds are not a single financial product but diverse institutional constructs with differing reliability foundations depending on the issuer.

Analysis confirmed that for sovereign blue bonds, three core elements underpin market trust: the state's articulation of policy objectives, credit enhancement by international development institutions, and a public governance framework. Particularly, as seen in the case of SIDS, blue bonds function as a means for fiscally constrained countries to implement marine and coastal resource conservation policies, often in conjunction with blended finance. In this respect, sovereign blue bonds possess the character of an institutional mechanism connecting market-based finance with international development policy.

In contrast, for corporate blue bonds, it was shown that the consistency between the issuer's business portfolio and the use of funds, as well as the design of KPIs and impact indicators, play a central role in ensuring credibility. Since corporate issuers generally cannot rely on credit enhancement by international development institutions, it is necessary to explain the legitimacy of the label to the market through clarifying the issuer's blue bond framework, obtaining external reviews, and continuous information disclosure. However, in the marine and water sectors, there are significant data constraints regarding biodiversity and natural capital, and there are structural limitations to the measurability and verifiability of KPIs. This suggests that corporate blue bonds involve greater uncertainty in impact assessment compared to green bonds.

Furthermore, blue bonds issued by MDBs are typically backed by high creditworthiness and established environmental and social safeguard systems, which positions MDBs as among the most institutionalized issuer types in the blue bond market. In MDB projects, the procedural framework developed in the green bond market has been transplanted to the blue sector, ensuring high comparability and traceability through standardized disclosure and external review. On the other hand, in terms of pricing, it is difficult to say that blue labels have clearly reduced funding costs. Rather, the effects of labels appear in indirect aspects, such as the expansion of the investor base and the promotion of thematic investment.

The above analysis shows that credibility in the blue bond market is not uniformly guaranteed by a single standard or indicator, but is built on a combination of multiple factors, such as "creditworthiness," "institutional design," "substantive standards," and "external review." For sovereign projects, "public governance and international institution involvement"; for MDB

projects, "creditworthiness and procedural rigor"; and for corporate projects, "project alignment and external review" form the foundation of credibility, each carrying different weight.

Key future challenges include, first, refining impact indicators and establishing robust data foundations in the marine, coastal, and freshwater sectors. Clarifying the extent to which quantitative assessment is feasible—and where qualitative explanations become necessary—in areas with significant scientific uncertainty is essential for curbing blue-washing and enhancing market reliability. Second, comparative analysis of the role and quality of external reviews is needed to verify how reviews substantively influence investment decisions and pricing.

Blue bonds can be positioned not merely as a type of labeled bond, but as an institutional experiment connecting policy goals, corporate strategies, and financial markets around the conservation and sustainable use of marine resources. This paper's analysis attempts to reframe the blue bond market from the perspective of the "economics of credibility," providing a foundational framework for future empirical analysis and discussions on institutional design.

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(要旨)

サステナブルファイナンスは，気候変動分野にとどまらず，近年では海洋・水域関連分野へと射程を拡大しており，その中でブルーボンドが注目を集めている。ブルーボンドは持続可能なブルー経済に向けた資本動員手段として期待される一方，グリーンボンドと比べると，制度

的・市場的基盤はいまだ十分に確立されていない。本稿は，ブルーボンドを対象に，適格性基準，情報開示，KPI 設計，外部レビューといった信頼性確保メカニズムに着目し，市場形成の特徴と課題を整理し，日本やアジア太平洋地域における展開可能性を検討した。

まず，ブルーボンドを資金使途特定型（UoP）債券として位置づけ，国際的なガイダンスがどのように「ブルー適格性」をセクター別基準や除外基準として具体化しているかを整理した。次に，発行主体別の比較として，公的ガバナンスと市場資金を結びつけるブレンド・ファイナンス型のセーシェルのソブリン・ブルーボンド，標準化された開示とセーフガード体制を有する多国間開発銀行（MDB）によるブルーボンド，および水産・養殖，水処理，海運，洋上再生可能エネルギー分野における企業ブルーボンドを分析した。

分析の結果，海洋・水域分野特有のデータ制約，KPI や開示の比較可能性の低さ，およびブルーウォッシング抑止における外部レビューへの実務的依存が，市場形成上の主要な課題であることが明らかとなった。最後に，日本およびアジアにおけるブルーボンド市場の発展に向けて，適格性解釈の一貫性，信頼性の高い開示・検証枠組み，および政策的支援の重要性を論じた。