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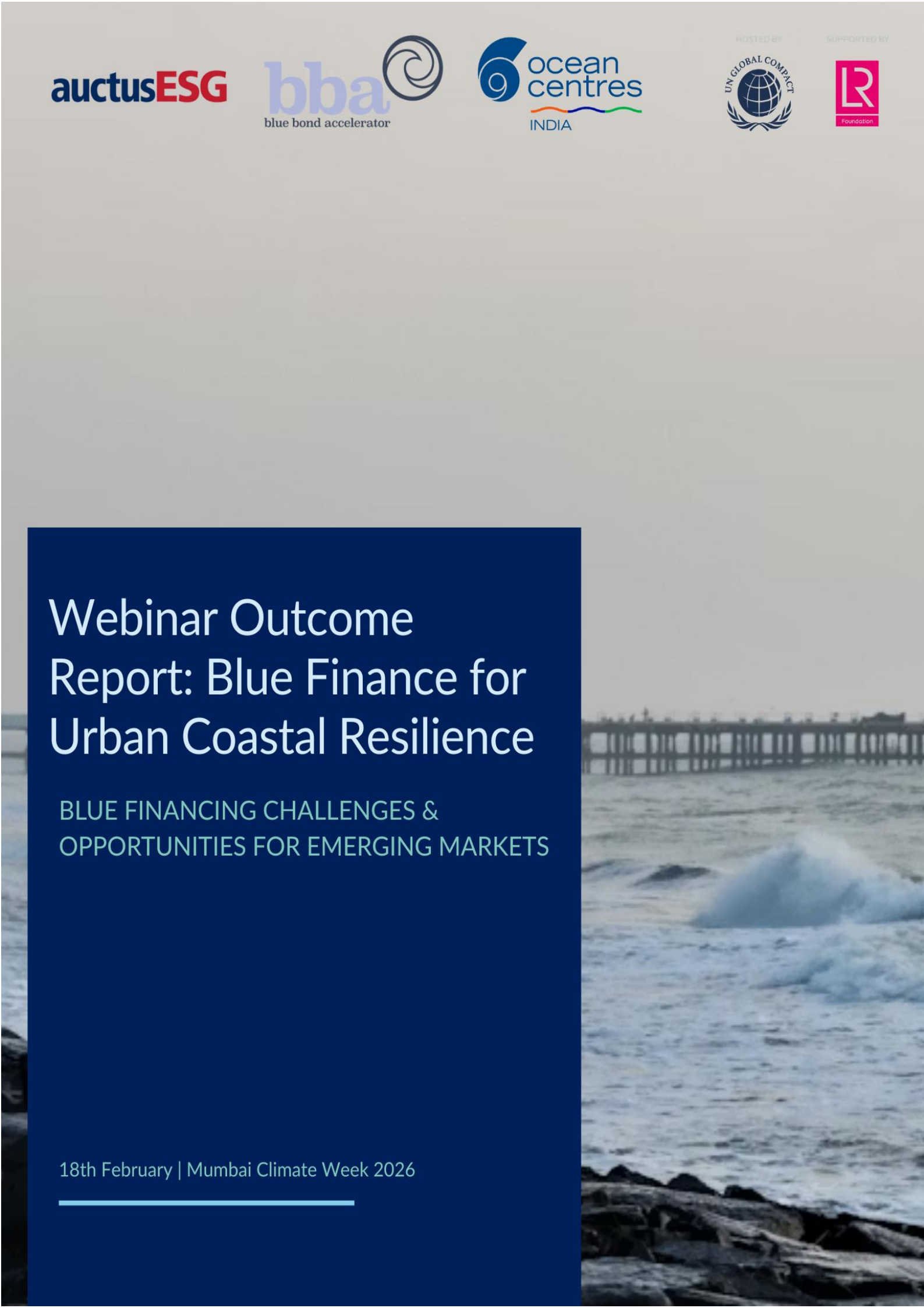
Webinar Outcome Report: Blue Finance for Urban Coastal Resilience

BLUE FINANCING CHALLENGES & OPPORTUNITIES FOR EMERGING MARKETS

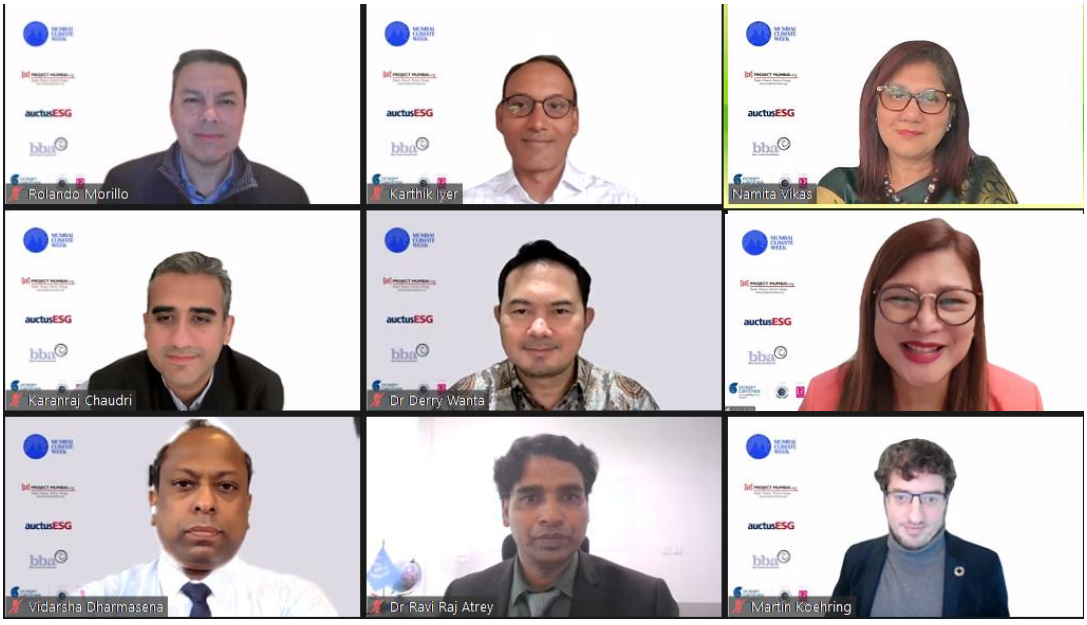
18th February | Mumbai Climate Week 2026



Blue financing for urban coastal resilience: Investing in flood-ready, climate-secure cities

Coastal cities and settlements are at the frontline of action to adapt to climate change, mitigate GHG emissions and chart climate resilient development pathways. About 15% of the global population lives within 10km of the coast, making coastal areas increasingly exposed to climate risks. Under a business-as-usual emissions scenario, a 1-meter sea level rise by 2100 could displace over 180 million people, forcing inland migration and disrupting coastal ecosystems.

As a result of the increasing incidences of climate hazards, physical climate shocks are translating into higher default risks, deteriorating collateral values, and rising NPAs for financial institutions. Baseline flood damages are projected at US $1 trillion by 2050 if climate impacts such as sea-level rise are not addressed through resilient infrastructure. Coastal resilience is therefore emerging as a core fiscal and financial stability issue.



Panel speakers (from left to right): *Mr Rolando Morillo (Equilibrium Climate Capital), Mr Karthik Iyer (Blue Bond Accelerator), Ms Namita Vikas (auctusESG), Mr. Karanraj Chaudri (UNDP), Dr Derry Wanta (Indonesia Blue Economy Centre), Ms Jo Ann B. Eala (Bank of Philippine Islands), Mr Hettihewage Vidarsha Dharmasena (DFCC Bank), Mr Ravi Raj Atrey (Ocean Centres, UNGC) and Mr Martin Koehring (Global Ocean and Sustainable Finance Expert)*

Against this backdrop, auctusESG, the Blue Bond Accelerator and the Ocean Centres India (hosted by the United Nations Global Compact and supported by the Lloyd's Register Foundation), jointly co-hosted a webinar on 'Blue financing for urban coastal resilience: Investing in flood ready, climate-secure cities' under the aegis of the Mumbai Climate Week in February 2026. The inaugural Mumbai Climate Week represented a significant moment for climate finance dialogue in South Asia, signalling India's intent to position itself as an active participant in the global climate transition agenda. With the intent to move beyond policy commitments and convene actionable investment conversations at the sub-national level, the week offered an opportunity to spotlight blue finance.

This panel brought together diverse speakers from multilateral and development finance organisations such as UNDP India, commercial banks such as DFCC Bank, blue infrastructure developers such as the Indonesia Blue Economy Centre, and investors such as Equilibrium Climate Capital. The session also featured keynote and special addresses, therefore covering perspectives from across ocean-dependent geographies across South and Southeast Asia, examining pathways for financing urban coastal resilience.

This paper encompasses the substance of these discussions, drawing on the expertise of the assembled practitioners to contribute to the broader global conversation around blue financing with particular attention to the conditions, constraints and opportunities shaping the emerging market landscape.

Background

Climate disasters can impose severe fiscal shocks. For instance, Hurricane Maria caused destruction in Dominica amounting to roughly 226% of GDP in 2017, forcing the country to borrow heavily for reconstruction and pushing it into an unsustainable "debt-disaster-debt" cycle. As climate hazards increase, nature-related shocks are increasingly propagating through credit markets, insurance systems, and sovereign balance sheets, exposing banks, insurers, and investors to risks that remain underpriced in traditional financial models.

These risks are particularly significant given the economic importance of coastal regions and the blue economy. The global blue economy is valued at US $2.5 trillion annually and contributes roughly 5% to global GDP. Blue economy industries such as fisheries, maritime transport and coastal tourism supported approximately 13 million full-time jobs in 2010, around 1% of the global workforce (and about 1.5% of the global workforce actively employed).

Coastal regions are also major economic hubs. For example, the Jakarta Metropolitan Area contributes 16.6% to Indonesia's GDP, while the Mumbai Metropolitan Region contributes 6% to India's GDP. Strengthening resilience in these regions also presents strong economic returns as every US $1 invested in key ocean actions could generate at least US $5 in global benefits by 2050. However, despite this growing recognition of the economic and financial importance of coastal resilience, significant barriers continue to limit the scaling of blue finance, leaving a projected market potential of up to US $15 trillion if fully mobilised.

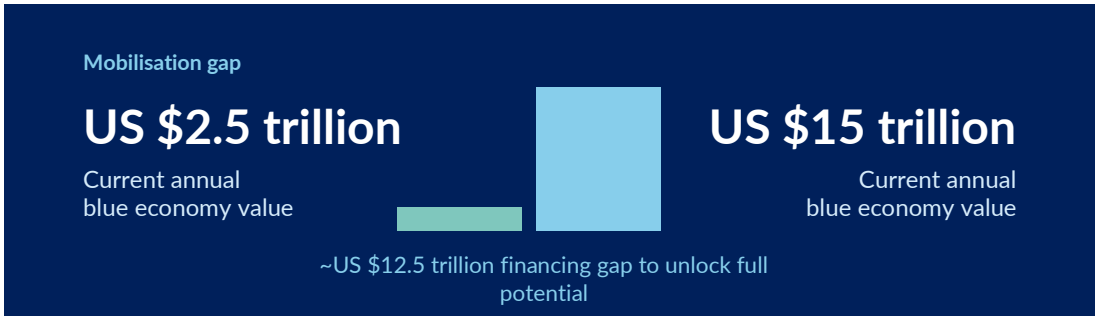


Fig 1- Mobilisation gap of blue climate finance

Structural barriers to scaling blue finance for coastal resilience

The webinar highlighted several barriers that currently limit the scale of blue finance for coastal resilience. Discussions focused on how climate risks affecting coastal economies translate into financial system exposure, and why existing financing mechanisms struggle to address the long-term and public-good nature of resilience investments. This section summarises the key insights from the discussion, including challenges around risk pricing, institutional coordination, and the need for innovative financial structures to mobilise private capital for coastal resilience at scale.

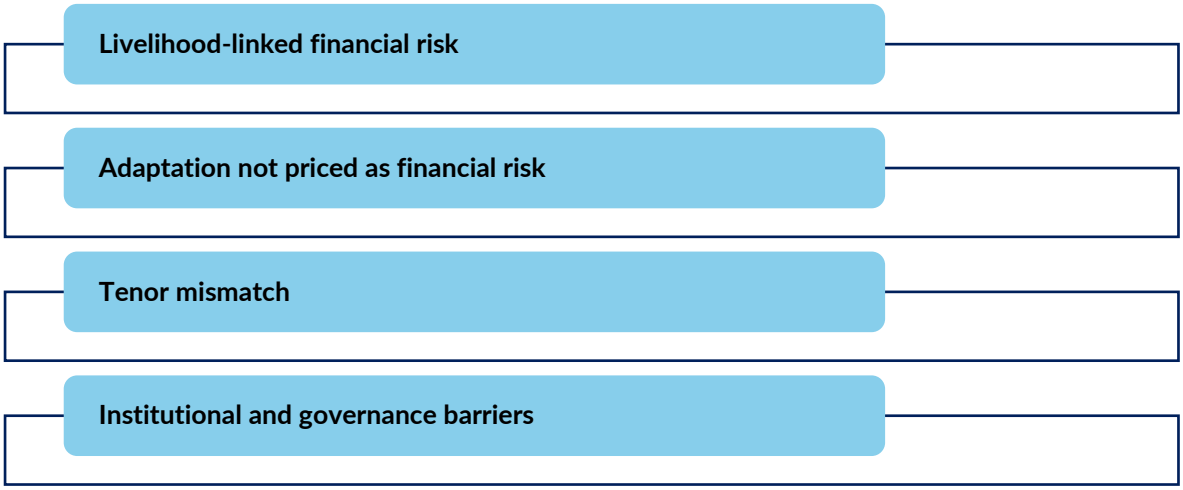


Fig 2- Challenges associated with blue economy financing

Livelihood-linked financial risk challenge

Coastal economies present a financing challenge as a substantial share of economic activity remains highly exposed to climate risks while being closely integrated with local credit and financial systems. Fisherfolk, MSMEs, and low-income households often operate in storm- and flood-prone zones because proximity to the sea underpins their livelihoods. As a result, climate shocks translate into livelihood shocks, leading to income volatility, asset losses, and repayment stress, increasing credit and insurance risks for banks, MFIs, and investors exposed to coastal sectors.

Events such as Typhoon Haiyan in the Philippines in 2013, which caused around 7000 deaths, injured 27000 people and displaced 4.1 million individuals, show how disasters can severely disrupt coastal economic systems. Yet many communities return to the same locations due to livelihood dependence on coastal ecosystems, creating persistent exposure within financial portfolios linked to fisheries, tourism, and coastal MSMEs. This highlights the need for resilient infrastructure and nature-based solutions such as mangroves and coastal wetlands to reduce physical risks and stabilise local economic activity.

Adaptation not priced as financial risk

A key barrier to blue finance is that climate volatility is rarely translated into balance sheet exposure. Adaptation investments often generate avoided losses rather than direct revenue, making them harder for investors to price using traditional financial models. Flood protection systems can safeguard ports, tourism assets, and coastal businesses, yet these risk reductions are rarely quantified in financial practice. Similarly, in coastal wetlands and reef systems, the resulting avoided damages are seldom reflected in financial terms for investors.

Ecosystems function not only as environmental assets but also as protective infrastructure. Mangroves alone prevent more than US $65 billion in flood damages annually and reduce flood risk for over 15 million people, largely in densely populated low-elevation coastal zones. Scaling these solutions around coastal cities protects vulnerable communities, while sustaining the blue-economy value chains. Alternative instruments have also displayed potential in this realm.

Many blue economy investments therefore continue to be perceived as high-risk propositions with uncertain returns. Projects linked to coastal resilience, ecosystem restoration or nature-based infrastructure generate indirect benefits through avoided losses and ecosystem services, which are not easily captured within conventional financial models.

Tenor mismatch

Tenor mismatch between the ecological cycles of coastal resilience interventions and the shorter maturities typical of commercial debt is a significant challenge. The biological cycle of ecosystems (e.g., 5-10 years for mangroves) does not align with shorter-term financing availability (often around 5 years). This mismatch reinforces the perception of blue resilience assets as low liquidity and long gestation investments. The development of innovative loan structuring mechanisms that enable longer gestation periods therefore become critical. There is a need for patient capital and structures that explicitly bridge the ecological and financial time horizons. Rolling tenor facilities whose maturities extend as performance milestones are achieved could offer a potential solution.

Institutional and governance barriers

Institutional fragmentation has emerged as a major barrier to scale blue finance for urban coastal resilience. Critical responsibilities of spatial planning, shoreline regulation, disaster risk reduction and marine resource management are often distributed across multiple ministries and tiers of government at the national, state and local levels. This fragmented structure leads to policy incoherence and implementation gaps which impede developmental goals.

At the subnational level, cities and urban local bodies (ULBs) face additional constraints. Coastal resilience investments frequently fall across jurisdictional boundaries, while municipalities typically have limited technical capacity, constrained fiscal autonomy, and weak credit profiles. These limitations restrict their ability to structure bankable projects or access capital markets. The absence of clear project ownership and coordinated planning frameworks further complicates the aggregation of projects at a scale attractive to private investors.

There is a notable absence of cohesive coastal infrastructure financing roadmaps and taxonomies which creates implementation bottlenecks. Where such frameworks do exist, they remain limited and fragmented. For instance, the EU Taxonomy for Sustainable Activities includes criteria for marine ecosystem protection and climate adaptation, while the ASEAN Taxonomy for Sustainable Finance has begun incorporating ocean-related activities under environmental objectives. However, these initiatives remain evolving, and few explicitly address the financing needs of urban coastal infrastructure, leaving cities without clear guidance on project classification, eligibility standards, and investment pipelines.

	EU taxonomy *Published · 2020*	ASEAN taxonomy *Version 2 · 2023*	India blue economy policy *Draft · MoES*	Singapore-Asia taxonomy *Published · Dec 2023*
Definition of blue assets	No standalone blue category. Ocean and marine activities embedded under Objective 4 — sustainable use and protection of water and marine resources.	Ocean activities included under biodiversity and ecosystem conservation. No dedicated blue classification; sector coverage is voluntary.	Blue economy sectors identified in draft policy (fisheries, marine logistics, offshore energy). No formal asset-level eligibility criteria published.	Coastal and marine activities classified under climate adaptation. Traffic light system (green/amber) applied to eligible coastal activities.
Key eligible activities	Sustainable fisheries and aquaculture; marine ecosystem restoration; ports and maritime transport; coastal flood defence.	Sustainable fisheries; mangrove conservation; marine protected areas; coastal ecosystem restoration and blue carbon.	Sustainable fisheries; marine logistics and shipping; offshore renewable energy; coastal tourism; deep-sea mining.	Coastal protection infrastructure; mangrove and wetland restoration; sustainable aquaculture; marine ecosystem services.
Coastal resilience coverage	Included under climate adaptation objective. Coastal infrastructure eligible but not explicitly defined in technical screening criteria.	Ecosystem-based adaptation partially included. Urban coastal infrastructure and municipal-level investments not explicitly addressed.	Not covered. Climate adaptation and coastal resilience financing are absent from the current draft policy framework.	Explicitly included. Coastal protection and nature-based solutions classified as green activities under the adaptation objective.
Primary limitation	No standalone blue classification. Urban coastal resilience lacks dedicated technical screening criteria within the framework.	Urban coastal infrastructure and municipal blue finance not addressed. Voluntary uptake limits practical market signalling impact.	No MRV framework, no asset classification standards, no linkage to capital markets or investable project pipelines.	Technical screening criteria for urban blue infrastructure remain underdeveloped. Regional applicability across ASEAN varies.

Fig 3- Taxonomy fragmentation worldwide

Additionally, there is a significant overlap between green and blue finance, with many instruments currently labelled as "green" already financing ocean- and coastal-related activities without being explicitly recognised as such. This lack of clear distinction further obscures the true scale of blue finance and limits its visibility within existing investment frameworks.

Fragmented project pipelines remain another key barrier. Many coastal resilience initiatives are small-scale and dispersed lacking aggregation mechanisms capable of achieving scale is a key barrier. Sub-national states or cities, which often lead coastal resilience investments, typically have limited creditworthiness and constrained access to capital markets, restricting their ability to mobilise long-term finance. Further, the absence of widely accepted classification frameworks continues to create uncertainty around eligibility, measurement and reporting standards. Investors often struggle to quantify the full range of resilience benefits and clear risk-adjusted returns of such projects using conventional investment metrics.

Addressing these barriers is therefore essential to transition blue finance from a niche thematic segment into a scalable and investable asset class within global sustainable finance markets.

Market preconditions and solutions

This section outlines the key market preconditions required to scale blue finance for urban coastal resilience.

Beyond financial innovation

Traditional climate finance instruments like blue bonds, green bonds, conservation bonds, sustainability linked bonds, resilience bonds etc., need to be operationalised for the investors through clear regulatory frameworks, credible project pipelines, and effective risk mitigation mechanisms to participate at scale. Equally, scaling blue finance will require moving beyond

bond markets to include fit-for-purpose instruments such as sustainability-linked loans, blended finance facilities, and outcome-based financing structures that are better aligned with the risk-return profile of coastal resilience assets. Strengthening these enabling conditions can help reduce perceived risks, improve investor confidence, and mobilise both public and private capital into coastal resilience investments.

Regulatory clarity and market signalling

Clear taxonomies and blue finance frameworks as prerequisites for investor readiness

Clear regulations and guidelines are necessary pre-requisites for investment in the blue sector, as public sector alignment can significantly improve investor readiness. Policy alignment would include the formal recognition of blue sectors in taxonomies and their integration into mainstream capital financing pathways. In India, the Ministry of Earth Sciences (MoES) has rolled out the draft Blue Economy Policy, identifying eligible sectors such as sustainable fisheries, marine logistics, offshore energy, and coastal and deep-sea mining. However, key gaps remain in translating these high-level sector definitions into detailed asset-level eligibility criteria, bankable project pipelines, and standardised monitoring, reporting and verification (MRV) frameworks tailored to coastal infrastructure and resilience projects.

A necessary step would be the development of clear eligibility criteria and asset classification standards with adequate performance indicators and MRV systems. Embedding digital MRV systems, potentially delivered by independent data providers into transaction structures can enhance transparency, mitigate greenwashing risks, and provide investors with greater confidence in reported climate-resilience outcomes. Ultimately, blue finance needs to be formalised within the financial services sector to provide clean and consistent market signalling.

At the national level, countries such as Indonesia and Seychelles have experimented with blue economy roadmaps linked to financing strategies through instruments such as blue bonds. The Seychelles inaugural sovereign blue bond was cited as a case where policy reform, concessional capital, and market finance were successfully integrated. The 10-year, US $15 million bond, supported by a US $5 million World Bank guarantee and a US $5 million concessional loan from the Global Environment Facility, channels proceeds into marine protected areas, improved fisheries management, and climate-resilient coastal development via dedicated blue grant and investment funds.

Importantly, the instrument helped overcome institutional fragmentation by establishing clear governance arrangements and a dedicated financing vehicle, the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT), to manage funds, coordinate stakeholders, and ensure transparent allocation. The bond was further enabled by strong policy commitments, clear regulatory frameworks for sustainable fisheries, and alignment with the country's broader blue economy strategy, which together provided investors with confidence on governance, accountability, and long-term policy continuity.

While early blue finance instruments have largely been driven by sovereign issuances, corporate momentum is emerging. For example, in 2021, Suzano S.A. issued a US $1 billion sustainability-linked bond, with KPIs tied to the goal of reducing water consumption by the end of 2026. The instrument linked financing costs to environmental performance, demonstrating how large corporates can embed water-related outcomes into mainstream capital market issuances.

Pipeline development

Credible, aggregated project pipelines bridging ambition and deployed capital

The systematic development and aggregation of credible project pipelines remain critical precondition for accelerating urban coastal resilience. Project pipelines are often fragmented by sector (ports, drainage, social housing, ecosystems), and characterised by relatively small project sizes that are unattractive for institutional investors and difficult to aggregate into capital-market instruments.

Governments and development partners therefore need to prioritise pipeline development through structured project preparation facilities and aggregation platforms that bundle multiple resilience assets into investable portfolios. For example, tools such as the UNDP's SDG Investor Maps and the SDG Investor Platform already provide country-level market intelligence on SDG-aligned investment opportunities, with more than 200 opportunity areas identified across 14 countries and standardised templates for investment case preparation. Adapting these platforms specifically to blue and coastal-resilience themes could standardise project documentation, term sheets, and KPI frameworks for municipal blue bonds, resilience-linked loans, and coastal-infrastructure PPPs.

Technical assistance plays a critical enabling role in this process. Dedicated project preparation support is often required to help subnational entities design bankable projects, develop robust feasibility assessments, and structure financing mechanisms aligned with investor requirements. It is equally important for building institutional capacity to implement standardised frameworks, documentation, and processes for scaling blue finance.

Risk mitigation and blended structures

Catalytic public capital to absorb first-loss risk to unlock private investment at scale

Scaling blue finance for urban coastal resilience will require targeted risk mitigation mechanisms to address the structural risk-return misalignment. Given the long tenors, policy uncertainty and multi stakeholder nature of urban coastal resilience, catalytic capital is often required to absorb early-stage systemic risks that private investors are typically unwilling to bear. Development finance institutions and public funds can play a critical role by providing first-loss capital, guarantees and other credit enhancement mechanisms that improve the credit profile of projects and crowd in commercial investment.

Long-tenor resilience assets such as mangroves, coral reefs and coastal buffers often require upfront capital while generating benefits over extended time horizons. As a result, blended finance structures are often necessary to establish viable funding pathways. An example is the US $35 million Blue Finance facility launched by BNP Paribas in 2024 for supporting Marine Protected Areas in countries such as Indonesia and the Philippines, which provides impact loans to reef-positive businesses linked to coastal conservation through blended finance structures.

In addition to blended finance, de-risking through credit enhancement mechanisms is critical to improve project bankability. Instruments such as guarantees, subordinated capital and viability gap funding can help align risk-return profiles, lower the cost of capital, and enable institutional investor participation at scale. Risk-transfer instruments can further strengthen the financial architecture supporting blue investments. Mechanisms such as parametric insurance, reinsurance structures, catastrophe bonds and regional risk pools can shift a portion of climate-related disaster risk from governments and communities to capital markets while providing rapid liquidity following extreme weather events.

For instance, the Caribbean Catastrophe Risk Insurance Facility (CCRIF) is a regional parametric insurance pool that provides member governments with rapid payouts triggered by pre-defined disaster parameters such as hurricane wind speeds or earthquake intensity, rather than traditional damage assessments. The facility is supported by international donors and development partners, including the World Bank, the Government of Canada, the EU, the Government of the UK, the Government of France, the Caribbean Development Bank, and the Inter-American Development Bank. By pooling risks across multiple countries and transferring part of the exposure to global reinsurance and capital markets, CCRIF lowers premium costs while ensuring liquidity within days of a disaster. Since its inception, the mechanism has disbursed over US $483 million in payouts across Caribbean states, helping governments finance immediate response and recovery while reducing fiscal shocks and reliance on emergency borrowing.

Another example is the Mesoamerican Reef parametric insurance programme, which a parametric policy underwritten by private insurers, is purchased by a regional conservation trust. Here, payouts are automatically triggered when hurricane thresholds are met and are directed to a dedicated reef insurance trust to finance rapid reef repair and restoration. In 2022, a US $175,000 payout was triggered by Hurricane Lisa in 2022 to finance rapid reef repair. By providing rapid liquidity without lengthy damage assessments, the programme demonstrates how ecological assets can be integrated into insurance and risk-transfer markets to protect coastal economies.

Emerging structuring solutions

Scaling blue finance will require greater innovation in financial structuring to address long gestation periods, uncertain revenue streams, and the public-good nature of many coastal resilience assets. Existing instruments such as Public-Private Partnerships (PPPs), blended finance structures, resilience bonds, and insurance-linked securities will need to be expanded and adapted, alongside new mechanisms that can monetise avoided losses and resilience outcomes such as outcome-based payments, resilience credits, and ecosystem service markets.

One structuring solution ideated was the creation of a 'resilience-as-a-service' model. Under this approach, a PPP or Special Purpose Vehicle (SPV) develops coastal resilience infrastructure and receives predictable service payments from beneficiaries such as municipalities, utilities, and insurers. Blended capital structures and embedded risk-transfer instruments (e.g., parametric insurance or catastrophe bonds) can further de-risk these arrangements and help attract long-tenor private capital.

Regional pooled financing vehicles also offer scalable models. For instance, the Micronesia Conservation Trust aggregates donor and public funding into a dedicated endowment and grants facility to finance marine conservation and climate resilience across Pacific island states, providing long-term, programmatic funding beyond project-level interventions. Similarly, the Pacific Resilience Facility is being structured as a blended finance vehicle to mobilise concessional and private capital for small-scale, community-level resilience projects, helping overcome fragmentation and limited access to finance in vulnerable island economies.

Taken together, these approaches highlight that blue financing for urban coastal resilience is not merely a thematic opportunity but an increasingly important pillar of climate-resilient development, macro-financial stability, and inclusive growth. Achieving scale will require a shift in how coastal risk is measured, priced, and financed, as physical shocks continue to erode coastal infrastructure, strain public balance sheets, and generate liabilities for economies that depend heavily on the blue economy.

A resilient blue finance architecture will therefore need to rely on several mutually reinforcing pillars. Risk analytics and avoided-loss metrics must be translated into bankable financial indicators that can be embedded within project finance structures, risk models, and capital market instruments. Regulatory clarity, complemented by blue sector taxonomies and robust monitoring, reporting, and verification systems, will be essential for effective market signalling and to ensure that blue finance instruments deliver credible adaptation outcomes.

Countries and cities must also develop scalable and standardised pipelines of urban coastal resilience projects using tools such as SDG Investor Maps, municipal platforms, and aggregation vehicles including asset-backed securitisation to align project size, risk profile, and documentation with institutional investor requirements. Blended finance and risk-transfer mechanisms, ranging from guarantees and concessional tranches to blue bonds and parametric insurance, will be critical to bridge the tenor gap, absorb early-stage risks, and crowd in private capital at the scale required.

Strengthening these elements within robust national and city-level governance frameworks can help mainstream blue finance. With inclusive planning and clear policy direction, blue finance has the potential to transform coastal regions into climate-resilient urban systems, safeguarding livelihoods, stabilising public finances, and unlocking the long-term value of the blue economy.

Webinar organisers:

auctusESG is a global company, providing strategic and transaction advisory at the supply and demand side of sustainable finance and climate transition. It includes working with global financial institutions, governments, regulators and multilaterals on sustainable finance product development, climate risk management, natural capital financing, transition planning, ESG and climate-responsive fiscal and monetary policy development.

Blue Bond Accelerator (BBA) is a global not-for-profit initiative dedicated to building and scaling a high-quality blue bond market to drive investment into sustainable and regenerative blue economies. Incubated by the Ocean Risk and Resilience Action Alliance (ORRAA) and supported by the Paul M. Angell Foundation, it provides technical advisory, market building, and partnership services to help issuers, investors, and policymakers develop investable blue bonds

The Ocean Centres were established through a partnership between the UN Global Compact (UNGC), a leading advocate for sustainability in the private sector, and Lloyd's Register Foundation, a global charity dedicated to engineering a safer world. They are implemented through UNGC Country Networks in seven nations identified by local experts during the initiative's scoping phase: Brazil, Ghana, Kenya, India, Bangladesh, Indonesia, and the Philippines. Each centre, strategically located to address regional safety challenges, will play a vital role in fostering collaboration between governments, industry leaders, and maritime communities. The initiative will foster locally led solutions to the challenges that are to be found in each of the regions.