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WAVES OF CHANGE

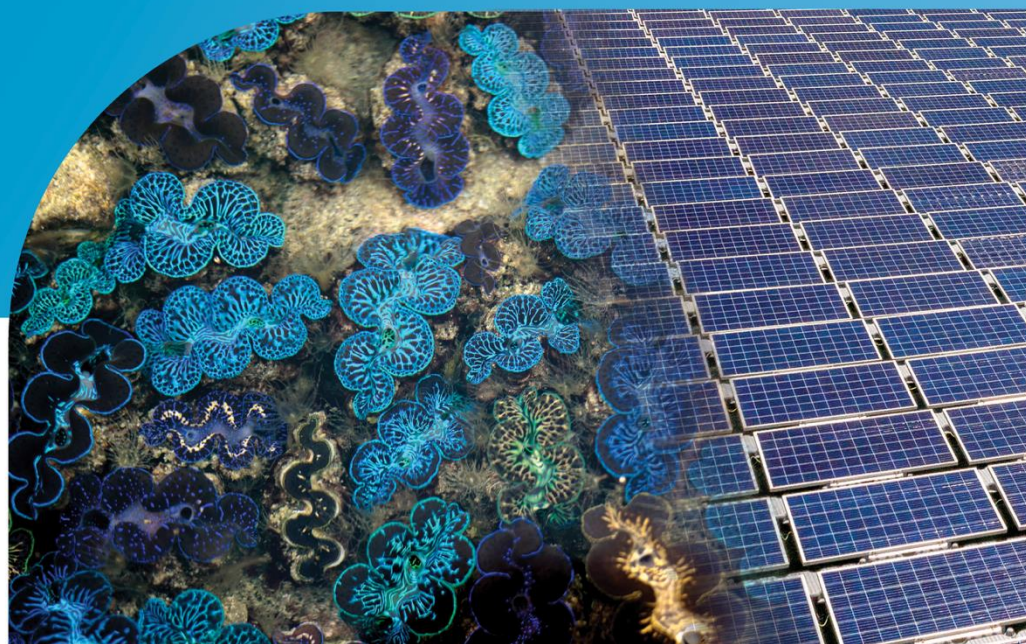
Harnessing Technology to Power the Sustainable Blue Economy

Workshop Two

25–28 May 2026 • Busan, Republic of Korea



Ministry of Oceans
and Fisheries



Blue Economy

Instruments and mechanisms

Financing the Blue Economy

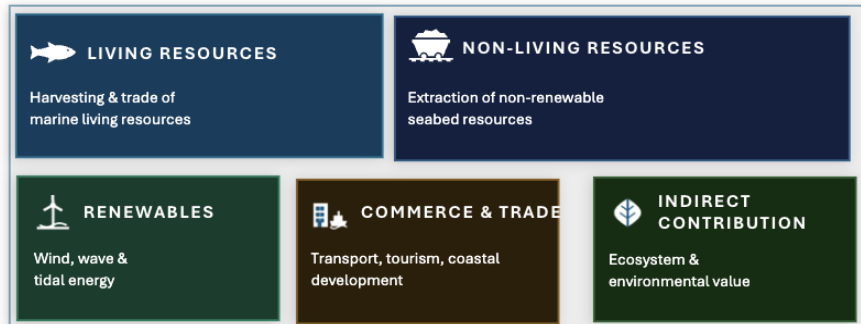
Matthew Viner, Valtter Louhivuori

26 May 2026

Scaling up Finance for Blue Economy Initiatives

A \$2.5 TRILLION OCEAN OF OPPORTUNITY

BLUE ECONOMY ACTIVITIES



Source: World Bank, 2017.

THREE TIERS OF ACTIVITY

01 ESTABLISHED

- › Maritime shipping
- › Fisheries
- › Coastal tourism
- › Offshore oil & gas

02 GROWTH *Scaling fast*

- › Offshore wind
- › Aquaculture - fastest-growing food sector
- › Marine biotech - pharma & materials
- › Desalination

03 EMERGING

Opportunities for scaling

- › Blue carbon
- › Deep-sea mining
- › Wave & tidal energy
- › Ocean climate tech

+80%

of global trade by sea

600M+

ocean-based livelihoods

\$2.5 Trillion

Value of ocean-based industries by 2030





Source: UNIDO, 2025.

WHY BLUE FINANCE NEEDS SPECIAL INSTRUMENTS?



The ocean economy is large — but blue assets are systematically underfinanced.

Structural barriers explain the gap between ocean opportunity and capital deployed

01 	02 	03 	04 
<p>POSITIVE EXTERNALITIES</p> <p>Ocean ecosystems provide economic value, some of which is priced by markets (commerce), some which is not (ecosystem services, carbon sequestration, etc.). Public goods are difficult to finance commercially.</p> <p>→ Public support needed</p>	<p>PATCHY TAXONOMY</p> <p>While carbon finance benefits from (generally) shared methodologies, taxonomies, and pledges (GHG accounting, voluntary certifications, EU Taxonomy, etc.), 'blue' is lacking similar global standards.</p> <p>→ Development of national/international commitments and taxonomies required</p>	<p>HORIZON MISMATCH</p> <p>Ecosystem restoration takes decades. Fish stocks recover slowly. Coral reefs grow over centuries. Capital markets prefer shorter payback periods.</p> <p>→ Structurally misaligned timelines require specialized instruments and risk-mitigation</p>	<p>OPERATING ENVIRONMENT</p> <p>Ocean infrastructure faces physical risks (storms, saltwater corrosion, remote location), political risks (EEZ disputes, regulatory change), and biological risks (climate-driven habitat shifts).</p> <p>→ 'Black swan' events poorly accounted and priced by standard risk models</p>

The barriers need to be specifically addressed by dedicated blue finance instruments.

BLUE FINANCE BUILDS ON SUSTAINABLE / GREEN FINANCE TOOLS



SOVEREIGN

Domestic public

Budget allocations

Green and eco-taxes

Royalties and permits

Tourism fees

Payment for ecosystem services

Blue carbon credits / offsets

Biodiversity credits / offsets

Externally supported

Blue bonds

Outcomes-based bonds

Debt-for-nature swaps/conversion

Project finance for permanence

Conservation trust funds

Parametric insurance



PRIVATE

Debt-like

Sustainability-linked / blue bonds

Sustainability-linked / blue loans

Blue project finance

Blue trade finance

Blended finance

Equity-like

Blue Private Equity funds

Blue Venture Capital

Corporate Venture Arms

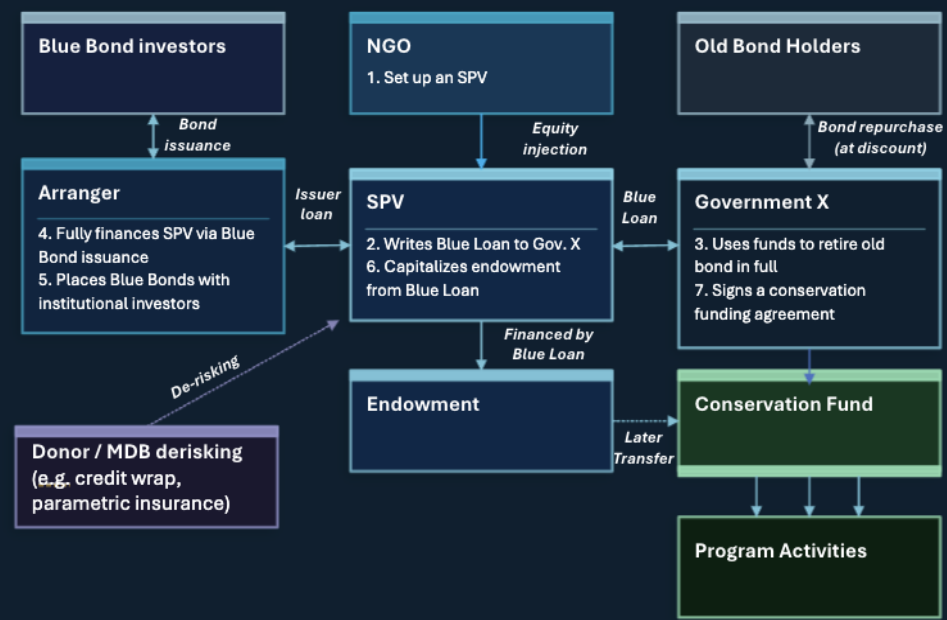
Blended finance

Debt-for-Nature Swaps

CASE STUDY



HOW A DEBT-FOR-NATURE SWAP WORKS



INDONESIA (bilateral)

US-Indonesia Coral Reef Debt Swap · 2024

\$35M

Debt redirected over 9 years

4th

TFCCA deal with Indonesia

1st

Coral reef-focused swap globally

- US Treasury gave debt relief of \$35M of bilateral sovereign debt under TFCCA
- Focus: Protection of critical coral reef ecosystems
- Coral Reef Conservation Agreement between CI, TNC, Yayasan Konservasi entities, GoIndonesia

BELIZE (commercial)

World's First Commercial Blue Debt Conversion · 2021

\$189M

Debt reduction 55¢ per \$ refinance

\$180M

Estimated conservation funding over 20yr

30%

Biodiversity protection zones

- TNC (BBIC SPV) + Credit Suisse raised \$364M blue loan; DFC provided political risk and parametric insurance
- Superbond bought out at 45% discount with 4.9% cost of financing vs. 7.2% bond.
- Cross-default provision for conservation funding → same seniority Blue Loan payments.

KEY LESSONS



Discount on old debt is the value engine



MDB guarantee unlocks concessional new rates



Conservation = covenant, not just a pledge



High transaction costs and preparation time



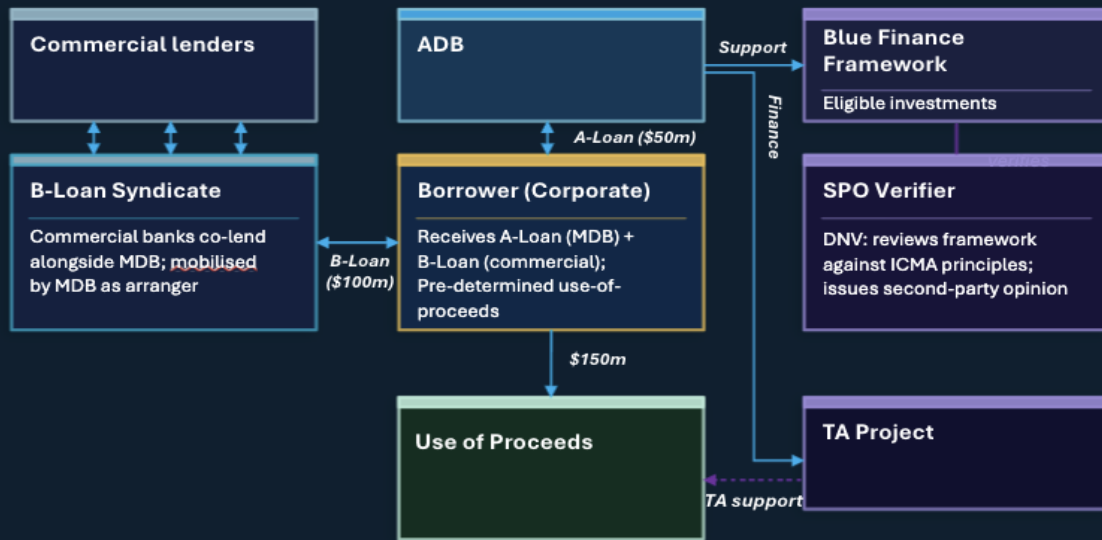
Require scale, but hard to aggregate regionally

Blue Loans – Thai Union

CASE STUDY

THAI UNION - BLUE LOAN STRUCTURE

Fundraising for sustainable use of proceeds



THAI UNION GROUP

ADB Blue Loan — Sustainable Shrimp Value Chain Project · 2025

\$150M

Total Blue Loan
A+B loan package

\$100M

B-Loan
2.8x oversubscription

100%

Responsible sourcing
By 2030

B-LOAN SYNDICATE

Bank of China (Hong Kong) Limited	OCBC
HSBC	SMBC
MUFG Bank Ltd (Singapore)	UOB

USE OF PROCEEDS

- Working capital: procurement, processing & export of certified sustainable shrimp
- Sustainability opex: farmer training, ASC/BAP certification support, R&D, pilot projects
- TA grant: shrimp farmer capacity building (climate-smart aquaculture) – farms & demo sites

SUSTAINABILITY COMMITMENTS

- 100% responsibly sourced shrimp by 2030 - up from 59% in 2024
- GSSI certification (ASC / BAP / AIP) - only 11.5% shrimp globally certified in 2023

KEY LESSONS



MDB as arranger with credible blue certificate unlocks commercial co-financing



Independent SPO for Blue Finance Framework for credibility



Allocation requirements or KPIs with financial incentives.



TA support enables framework and strengthens resilience on ground



First blue loan for sustainable aquaculture in Thailand

Who deploys capital into the APAC blue economy?



PRIVATE CAPITAL LANDSCAPE

Private capital accounts for 51%+ of funding activity in the APAC blue economy. Six provider types operate across the lifecycle — each with distinct return expectations, ticket sizes, and instrument preferences.

ACCELERATORS & INCUBATORS

\$50K – \$500K

Typical ticket

RETURN 0–5% IRR · impact-first

INSTRUMENTS Grant + accelerator equity

15–25 dedicated blue hubs region-wide

FAMILY OFFICES & FOUNDATIONS

\$500K – \$5M

Typical ticket

RETURN 0–8% IRR · patient

INSTRUMENTS Direct equity, LP, grants

Few pure-blue mandates; most route via climate

VENTURE CAPITAL / CVC

\$250K – \$2M

Typical ticket

RETURN 25–30%+ IRR

INSTRUMENTS Seed / Series A equity

~7× growth in 8 yrs; APAC blue tech +53% YoY 2025

PRIVATE EQUITY (IMPACT)

\$2M – \$20M+

Typical ticket

RETURN 10–15% IRR

INSTRUMENTS Growth equity, quasi-equity, debt

Emerging — signals sector graduation

DFIs & MDBs

\$10M – \$500M+

Typical ticket

RETURN Concessional → market

INSTRUMENTS Loans, blue bonds, guarantees

ADB, IFC, AIIB, JICA, DFAT anchor at 3:1+

SOVEREIGN & GOVT

\$10M – \$5B+

Typical ticket

RETURN Policy / fiscal / NDC

INSTRUMENTS Blue bonds, DfN swaps, credits

\$9B+ cumulative global blue bond issuance

Lifecycle gap: the \$500K–\$5M range (between accelerators and PE) is where pre-revenue blue SMEs stall — exactly where blended growth-equity and revenue-linked instruments are thinnest.

Where private capital is deploying — by sub-sector maturity

SECTOR LANDSCAPE



Eight APAC blue-economy sub-sectors. As maturity rises, ticket sizes grow and the investor mix shifts from grants and VC → family offices → PE and infrastructure capital.

ESTABLISHED <i>Unit economics work today</i>	GROWTH / SCALING <i>Commercial returns emerging</i>	NASCENT / EMERGING <i>Below institutional ticket floor</i>
<p>Fisheries & Aquaculture</p> <p>\$5M – \$30M</p> <p>PE · Family Office · DFI co-invest</p>	<p>Ocean Renewables (offshore wind, wave & tidal)</p> <p>\$25M – \$50M</p> <p>PE · Infra funds · Corporate / utility strategics</p>	<p>Nature-Based Solutions</p> <p>\$500K – \$5M <i>(up to \$30M w/ grant component*)</i></p> <p>Grants · Family Office · Incubators</p>
<p>Coastal & Marine Infrastructure</p> <p>\$5M – \$30M</p> <p>PE · Infra funds · DFI / project finance</p>	<p>Coastal & Marine Ecotourism</p> <p>\$1M – \$30M</p> <p>PE · Family Office</p>	<p>Blue Tech & Ocean Observation</p> <p>\$250K – \$1M</p> <p>VC/CVC · Family Office · Incubators</p>
	<p>Pollution Control / Circular Economy</p> <p>\$2M – \$30M</p> <p>PE · VC/CVC · Family Office · Incubators</p>	<p>Blue Biotechnology</p> <p>\$250K – \$1M</p> <p>VC/CVC · Grants</p>

Implication: Institutional PE and infrastructure capital concentrate in Established and Scaling sub-sectors where unit economics are proven. Nascent sub-sectors (NbS, blue tech, blue biotech) sit at or below the ~\$2M PE ticket floor — they depend on grants, VC, and DFI first-loss anchors to bridge to commercial scale.

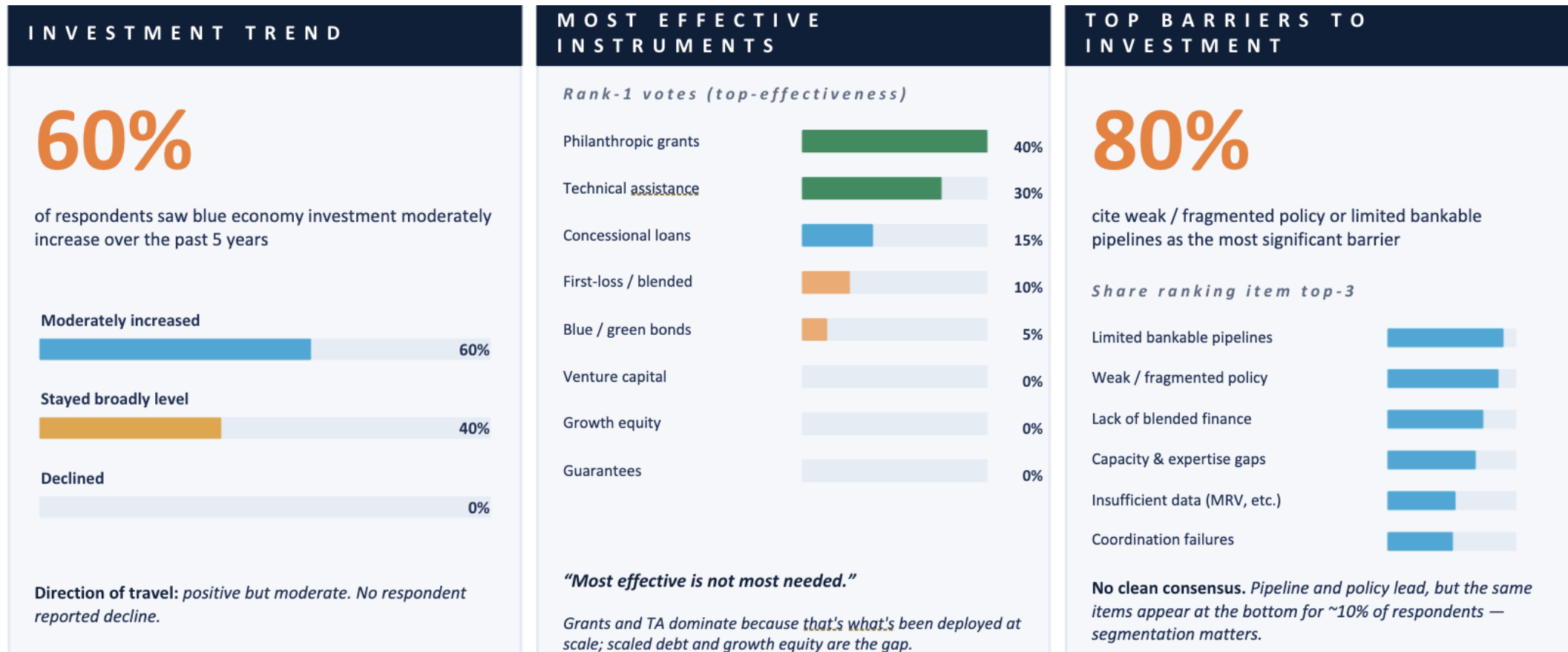
*NbS upper range includes grant component (Outrigger Impact, 2026). Sources: Outrigger Impact / ADB Frontier rapid scoping study (2026); BlueInvest (2024); Mono Impact (2025); Ocean Funders Report (2025).

What blue economy capital providers say works

PRACTITIONER VIEW



Outrigger Impact survey of APAC blue economy capital providers (2026), commissioned by ADB Frontier — n: ~10 respondents [to confirm with Outrigger].



Source: Outrigger Impact (2026) practitioner survey. Effectiveness chart: share of respondents ranking instrument #1 most effective. Barrier values: share of respondents ranking each item in their top 3.

Three gaps that shape which instruments matter next

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IMPLICATIONS

Connecting the landscape to today's allocation exercise: where private capital stops, public and concessional instruments have to step in.

01

Pipeline matching, not pipeline scarcity

Capital providers cite limited bankable pipeline as the #1 barrier — but desk research finds 350+ active APAC ocean funders and a growing stock of SMEs. The real gap is matching investor mandate (ticket, return, geography, sub-sector) to deals that are ready for that capital.

→ **Instrument response:** *Dedicated pipeline-readiness facility, TA grants to develop pre-investment feasibility, structured regional deal networks (BlueInvest-equivalent for APAC).*

02

The nascent end depends on concessional anchors

PE/VC concentrates where unit economics already work (aquaculture, port decarbonisation, pollution control). Nature-Based Solutions, blue tech, and blue biotech sit below the \$2M+ institutional ticket floor — and below the IRR threshold without de-risking.

→ **Instrument response:** *First-loss layers, DFI guarantees, blue bonds with use-of-proceeds for nascent sub-sectors. Typical DFI-to-private ratio of 3:1 or higher.*

03

Most effective today ≠ most needed tomorrow

Grants and TA dominate the “most effective” ranking — because they're what practitioners have actually deployed at scale. Scaled debt, quasi-equity, and revenue-linked structures across the seed-to-Series-B+ lifecycle remain thin.

→ **Instrument response:** *RBF and other revenue-linked debt, blended growth-equity funds, sovereign blue bonds at country level — all anchored by MDBs.*

Sidenote: The Equity Dilemma

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IMPLICATIONS

Equity investors follow a simple concept: buy at X, support or enable growth, sell at Y. But this requires both pipeline to buy, and secondary buyers to sell to.



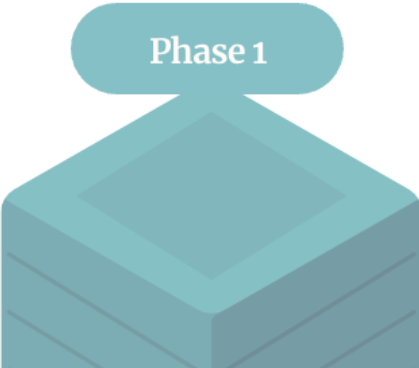
ADB Frontier – SEED

SOLUTIONS

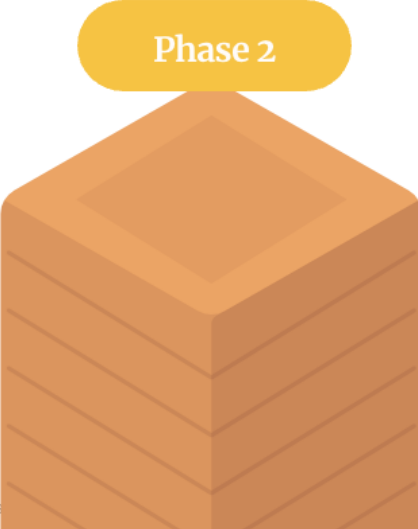


We take a systematic path to closing the gap by developing learnings to de-risk financing and create partnerships to pilot, and later scale, financing approaches.

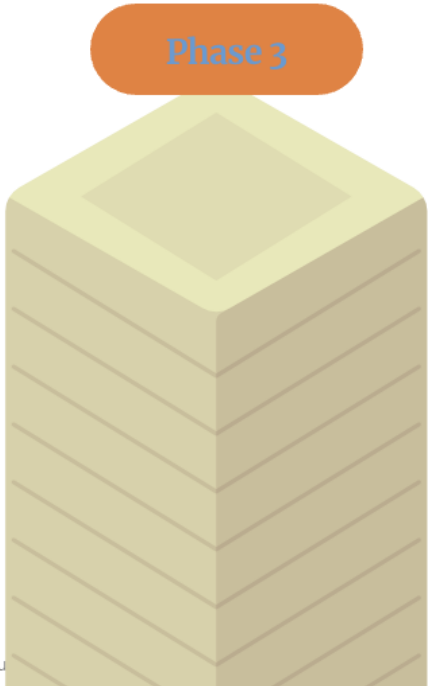
We identify financing gaps through market assessments, stakeholder mapping, and limited direct transactions learning what works in each market context.



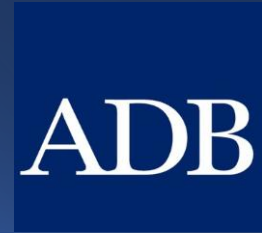
We implement small-scale financing pilots directly or with partners testing delivery models and demonstrating commercial viability to attract future investors.



We disseminate learnings, attract private sector partners, and scale validated approaches. Our ultimate goal is for capital to flow in and gradually close the financing gap.

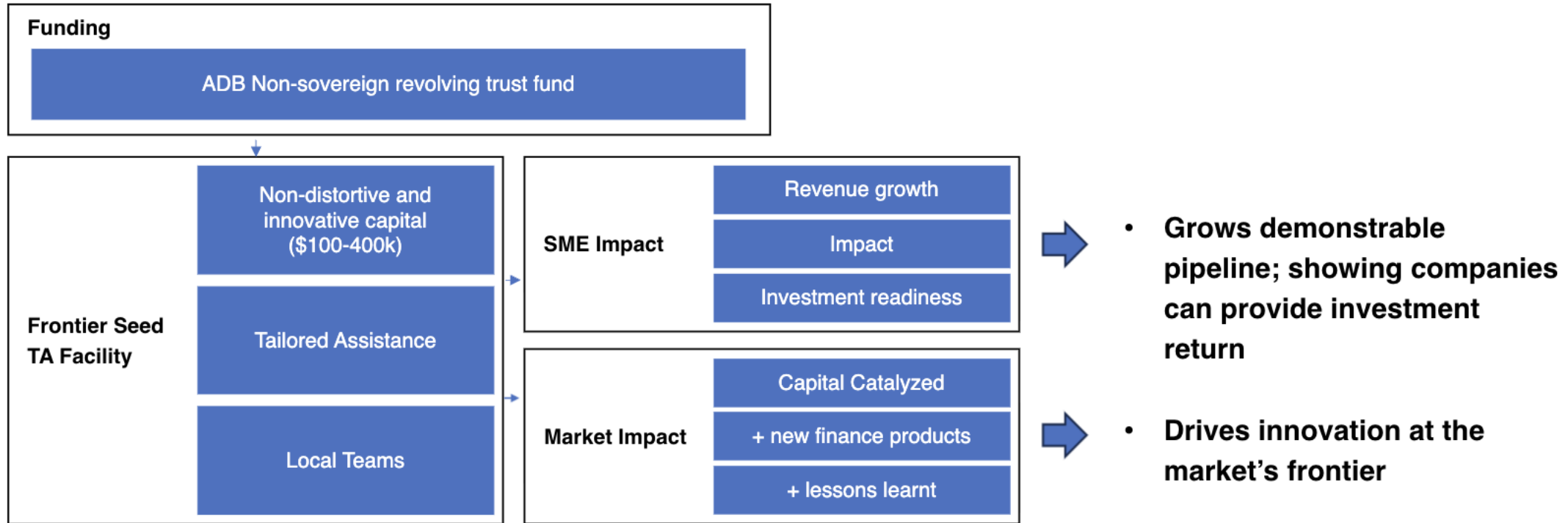


ADB Frontier – De-risking private finance



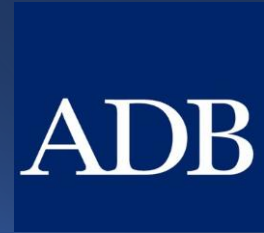
SOLUTIONS

ADB launched two standalone TA (\$5M for Frontier Seed Pacific and \$10M for Frontier Seed Mekong) that will be implemented during 2024-2030 to support up to 40 high-growth ventures with cost-recovery TA and technical support. Frontier Seed Pacific will focus on Fiji, Tonga and Samoa. Frontier seed Mekong will focus on Lao PDR and Cambodia.



Funds Revolve from SMEs back to non-sovereign revolving trust fund

ADB Frontier – Deploying Innovative Finance



SOLUTIONS

Frontier invests in companies with turnover >\$200K (USD equiv.) which are unserved by banks, often due to perceived risk / lack of collateral.

REVENUE BASED FINANCE COMPARISON	Equity	Traditional Loans	Revenue-Based Finance (RBF)
<i>Repayment</i>	<i>Depends on exit</i>	<i>Fixed monthly payments</i>	<i>Share of revenue</i>
<i>Risk Sharing</i>	<i>High (fail with company)</i>	<i>Low (collateralized)</i>	<i>High (fail with company)</i>
<i>Transaction cost</i>	<i>High (4-5 / year)</i>	<i>Low (00-000s / year)</i>	<i>High (4-5 / year)</i>

- 1 Innovative Finance up to \$400K
- 2 Tailored Support Beyond Capital
- 3 Streamlined Credit Processes
- 4 Local Team of Investment Professionals

Funds Revolve from SMEs back to non-overseign revolving trust fund

Portfolio Highlights – Blue Economy in the Pacific

SOLUTIONS

ADB



Kahuto Pacific is an aerial mapping company creating access and affordability to high-quality geospatial data by launching a localized on-demand data platform for enhanced development planning and monitoring of coastal erosions, water levels and land use.

Interested investment from regional fund for Phase 2



SeaPac is Fiji's first local coastal aquaculture farm producing prawns for the Fijian market creating demand for locally grown, high quality prawns.

Renewing and improving exists ponds to increase local prawn production and lead a model of best practice.



Leaf Capital is a solar installation company building a portfolio of solar PV systems with the aim of reducing energy costs and reliance on fossil fuels, particularly through the integration of battery storage solutions.

Recently raised commercial bank project finance after Frontier helped the company develop track record

Portfolio Highlights – Blue Economy in the Pacific



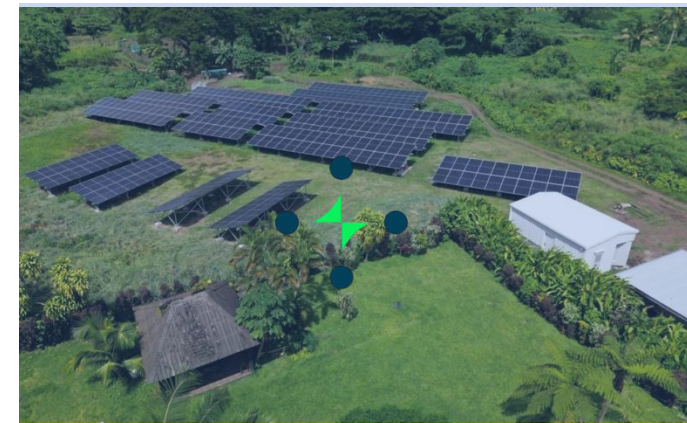
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Scaling up Finance for Blue Economy Initiatives

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SESSION INTRODUCTION

Blue Economy *Allocator*

Your chips, your choices.

THE MATRIX

**Five priorities. Three instruments. Fifteen places to put a chip.
1,392,456 combinations ...**

PRIORITY ↓ / INSTRUMENT →	Policy	Large Investment	MSME Investment
Governance & Institutions <i>rules, mandates, capacity</i>	○ ○ ○	○ ○ ○	○ ○ ○
Enabling Environment <i>raise · attract · channel money</i>	○ ○ ○	○ ○ ○	○ ○ ○
Human Capital <i>skills, training, entrepreneurship</i>	○ ○ ○	○ ○ ○	○ ○ ○
Infrastructure <i>physical & digital systems</i>	○ ○ ○	○ ○ ○	○ ○ ○
Environmental Stewardship <i>ecosystems & sustainability</i>	○ ○ ○	○ ○ ○	○ ○ ○

Each cell = a real-world intervention you could fund. Cell descriptions are on your paper sheet.

THE RULES

Two simple constraints.

10

CHIPS TOTAL

Each table receives 10 chips.
That is your country's strategic
budget for this exercise.

MAX 3

PER CELL

No cell can take more than
three chips. Diminishing returns
kick in.

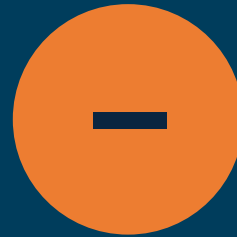
There is a scoring model running in the background.

We won't tell you the formula. But here is what it cares about.



Coherence is rewarded

Strategies that connect score better than the same chips placed in isolation. Policy reform that unlocks investment, anchor infrastructure that pulls MSMEs along, environmental policy that protects the assets you're building.



Scattering is penalised

Spreading chips thinly across many cells without committing to any builds an unfundable programme. Concentration matters; one chip rarely moves anything.



Big risks are punished

Big extractive bets without the governance to backstop them are the configuration that creates problems two years in. The model knows this. Your minister knows this.

You'll find out how it scored your strategy at the end. Reason from principles, not formulas.

YOU HAVE 30 MINUTES

Allocate your chips.

1

Argue

Through your ministry's lens.
Disagree about priorities,
defend trade-offs.



2

Decide

Fill in circles on the paper
sheet. 10 chips, max 3 per cell.



3

Hand it in

Once committed, hand the
sheet to a facilitator. We'll do
the rest.

There is no optimal answer. There is your country's strategy.

An aerial photograph showing a solar farm on the right side, with rows of blue solar panels. The left side of the image is dominated by a field of colorful, stylized plants in shades of blue, purple, and yellow, set against a dark, textured ground. The text "Thank you!" is centered in the middle of the image.

Thank you!