



Climate Adaptation and Resilience in Asia Case Study Library (2026)



Centre for Impact
Investing and Practices

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Preamble

The **Climate Adaptation and Resilience in Asia Case Study Library (2026)** contains 50 case studies developed by CIIP, with contributions from Invesco and ImpactSF (CGIAR Hub for Sustainable Finance). It is a companion resource to the report “**Climate Adaptation and Resilience in Asia: Pricing Risk, Sizing Opportunities, Financing Solutions**” by CIIP, in collaboration with Temasek, Invesco, and ImpactSF, and supported by Dalberg; as well as the agriculture deep dive report “**Building a climate adapted and resilient agri-food system in Southeast Asia**” by CIIP in partnership with ImpactSF.

Containing insights from over 250 funders, corporates, and solution providers, and powered by analysis tracking ~US\$100 billion in real CA&R financing flows in Asia over the past 5 years, the **Climate Adaptation and Resilience in Asia (2026)** report examines the comprehensive costs of climate hazards and risks, identifies opportunities in high-impact solutions and business model innovation, explores pathways to scaling adaptation financing, and maps out the intersectional impacts of CA&R. The report highlights how funders from across the spectrum of capital can collaborate to address the region’s adaptation and resilience goals.

As a deep-dive, **Building a climate adapted and resilient agri-food system in Southeast Asia (2026)** examines the evolving landscape of agriculture in Southeast Asia, outlining both the opportunities and risks shaping the sector. It illustrates how climate change is compounding pressures on projected yields and food security, underscoring the need to strengthen adaptive capacity among producers while identifying opportunities across agricultural value chains.

Spanning incumbent businesses, emerging ventures, financial institutions, and diverse funding approaches – including insurance, philanthropy, private equity, blended finance, family offices, and bonds – these case studies provide clear, practical examples of how CA&R are being embedded into business, investment, and impact strategies across Asia and beyond. They span a range of industries, including agriculture-focused case studies highlighting how stakeholders are working to address key needs in adaptive capacity and climate resilience among smallholder farmers.

Global in orientation with a focus on Asia, these case studies underscore the growing imperative of CA&R both in terms of business risk management and driving new commercial opportunities.

The report examines comprehensive costs of climate hazards and risks identifies opportunities in high-impact solutions and business model innovation, explores pathways to scaling adaptation financing, and maps out the intersectional impacts of CA&R.



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Funders' perspectives



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Asian Development Bank: Comprehensive approaches to advancing climate A&R

 FINDER TYPE
Development finance institution

 GEOGRAPHY
Asia

 FUNDING APPROACH
Hybrid


 AUM/FUND SIZE
US\$301 billion

 OVERALL PORTFOLIO RETURNS
Not publicly disclosed

 AVERAGE TICKET SIZE
Varies

 TIME HORIZON
Varies

 HQ
The Philippines

 YEAR ESTABLISHED
1966

 INSTRUMENTS DEPLOYED/
ASSET CLASS
Sovereign and non-sovereign loans, bonds and debt securities, private equity, mezzanine financing, credit guarantees, grants/grants with recovery mechanisms, technical assistance

Key takeaways

- DFIs such as Asian Development Bank (ADB) are able to adopt a comprehensive approach to addressing adaptation and resilience needs, whether through offering flexible financing or advancing technical assistance and policy considerations.
- DFIs can help to improve the climate resilience of smallholder farmers through technical assistance, complementing commercial off-takers.

Key investment themes

ADB's investment mandate is wide ranging in line with its overarching missions including key sectors such as Agriculture, Food, Nature, and Rural Development, Digital Technology, Energy, Finance, Health, Transport, and Water and Urban Development.

Climate action is one of ADB's five strategic priorities for 2030. ADB's research identified a regional adaptation finance of \$102 billion per year, far above ADB's current \$4 billion annual contribution. ADB have a target for at least 50% of the portfolio to support climate actions and a specific goal of providing \$34 billion for adaptation by 2030.

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ADB's core areas of focus in adaptation are wide-ranging, primarily targeting infrastructure sectors such as transport, energy, urban, water, and increasingly agriculture, nature-based solutions, and social sectors like health and social protection.

CA&R focus and opportunity areas

ADB's adaptation work has shifted from focusing on climate-proofing its own investments to proactively supporting client countries with adaptation investments, including concessional and blended financing, knowledge, and policy reforms.

ADB is promoting disaster risk reduction and climate change adaptation in the region by investing in water supply, sanitation, irrigation, flood control, transport and energy infrastructure that withstands and builds resilience to disasters and climate change.

ADB's adaptation financing covers both public and private sectors, with a current split of approximately 90% sovereign (public) and 10% non-sovereign (private) financing.

ADB's adaptation projects historically have historically been focused on project financing but expanding to other modalities.

ADB's approach incorporates a variety of blended structures to overcome high upfront costs or delayed returns, including commercial, concessional, and catalytic tranches, technical assistance funds, and embedded guarantees or risk insurances.

ADB's technical assistance builds on existing company farmer programs and provides basis for scale-up to other farmers and other countries. Key benefits include the introduction of climate-smart agriculture, functional financial literacy, and climate-derisking finance solutions.

ADB works to embed climate change into country programming through comprehensive geographic and sector diagnostics, integrating upstream policy and diagnostics to inform downstream investments.

Overarching mission

The Asian Development Bank (ADB) envisions a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty in the region.

IMPACT

US\$18.835M
to support smallholder farmers across
Asia through TA

100,000
Farmers supported to improve climate
resilience, productivity and profitability

Programmes include support for 21
unique commodities across 15 ADB
developing member countries

Impact framework

ADB is conducting a global review and country deep-dives to define adaptation investment metrics, focusing on return on investment (ROI) articulated as avoided losses, economic growth, or financial returns, especially in agriculture.

Multilateral development banks have agreed on a set of 15–17 common adaptation outcome indicators for reporting. ADB uses a corporate outcome indicator for the number of people made resilient to climate shocks.



Photo © Asian Development Bank

Key lessons

Maintaining and expanding agricultural TA programs through direct investment provides a sustained source of information and support, including to new and emerging risks, including climate risks.



ADB can leverage its technical assistance projects and collaborations with other stakeholders to improve the scope of these programs to explicitly address climate risks and to expand from single commodity support to more diverse agri-extensions support.



Featured projects

ADB has supported the **Louis Dreyfus Company** in improving the climate-resilience and sustainability of smallholder coffee and cotton farmers in India and Indonesia to develop farmer groups, improve farm management practices, introduce biochar production and drip irrigation, and support novel climate crop insurance products.

With support from ADB, **DSN Group** has worked to improve the climate resilience of smallholder farmers in Indonesia to build capacity in advanced and planned highly climate resilient multistory agroforestry systems.

British International Investment: Catalytic efforts to mobilise A&R investments



FUNDER TYPE
Development finance institution

GEOGRAPHY
Africa and Asia

FUNDING APPROACH
Hybrid

AUM/FUND SIZE
£9.9 billion (US\$13 billion)

AVERAGE TICKET SIZE
Not publicly disclosed

TIME HORIZON
Long term

HQ
London, United Kingdom

YEAR ESTABLISHED
1948

INSTRUMENTS DEPLOYED
Direct equity, intermediated equity (funds), debt, guarantees

OVERALL PORTFOLIO RETURNS
Around 2% across its total portfolio, measured on a rolling seven-year weighted average basis

Key takeaways

- Beyond direct investments of catalytic and flexible capital to adaptation projects and solutions, DFIs such as BII can play a key role in convening investors to advance adaptation and resilience investment broadly.
- With adaptation is emerging as a key investment theme, DFIs can also play a key role in the ongoing development of project timelines and key metrics.

Key investment themes

BII's investments span various sectors to ensure broad development impact, including infrastructure, financial services, manufacturing, food and agriculture, and technology and digital services.

BII is increasingly embedding climate adaptation and resilience at the core of its impact and investing strategy. BII is ahead of its climate finance by volume targets which are predominantly qualified as mitigation, with a growing interest in adaptation and resilience and the outsize impact these investments can have.

BII sees a strong focus on ensuring resilience of investments for private sector mobilisation, as well as investing in adaptation and resilience technologies and services, a nascent but growing priority.

They actively seek solutions that contribute towards decarbonisation and resilience across key sectors and support climate transition in emerging and developing economies where they invest.

CA&R focus and opportunity areas

BII's Climate Innovation Facility (CIF) provides catalytic capital, flexible debt, and first-loss instruments to pilot early-stage climate technologies. Key areas of interest include regenerative agriculture, water security, and coastal resilience. It also deploys tools such as credit enhancement to attract commercial investors into adaptation-focused funds, and project development loans to cover early-stage costs for climate-resilient infrastructure.

BII is a founding member of the Adaptation and Resilience Investors Collaborative, an international partnership of DFIs working to accelerate and scale up private investment in inclusive solutions for climate A&R in developing countries. They focus on physical climate risks assessment, investor-relevant metrics, and capital mobilisation approaches.

At COP30, BII also launched the Investors Resilience Challenge with other 15 other signatories including DFIs, MDBs and member networks IIGCC, GARI (the

Global Adaptation Resilience Investment Group) and UNEP FI. The Challenge aims to mobilise more private investment for A&R through promoting consistency in the application of relevant tools and metrics, across two key areas for:

- Increasing the resilience of assets, companies, and portfolios through investments and advisory, managing and reducing vulnerability to physical climate risks.
- Investing more in assets, companies and portfolios that deliver A&R benefits to communities, customers and systems.

Overarching mission

BII is the UK's development finance institution and impact investor with a mission to help solve the biggest global development challenges.



Photo © British International Investment

IMPACT

US\$2.2B/£1.7B

Climate finance invested across Africa and Asia in last three years (2022 – 2024)

US\$1.1B

Climate finance mobilised for Africa and Asia in last three years (2022-2024) (MDB method)

Over US\$38M

In adaptation and resilience and dual finance in last three years (2022-2024)

Impact framework

BII adheres to MDB-IDFC Common Principles for classifying climate finance. With evolving taxonomies, BII aims to refine its internal impact scoring system which is based on productivity, sustainability, and inclusivity to incentivise resilience and better capture adaptation and nature co-benefits.

BII is engaging other DFIs and investors on the development and application of economic and financial performance indicators that reflect the positive outcomes of A&R investments, which will help further incentivise and reward resilience-building actions.



Photo © British International Investment

Key lessons

With the adaptation metrics space still evolving and developing, BII recognises the value of building on existing principles to better identify and assess potential A&R private sector investment opportunities and relevant adaptation outcomes and impact.



Some of the key impact metrics being measured at portfolio level are GHG Emissions avoided (mtCO₂e) and at investee level in the agriculture sector—hectares of land under regenerative/sustainable agriculture, % improved productivity or yield, improved farmer income per year.



Featured portfolio companies

Zephyr Power, a wind power company in Pakistan. They implement a mangrove protection and rehabilitation programme near wind farms to improve ecological value and protect the local community from the effects of climate change.

By promoting carbon farming, involving sustainable techniques like direct seeded rice and no-tillage farming, **Grow Indigo** can help address agricultural carbon emissions in India, as well as enhance soil health, preserve biodiversity, and improve water efficiency.


Gates Foundation: Deploying philanthropic and blended finance for systems change

Gates Foundation

 FUNDER TYPE
Private charitable foundation

 GEOGRAPHY
Global, with focus on Sub-Saharan Africa and South Asia

 FUNDING APPROACH
Philanthropic

 INSTRUMENTS DEPLOYED/ ASSET CLASS
Grants, catalytic capital instruments (debt, equity, guarantees)


 TIME HORIZON
3-5 years (grants), 7-10 years (strategic investments), long-term (strategic partnerships)

 HQ
USA

 YEAR ESTABLISHED
2000

 ENDOWMENT SIZE
US\$86 billion (unaudited, as of July 2025)

 OVERALL PORTFOLIO RETURNS
Returns exceeding annual payout and matching inflation for capital preservation

 AVERAGE TICKET SIZE
US\$100k to \$500M (ranging from pilots to multi-year initiatives), US\$1-20M (strategic equity/debt)

Key takeaways

- Philanthropy and blended finance mechanisms can play a catalytic role by channeling funds to last-mile lenders, reducing risk for innovative financial products, and crowding in private capital
- A mix of funding approaches can help to deliver durable, systems-level change for smallholder farmers, enabling technologies, services, and financial products to reach millions of smallholder farmers in ways that are sustainable long after philanthropic support tapers

CA&R focus and opportunity areas

Over the next two decades, Gates is committed to deploying US\$200 billion before sunsetting in 2045, concentrating a significant proportion in high-impact innovations and interventions that can dramatically scale and shift underlying economics for smallholder farmers. Gates views smallholder farmers as the lynchpin of resilient, equitable food systems - central not only to food security, but to economic mobility, climate adaptation, women's empowerment, and nutrition.

To translate innovation into durable, system-level impact, Gates deploys capital across a broad spectrum of financing instruments to address the unique needs of local markets and unlock scale:

Grants are a core instrument used to generate public goods, fund early-stage R&D, support policy reform, and de-risk innovations otherwise too risky for commercial capital. This includes investments in agricultural R&D, digital public infrastructure, and delivery systems to strengthen enabling environments for smallholder farmers.

Programme-related investments (PRIs), including equity, debt, and other structured instruments, to accelerate the commercialisation of mission-aligned enterprises. PRIs support high-impact startups and innovation delivery platforms developing improved seeds, climate-smart irrigation, digital advisory tools, or farmer-focused technologies.

Risk-sharing mechanisms and blended finance are being explored to crowd in private investment. In markets such as India, where there is growing demand for small-ticket climate finance products for smallholder farmers, blended finance can reduce perceived risk for financial institutions. Instruments such as guarantees, first-loss capital, and concessional co-investments help channel funding to last-mile lenders and incentivise banks and NBFCs to serve smallholder borrowers sustainably.

Key investment themes

With its 2045 spend-down commitment, Gates has pivoted toward fewer, bigger, more scalable "Big Bets" - prioritising breakthrough innovations with measurable economic impact and a defined path to scale. Gates' strategic framework centres on three mutually reinforcing priorities: Resilient crops and healthier soils, Data-driven climate solutions, and Sustainable livestock and aquaculture.

Across all three priorities, investments are selected not only for technical merit, but their ability to scale, achieve commercial viability, and mobilise additional public and private capital. Gates' goal is to ensure that breakthrough innovations translate into durable, market-driven, and climate-resilient agricultural systems - enabling smallholder farmers to thrive while contributing to broader economic growth and food system transformation.

Overarching mission

Rooted in the belief that "all lives have equal value," the Gates Foundation seeks to ensure that where a person is born does not determine their opportunity to live a healthy and productive life.

Within agriculture, this translates the ambition to unlock economic opportunities for millions of smallholder farmers across sub-Saharan Africa and South Asia by increasing productivity, profitability, resilience, and inclusion.

IMPACT

Drought-tolerant maize varieties grown on nearly **7M hectares** in sub-Saharan Africa, generating 500kg per hectare in additional yields and **>US\$1B**

Digital advisory platforms **reaching >1M farmers** across Africa and India, increasing yields by **up to 17% and incomes by up to 24%**

Initiatives for crossbred cows producing **2-4x** more milk than local breeds, increasing smallholder incomes across Africa by **US\$800 per year**

Impact framework

Gates measures impact through a clear pathway from innovation to sustained system change. Within agriculture, success is defined by improvements in smallholder productivity, profitability, and resilience, alongside evidence that solutions scale sustainably.

At the farmer level, key indicators include **yield gains from improved seeds and agronomic practices, increased livestock productivity, reduced input costs, and greater resilience to climate shocks.**

Climate, soil health, and emissions outcomes are embedded across the portfolio, alongside gender and inclusion indicators. Gates also evaluates its ability to crowd in additional capital, recognizing that sustainable transformation depends on mobilizing public and private investment.



Photo © Gates Foundation

Key lessons

Partnerships are central to Gates' funding model. Gates works alongside state and federal governments, development finance institutions (DFIs), multilateral development banks (MDBs), philanthropies, and private investors to align capital flows with farmer needs.



Featured portfolio companies/projects

The **Cereal Systems Initiative for South Asia** drives early wheat planting across Bihar and Eastern Uttar Pradesh.

The **Odisha Digital Stack** enables targeted subsidy delivery, programme monitoring, and climate-responsive service provision for crop and livestock farmers.

Potato Impact Partners: Impact investments in seaweed for climate and food security



FUNDER TYPE
Family office initiative

GEOGRAPHY
Global

FUNDING APPROACH
Hybrid approach

AUM/FUND SIZE
Not publicly disclosed

AVERAGE TICKET SIZE RANGE
Varies

HQ
Singapore

YEAR ESTABLISHED
2023

INSTRUMENTS DEPLOYED/
ASSET CLASS
**Private equity,
venture debt,
convertibles**

OVERALL PORTFOLIO RETURNS EXPECTATIONS
Undisclosed

TIME HORIZON
Varies

Key takeaways

Informed by family mandates and interests, Single-Family Office initiatives such as Potato Impact Partners (PIP) can make focused, strategic contributions toward specific sectors relevant for achieving adaptation and resilience outcomes – in their case, for food systems, coastal communities, and climate and ocean health, through seaweed investments

Key investment themes

PIP's focus on seaweed has its roots in food insecurity, a global challenge increasingly exacerbated by resource limitations in land farming, accelerating climate change and inflation.

Unlike terrestrial crops, seaweed grows rapidly, without the need for fertilisers, freshwater or land. Besides being a sustainable, nutritious food source, seaweed also produces environmentally friendly agricultural inputs (e.g., biostimulants and animal feed) that increase production yields and quality while improving soil health. These products help reduce reliance on carbon-intensive, polluting synthetic fertilisers and grain-based/aqua feed.

Most of the seaweed farmers in Southeast Asia and Africa are women, presenting an inherent opportunity for female empowerment.

Through its seaweed-based investments, PIP seeks to improve coastal livelihoods and resilience, while promoting gender equity.

PIP also invests in, and partners with, blue economy funds, such as Katapult Ocean, Hatch Blue and Mana Blue Planet, to expand and diversify their reach in the seaweed and ocean sectors. PIP actively engages with and supports its global network of key stakeholders in impact investing, philanthropy and nonprofit to scale collective impact and advance sustainability in Southeast Asia and beyond.



Photo © Cascadia Seaweed



Photo © Yair Ben-Jacov, Coast 4C

Overarching mission

PIP is an impact investor spurring positive contributions to food security, climate action, and the resilience of coastal communities through investments in sustainable seaweed innovation. They back early- to growth-stage startups scaling seaweed innovation, with a geographical focus on Southeast Asia, Europe and North America. Interests span the entire seaweed value chain, from cultivation, sourcing, processing and distribution, to high-value downstream applications and related technologies.

Set up as a family office initiative, PIP's work is driven by their LP's deep concern about mounting food insecurity, and his passion for seaweed as a scalable and sustainable alternative to land farming for food production and agricultural inputs. PIP is a subsidiary of Potato Productions, a Singapore-based group of social technology ventures across design, media and publishing, film and entertainment, social impact, education and healthcare.

KEY IMPACT METRICS	Volume of seaweed biomass harvested yearly	Nitrogen / phosphorus pollution mitigated	Area of land using biostimulants produced by company	Impact on local biodiversity and water quality	Share of employees that are women
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CA&R focus and opportunity areas

PIP's approach to climate adaptation and resilience is informed by risks to land farmers and coastal communities, whose livelihoods and security are directly impacted by climate change; hence they face the highest losses, often with little or no access to insurance or disaster relief. Land farmers suffer declining yields and income due to degraded land, and increasingly frequent extreme weather patterns that cause severe floods and droughts. Coastal communities face similar threats from warming waters that deplete fishing income, loss of natural habitats and buffers, and typhoons.

Near-term solutions of focus to improve farming and community resilience that PIP has identified include sustainable seaweed farming, climate-resilient seedlings, biostimulants/biofertilisers and animal feed. Long-term solutions include sustainable/ regenerative agriculture, seaweed as a nature-based solution, ocean monitoring and data AI solutions and weather index insurance.

Impact measurement approach

PIP's impact framework is aligned with the UN SDGs, the 1000 Ocean Startups' Ocean Impact Navigator, the GIIN's Iris+ and the 5 Dimensions of Impact, to guide early-stage startups in understanding, measuring and managing their impact, as well as reporting their results based on industry standards. PIP is also a signatory of the UN's Sustainable Blue Economy Finance Principles. Their impact strategy encompasses the full lifecycle of every investment and of their portfolio. PIP also provides non-financial support for startups through an impact onboarding program.



Key lessons

Committed, catalytic capital is essential to unlock seaweed's full potential, and scale an early-stage, high-impact frontier sector. Leveraging capital stacks could also better support the sector's funding needs, especially in Southeast Asia.



Partnerships and storytelling are crucial for education and awareness, especially in markets less familiar with seaweed. PIP collaborates with international organisations, universities and impact investors to drive sector growth and knowledge-sharing.



Collecting environmental and impact data, using sensors, underwater cameras, satellite data and other tools, for both operational and compliance purposes is increasingly valuable, but solutions need to be adapted and tailored to local conditions and affordability.



Featured portfolio companies

Cascadia Seaweed cultivates native kelp on regenerative ocean farms to produce agricultural products and biostimulants that help farmers increase yields while reducing emissions.

Coast4C helps coastal communities in the Philippines improve their livelihoods and build resilience to climate change by promoting regenerative seaweed farming around marine protected areas.


Prudential: Investing in climate resilience for long-term value creation



 FUND TYPE
**Insurance
company**

 GEOGRAPHY
Asia, Africa

 INVESTMENT
SUBSIDIARY
**Eastspring
Investments**

 INSTRUMENTS
DEPLOYED/
ASSET CLASS
**Equity, fixed
income,
multi-asset,
quantitative,
alternatives**

 HQ
Hong Kong

 YEAR ESTABLISHED
1848

 FUNDING APPROACH
Hybrid

 AUM/FUND SIZE
**US\$278 billion
(FY2025)**

 OVERALL
PORTFOLIO
RETURNS
**Not publicly
disclosed**

Key takeaways

- Climate risk is financial risk – investing in climate resilience helps insurers safeguard portfolio value and policyholders’ long-term savings.
- A portfolio approach is needed in transition finance – no single investment category can deliver the transition; a mix of “green”, transition, and resilience investments is required.
- Scaling institutional adaptation investment requires stronger enabling conditions, including more investable opportunities and supportive regulatory and capital frameworks.

CA&R focus and investment areas

The **Financing the Transition (FTT) Framework, and its climate adaptation addendum** is one example of how Prudential supports a just, orderly and inclusive transition in Asia and Africa. First, the framework outlines standardised definitions for transition investments, while allows for flexibility in implementation for emerging markets. The framework explicitly includes climate adaptation and nature-related solutions alongside climate mitigation. Given the interconnectedness of these topics, these challenges are addressed holistically.

Prudential recognises that no single category can deliver the transition at the required speed and scale, and a combination of investments across these categories is often needed.

Overarching mission

As a long-term asset owner, Prudential stewards policyholders’ assets with a focus on long-term value creation, integrating climate-related risks and opportunities into their investment decisions to ensure that they continue to meet the obligations to policyholders.

Prudential views climate risk as a financial risk, across all asset classes. However, the lack of investment opportunities due to a lack of awareness and definitions tend to make investing into climate adaptation more challenging. Given the significant gap between financing for mitigation versus adaptation, no one asset class can be excluded, but Prudential believes that there can be more innovation and awareness across all asset classes to push the boundaries further.

Climate
Solutions

Aligned

Aligning

Transitioning
amidst growth

Managed
phase out

Impact thesis and alignment with fiduciary duty and business model

Prudential believes that strengthening resilience aligns directly with their fiduciary duty by helping safeguard policyholders' long-term savings and supporting stable long-term investment performance.

Enhancing the resilience of the markets that they operate in would reduce volatility, improve economic conditions and support the long-term financial wellbeing of their customers. Additionally, investing in sustainability and resilience makes strong business sense for Prudential: it enables them to operate in more prosperous, stable markets and ensures their customers remain protected, healthy and financially secure.



Key lessons

As a long-term asset owner and manager, Prudential actively manages the risk profile of its portfolio, including both transition and physical climate risks, recognising these as material financial considerations.



Prudential acknowledges that investment in climate adaptation remains challenging, particularly due to gaps in enabling infrastructure and higher capital charges in some markets.



Its [Climate Transition Plan](#) sets out how climate risk is embedded as a material risk across investments, operations and insurance, supported by clear governance, targets and accountability—reinforcing Prudential's commitment to protecting long-term value for policyholders and shareholders.



Tokio Marine Group: Impact investing for disaster resilience



CA&R SECTOR
Infrastructure

GEOGRAPHY
Global

MATURITY
Publicly listed

AUM (IMPACT FUND)
US\$200-300 million

HQ
Tokyo, Japan

YEAR ESTABLISHED
1879

REVENUE SIZE
US\$39.4 billion
(FY25 forecast)

Key takeaways

- Value creation can be amplified through impact investing, where both environmental and social impact can be attained alongside financial returns.
- While interest in adaptation investments is growing, it remains challenging due to a lack of fund managers who are experienced and have taken up this specific mandate.
- This has led to expanding the scope to direct investments into adaptation solutions and businesses.

Business model

Impact metrics – initial measurement in progress

- Number of beneficiary (households and municipalities) reached by distributed water systems.
- Amount of water recycled or purified by distributed water systems.
- Percentage of reduction in the total area classified as “high-risk” in flood hazard maps.
- Increased amount of protection coverage against major risks (earthquake, typhoon, cyber).



Context and challenge

Established as Japan’s first insurance company in 1879, Tokio Marine & Nichido Fire Insurance Co., Ltd. (“Tokio Marine”) is the main subsidiary of Tokio Marine Holdings, Inc., the holding company of a global insurance group that provides safety and security to customers worldwide. The company has had a long involvement with international and ESG initiatives, in service of its ambitions to contribute to sustainable societies.

In 2022, Tokio Marine became the first Japanese insurance company to start a dedicated impact investing team. Impact investing was seen as a ‘step-up’ from the Group’s earlier ESG-related investing mandate, with an explicit objective to create positive and measurable environmental and social impact alongside financial returns.

While Tokio Marine’s impact investing approach is in its pilot phase and currently draws from Tokio Marine’s balance sheet, there is ambition for the team to grow the AUM through rebalancing their public equity exposure held for more than 70 years, a testament to the perceived feasibility and efficacy of impact investing in enacting social change and enabling resilience.

**INTENDED
IMPACT**Strengthening
existing social
infrastructureReshaping “hazard maps” by
de-risking hazardous areasReducing damage from
catastrophic disasters (e.g. large
earthquake, typhoon)**Solution and impact thesis**

Despite an initial focus on climate mitigation, the impact investing team soon recognised the growing importance of climate adaptation, especially for building resilience in a disaster-prone country like Japan.

Tokio Marine focused on three main areas within disaster resilience:

- Enhancing existing social infrastructure such as water utilities
- Flood resilience
- Reducing and preventing damage from large natural disasters

Key lessons

While there are many funds that look into supporting climate mitigation, the same cannot be said for climate adaptation. It has been challenging for Tokio Marine to find a suitable fund in adaptation to invest into – as such, they have turned to investing directly into adaptation solutions instead.



Photo © WOTA



Photo © WOTA

**Future outlook/
Next steps**

Tokio Marine is seeking to accelerate nationwide rollout of the solutions provided by their portfolio companies, in areas such as decentralised wastewater treatment and floodwater management.

Portfolio companies

WOTA is a small-scale decentralised water recycling system that can be installed in small units like residences or in disaster-affected areas.

Invesco: Analysing investor approaches to adaptation and resilience



FUND TYPE Asset management firm	HQ United States
GEOGRAPHY Global	YEAR ESTABLISHED 1935
FUNDING APPROACH Hybrid	INSTRUMENTS DEPLOYED/ ASSET CLASS Equity, fixed income, private markets, passive instruments
AUM/FUND SIZE US\$~2.2 trillion	AVERAGE TICKET SIZE RANGE Varies
OVERALL PORTFOLIO RETURNS Varies	TIME HORIZON Varies

Key takeaways

- Invesco’s research indicates that investor interest in climate adaptation and resilience (CA&R) is evolving. Approaches to CA&R remain heterogeneous, shaped by differences in mandates, risk exposures, time horizons, geography, and data availability.
- Asset owner preferences influence the most relevant CA&R opportunities, which can span asset classes and are often specific to regional and investment contexts.

Key investment themes

Invesco’s research suggests that, among asset owners with climate-related objectives, approaches vary widely. Some focus primarily on risk integration into investment analysis, while others seek exposure to financing solutions. In parallel, certain investors pursue decarbonisation or more holistic climate strategies that aim to balance sustainability considerations with return objectives through a whole-of-portfolio approach.¹

For example, driven by long term liabilities and increasing exposure to physical climate risks, some asset owners are exploring ways to enhance portfolio resilience.

Certain impact-focused institutions may also highlight the potential role institutional capital can play in addressing global financing gaps.

Investment and return objectives ultimately depend on asset owner requirements, which shapes how CA&R considerations may be reflected. For some asset owners, CA&R may be assessed primarily as a risk-mitigation consideration—such as reducing exposure to climate-vulnerable issuers while strengthening resilience across the portfolio through research and stewardship. For others, investors may identify adaptation-related activities that are associated with incremental revenue generation or cost efficiencies. For example, an agriculture project that demonstrates both increased yields and can lead to enhanced food security and additional revenue.

CA&R focus and opportunity areas

Opportunities depend on the asset class, region and investment objective. Examples include:

Corporate analysis and stewardship: Assessing corporates’ exposure to physical climate risks and vulnerability and discussing financially material climate-related risks with investee holdings through stewardship activities.

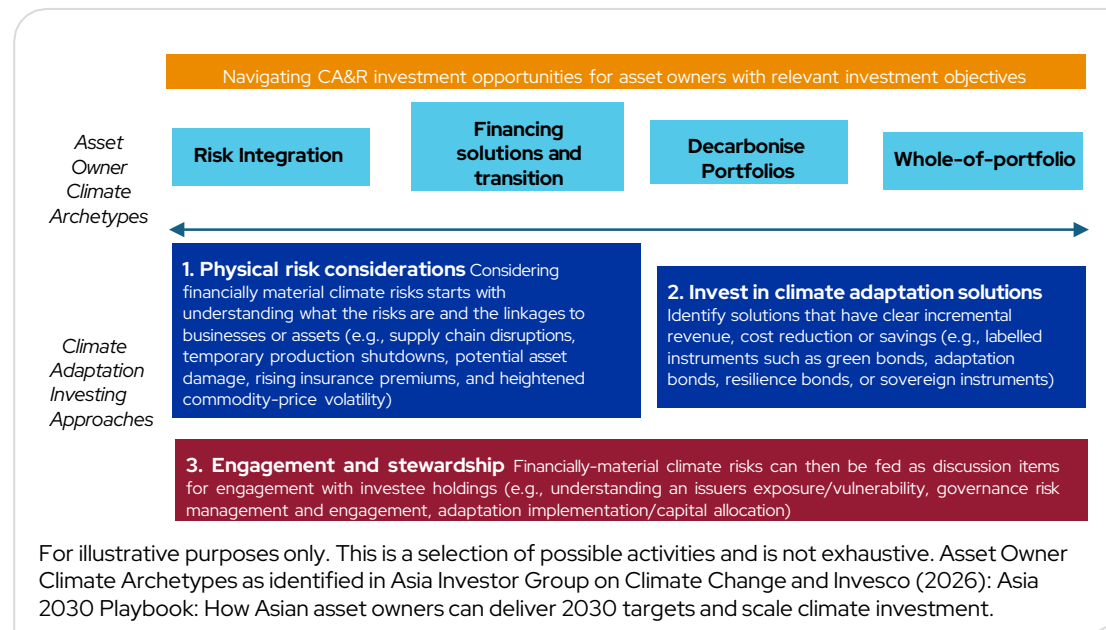
Labelled instruments: A nascent but growing market in which green, sustainability, and adaptation-related bonds may reference adaptation-relevant uses of proceeds, such as flood defences, resilient water systems, or climate-smart agriculture.

Real assets: Analysis of physical climate risk exposure and potential sustainability-related capital expenditure to address transition and physical risks, assessed through due diligence and incorporated where relevant in line with asset- and portfolio-level strategies.

Overarching mission

Invesco Ltd. is one of the world’s leading asset management firms serving clients in more than 120 countries. With US\$2.2 trillion in assets under management as of March 31, 2026, they deliver a comprehensive range of investment capabilities across public, private, active, and passive. Their collaborative mindset, breadth of solutions and global scale mean they are well positioned to help retail and institutional investors rethink challenges and find new possibilities for success.

CA&R framework



Key lessons

Physical risk analytics and climate resilience data is important, with a focus on “localised impact analysis” given regional variability of climate hazards and adaptation effectiveness.



Developing financial linkage frameworks to demonstrate relationships of physical risks with financial implications on investment portfolios is an area of focus.













Photo © Joseph Chan on Unsplash



Photo © Matthew Stephenson on Unsplash

ABC Impact: Adaptation and resilience as pathways to impact and co- benefits

abc IMPACT

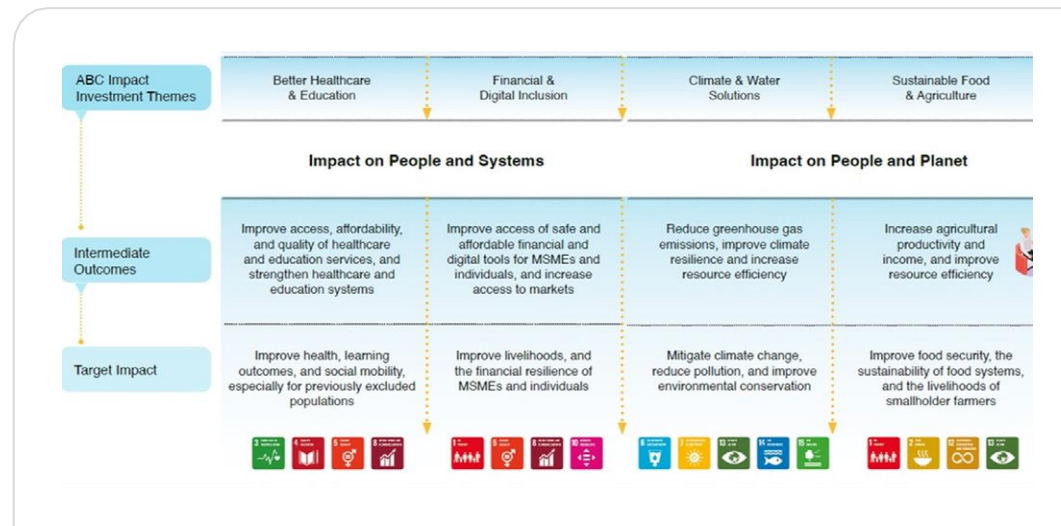
 ASSET CLASS TYPE Private equity	 HQ Singapore
 GEOGRAPHY Asia	 YEAR ESTABLISHED 2019
 FUNDING APPROACH Commercial	 INSTRUMENTS DEPLOYED/ ASSET CLASS Private Equity
 AUM/FUND SIZE ~US\$900 million (2 funds)	 OVERALL PORTFOLIO RETURNS EXPECTATIONS Compelling risk-adjusted financial returns
 AVERAGE TICKET SIZE RANGE US\$30 to 80 million	 TIME HORIZON 10 years for each fund (structured as five years of deployment and five years of harvesting)

Key takeaways

Impact measurement and management for A&R is evolving as it remains an emerging field. Investors such as ABC Impact continue to advance alongside this field, developing systems while refining its strategies and thematic metrics.



Key Investment themes



Overarching mission

To invest in impact-driven companies with the aim of generating **positive and measurable social or environmental outcomes in Asia**, alongside compelling risk adjusted financial returns for their investors.

<p>IMPACT¹</p>	<p>2,278,791.75 Metric tonnes of CO₂ emissions avoided</p>	<p>12,202,311 Farmers received customized farming insights</p>	<p>57.7B Litres of water conserved through the reduction of livestock agriculture</p>
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CA&R focus and opportunity areas

In adaptation and resilience, ABC Impact targets to invest in solutions that facilitate a just transition of societies, economies, and environmental systems to cope in the face of risks, and uncertainty posed by climate change, especially for climate, water, and food and agriculture.



Impact measurement approach

ABC Impact applies its IMM framework – aligned with the Impact Management Project’s five dimensions – to its A&R investments. To apply this in practice, ABC Impact first defines the boundaries of assessment and determines the physical climate risk context in which the companies operate. This enables identification of impact pathways linked to the company’s activities and the investment thesis. It then selects relevant A&R outcome metrics, which are tracked post-investment, to understand expected benefits for people and planet including improvements in resilience to climate impacts across individuals, households, communities, and natural systems.

These metrics are assessed post-investment, depending on data availability. They include the expected CA&R benefits of an investment, supported by evidence; how much individuals, households, communities, and natural systems become more resilient to climate impacts.

Featured portfolio companies

Cropin provides a digital agriculture SaaS that digitises farm operations and integrates field-level data into enterprise and government systems.

Akshayakalpa supports smallholder dairy farmers to improve milk yields, earn better prices, and increase incomes, while strengthening their resilience to climate-related risks.

Key lessons

Impact measurement for A&R is complex owing to:

The need for defining robust counterfactual under climate uncertainty



Evolving approaches to capturing additionality and system-wide contributions



The role of external factors such as policy, climate events, and economic shifts



Asia Ocean Fund: Supporting adaptation and resilience for Asia's oceans





ASSET CLASS TYPE
Venture Capital;
Family Office


 GEOGRAPHY
75% APAC, 25% ROW


 FUNDING APPROACH
**Hybrid; Venture
Capital**

 AUM/FUND SIZE
~US\$75 million


 AVERAGE TICKET
SIZE RANGE
**US\$100-
500,000
(accelerator
stage);
US\$1.5-4M
(follow-on
investment)**

 HQ
**Oslo, Norway;
Singapore**

 YEAR ESTABLISHED
2026

 INSTRUMENTS
DEPLOYED/ ASSET
CLASS
**Private Equity,
Technical
Assistance**

 OVERALL
PORTFOLIO RETURNS
EXPECTATIONS
15-20%

 TIME HORIZON
5-10 years

Key takeaways

Strategic partnerships can leverage crucial expertise to advance holistic approaches to systems-level impact investing.

Delivering technical assistance, acceleration, and investment can help to address key needs startups face in Asia. Climate adaptation and resilience are integral to any holistic investment strategy seeking to deliver economic and environmental benefits.

Key investment themes

The Asia Ocean fund seeks to de-risk early-stage ventures, attract broader investment, and empower entrepreneurs and the Asia-Pacific ecosystem to drive the global transition towards a thriving ocean economy.

The Asia Ocean Fund's blended structure includes an accelerator, an investment fund, and a separate non-profit vehicle for technical assistance, designed to catalyse early-stage solutions and build the regional ecosystem.

The focus of the fund is on six sectors: maritime decarbonisation, ocean renewable energy, green shipping infrastructure, ocean biodiversity and restoration solutions, circular resources, and sustainable aquaculture and marine biotechnology

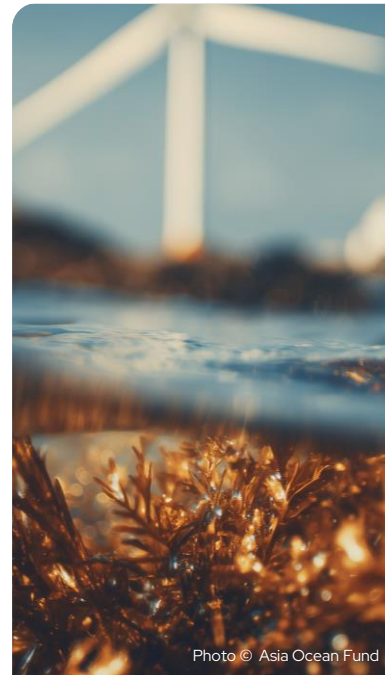


Photo © Asia Ocean Fund

Overarching mission

OCTAVE Capital is a Singapore-based impact investment firm established in 1997 focused on generating meaningful social and environmental outcomes. Backed by the purpose-led family business TPC (Tsao Pao Chee) and building on its heritage in global maritime innovation and sustainable ocean development, OCTAVE Capital deploys catalytic capital to drive systemic change across Asia and beyond.

Established in 2018, Katapult Ocean invests in and accelerates impact companies that restore ocean health, combat climate and biodiversity loss, and ensure access to sustainable food and clean water.

OCTAVE Capital has a strong track record advancing the well-being economy through investments in healthcare, education, climate and energy transition, circularity, and sustainable food. Katapult Ocean has invested in and accelerated over 90 ocean-tech startups.

Katapult Ocean and OCTAVE Capital have come together to launch the Asia Ocean Fund, which is among the first and largest in the region to directly respond to the US\$5.5 trillion funding gap in the Asia Pacific needed to meet SDG14 (Life Below Water) targets by 2030.

KEY IMPACT METRICS

Length of coastline protected

Use of ocean information products / services in decision-making to support CA&R

Number of people supported to adapt to climate change

Enhanced food security

CA&R focus and opportunity areas

The fund takes a holistic view of maritime trade and ocean health, integrating industrial and nature-based solutions to ensure investments benefit both the economy and the environment. Given the fund's mandate to invest in systems change, adaptation and resilience is an integral part of the fund's approach across all 6 pillars.



Photo © Asia Ocean Fund

Impact measurement approach

Asia's ocean sector produces most of the world's seafood, managing over two-thirds of global maritime trade, and supporting millions of livelihoods. Yet the region faces urgent climate and sustainability risks, making accelerated investment essential for food security, decarbonisation, resilience, and the global transition to a New Blue Economy.

The fund uses the Ocean Impact Navigator, which includes about 30 KPIs across six categories. For each portfolio company, relevant KPIs are selected based on the company's activities. The fund also tracks social outcomes such as job creation and wage improvements, reflecting a holistic approach to adaptation and resilience.

Key lessons

Companies in Asia often lack the support structures available to those in Europe or the US. The fund aims to be catalytic by providing both capital and capacity-building to help companies scale and attract further investment, further helping build the region's startup ecosystem.



Measurable impact, scalable business models, founder alignment, and active investor engagement are crucial to ensure mission lock and impact alignment throughout the investment lifecycle for the fund's investments.

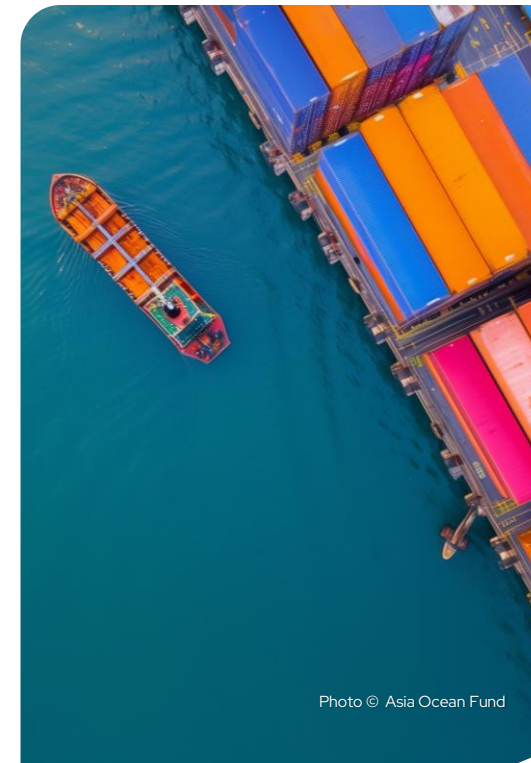


Photo © Asia Ocean Fund

LeapFrog Investments: A&R across health, financial services, and climate



ASSET CLASS TYPE
Private equity

GEOGRAPHY
Emerging Asia and Africa

FUNDING APPROACH
Commercial

AUM/FUND SIZE
US\$3.2 billion

AVERAGE TICKET SIZE RANGE
US\$30-60 million

HQ
Mauritius domiciled

YEAR ESTABLISHED
2007

INSTRUMENTS DEPLOYED/
ASSET CLASS
Private Equity

OVERALL PORTFOLIO RETURNS EXPECTATIONS
15-20%

TIME HORIZON
4-7 years

Key takeaways

- LeapFrog demonstrates how impact investors can take a multi-pronged approach toward advancing climate adaptation and resilience, addressing health and financial resilience in addition to climate solutions.
- Extreme weather events will have a significant impact in emerging markets, necessitating climate risk considerations for existing investments.

Key investment themes

LeapFrog's investment portfolio fulfils the following impact objectives:

Health and Wealth Strategy: LeapFrog's Flagship Funds invest in health and wealth companies that provide safety nets (risk mitigation and poverty prevention) and springboards (financial products for economic inclusion and healthcare services) for low-income emerging consumers and MSMEs. Emerging consumers are defined as individuals living below \$11.20 per day (2017 PPP\$)

Climate Strategy: LeapFrog's Climate Strategy further backs companies who are creating low-carbon, climate-resilient pathways to prosperity for consumers and producers while generating attractive risk-adjusted returns. LeapFrog targets the highest emitting sectors across Africa, South Asia and Southeast Asia - energy, mobility, built environment and agriculture and food - which together make up 85% of emissions. The strategy is focused on solutions that create climate impact through mitigation, adaptation, or combined pathways.

LeapFrog further backs technologies or business models that already benefit from a "green discount" to ignite adoption at-scale. Emerging markets are pivotal to the world's net zero ambitions - driven by structural factors such as population growth, infrastructure expansion, and economic activity. This growth trajectory makes emerging markets a critical setting for scaling climate solutions.



Photo © LeapFrog Investments

Overarching mission

LeapFrog seeks to fulfil the global unmet demand for financial services, healthcare and climate solutions in Africa and Asia by backing high-growth, innovative, scalable businesses.

IMPACT

>US\$70B
Disbursed in loans>US\$261M
In insurance claims paid7.4B
Payments enabled

CA&R focus and opportunity areas

Consumers and producers in LeapFrog's active markets are experiencing climate change shocks, from extreme flooding in Pakistan to lethal heatwaves in India and droughts in Kenya. These have catalysed a growing demand for protection services and products, ranging from protection from unexpected financial shocks to resilient food sources and built environments.

Financial inclusion is evolving in response - to include protection against climate-related shocks and to facilitate access to green energy via loans. Many of LeapFrog's financial services companies are developing solutions that strengthen climate resilience for households and businesses.

As more extreme weather events occur, investing in and scaling climate solutions that directly address adaptation will be vital to continued economic growth, sustainable development, and safe, secure living conditions.

This is especially important for protecting human health and safeguarding food supply. It is also critical for supporting MSMEs, which underpin 90% of livelihoods in target regions.

LeapFrog considers climate resilience at a portfolio management level - including assessing climate risks at a high-level during due diligence. Material findings are embedded into a company's Environmental and Social Action Plan, along with corrective actions. Investment Teams are trained on climate board governance, which includes engaging management on material climate risks and opportunities.



Photo © LeapFrog Investments

Impact framework

LeapFrog develops an impact thesis and theory of change for each fund and portfolio company. For Health and Wealth, Impact is evaluated across four core areas: (1) scale of emerging consumers reached (2) product quality (3) product affordability (4) good governance, including the integration of social, environmental and climate best practices.

For Climate, Impact is evaluated across the following pillars: (1) Mitigation - ability to mitigate future emissions, (2) Adaptation - ability to prepare, prevent, or respond to climate-related risks, (3) Livelihoods - ability to create, support, or enhance wealth creation for users, and (4) Access - ability to reach consumers via affordable and relevant products.

Key lessons

There are strong business models in the adaptation and resilience space. The constraint is often not demand but achieving scalability. Impact investors have an important role to play in bringing capital and value creation expertise to realise these opportunities.



Photo © LeapFrog Investments

Featured portfolio companies

A pioneer in sustainable and inclusive financing, **HDBank** advances climate adaptation by strengthening financial resilience through lending and insurance, as well as its financing of green projects.

Bolttech, a global Insurtech company, offers home insurance to climate disaster prone regions, made possible with early-detection technologies that allows them to reduce loss ratios.

The Lightsmith Group: Investing with a focus on adaptation and resilience

The Lightsmith Group

ASSET CLASS TYPE
Private equity

GEOGRAPHY
Global

FUNDING APPROACH
Commercial

AUM/FUND SIZE
US\$185 million

AVERAGE TICKET SIZE RANGE
US\$15-30 million

HQ
Luxembourg domiciled

YEAR ESTABLISHED
2017

INSTRUMENTS DEPLOYED/ ASSET CLASS
Private Equity

OVERALL RETURNS PORTFOLIO EXPECTATIONS
15-20%

TIME HORIZON
3-5 years hold periods

Key takeaways

- Given the profound impact and disruptions of climate change across sectors and regions, addressing climate adaptation and resilience will continue to grow as a crucial investment strategy.
- Existing proven commercial technologies are well-positioned to address climate disruptions, offering both strong demand growth and low technology risk for investors.

Key investment themes

Lightsmith actively invests in growth-stage companies that provide solutions to help society and the economy adapt to the increasing risks and impacts of climate change. Lightsmith's fund structure and processes pursue commercial returns alongside impact-oriented objectives.

Launched in 2019, the fund pursues an active minority growth equity strategy to scale up technologies and solutions for climate adaptation and resilience. And help them expand globally. The fund has additional components such as impact measurement and use of a taxonomy to define CA&R investments.

At least half of the fund's capital must be deployed in developing countries, supported by a technical assistance facility designed to help deploy technologies to rural, low-income, and vulnerable populations. CA&R is the core investment theme at Lightsmith.

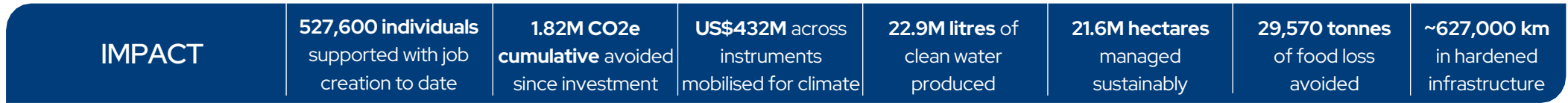


Photo © Ivan Bandura from Unsplash

Overarching mission

The Lightsmith Group, founded in 2017, pioneered the adaptation and resilience (A&R) investment space by launching the first dedicated growth equity fund focused on adaptation and resilience, helping to define what experts recognize as an “inevitable” or “unavoidable” investment opportunity likely to exceed \$1 trillion by 2030 .

Lightsmith's investors are a diverse group of private investors as well as governments, development banks, and philanthropies, including European Investment Bank, the German government, Asian Infrastructure Investment Bank, the Green Climate Fund, the Rockefeller Foundation, insurance companies, and family offices.



CA&R focus and opportunity areas

Lightsmith’s 1,000+ company investment pipeline includes companies providing software, data and analytics, and business intelligence, as well as technology-enabled services that enhance resilience in areas such as supply chain analytics, weather modeling, precision agriculture, water efficiency, distributed energy, business continuity, disaster response, infrastructure engineering, and insurance that will grow faster due to this overarching macro trend of increasing disruptions from climate change. Focus areas include resilience solutions in energy and infrastructure, supply chains and logistics, food and agriculture, and water.

Lightsmith has invested in eight companies, typically between US\$15 and 30 million each. The portfolio includes satellite imaging-based AI for utility wildfire and storm management; IoT for real time supply chain visibility; insurance for high-value and perishable marine cargo; IoT and software for optimizing agricultural operations and adjusting to changing climate and weather conditions; as well as adaptation solutions in water and food.

Lightsmith invests in companies whose solutions provide adaptation and resilience alongside other benefits, such as financial ROI and GHG emissions reductions. Lightsmith tracks adaptation-related revenues and impact indicators for each of the portfolio companies.

Key lessons

Global spending on CA&R solutions has accelerated: \$170bn/yr 2019 to \$480bn/yr 2024 (~20% CAGR)



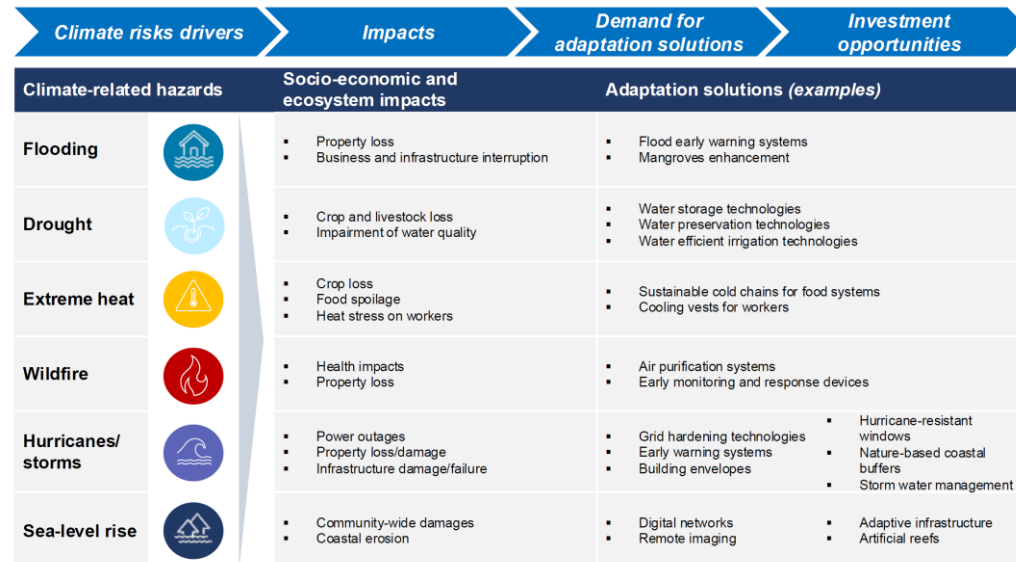
The adoption of CA&R technologies has also accelerated, but in specific “Near Horizon” areas – energy, infrastructure, and supply chain resilience. An example would include grid management technologies by utilities facing increased wildfire and storm impacts



New definitions (taxonomy) and new impact measurement approaches have been needed needed for the creation of the C&AR space



Impact framework



Featured portfolio companies

AiDash, provides satellite imaging-based AI for utilities to manage wildfire and storm risks

Tive provides IoT and software for real time location tracking and condition monitoring to improve supply chain resilience.



Climate Fund Managers' Climate Investor Two Fund: Blended finance for infrastructure adaptation

CLIMATE FUND MANAGERS

CA&R SECTOR
Infrastructure

GEOGRAPHY
Global (Africa, Asia, Latin America)

FUNDING SIZE
US\$1.065 billion

AVERAGE TICKET SIZE
Min US\$10 million

HQ
The Netherlands

YEAR ESTABLISHED
2019, final close in 2025

INDICATIVE RETURNS PROFILE
Development fund (concessional returns), construction equity fund (public/private returns)

TIME HORIZON
Long term

Key takeaways

- Infrastructure investors can mobilise large-scale adaptation funding in frontier markets through a layered investment base.
- Blended finance can play a key role in improving investment viability.

Key investment themes

Climate Investor Two (CI2) is a blended-finance facility supporting water, sanitation, waste, and ocean-sector infrastructure across Africa, Asia and Latin America - the largest fund of its kind in emerging markets.

CI2 attracts a multi-layered investor base including DFIs and multilaterals (who take higher-risk positions to enable private investment), public sector banks (who support national and regional resilience priorities), institutional investors (attracted by long-duration, inflation-linked returns from essential-service infrastructure). Additionally, bond investors will be able to participate through the Bridge-to-Bond mechanism.



Photo © Kelvin Zyteng on Unsplash

Overarching mission

Climate Investor Two (“CI2”) has the mission to develop and construct infrastructure projects in developing countries in the water, sanitation, and ocean sectors that reduce the effects and consequences of climate change by ameliorating GHG emissions and by increasing resilience.

CI2 uses a whole-of-life financing model covering early development through construction, helping mobilise private capital in markets typically underserved by commercial investors.

CA&R focus and opportunity areas

CI2 targets high-priority climate adaptation needs such as:

- Water security through desalination, distribution systems, and safe water access.
- Urban resilience with sanitation and waste-to-energy infrastructure.
- Ecosystem protection, including financing linked to Galápagos marine conservation.
- Coastal and ocean resilience via ocean-sector projects.

Impact framework

CI2 aims to deliver systemic adaptation outcomes by:

- Providing safe water and sanitation to 16.5 million people.
- Protecting or restoring 2.2 million hectares of ecosystems.
- Helping prove that adaptation can function as bankable infrastructure rather than donor-dependent spending.

- Introducing scalable financial structures such as debt-for-nature swaps and bond-refinancing pathways.

Featured portfolio companies

AZUR is developing Waste to Energy (WtE) facilities in Northern Thailand, utilising incineration technology to burn municipal solid waste.

CI2 is supporting the development of the **CA Water** platform to address the rapidly increasing water and sanitation demands in Vietnam.



Key lessons

CI2 demonstrates that large-scale adaptation finance is feasible, exceeding USD 1 billion in frontier markets. Its Bridge-to-Bond model shows how adaptation infrastructure can tap fixed-income capital, while the EU guarantee highlights the critical role of public risk-sharing. At the same time, CI2 underscores that blended-finance structures remain highly bespoke and hard to replicate.



CI2 demonstrates how blended finance improves investment viability. Public-sector donors fund the development stage of the projects, which cannot be typically financed by private-sector investors. Donors also play a key role in mobilising private-sector capital during the construction stage of the project, where risks are better understood and financial returns can be achieved.



Development
Fund

Construction
Equity Fund

Refinancing
Fund

Mirova's Sustainable Land Fund 2: Blended finance for sustainable land management and restoration



FUNDER TYPE
Asset management firm

GEOGRAPHY
Global

FUNDING APPROACH
Hybrid approach

AUM/FUND TARGET SIZE
US\$350 million (fundraising)

AVERAGE TICKET SIZE RANGE
Varies

TIME HORIZON
Varies

HQ
France

YEAR ESTABLISHED
2012

INSTRUMENTS DEPLOYED/ ASSET CLASS
Straight and quasi-equity instruments, mezzanine and hybrid debt, junior to senior debt loans, and technical assistance

OVERALL PORTFOLIO RETURNS EXPECTATIONS
Varies

Key takeaways

Key partnerships across investors, sector experts, and ecosystem entities are crucial in ensuring the successful blended financing and impact of large-scale projects.

Impact framework

Mirova's Environmental and Social Management System provides a framework for ESG management, with systemic control and ESG risk management.

The MSLF2 also has several key impact objectives, which include:

- Contribution to **climate and nature-positive goals**. Projects should aim to reduce their carbon footprint and address environmental impacts (including climate mitigation and biodiversity).
- Social co-benefits related to livelihoods and gender equality.
- Compliance with robust environmental and social standards.
- Scale and spillover effects. Projects should positively affect a large area and/or play a significant role in their respective value chains and/or landscapes.



Photo © Mirova

Overarching mission

Mirova is a global asset management company dedicated to sustainable investing, aiming to combine long-term value creation with positive environmental and social impact. As a **mission-driven company** and a certified **B Corp**, Mirova seeks to **align capital with the long-term challenges** of climate change,

biodiversity loss and social inclusion.

Natural Capital platform: Mirova's natural capital strategy focuses on financing nature-based and land-use solutions, supporting the transition of agricultural and forestry value chains through long-term, impact-driven investments that address climate change, biodiversity loss and the resilience of ecosystems and livelihoods.

IMPACT	Land Hectares under sustainable land use	Climate mitigation Tons of CO ₂ removed and sequestered	Climate and economical adaptation Climate and economically resilient farmers	Biodiversity Ha of ecosystem conserved	Social Direct workers contracted	Gender Alignment with 2024 2X criteria
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Key investment themes

Sustainable land use within the Natural Capital platform: providing long-term equity and debt financing to sustainable land use projects across forestry, agroforestry and regenerative agriculture, supporting certified food and fibre production and enabling the transition of global value chains, particularly in the agri-food sector.

Blended finance, leveraging catalytic, public and philanthropic capital alongside private investors to mitigate risks, mobilise institutional capital and scale investments in emerging markets.

CA&R focus and opportunity areas

Mirova Sustainable Land Fund 2 (MSLF2) supports the transition and decarbonisation of agricultural and forestry value chains, while generating

financial returns and positive impacts on climate, biodiversity, water and social inclusion, with a particular focus on women in emerging markets.

The fund is supported by a broad coalition of public, philanthropic and private investors, including the SDG Impact Finance Initiative (SIFI) as junior investor, Abeille Assurances, Allianz France, BNP Paribas Cardif, as well as development finance institutions FMO and Proparco. It has also welcomed additional catalytic support from DEFRA (UK), Global Affairs Canada, The Coca-Cola Foundation, and the Green Climate Fund.

Mirova relies on strategic sector and technical partners, including the Forest Stewardship Council (FSC) and Rainforest Alliance, as well as a Technical Assistance Facility managed by the Catalytic Finance Foundation, to strengthen project origination, promote high standards and support the development of a robust pipeline of high-quality, locally led nature-based initiatives.

Key lessons

More capital will be needed to support large-scale projects, particularly in emerging markets, where blended finance plays a key role in mobilising funds from institutional investors through risk mitigation mechanisms established by DFIs and philanthropic actors. An increasing demand for sustainable food and strengthened regulation of supply chains is fostering the emergence of this new asset class.



Ecosystem partners such as AXA Climate and I-Care play a crucial role in providing data for ex-ante analysis during technical assistance provision and to shape investment strategy monitoring. This data includes physical climate risk and carbon lifecycle data.



Featured portfolio companies

Big Tree Farms is a leading producer of organic coconut sugar products in Indonesia. Mirova's investment will enable Big Tree Farms to expand its farmer network to 25,000 and double production capacity, while embedding regenerative practices into every link of the supply chain.

Kennemer is a Philippines-based diversified agroforestry holding company, specializing in (i) sustainable farming, sourcing, and trading of high-quality crops such as cocoa beans and bananas, (ii) associated micro-finance initiatives aiming a supporting smallholders and (iii) sustainable forest management through nature-based solutions.

MIROVA SUSTAINABLE LAND FUND 2 SLP RAIF is a special limited partnership (société en commandite spéciale) qualifying as a reserved alternative investment fund (fonds d'investissement alternatif réservé), opened to subscription exclusively for eligible investors as defined in the fund rules. Mirova is the management company. The supervisory authority approval is not required for this fund. The fund is exposed to risk of capital loss risk, discretionary management risk, valuation risk, counterparty risk, liquidity risk, sustainability risk, country risk, operational risk, regulatory risk, currency risk, interest rate risk, credit risk, risk linked to the investment strategy, sustainability risk.

GAIA Climate Loan Fund: Long-term climate financing for emerging markets



- FUNDER TYPE**
Global financial institution
- GEOGRAPHY**
Emerging markets
- FUNDING APPROACH**
Blended (combination of market-rate, concessional and grant-capital)
- AUM/FUND SIZE**
Up to US\$1.5 billion
- AVERAGE TICKET SIZE RANGE**
US 5-35 million
- HQ**
Tokyo, Japan
- YEAR ESTABLISHED**
2025
- INSTRUMENTS DEPLOYED/ ASSET CLASS**
Private loans
- OVERALL PORTFOLIO RETURNS**
Commercial levels (senior), 2.00% p.a. fixed (junior)
- TIME HORIZON**
Fund life of 30 years, loan term of up to 15 years

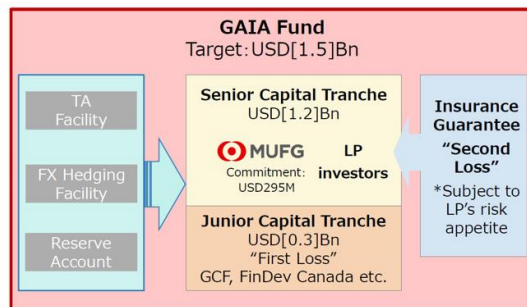
Key takeaways

GAIA is a unique blended finance structure to mobilise capital at scale into high-impact Climate Adaptation & Mitigation investments via public borrowers across emerging markets.

GAIA aims to achieve a 4x private capital mobilisation ratio, having achieved first close in 2025 at US\$ 600 million. The fund targets a total size of USD 1.5 billion, with final close anticipated in late 2027.

Key investment themes

- Adaptation & Resiliency Focus
- SIDS & LDCs Allocation
- Sovereign, Quasi-Sub-Sovereign, SOE Borrowers



CA&R focus and opportunity areas

GAIA marks a new approach to climate finance by providing long-term loans to sovereign, sub-sovereign, quasi-sovereign and state-owned entities, including municipalities, development banks and state-owned utilities, across 19 emerging and developing countries. A minimum of 25% of commitments will be deployed in Least Developed Countries (LDCs) and Small Island Developing States (SIDS), where financing needs are greatest.

At least 70% of capital will be dedicated to climate adaptation – such as sustainable agriculture, water management, ecosystem resilience, and climate-smart infrastructure – with up to 30% supporting mitigation, including renewable energy and low-carbon transport.



GAIA uses a blended finance structure that combines public and private investment, with public funding deployed strategically to reduce risk and mobilise private capital. The facility is structured with a junior tranche funded by concessional partners and a senior tranche for commercial investors, alongside a dedicated FX facility for local currency lending and a parallel Technical Assistance Facility to strengthen project preparation, ESG readiness, performance and impact outcomes.

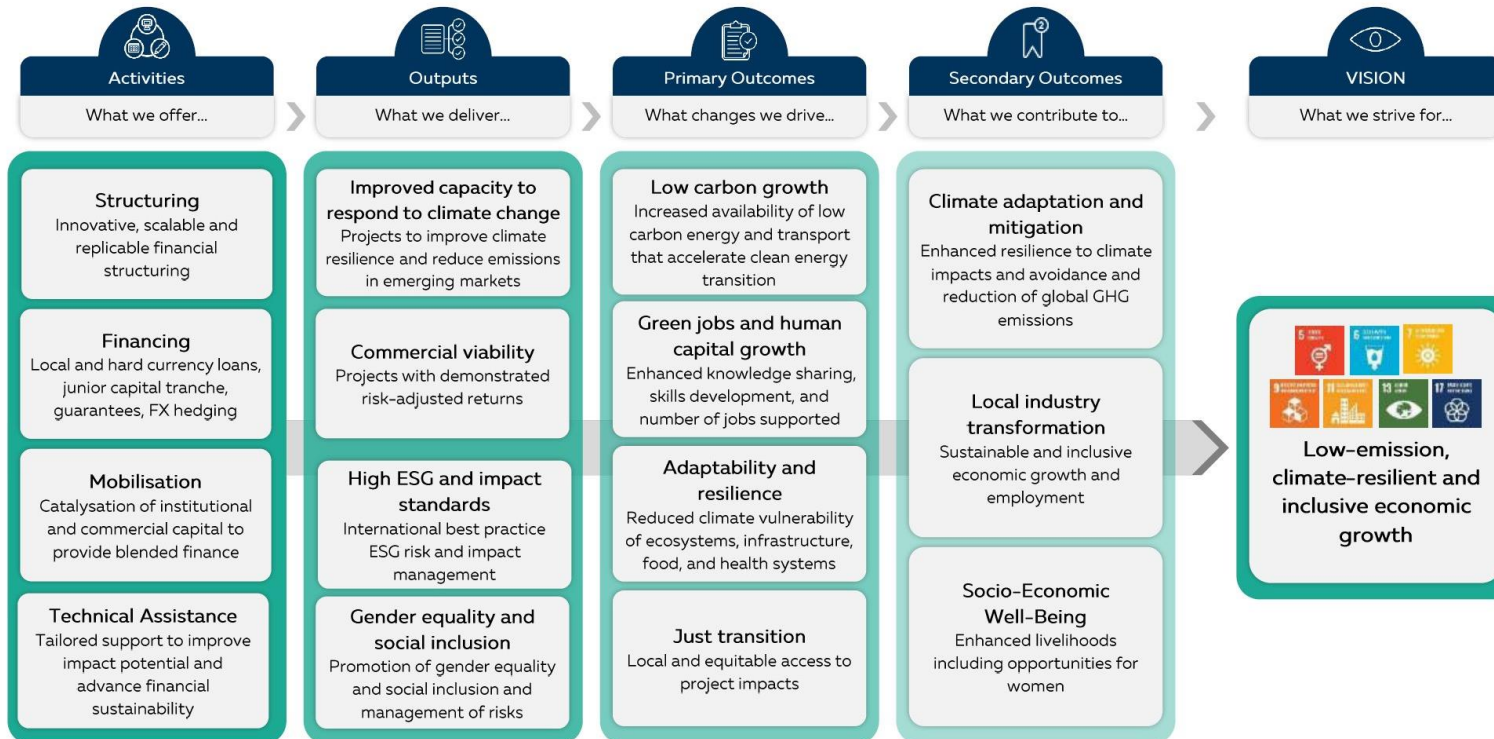
Overarching mission

Established as a partnership between MUFG, Climate Fund Managers, FinDev Canada, and the Green Climate Fund, GAIA is a climate-focused blended finance debt platform that finances adaptation and mitigation projects in 19 emerging market countries in Africa, Latin America and the Caribbean (LAC) and Asia (Investments in sovereign, sub-sovereign, quasi-sovereign entities).

IMPACT

Upon full deployment, GAIA aims to benefit an estimated 19 million people and create more than 11,000 permanent jobs; avoid ~30 million tonnes of CO₂ equivalent emissions per year, deliver ~700 MW of renewable energy capacity and ~36,000 GWh of clean generation annually, and improve the climate resilience of over 5,000 km² of natural resources.

Impact framework



Rare's Small-Scale Fisheries Impact Bond: Outcomes-based financing for managed access with reserves fishing



FUNDER TYPE
Non-profit organisation

GEOGRAPHY
Indonesia (pilot in Southeast Sulawesi); model designed for replication across coastal markets

FUNDING APPROACH
Outcomes-based financing (hybrid public-private capital)

AUM/FUND SIZE
US\$6 million

HQ
United States

YEAR ESTABLISHED
1973

INSTRUMENTS DEPLOYED/ ASSET CLASS
Impact bonds, technical assistance, community-led conservation

Key takeaways

Rare is pioneering the world's first Small-Scale Fisheries (SSF) Impact Bond, demonstrating how outcomes-based financing can unlock capital for biodiversity conservation, community-led fisheries management, and sustainable livelihoods.

Funding mode

The SSF Impact Bond is designed to finance \$6 million in implementation costs over its lifetime. To achieve this, it mobilized US\$2.1 million in upfront investor capital from Minderoo Foundation and the Pershing Square Foundation. Investor principal is repaid through outcome payments over the five-year period, with capital recycled across implementation cycles and premium outcome payments providing a modest return.

Outcome funders, including Builders Initiative, Milkywire, Pershing Square Foundation, Rumah Foundation, UK DEFRA through the Ocean Risk and Resilience Action Alliance (ORRAA), and Walton Family Foundation, committed up to US\$6 million in outcome payments, disbursed only upon achievement and independent verification of pre-agreed results.

The model incorporates payment sequencing and buffer mechanisms to manage any potential delays, ensure continuity of implementation, and risk

mitigation for invested capital.

This structure aligns financing with timelines that allow for ecological impact while maintaining crucial accountability through independent verification, creating investor confidence and incentive for outcome funding.

CA&R focus and opportunity areas

- Healthy and stable marine ecosystems
- Contribution to 30x30 and effective area-based conservation
- Better food security and improved livelihoods



Context and challenge

Small-scale fisheries underpin global food security and marine biodiversity but remain largely informal, underfunded, and excluded from formal financial systems.

At the same time, biodiversity faces a major financing gap—requiring ~US\$800 billion annually, with only ~US\$100–150 billion currently invested. Ocean conservation receives just US\$1.2 billion of the US\$15.8 billion needed each year.

Traditional funding cannot sustain the long-term, locally led governance systems required to deliver ecological outcomes, creating the need for financing models that link capital directly to verified results.



IMPACT	22,156 Hectares under improved management	27 Coastal communities engaged	442 Individuals trained
	1,300 Training hours delivered	MA+R boundaries defined and endorsed via community-led workshops	First outcome verified and paid

Impact thesis and solution

Rare launched the world's first Small-Scale Fisheries Impact Bond, an outcomes-based financing (OBF) mechanism that aligns private and philanthropic capital with measurable biodiversity and livelihood outcomes. Outcomes-Based Financing ties payment to independently verified results against pre-agreed outcomes. Upfront capital is provided by investors to finance implementation, while payments are only disbursed once pre-agreed outcomes are achieved and verified—ensuring transparency, accountability, and effectiveness in conservation financing.

Payments for the Impact Bond are tied to independently verified milestones—including the establishment of Managed Access and Reserves (MA+Rs) and improvements in fish biomass. MA+Rs are community-designed resource use plans that combine designated fishing areas with no-take zones to support both livelihoods and ecosystem recovery. The model de-risks conservation investment, shifts performance risk away from communities, and creates a scalable pathway for financing ocean conservation.

Rare's pilot is demonstrating that OBF is a critical mechanism for unlocking capital for biodiversity and conservation by linking payments directly to achieved outcomes rather than activities.

By reducing uncertainty around impact and creating accountability through verification, OBF de-risks conservation investments, attracts new sources of capital, and enables the scale of financing required to meet global targets such as 30x30 and SDG 14.

Key lessons

Verification converts impact into financeable results.

Independent verification translates ecological and governance outcomes into financeable results. This requires robust monitoring and performance systems, legal structures, and data infrastructure to be in place from the outset.



Integration with public finance systems is critical for scale.

For OBF to move beyond pilots, it must align with government priorities, such as marine spatial planning, ocean financing, and global commitments like 30x30. This creates a pathway for integration into public financing systems, including the potential for governments to act as outcome funders over time.



Next steps







Rare is scaling outcomes-based financing across geographies and sectors:

- Expanding a regional SSF Impact Bond in Indonesia.
- Designing a land-to-sea OBF mechanism for peacebuilding in Colombia.
- Applying the model to blue carbon ecosystems & nature-based solutions.
- Standardising systems to enable replication and attract larger capital.

In addition to outcomes-based financing, Rare is developing complementary financial mechanisms—including parametric insurance and technical assistance for nature-based businesses—to strengthen resilience, improve financial inclusion, and enable broader participation in sustainable economic systems.

Alabama Homeowners: Insurance discounts for real estate resilience



 ASSET CLASS TYPE Real estate/ Insurance	 HQ USA
 GEOGRAPHY Alabama	 YEAR LAUNCHED 2009
 INDICATIVE RETURNS PROFILE N/A	 AVERAGE TICKET SIZE Up to US\$10,000

Key takeaways

- Investing in home-resilience can generate cost savings for properties in high-risk areas.
- Insurance solutions can incentivise adoption and help pay for the up-front cost of these resilience upgrades.

Programme and funding model

Upgrading to a FORTIFIED Roof costs about US\$10,000, but Alabama's Strengthen Alabama Homes grant can cover the full amount for eligible coastal homeowners.

Insurance discounts of 20–35% on the wind portion of premiums—about 80% of a typical US\$3,114 policy—translate to average annual savings of roughly US\$685.

Homeowners who receive the grant gain immediate savings, while those who pay upfront see a simple payback of about 15 years (faster if they qualify for higher discounts).

Strengthened roofs also reduce expected storm losses and help stabilize premiums in the region's stressed insurance market.

The model appeals to:

- Property insurers** seeking lower loss severity and reinsurance costs,
- Real-estate investors and lenders** who benefit from reduced asset risk and improved portfolio resilience.



Photo © Kelly on Pexels

Context and challenge

Damage from hurricanes in the mid-2000s – from Ivan to Katrina – led to home insurance wind premiums more than tripling in some cases, according to the Alabama Department of Insurance.

Impact thesis and solution

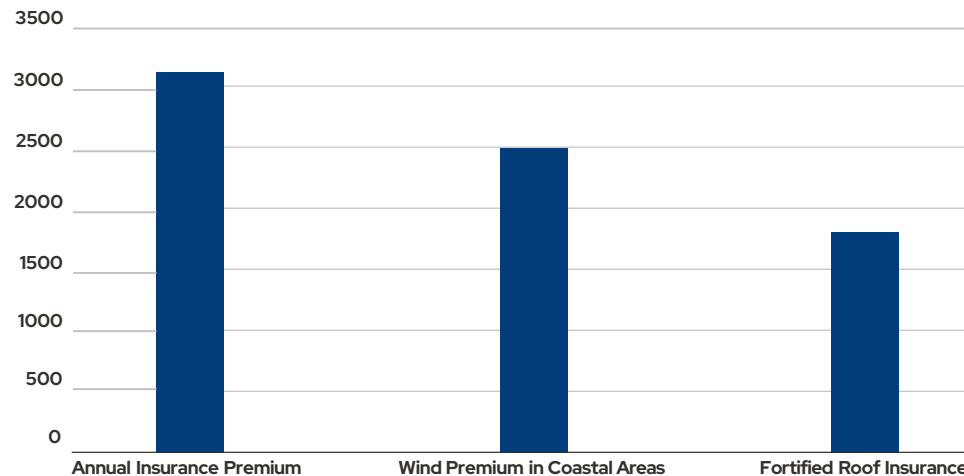
The State of Alabama pioneered Strengthen Alabama Homes, a home-resilience incentive program that provides insurance discounts to homeowners who strengthen their roofs and other key building components to better withstand hurricanes. The programme targets **wind damage reduction and storm-driven water intrusion prevention**.

Upgrades such as reinforced fasteners and other structural improvements significantly reduce the risk of roof loss in high-wind events.

More than 50,000 homes in the state have now been upgraded to the FORTIFIED Roof standard, demonstrating broad, statewide adoption.

The FORTIFIED ROOF standard helps make roofs more resistant to storm damage through additional waterproof layers and ring shank nails.

- Reducing structural failure during hurricanes.
- Maintaining insurability and affordability for households.
- Encouraging statewide adoption of disaster-resilient construction techniques.



Key lessons

Alabama Homeowners shows that incentive-based resilience can scale, with more than 50,000 FORTIFIED homes demonstrating fast market uptake.



Insurance-linked adaptation is emerging as a pathway for embedding climate resilience into real-estate value.



The model offers a replicable solution for markets facing rising premiums and insurer retreat, and with nearly 85% of new FORTIFIED roofs now installed without public subsidies, it also shows that once incentives and standards are in place, private capital can sustain resilience investment at scale.

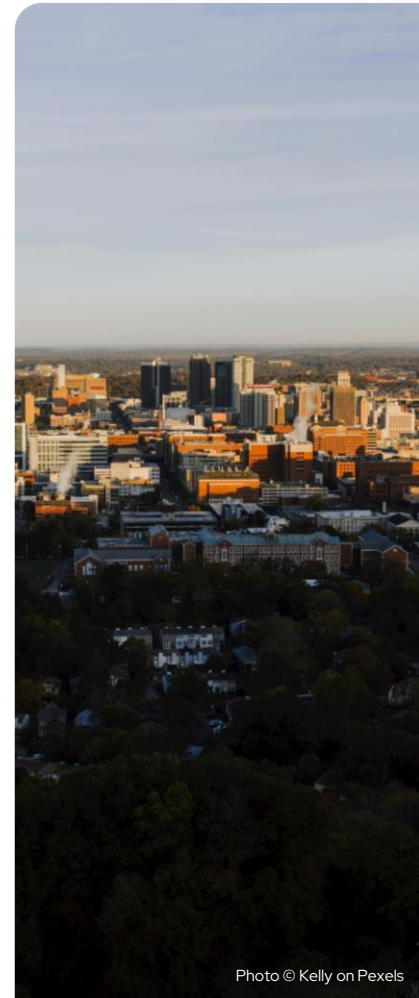


Photo © Kelly on Pexels

Tokyo Resilience Bond: Fundraising to strengthen Tokyo's climate adaptation for infrastructure

📍 TOKYO METROPOLITAN GOVERNMENT

ASSET CLASS TYPE Bond	HQ Tokyo
GEOGRAPHY Japan	YEAR LAUNCHED 2025
FUNDING SIZE US\$333 million (~¥53 billion)	TIME HORIZON 5 years

Key takeaways

Well-structured, high-quality municipal bond projects such as the Tokyo Resilience Bond can serve as a reliable source for adaptation financing.

Funding model

The Tokyo Resilience Bond issue is US\$330 million (approximately ¥53 billion), with a coupon of 2.625%, maturing over 5 years. The issuance was priced at +40 bps over mid-swaps, reflecting a 6bp tightening from initial price thoughts, supported by robust investor engagement.

The transaction attracted nearly 120 investors, extending well beyond traditional ESG-focused accounts. The bond is expected to be rated A+, consistent with Japan's sovereign rating, making it accessible for mainstream investment-grade fixed-income investors.

Investor demand was strong, signalling market appetite for high-quality resilience financing instruments: **Orderbook:** €2.2 billion, **Oversubscription:** ~7x.

Projects funded by the Resilience Bond include:

- **Flood defences:** upgrading river flood resilience and drainage systems to manage extreme rainfall.
- **Coastal protection:** enhance protection for the Port of Tokyo to protect against storm surges.
- **Sediment Prevention:** Developing specialised facilities to prevent landslides and sediment-related disasters.

The bond's proceeds are not used to refinance existing expenditures.

Context and challenge

The Tokyo Metropolitan Government (TMG)'s "Tokyo Resilience Project" responds to escalating physical climate risks, including rising sea levels, stronger typhoons, and extreme rainfall. Tokyo's dense population, aging, infrastructure,

and coastal geography heighten its vulnerability, despite its advanced disaster-management systems.



Photo © Iban Lopez Luna on Pexels

Solution and impact thesis

In October 2025, the Tokyo Metropolitan Government (TMG) issued its inaugural resilience-labelled bond, raising US\$333 million (≈¥53 billion) to strengthen the city's climate adaptation capabilities.

This landmark deal is the first bond globally to be certified under the Climate Bonds Initiative (CBI) Resilience Criteria, setting a new benchmark for adaptation-focused financing.

The bond supports a long-term strategy to safeguard residents and critical assets, strengthen climate-adaptation infrastructure, and enhance overall urban resilience in the face of accelerating climate impacts. These include the construction of seawalls and regulating pond development.



Photo © PJH on Unsplash

Sample projects

Target business

Contribution to CA&R

Development of small and medium-sized rivers

To deal with heavy rain, etc., construction of embankments and regulating ponds

Tokyo Port and Island Coastal Conservation Facility Development Project

Raising seawalls and other structures to prevent damage from high tides

Earthquake and water resistance of river facilities

Strengthening levees and other structures to prevent damage from storm surges

Promoting the elimination of utility poles

Electric wires are buried underground to prevent poles from collapsing due to storms, etc

Development of landslide prevention facilities and coastal protection facilities

Developing erosion control facilities and revetments to prevent landslides caused by storms and damage from waves

Port construction project

Improved resistance of quays and other structures against waves caused by storms

CA&R businesses



Centre for Impact
Investing and Practices

Airport Authority Hong Kong: Adaptation and resilience to future-proof infrastructure



CA&R SECTOR
Infrastructure

GEOGRAPHY
Hong Kong

MATURITY
NA (statutory board)

HQ
Hong Kong

YEAR ESTABLISHED
1995

ARR
HK16'404 million (FY2024/2025)

Key takeaways

- Given the realities of climate disruption in day-to-day operations, infrastructure players are looking to climate adaptation and resilience as key strategic concerns for future-proofing.
- Climate contingency and scenario planning is crucial especially given the complexity of airport operations.

Business model

To strengthen HKIA's resilience to evolving physical climate risks and enhance adaptive capacity, AAHK completed an 18-month Climate Resilience Study for HKIA in 2020/2021. This involved creating a cross-departmental steering committee and working group across 20 internal departments to encourage collaborative input and knowledge sharing, as well as seek endorsement of the study's key outputs.

The study assessed multiple scenarios across 2030, 2050, and 2100, including extreme projections like RCP 8.5 ("business-as-usual" scenario) and the scenario of H++ (extreme) sea level rise.



As a result, a Climate Adaptation and Resilience Plan was formed with departmental Climate Action Plans that address climate-related risks for six priority assets: airfield, power distribution, baggage handling, chiller systems, airfield tunnel, and terminal buildings.

AAHK continually improves the HKIA's infrastructure pre-emptively and budgets via maintenance costs rather than through post-disaster repairs and potential damage costs.

The study has been complemented by targeted flood resilience studies, including detailed seawall and airport wide drainage assessments.

Context and challenge

The Airport Authority Hong Kong (AAHK) is a statutory body wholly owned by the Hong Kong SAR Government and handles the operation and development of Hong Kong International Airport (HKIA).

The HKIA is one of the world's busiest airports. According to World Airport Traffic Dataset 2024, HKIA is the top 9th airport in total international passengers enplaned and deplaned, and 1st in total air cargo handled.¹

HKIA is a critical infrastructure asset for Hong Kong, operating as the city's sole international airport, a major aviation hub and a key node in global trade and supply chains.

However, climate change threatens the continued operations of the HKIA. Sea levels, annual rainfall, and the frequency of extreme weather conditions are expected to continue rising,² which can potentially disrupt cargo and passenger traffic, as well as damage infrastructure and aviation assets.



Solution and impact thesis

AAHK has implemented a comprehensive climate adaptation strategy centered on resilient infrastructure design, proactive asset enhancement, and long-term operational planning.

Acting on this strategy directly improves the robustness of global air-freight supply chains and aviation travel as it ensures HKIA's operations continue through extreme weather events and related manifestations of physical risk.

Key adaptation measures

- Conducted hydrodynamic modelling of the seawall and airport wide drainage system using the latest IPCC AR6 projections, assessing sea level rise, storm surges, overtopping waves and extreme rainfall (2030/2050/2100) to inform drainage and flood prevention measures as required
- Using a Laser Crack Measurement System to monitor runway pavement conditions and adopt new asphalt mix to reduce heat-related pavement distress.
- Deployed a robust, multi-layered uninterruptible power supply and backup system to ensure the continuous operation of essential systems at HKIA.

- Deployed Passenger Care Team to assist passengers and provide essentials and set up temporary rest areas for passengers and staff during extreme weather events (i.e. typhoons) when delays are prolonged.
- Conducting annual "Summer Blow" multi-agency exercises to refine typhoon contingencies, complemented by drills and exercises annually to strengthen response capability (for the past three



Photo © AAHK

Key lessons

Cross-departmental governance for the Climate Resilience Study, together with implementation of departmental Climate Action Plans, institutionalises accountability and continuous improvement.



Short, mid and long-horizon scenario assessment (2030/2050/2100, including worst-case scenarios and H++ sea-level rise) supports confidence that operations are being planned to remain resilient as physical climate risks evolve.



Resilience upgrades are planned and budgeted as preventative maintenance, reducing reliance on costly post-events repairs and damage-related losses.



Future outlook / Next steps

In 2024/2025, AAHK began implementing the Climate Event Feedback Mechanism (CEFM) to record operational impacts and related costs from extreme climate events, which then informs potential new actions that can be incorporated into departmental Climate Action Plans. By collecting such data, future airport planning can be continually improved with practical, recent data.

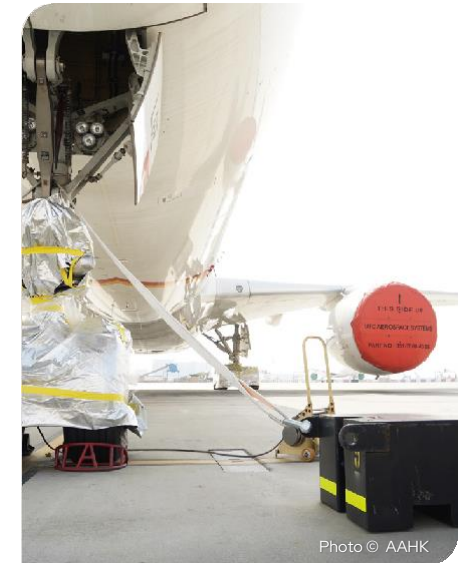


Photo © AAHK

ECOM

Agroindustrial: Long-term approaches to building smallholder resilience



CA&R SECTOR
Agriculture

GEOGRAPHY
Global

MATURITY
Privately owned

HQ
Switzerland

YEAR ESTABLISHED
1849

ARR
Not publicly disclosed

Key takeaways

With their vast network and reach, global corporations are able to play a crucial role in building climate resilience among smallholder farmers in their supply chains.

Large corporations can not only invest heavily in adaptation and resilience measures such as agroforestry, climate-resilient varieties, and research, but also in subsidising the adoption of these practices.

Business model

ECOM's sustainability division's core aspects include certification and compliance, field projects supported by both private and public sectors, and the mobilisation of farmer networks as clients for inputs like fertilisers, soil amendments, planting material, farming equipment, and crop protection products.

ECOM has implemented agroforestry systems in Vietnam and Indonesia, integrating shade trees such as macadamia, plum, durian, avocado, and mango to buffer climate shocks and provide additional income streams for farmers.

ECOM collaborates with research institutes like CIRAD to breed and



promote Arabica coffee hybrids adapted to agroforestry and shade, focusing on root systems resistant to water stress.

ECOM partners with fertiliser companies to supply coffee-specific fertilisers, sometimes blended with biochar, to support decarbonisation and improved yields.

ECOM has piloted projects in Vietnam and Indonesia focusing on parametric insurance and requiring partial premium payments from farmers with the support of organisations such as the InsuResilience Solutions Fund & Global Parametrics' Natural Disaster Fund.

ECOM ensures traceability and deforestation verification throughout its supply chain through first mile data collection, mapping farms, and creating its own Deforestation Verification Protocol.

Context and challenge

ECOM is a world-leading soft commodity services group specialising in coffee, cocoa, & cotton. ECOM employs more than a thousand agronomists and field staff worldwide, running innovative on-the-ground operations and sustainability programmes to help customers and farming communities worldwide.

Working in sustainability programmes with over 350,000 farmers globally, ECOM offers risk management, supply chain services, & logistics to ensure the efficient movement of agricultural products from origin to consumption.

ECOM is active in five Asia-Pacific countries –China, India Indonesia, Papua New Guinea, and Vietnam –working with approximately 22,000 farming families and a team of 110 agronomy staff, sourcing Arabica and Robusta coffee & engaging in direct supply chains with support from organizations like ADB.

These countries are uniquely vulnerable to the effects of climate change, especially changing rainfall patterns and droughts. Climate shocks affect coffee quality and yields through phenomena like high temperatures, pest outbreaks, and diseases such as coffee berry borer and leaf rust.

Solution and impact thesis

ECOM’s sustainability division “SMS” (Sustainable Management Services) was established over two decades ago with a focus on agricultural advisory, climate resilience, and compliance with international codes of conduct.

ECOM has long-term efforts in climate adaptation, focusing on agroforestry models, climate-resilient coffee varieties, soil health, & partnerships with research institutes and agro-input companies to enhance farmer resilience.

ECOM also has risk management strategies through parametric insurance schemes and traceability systems .



Photo © ECOM



Photo © ECOM

Key lessons

Farmers are generally aware of climate risks and the benefits of adaptation practices like shade trees and intercropping, with training tailored to local contexts and support levels.



While ECOM has developed apps for agronomic advice and weather forecasting, adoption is limited unless integrated into widely used platforms like WeChat, WhatsApp, or Zalo.



Engagement remains crucial as farmers remain difficult to convince to purchase insurance, with many regarding insurance as an investment rather than a safety net.



While volatility poses risks, it is also inherent to trading, making it difficult to isolate and quantify the economic impact of climate events. ECOM uses specific thresholds to determine when control measures are economically justified.



Future outlook / Next steps

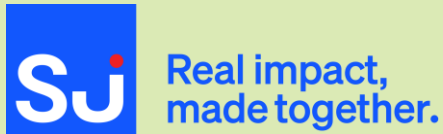
ECOM is piloting hardware solutions such as drip irrigation and solar-powered water pumps, often in partnership with technology providers and with financial support for farmers.

ECOM is engaging with major roasters to explore industry-wide support for insurance, including a ‘consumer pay’ approach, and is seeking to move systematic inclusion of insurance premiums in coffee contracts.



Photo © ECOM

Surbana Jurong (SJ) Group: Integrating climate risk into strategic decision-making



CA&R SECTOR
Infrastructure

Geography
Global

MATURITY
Privately owned

HQ
Singapore

YEAR ESTABLISHED
2015

ARR
Not publicly disclosed

Key takeaways

Integrating climate risks into long-term design, strategy and decision-making is crucial to improving the resilience, performance and investability of cities and infrastructure, including in Southeast Asia.



Photo © SJ Group

Business model

Surbana Jurong (SJ) Group's Climate Advisory works alongside clients to adopt climate-conscious strategies and implementable policies that help secure investments.

In the coastal province of Phu Yen, Vietnam, SJ Group supported a province wide, climate-conscious master planning process, incorporating nature-based solutions to mitigate environmental risks and enhance spatial planning. This informed long-term planning decisions, helping to safeguard people and planet. This intervention assisted the province to develop an eco-tourism business case. It was reported that Phu Yen welcomed 2.2 million visitors in 2022 and was expected to reach around 4 million visitors in 2024, representing a 25% increase compared to 2023.

Total tourism revenue was estimated at 8 trillion VND, up 62.7% compared to 2023 and 4.1 times higher than in 2019. This demonstrates how climate-related interventions can support downstream economic growth for cities and communities.

SJ Group's unique approach to climate risk intelligence modelling can provide actionable insights by projecting physical climate hazards into evidence-based climate de-risking solutions. Using AI, innovative solutions, machine learning, and high-resolution geospatial data, the team can build investment-grade climate insights and technical advice, and co-develop climate-linked investment solutions with industry partners.

Context and challenge

Climate adaptation and resilience are increasingly central to the long-term performance of cities and investable infrastructure, especially in Southeast Asia. When climate risks are integrated late in planning, design or investment processes, this can constrain design flexibility and lead to higher lifecycle costs and increased exposure to risk.

Asset-by-asset adaptation can be insufficient, as climate stress affecting one system may cascade into wider service disruption and social impacts. In a fast-growing coastal city in Indonesia, for example, city-wide sanitation planning has highlighted the importance of addressing climate and disaster risks at a system level, where stresses on wastewater networks can increase exposure to public health, environmental and economic risks if not considered early and in an integrated way.

Broadly, fragmented governance and financing arrangements can also create practical challenges for coordinated adaptation, even where climate risks are widely recognised.

Solution and impact thesis

While climate data and risk assessments are increasingly available, decision-makers can lack the support to translate this information into practical choices around policy direction, planning priorities and investment sequencing. Climate impacts are increasingly experienced across interconnected food, energy and water systems, where decisions in one area can affect outcomes in others- for example, in energy production, circularity and the economy.

Addressing these interdependencies therefore requires engagement at the level of strategy, policy, planning and investment, rather than solely through technical design responses. SJ Group's Climate Advisory is therefore positioned upstream to support earlier, more integrated decision-making that considers climate risk across interconnected systems rather than isolated assets.



Key lessons

The value of timely, actionable insights in driving climate solutions for investors, city leaders and decision makers is critical.



Leadership engagement at the strategic level, establishing participatory planning principles can strengthen resilience, build community buy-in and enable longer term returns on investment for both climate and people.



Interdependencies across the food, energy and water nexus, linked with technical systems, must be addressed collectively rather than in isolation.



Future outlook / Next steps

Climate Advisory at SJ Group will continue to focus on important interventions, integration and innovation, supporting cities to conceive, design and implement actionable solutions that drive investable opportunities for communities.

Looking ahead, the role of Climate Advisory is expected to increasingly support earlier decision-making, deeper integration across systems, and closer alignment between climate outcomes and investment strategies. Operating at the intersection of climate, AI and business, the team provides transformation roadmaps for cities, supporting responses to the global climate emergency while re-imagining the blueprint for an equitable and resilient green future.



GRST and SOLshare: Clean batteries and energy storage for adaptation and mitigation



⚡ CA&R SECTOR
Energy

🌐 GEOGRAPHY
China, expanding across Asia, North America, and Europe (GRST); Bangladesh and India, expanding across Asia, Europe, and Australia (SOLshare)

🕒 MATURITY
Series A (GRST & SOLshare)

🏢 HQ
Hong Kong (GRST), Bangladesh (SOLshare)

📅 YEAR ESTABLISHED
2015 (GRST), 2014 (SOLshare)

📄 ARR
Not publicly disclosed

Key takeaways

Innovative ventures are able to leverage complementary strengths to create both climate adaptation and mitigation benefits, as seen through the synergies between GRST's lithium-ion batteries and SOLshare's aggregation and storage services.

Catalytic capital can play a key role in funding successful pilots in new markets for intentional ventures.

Business model

GRST supplies PFAS-free lithium-ion batteries that can be easily recycled locally to high purity black mass through a water-based recycling process, replacing lead acid batteries

SOLshare provides vehicle tracking and payment software, financing expertise, and plans for vehicle-to-grid backup power systems to manage the batteries.

Through a Virtual Power Plant (VPP) framework, the partnership will aggregate electric three-wheelers and their batteries into a distributed energy network.



Photo © GRST and SOLshare

This network is capable of providing storage, load-shifting, and grid balancing services, feeding excess energy stored in the vehicle batteries at the end of day back into the grid.

GRST and SOLshare aim to structure a model where battery supply, leasing, charging, renewable/storage integration, and recycling form a virtually integrated value chain.

The initiative is supported by the Amplifier's catalytic funding of S\$250K, a joint initiative between the Centre for Impact Investing and Practices and Philanthropy Asia Alliance.

Context and challenge

>5 million electric rickshaws in Bangladesh use toxic lead-acid batteries which create issues with battery disposal and inefficient charging, polluting soil, air, and water.

Bangladesh's grid is constrained by challenges with power infrastructure, including load-shedding, grid instability, and limited battery storage and flexibility.

IMPACT	No toxic lead and no PFAS “Forever Chemicals” with significant health risks	>20% Increase in driver profits through faster and more efficient charging	30–40% Less electricity consumed through more efficient charging	2.5M tonnes of CO ₂ emissions reduced over a 4-year e-rickshaw lifespan
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Solution and impact thesis

GRST and SOLshare have partnered to replace toxic lead acid batteries with clean PFAS-free lithium-ion batteries.

GRST and SOLshare’s project in Bangladesh features a dual benefits business model, with mitigation enabled through emissions reduction from battery replacements, and adaptation through excess energy stored in vehicle-to-grid backup networks.

Key lessons

Targeting opportunities that provide minimal disruption to existing consumer patterns is important. GRST and SOLshare’s project was viable as many 3-wheelers in Bangladesh are already fully electric despite relying on poor-quality lead batteries.

By contrast, riders in other markets in Southeast Asia and Africa have not yet made the switch to electric vehicles, making such a pilot challenging to replicate.



Impact-focused patient catalytic capital is vital in supporting pilot projects, especially in new or frontier markets. The catalytic grant GRST received from the Amplifier was important in helping to push this project through.



Clear communication between teams in different countries with different technical background is key. In hindsight, several technical issues could have been solved a lot faster with clearer communications.



Future outlook/ Next steps

GRST and SOLshare will scale up deployment by raising financing targeting US\$1-5 million fixed income tranches (US\$1m = 1,000 units).

Following the distribution of clean battery units in 1H2026 2026 to 130 rickshaw drivers for their pilot, they are targeting 1,000 units in 2026 and 1 million units by 2030.

Kilimo: Improving water efficiency in watersheds



CA&R SECTOR
Water

GEOGRAPHY
North and South America, plans to expand into Asia and Europe

MATURITY
Series A

HQ
Argentina and USA

YEAR ESTABLISHED
2014

ARR
Not publicly disclosed

Key takeaways

- Water scarcity and efficiency remain key issues in climate adaptation and resilience. Startups such as Kilimo are able to effectively match the interests of both corporates and farms that share watersheds through software and ecosystem services.
- A clear focus of measurable impact and financial outcomes can help to ensure stakeholder alignment, especially to achieve joint objectives between corporates, solution providers, and farmers.

Business model

Kilimo's primary customers are large corporations with significant water footprints, particularly in the F&B and CPG sectors, as well as technology companies operating water-intensive infrastructure such as data centers. These include Microsoft, Coca-Cola, and Amazon. These customers purchase 'volumetric water benefits'—measured water savings achieved in specific watersheds—rather than water credits or offsets, ensuring that interventions are localised and directly benefit the watershed where the corporate operates.

Through their suite of on-farm water efficiency and improved irrigation practices, Kilimo helps corporates advance their water stewardship goals, specifically by restoring more water than they consume within the basins where they operate.

All interventions are primarily financed by corporate customers, with Kilimo subsidising or fully covering the costs of equipment and upgrades for farmers, often transitioning from partial to full

subsidies over time, thereby addressing the upfront capital expenditure barrier.

Kilimo works with implementation and strategic partners such as Rivulis, a Temasek-owned company which supports farmer adoption through drip irrigation solutions; NGOs like NUP that enable on-ground implementation and farmer engagement; and Bonneville Environmental Foundation, which supports the global structuring and credibility of projects.

Context and challenge

Agriculture accounts for about 70% of global freshwater use, yet farmers have little economic incentive to conserve water when it is cheap or subsidised.

Water scarcity is a central climate risk for farmers, with disruptions in rainfall patterns due to climate change leading to longer, deeper droughts and more intense but

less frequent rainfall events. These are detrimental to agricultural productivity.

Water-related challenges are highly localised, varying from watershed to watershed, and solutions must be tailored to the specific conditions and risks present in each area.



Photo © Kilimo

IMPACT

13M m³
Water restored
across watersheds

1.4M
Direct economic contributions to
more than 120 farmers to support
farm performance

>200,000 farmers
Supported by Kilimo's training

Solution and impact thesis

Kilimo provides a broad set of interventions, including software-based irrigation management, infrastructure upgrades with partners, conservation contracts that pay farmers for ecosystem services, and regenerative agriculture practices, allowing for a mix-and-match approach tailored to local watersheds.

Through their solutions, Kilimo links corporates seeking to invest in water security within their operational watersheds to local farmers capable of saving water. Water efficiency and improved farm performance is the core of Kilimo's model.

Their data-driven insights enable more efficient farming, more secure water supplies for communities and industry and facilitates a viable new market for water conservation credits.



Photo © Kilimo

Key lessons

Impact must sit at the core of the model. Maintaining a clear focus on measurable outcomes has been essential to navigating complexity and sustaining credibility in long-duration, basin-level water projects.



Future outlook/ Next steps

Kilimo are expanding into Asia, targeting countries like India, Indonesia, Malaysia, and China, leveraging their corporate relationships and a global partner network to enable rapid interventions.

Kilimo's goal is to take what has been built as a successful regional model and turn it into a globally scalable solution for water stewardship in agriculture.

Oceanfarmr: Access to finance and improved farm management in aquaculture

oceanfarmr

CA&R SECTOR
Aquaculture

HQ
Australia

GEOGRAPHY
Australia, New
Zealand, United
Kingdom,
United States

YEAR ESTABLISHED
2017

MATURITY
Pre-series A

ARR
Not publicly
disclosed

Key takeaways

Ocean farming is labour intensive and small scale. For farmers, it is a source of identity and lifestyle, as well as livelihoods. Solutions to improve operational efficiency, facilitate sales, and provide access to capital, must be able to scale down to farm level and adapt to local practices. Valuing farm-scale ecosystem services is transformative opportunity but will require solutions that recognise farmers as frontier data custodians.

Business model

Oceanfarmr's app uses a map-based interface where farm assets and lines are mapped, and activities are scheduled via pins that workers can interact with to report task completion and crop data such as oyster counts and sizes. Additionally, the app creates an asset registry, tracking baskets and other equipment, which aids in managing farm resources.

Using operational data to strengthen credit assessments for farmers, Oceanfarmr is exploring partnerships with banks and special purpose funds to create financing models that incorporate supplier discounts as part of the loan structure, enabling farmers to finance equipment at needed scales. Oceanfarmr's goal is to build a brokerage model connecting suppliers, financiers, and farmers to facilitate sustainable financing options.



Photo © Oceanfarmr

Context and challenge

Shellfish and seaweed farmers remain deeply undercapitalised, especially since such farmers lack land collateral for traditional bank loans. Farmers often rely on personal assets to finance operations.

In the US oyster industry alone, approximately \$150 million per year is needed to replace aging equipment and

cover losses, with about half of this amount unmet by current financing or grants.

Climate risks faced by farmers, such as extreme heat and freshwater events, can cause significant crop losses, sometimes amounting to tens of thousands of dollars in a single day.

IMPACT

1,243 kg
Additional nitrogen removed
from water per year

44.8 tonnes
Additional carbon dioxide
sequestered per year

9,720 kg
Additional fish biomass
through habitat
enhancement per year

Solution and impact thesis

Oceanfarmer is a shellfish and seaweed farm management software designed to help optimise operations. Oceanfarmer's system provides real-time operational efficiency and task management, allowing farmers to monitor farm activities even when not physically present.

Oceanfarmer also uses operational data to de-risk financing by demonstrating farmers' yield predictability and operational discipline.

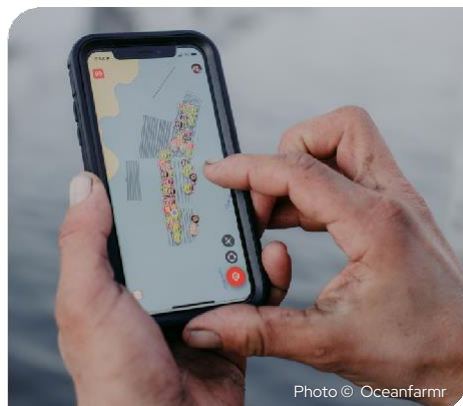


Photo © Oceanfarmer

Key lessons

Farmers are inherently resilient but face identity challenges when adopting new technologies or changing behaviors, as they primarily see themselves as farmers rather than businesspeople.



Oceanfarmer's financing model requires scale and geographic diversification to manage risk effectively, namely individual farmer risk, farm practice risk, and geographical risk. Philanthropic funds and government programs can play a role in financing farms by providing low-interest loans or tying industry assistance to ESG reporting, creating recurring support linked to sustainability outcomes.



Southeast Asia's seaweed farmers face the same undercapitalisation problem, but this requires rethinking farm digitalisation (such as messaging platforms) and solution delivery. However, these kinds of solutions require rethinking business models that do not necessarily fit traditional venture start-up approaches (e.g., integrated messaging, finance and telco platforms)—a larger innovation and investment system challenge.



Future outlook/ Next steps

Oceanfarmer has received funding from the National Oceanic and Atmospheric Administration (NOAA) to develop ESG (Environmental, Social, and Governance) linked loans for small-scale farms. Oceanfarmer does so by assessing the ecosystem contributions provided by shellfish and seaweed farms such as water filtration, carbon sequestration, and habitat improvement. These services are estimated to be worth around \$5 billion annually globally, with the ecosystem services value often exceeding crop production value.

Tive: Supply chain intelligence to manage climate risk and disruption



CA&R SECTOR
Industry and commerce

GEOGRAPHY
North America, Latin America, EMEA, APAC

MATURITY
Series C-1

HQ
Global

YEAR ESTABLISHED
2015

ARR
Not publicly disclosed

Key takeaways

- Real-time data monitoring and tracking can mitigate climate-induced supply chain risks and disruptions
- Tive's integrated suite of support systems enables comprehensive coverage and management of complex supply chain challenges.

Business model

There is a large and global cold chain market consisting of storage and transport estimated at ~US\$316 billion in 2024. It is projected to grow, driven largely by the pharmaceuticals and perishable foods sub-sectors.

Tive provides multi-sensor trackers that monitor location, temperature, humidity, light (to detect if a container is opened), and shock. They offer both multi-use and single-use, disposable models, including non-lithium options for air safety.

Tive's cloud-based platform and API allow users to monitor shipments in real-time, set custom alerts for exceptions (e.g., temperature excursions), manage workflow automations, and analyse ground-truthing data to deliver actionable insights.

Tive also provides a service where their logistics experts monitor client shipments around the clock to proactively intervene when issues arise, allowing for better logistics management. Real-time visibility allows shippers to identify risks early, intervene in real-time, and build resilience against disruptions in shipping operations. This can contribute to decreased vulnerability to supply chain disruptions and enhanced ability to manage risks.

Context and challenge

Increasing extreme weather events have begun to damage port infrastructure, disrupting transportation routes, and causing loss of goods in transit. These include impacts from storms, floods, heat, and drought.

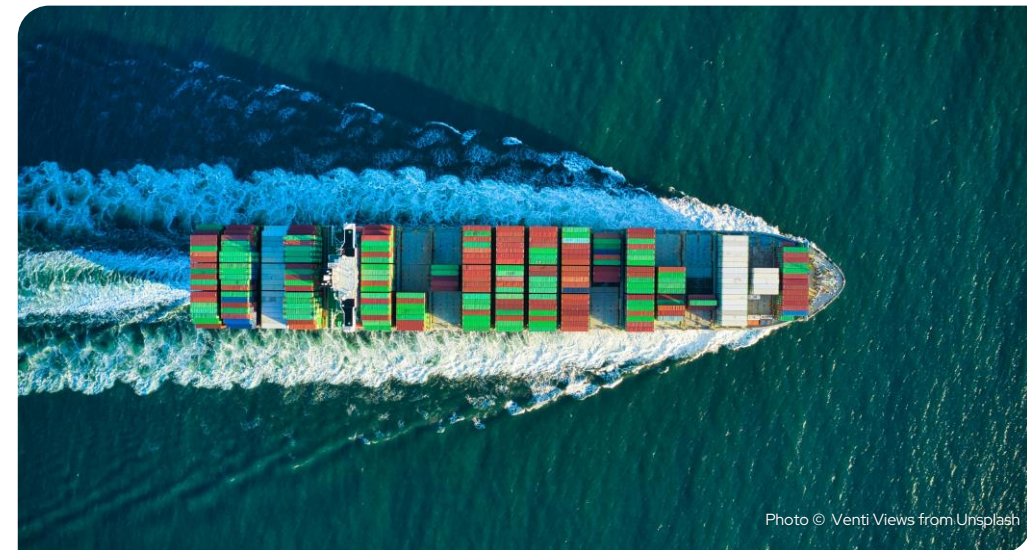


Photo © Venti Views from Unsplash

IMPACT

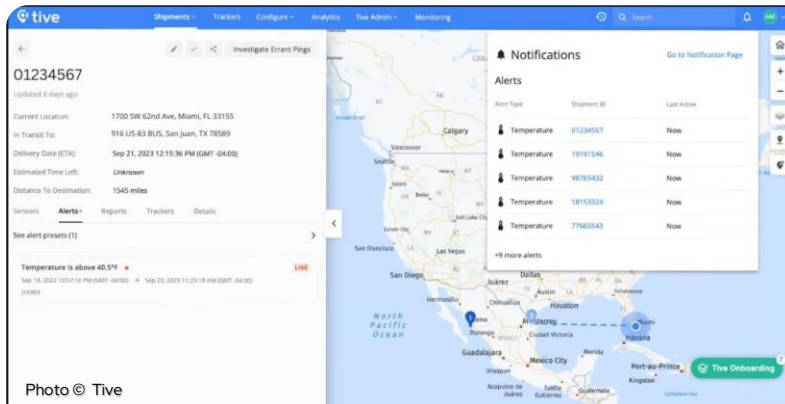
Number of unique customers with improved ability to identify, prioritise, implement, monitor, and evaluate climate risk and adaptation strategies.

Number of trackers monitoring condition management (temperature, humidity, and shocks)

Number of alerts provided related to temperature and moisture.

Solution and impact thesis

Tive provides a real-time visibility solution using sensors, software, and services to monitor and better manage shipment conditions and locations. This is especially important for temperature-sensitive cargo.



Key lessons

Because 60% of organizations currently do not find out about cargo damage until after delivery, Tive's real-time condition monitoring solution actively eliminates critical blind spots for temperature-, humidity-, and shock-sensitive cargo, as evidenced by the rapid deployment of 3.5 million trackers to date.



Future outlook / Next steps

Tive is focused on developing next-generation trackers, including further enhancements to their non-lithium trackers, and introducing specialized temperature probes for critical cold chain applications.

Tive is expanding its footprint and "boots on the ground" in key logistics hubs worldwide, building on its existing coverage across 186 countries.

Amartha: Incorporating climate risk into financial inclusion



CA&R SECTOR Financial services	HQ Indonesia
GEOGRAPHY Indonesia	YEAR ESTABLISHED 2010
MATURITY Series C	ARR US\$475.2 million

Key takeaways

- Intentional product design and assessment are crucial in ensuring that financial services reached unserved and underserved communities, especially rural women entrepreneurs.
- In addition to financial education and the hybrid delivery of financial services, climate risk assessments are also emerging as important elements in credit assessments.

Business model

Amartha conducts climate risk assessments to understand vulnerability and response capacity, integrating these insights into flexible loan structures such as temporary instalment reductions (3–6 months recovery window) and recovery incentives after disasters.

Amartha emphasises educating borrowers about climate risks and assessing their ability to recover from such events, which is factored into credit decisions and product design.

Amartha has introduced emergency funds embedded in capital limits for disaster or personal emergencies. During the pandemic, Amartha continued to disburse working capital loans, which served as a lifeline for businesses, and now applies similar principles to climate-related emergencies by allocating standby credit for disaster recovery.

Amartha serves smallholder farmers engaged in crop cultivation, livestock, and agro-processing— representing around 17% of total borrowers, making it the second-largest sector in the portfolio. Rather than aligning repayment with harvest cycles, Amartha implements supporting programs such as savings initiatives to help borrowers better prepare for repayments, strengthen financial discipline, and build resilience against income seasonality and shocks.

Context and challenge

Climate risks have become a major challenge for Amartha's smallholder and agri-business customers, as climate-related disasters are now occurring more frequently compared to the past 10–15 years. These disruptions often lead to crop failure, declining yields, and reduced market activity, making it harder for customers to meet financial obligations.

As a result, these climate impacts also influence Amartha's overall loan performance, as repayment capacity decreases when customers' livelihoods are affected.



IMPACT

3.3M
Women-led
microbusinesses served

50,000
Villages across
Indonesia served

44%
of customers experienced less
severe impacts from climate-
related disasters after receiving
financial assistance

95.61%
Successful loan
repayment rate

Solution and impact thesis

Amartha is an Indonesian financial services platform dedicated to empowering MSMEs and women entrepreneurs. They provide tailored working capital loans and digital financial products such as e-wallets, e-money, and remittance services.

Amartha's e-wallets help rural communities build savings and transition into the formal financial system through micro-deposits and automatic loan repayments.

Amartha conducts ongoing climate risk assessments and research to understand exposure levels, evaluating the probability of disaster occurrence, and the capacity of individuals/businesses to respond.

Amartha's interventions aim to enhance customer resilience, holding to the belief that "Credit is not only capital but a tool for resilience".



Key lessons

Managing the risk of default, acquiring and retaining agricultural customers, and integrating agri-financing into their existing business model are key challenges Amarth faces.



Amartha has learned the importance of building stronger data systems, enhancing financial literacy programs, and developing partnerships with governments, DFIs, and agritech players to co-create climate-resilient financing models.



Future outlook / Next steps

Amartha is exploring providing micro-insurance for its customers as well as establishing telco data partnerships and blended-finance prototypes with FMO to improve credit assessment and risk sharing.



Arukah Capital: Aligning farmer incentives through carbon income to scale climate mitigation from agricultural waste

arukah

CA&R SECTOR
Agriculture

GEOGRAPHY
Asia

MATURITY
N/A

HQ
Singapore

YEAR
ESTABLISHED
2021

ARR
**Not publicly
disclosed**

Business model

Arukah's iterative, bottom-up approach is grounded in partnerships with agribusinesses, local organisations, and cooperatives that have built farmer networks and organised supply chains over decades across markets.

It operates a blended finance model in which carbon credits finance upfront capital expenditure for equipment and fund payments for verified farmer contributions to waste circularity activities.

Payments are disbursed digitally to reduce cash handling risks, while sensors and remote monitoring systems—supported by AI/ML enable anomaly detection, performance verification, and incentive alignment.

Under its biogas model, farmers make a modest upfront contribution (typically ~15% of system cost) for biodigesters, with Arukah financing the remainder and providing recurring payments based on metered usage and verified emissions reductions. Projects span both household and industrial systems at farm and mill levels.

Under its biochar model, Arukah typically structures a ~50% gross carbon revenue share with farmers alongside profit-sharing with local partners.

It finances or co-finances equipment and operations through a mix of carbon offtake, balance sheet capital, and project financing. Partnering with fertiliser companies, physical biochar is blended with traditional NPK (Nitrogen, Phosphorus, and Potassium) inputs to lower barriers to farmer adoption, building resilience in the fertiliser supply chain through domestic production, while co-products like syn-gas and heat can be used for decentralised energy and drying.



Photo © Arukah Capital

Context and challenge

Smallholder farmers face rising input costs and increasing climate volatility, with limited access to markets—particularly the aggregation, infrastructure, and information needed to engage with stable, long-term global demand.

In Southeast Asia alone, over 170 million tonnes of rice crop residue are produced annually, often leading to emissions through open burning or unmanaged decomposition. While waste circularity solutions are technically mature, they remain prohibitively expensive for farmers, limiting adoption at scale.



Photo © Arukah Capital

Key takeaways

- Direct farmer payments incentivise and sustain behavioural change to scale high-integrity climate outcomes, as demonstrated by Arukah's co-financing model.
- Designing systems around farmer incentives—treating farmers as core economic stakeholders alongside financiers and buyers—enables scalable climate outcomes and livelihood gains.

IMPACT

Emissions reductions

from agricultural
waste burningImproved yields
and incomes

Carbon removal

From biochar per EU
CRCF standardsSavings from
fertilisers and fuels

Solution and impact thesis

Arukah develops vertically integrated projects with validated digital tracking integrated with leading carbon registries (Gold Standard, Puro.earth) and diversified revenue streams, focused on carbon avoidance and removal through the conversion of agricultural waste into biochar and biogas. Standardisation and verifiability enhance bankability and lower the cost of capital, while incentive alignment sustains behavioural change.

Its model delivers measurable climate mitigation outcomes while strengthening smallholder livelihoods. Carbon markets provide a key source of private sector funding, enabling bottom-up climate adaptation and supporting regional resilience.

Products are designed for ease of adoption at scale; for example, biochar is pre-mixed with fertiliser to integrate into existing farmer practices. These interventions also target short-lived climate pollutants (e.g. black carbon), which have disproportionately high near-term warming impact and are an emerging focus for carbon markets.

Future outlook
/ Next steps

Arukah is launching a digital MRV (dMRV) infrastructure with blockchain-based verification, integrated with global carbon registries and institutional partners, and interoperable with market infrastructure including the World Bank's CAD Trust. This responds to growing demand for quality assurance and pre-issuance controls among buyers, financiers, and regulators, strengthening overall market integrity.

Arukah is expanding project clusters across Southeast Asia, targeting 100 operating biochar plants by 2030. At scale, this is expected to generate approximately 1 million tonnes of high integrity carbon removal annually, while diverting over 2 million tonnes of crop residue from burning and increasing income for participating smallholder farmers. The platform is designed -to scale through partnerships with fertiliser companies and aligned agribusinesses to support distribution and farmer adoption.

Key lessons

Direct farmer payments are critical to sustaining incentive alignment, enabling durable behaviour change and large-scale, high-integrity climate outcomes. Income diversification further strengthens farmer and project resilience



Digital tracking is essential for building trust and performance integrity



Carbon credits are most effective when used to de-risk upfront capital expenditure and fund ongoing behavioural change, playing a catalytic role in scaling climate-smart agriculture.



Photo © Arukah Capital



Photo © Arukah Capital

HDBank: Strengthening financial resilience for individuals and MSMEs



CA&R SECTOR
Financial services

HQ
Vietnam

GEOGRAPHY
Vietnam

YEAR ESTABLISHED
1989

MATURITY
Listed company

ARR
US\$810M (profit
before tax,
2025)

Business model

HDBank is a pioneer of green finance in Vietnam, having invested since 2018. This includes projects in solar energy, electric mobility, energy-efficiency, sustainable water and wastewater management, sustainable agriculture and forestry practices, circular economy, and green buildings.

CA&R eligible projects include early warning systems for storms, droughts and floods; nature-based solutions, such as planting mangroves; and the construction of river defences, embankments, and underground drainage and reservoir systems. HDBank has also recently taken part in the Vietnamese government's programme to lend to low-carbon rice farming projects and rural agriculture (retail and corporate).

Funding and expertise from Development Finance Institutions (DFIs) and impact investors have been core to this approach.

The company has accessed US\$240m in green financing from IFC, ADB, FMO, BII, and Proparco and US\$340 million in trade financing from IFC and ADB as of 2024; an additional \$215 million loan from JICA, FinDev, SMBC in 2025 to on-lend to eligible green projects, retail agriculture, and MSMEs; and recently completed a US\$100 million green bond issuance from IFC, FMO and BII in January 2026.

Good management of cost of capital has enabled HDBank to provide loans at market or even preferential rates in times of acute crises. Following Vietnam's disastrous floods in late-2025, HDBank issued more than US\$380 million in loans for negatively affected retail and SME clients, including loans for women entrepreneurs with preferential interest rates starting from 5%.



Context and challenge

MSMEs account for over 98% of business in Vietnam, ~ 70% of GDP, and 80% of employment. Despite this, most MSMEs in Vietnam are reliant on informal loans and women entrepreneurs are disproportionately underserved.

This has led to a large informal credit sector, with unlicensed providers charging high interest rates and using unscrupulous debt collection methods. Low income and financially illiterate groups including farmers, ethnic minorities, factory workers, and street vendors are disproportionately vulnerable to predatory lenders.

Vietnam is also especially vulnerable to rising sea levels and the increasing frequency of severe weather shocks. For example, in 2024, Typhoon Yagi caused severe destruction to large parts of the country, while widespread Mekong Delta salinisation and prolonged droughts have damaged crops and eroded the country's food-production base.

Key takeaways

- Financial institutions not only play a role in improving financial inclusion and health through the provision of credit to individuals and MSMEs, but also bolster financial resilience.
- Institutional investors can play a key role in supporting efforts by financial institutions to expand into green financing, encompassing both climate mitigation and adaptation.

IMPACT

19M
Customers served in 378
branches and transaction
offices in Vietnam

>98,000
Individual SME customers

>26,000
Points of sale across Vietnam

>US\$400m
In green loans disbursed to
Vietnamese companies in 2025

Solution and impact thesis

HDBank is a listed top-tier Vietnamese commercial and retail bank serving 19 million customers, which include underserved low-income consumers and MSMEs. MSME customers comprise 65% of HDBank's total loan book as of FY2025. HDBank seeks to strengthen the financial health and resilience of Vietnam's emerging consumers and MSMEs by enabling savings, lending, payments, and insurance. 28% of retail loans outstanding are used for agricultural purposes, helping finance livelihoods for a predominantly rural customer base directly exposed to weather and environmental risks. The Bank distributes life insurance to almost 200,000 customers as well.

By improving financial inclusion and resilience through its retail loans and banking products, HDBank enhances financial safety nets against potential shocks from climate change and extreme weather events.

HD Bank also plays a significant role in channeling capital towards adaptation and mitigation. Its green financing to SMEs enables Vietnam's green transition and contributes to reducing climate risks and damages, while its EV financing segment under consumer finance subsidiary HD Saison enables the mass market to participate in the green transition.



Photo © HDBank

Investor additionality

Backing by institutional investors can support the development of climate strategies. With backing from LeapFrog, IFC, and DEG in 2021, HDBank established an ESG committee, developed an Environmental and Social Management System, provided firmwide staff E&S training, strengthened its impact reporting, and became one of Vietnam's first banks to exclude coal financing from its operations.

These efforts were critical as investments in climate adaptation, especially large-scale preventative infrastructure like coastal defense projects, require environmental and social impact assessments to mitigate unexpected risks.



Future outlook / Next steps

HDBank has joined ADB's programs to drive financial inclusion and climate resilience in Vietnam, aiming to identify potential green and low-carbon lending sectors and develop more green loan products. They are also exploring additional financial inclusion products such as health and life insurance policies.



Photo © HDBank

Mayani: Value-chain solutions and inclusive financing for farmers and fishers



CA&R SECTOR
Agriculture and allied sectors

GEOGRAPHY
The Philippines

MATURITY
Seed

HQ
The Philippines

YEAR ESTABLISHED
2019

ARR
Not publicly disclosed

Key takeaways

- A combination of complementary solutions can support the climate adaptation and resilience of smallholder farmers, ranging from improved access to climate-smart inputs, financing, and markets.
- Agritech companies such as Mayani can leverage existing farmer networks and end-to-end agri-value chains to provide financing solutions, improving financial resilience in addition to climate adaptation.

Business model

Mayani's platform uses proprietary technology to capture localized production data, aggregate supply, orchestrate logistics, and coordinate buyer linkage. Mayani manages the end-to-end digitised agri-value chain, including sorting, grading, packing, and delivery (logistics and cold-chain solutions), to ensure produce reaches customers efficiently and affordably.

On the back of Mayani's logistics and market access infrastructure, they integrated and deployed a "whole-of-value-chain" approach for their smallholders, offering them quality agri-inputs and alternative

rural credit options to boost yield and climate resilience. Mayani started working on inclusive finance through a partnership with GCash, the Philippines's largest e-wallet. GCash and Mayani underwrite and jointly facilitate loans for organised farmers and fisherfolk, helping them build their credit track record and enhance their capability to meet market demand.

Mayani has also partnered with the Bayan Family of Foundations, supported with philanthropic funding from HSBC Philippines, to support the development of clustered smallholder-led cooperatives that embed regenerative agricultural practices, use indigenous knowledge, espouse strong cooperative governance, adopt smallholder-centric digital tools, and embrace market readiness. Mayani oversees the climate-smart agriculture aspect of the project, including advancing regenerative farming practices and digital tools to improve market access and farmer incomes.

In 2026, the UK's Foreign, Commonwealth, and Development Office (UK FCDO) funded Mayani's thrust of providing satellite-based parametric climate insurance to help smallholder fisherfolk cope with, adapt to, and recover from extreme weather events in the Philippines in partnership with Hillridge Technology.

Context and challenge

The Philippines' agriculture underpins food security and rural livelihoods but faces deep structural and financial constraints.

Smallholder farmers and fishers, who supply most staple crops and coastal catch, are highly vulnerable to climate shocks but are largely excluded from formal finance, receiving only 2.6% of total bank lending. With fewer than 30% accessing formal credit, many rely on informal lenders charging up to 30% monthly interest, fueling an agricultural credit gap of about US\$7 billion.

Weak logistics, high post-harvest losses, insecure land tenure, and limited agronomic support compound risks, reinforcing lenders' perception that smallholders are unbankable.

The Philippines also has a high disaster risk index (46.86), with farmers facing: El Niño (drought, early in the year) and La Niña (flooding, later in the year).

IMPACT

Mayani has now built a grassroots network of over **144,000 smallholder farmers and fisherfolk across 9 regions of the Philippine archipelago**, including the Bangsamoro Autonomous in Muslim Mindanao

Their AgriKLIMA® movement's capacity-building around climate-smart agriculture and cooperatives **reached 120 smallholder fisherfolk and 952 smallholder farmers covering an aggregate farmland size of 845 hectares**

Mayani was able to reduce post-harvest losses – an oft-overlooked source of GHG emissions (methane, 80x more potent than CO₂) and rural income eroder – from 30% down to 3% through cold chain technology

Solution and impact thesis

Mayani's market-linked smallholder resilience platform digitally connects smallholder farmers and fisherfolk to commercial buyers to streamline the agricultural value chain in the Philippines, empowering them to grow the right produce, at the right time, for the right institutional markets – all while adapting to climate risks. Mayani provides farmers and fisherfolk with reliable access to a consistent B2B market (e.g., restaurants, hotels, retailers), which helps secure rural livelihoods and reduces post-harvest losses.

Mayani's AgriKLIMA® movement, anchored on a multi-stakeholder partnerships model (i.e. government, civil society, and private sector), fosters a climate-resilient producer network of grassroots adaptation agents through a "whole-of-value-chain" approach blending market offtake-linked financial services, agronomic support, and capacity building.



Photo © Mayani

Key lessons

Exposure to climate risks drives smallholder farmers and fisherfolk to resort to negative coping options (i.e., borrowing from predatory lenders) and maladaptive behavior (i.e., going out to fish despite clear and present dangers) due to post-shock income loss.



Market linkage is a de-facto ex-ante climate adaptation tool that stabilises the income base necessary for rural smallholders to invest in more climate-smart and sustainable practices (i.e., greenhouses, farm implements, better fishing gears) and gain the liquidity buffer (i.e., household savings) in times of disasters.



Future outlook / Next steps

Mayani plan to further improve their end-to-end proprietary tech stack's geospatial intelligence initially funded by the UK Government and integrate with GCash and rural bank platforms such as the Rural Bank of New Washington to index on their lending balance sheet, quantum reach, and loan approval to e-wallet disbursement infrastructure.

As part of the Climate Policy Initiative's Global Innovation Lab for Climate Finance, Mayani has proposed the Philippine Agri-Smallholder Resilience Fund, which combines blended financing with market offtake, parametric insurance, agronomic support, post-harvest cold logistics, and climate-smart inputs to transform smallholder into vital agents of climate adaption and strong claimholders of inclusive development.

Deep dive: Insurance



Centre for Impact
Investing and Practices

Igloo: Rainfall-based parametric insurance for smallholders



CA&R SECTOR
Agriculture and allied sectors

GEOGRAPHY
Singapore, Thailand, the Philippines, Indonesia, Malaysia, Vietnam

MATURITY
Series C

HQ
Singapore

YEAR ESTABLISHED
2016

TOTAL RAISED
> US\$100M (2026)

Key takeaways

- The success of parametric insurance solutions rests with the selection of suitable triggers for specific contexts; in Vietnam, rainfall was selected due to its more manageable risk exposure and greater ease of structuring suitable insurance products.
- Embedding insurance solutions through existing distribution channels can ensure not only reach but affordability for customers.

Business model

Under Igloo's Weather Index Insurance coverage, premiums start from \$8 (for rice) and USD \$42 (for coffee) per hectare, with a minimum coverage area of 0.1 hectare to accommodate small-scale farmers.

Claim payouts are triggered automatically based on a predefined index of rainfall levels instead of crop damage, eliminating the and costs of individually verifying claims.

The elimination of manual processes is also achieved through smart contracts, which allows claim payouts to be automated. Parametric weather index insurance and smart contracts also increases the transparency of payout eligibility.

By embedding their products into services like telcos, digital finance apps, and e-commerce platforms, Igloo can

tap on existing distribution channels to acquire customers. This method is less expensive than alternatives like face-to-face marketing, allowing Igloo to maintain product affordability for smallholder farmers. Igloo has existing partnerships with the top 3 telcos in the Southeast Asian markets it serves.

Igloo's product development was strongly influenced by impact investors on its cap table to address underserved customer segments.

Context and challenge

Southeast Asia is disproportionately affected by climate-related weather events, yet insurance is not widely adopted in the region.

Awareness of agricultural insurance is low even when available, especially in Vietnam, where farmers generally view government-supported insurance schemes as benefits rather than formal insurance.

Traditional indemnity insurance options also require manual verification of farms, slowing payouts. Potential slow payouts also means farmers are reluctant to trust agricultural insurers.



Photo © DUONG QUACH on Pexels

Solution and impact thesis

Igloo offers parametric weather index insurance in Vietnam. Parametric insurance eliminates the need for manual verification of crop loss, with smart contracts making payouts nearly automatic.

Igloo directly addresses the challenge of manual processing in crop-loss verification by offering parametric weather index insurance tied mainly to excessive rainfall.

Building customer acquisition through existing distribution channels in local markets also allows Igloo to maintain product affordability for its parametric insurance.



Photo © 1500m Coffee on Pexels

Key lessons

Rainfall was selected as a key trigger as it has more manageable risk exposure, localised impact, and products are easier to structure than heatwaves and typhoons. Risks from heatwaves, typhoons, and earthquakes are typically too large-scale or significant for the embedded micro-insurance models Igloo utilises with current channel partners.



Future outlook / Next steps

Igloo intends to expand its parametric weather index insurance to all Southeast Asian markets.

Igloo is exploring avenues of high-resolution data for more advanced or localised products. While international satellite data to track rainfall is currently sufficient for current uses, it can be limited in resolution, leading to uniform payouts.

In addition, to high-resolution data, Igloo are focusing on real-time data to ensure customers can receive payouts on the same day.

Igloo is focused on the long-term goal of educating the market on insurance and building the norm of insurance adoption through low premium products.

Pioneer Inc.: Community protection through customer-centric design and trust



CA&R SECTOR
Financial services

HQ
The Philippines

GEOGRAPHY
The Philippines

YEAR ESTABLISHED
1954

PORTFOLIO
US\$67 million
worth of
microinsurance
policies (2025)

Key takeaways

- Microinsurance should be designed with the customer in mind – their lived experiences and daily challenges should be factored into product design.
- The relevance of the product offering & payment of claims are of utmost importance in encouraging more people to take up insurance, leading to behavioral change.

Business model

To make sure that their target customers come to know and trust insurance, Pioneer partnered with credible, trusted institutions patronized by their target market. For example, MFIs who are able to provide the low income population with financial access. Similarly, NGOs and money remittance agencies are other key partners for Pioneer due to their ability to reach the target market.



Photo © Pioneer Inc.

Context and challenge

Pioneer is a leading insurance player in the Philippines, and has been around for more than 70 years.

With the aim to become the insurer of choice for the country, Pioneer decided to venture into microinsurance back in 2007, so that protection can be availed by the unserved and underserved markets.

However, microinsurance was not an area that was known to Pioneer, a commercial insurer, back then. Traditional issues like cost of servicing, high commissions, bureaucratic processes and requirements, as well as the negative perception of insurance, were huge challenges that Pioneer had to overcome.



Photo © Pioneer Inc.

IMPACT

>36M

Enrolments in Pioneer's microinsurance in 2025

US\$67M

Worth of insurance policies under Pioneer in 2025

Solution and impact thesis

With the growth of microfinance in the Philippines, Pioneer saw an opportunity to leverage and truly benefit the masses. Microinsurance is needed to ensure that people at the lower end of the pyramid are cushioned against shocks and have enough to rebuild and restart much faster and sooner.

Pioneer also believes in Knowing Your Customer – to do so, they would send their employees from the microinsurance team for on-ground immersions with potential clients, such as mom-and-pop stores, farmers, market vendors, or jeepney drivers, and gather feedback. Thereafter, the employees would more effectively translate the insights gathered and reflect them in the design of the product, pricing, and processes.



Photo © Pioneer Inc.

Key lessons

Growth was steady but slow in the early years for Pioneer, but the timely settlement of claims arising from the typhoons of 2013-2014 – some of the worst storms that the Philippines has ever seen – caused microinsurance uptake to reach the tipping point. Enrolments went up from around 1 million to 7 million in those two years, and except for a slight dip during the pandemic, continued on an upward trajectory ever since.



During times of climate related shocks, the key to insurance adoption is having the relevant coverage plus the prompt settlement of claims. One must make sure that insurance is affordable, accessible, comprehensible and simple to claim.

Future outlook /
Next steps

Noting the impact of climate on livelihoods, Pioneer has launched insurance for fisherfolk. This insurance will cover the risk of damage to their boats, loss of income and accident coverage for the fisherfolk.

While Pioneer, through its joint venture with CARD, has launched the first micro-crop product, the loss ratio has remained high. Apart from its public-private partnership on specific crops with the Philippine Crop Insurance Corp., it is reviewing how best to evolve its own micro agriculture product to ensure the sustainability of the offering and its commitment to farmers.

BlueOrchard Finance: Impact investing to improve access to insurance



FUNDER TYPE
Private equity,
listed debt,
private debt

GEOGRAPHY
Global emerging
markets

FUNDING APPROACH
Hybrid, public-
private catalytic
finance with
commercial return
orientation

**FUND SIZE OF
CLIMATE ADAPTATION
INSURANCE
STRATEGIES**
US\$300 million

**TARGET INVESTMENT
HOLDING PERIOD
FOR PE CLIMATE
ADAPTATION
INSURANCE
STRATEGIES**
4-6 years

HQ
Zurich,
Switzerland

YEAR ESTABLISHED
2001

**INSTRUMENTS
DEPLOYED/
ASSET CLASS**
Private debt,
listed debt,
private equity,
technical
assistance,
premium support

**AVERAGE TICKET
SIZE RANGE
FOR PE PRIVATE
EQUITY CLIMATE
ADAPTATION
INSURANCE
STRATEGIES**
US\$2 – 10 million

Key takeaways

- The three core challenges are: climate insurance awareness, affordability, and access.
- Blended finance from various stakeholders, including impact investors and DFIs, can play a key role in improving insurance innovation to reach underserved communities.

Overarching mission

BlueOrchard, is an impact investment manager and member of the Schroders Group. BlueOrchard's mission is to generate lasting positive impact for communities and the environment, while providing attractive returns to investors. BlueOrchard's Climate Adaptation Insurance Strategies are focused on reducing the climate vulnerability of low-income households, as well as MSMEs in developing countries.

CA&R focus and opportunity areas

The Climate Adaptation Insurance Strategies aim to facilitate adaptation to climate change by improving access to and use of climate insurance solutions in global emerging market countries.

In improving insurance awareness, affordability, and access, the Climate Adaptation Insurance Strategies aim to contribute to improved resilience to extreme weather events among low-income and vulnerable households, as well as micro, small and medium enterprises.

Key innovations in improving climate insurance distribution include parametric and embedded insurance to ensure coverage for smallholders and improve protection through risk transfer mechanisms.

Enabling technologies and data providers are further able to strengthen climate insurance product design, pricing and analytics, thus also positively impacting distribution and access to climate insurance products.



Photo © Wietse Jongsma on Unsplash

Context and challenge

Climate impacts disproportionately affect lower income communities in developing countries, especially those engaged in climate-sensitive sectors such as agriculture.

There is a lack of access to insurance for poor and vulnerable households, as well as micro, small, and medium enterprises in developing countries, which hinders their ability to effectively manage and recover from natural catastrophes.

IMPACT

>30
Investees providing
climate insurance*>80M
Climate insurance beneficiaries*

Solution and impact thesis

In 2017, BlueOrchard launched the first climate adaptation strategy (US\$200 million) offering a blend of private equity and private debt to insurers, insurance brokers, financial institutions and technology companies to improve access to climate insurance and protect climate-vulnerable people, especially farmers and MSMEs. The strategy was initiated by the German Development Bank (KfW).

Building from their experience, BlueOrchard launched the second climate adaptation strategy (US\$100 million) with a broadened climate insurance value chain approach, investing in:

- Insurers that provide risk-bearing capacity and product design.
- Distributors (e.g. brokers, Insurtech) that drive client access and efficient delivery.
- Enabling financial intermediaries that support aggregation, distribution, and risk sharing.
- Enabling technology and data providers that strengthen modelling, pricing, and climate analytics.



Photo © Abhishek S on Unsplash

Key lessons

Embedded and technology-enabled insurance models can make small-ticket climate insurance more affordable and scalable by reducing distribution and servicing costs. Parametric structures further enhance efficiency by enabling fast, trigger-based payouts without lengthy claims assessment.



Conventional insurance processes are often too manual, slow, and expensive for underserved customer segments. Digital tools can streamline enrolment, servicing, and payouts, improving responsiveness, affordability, and trust.



Featured portfolio companies

In India, **FinAGG** embeds insurance into financial products that retailers already use, such as loans. This gives small retailers immediate access to essential protection, real security, and peace of mind to focus on growing their businesses.

Pula is an Insurtech company founded in 2015, that provides agricultural insurance and data-driven solutions to smallholder farmers across Africa and Asia. It leverages technology, data science, and parametric insurance to help farmers manage climate risks, improve productivity, and enhance financial resilience

*Note: across both Climate Adaptation Insurance Strategies, as of December 2025

Prudential and Prudence Foundation: Private and philanthropic collaboration to improve community resilience



CA&R SECTOR
Financial resilience, Health resilience

Prudential

HQ
Hong Kong

GEOGRAPHY
Asia, Africa

YEAR ESTABLISHED
1848

Prudence Foundation

GEOGRAPHY
Asia, Africa

YEAR ESTABLISHED
2011

FUNDING APPROACH
Hybrid

COMMUNITY INVESTMENT
US\$2 million for climate and health

INSTRUMENTS DEPLOYED
Grants

Key takeaways

- Prudential's Inclusive Insurance Framework aims to expand access to relevant, affordable protection for underserved customers.
- The Prudence Foundation strengthens financial literacy and climate- and health-related resilience in vulnerable communities.
- Linking community insights with insurance and investment capabilities creates a mutually reinforcing resilience ecosystem, strengthening resilience for individuals, households, communities and markets.

Overarching mission

Prudential helps strengthen the health, financial and climate resilience of people and markets across Asia and Africa by combining its role as a life and health insurer with its responsibilities as a long-term asset owner. Through accessible protection solutions and investment strategies that steward long-term value and manage climate-related risks, Prudential aims to support customers and broader communities in navigating shocks and contributes to more stable, resilient communities and markets.

Context and challenge

Prudential operates in fast-growing markets across Asia and Africa where large segments of the population remain underserved, facing gaps in financial protection, health security and growing climate-related risks. These challenges increase households' exposure to environmental and economic shocks and limit the ability of communities to cope.

To strengthen access to relevant and affordable protection, Prudential has developed an **Inclusive Insurance Framework** to guide the expansion of products for underserved customer segments and improve inclusive product design and engagement.

Prudence Foundation, the philanthropic arm of Prudential, further supports these challenges by building resilience in underserved and vulnerable communities.



Photo © Prudence Foundation

Prudence Foundation's focus and opportunity areas

Through partnerships, programmes and research, the Foundation's mission to build community resilience is anchored on two pillars: Financial Literacy & Inclusion, and Climate & Health Resilience.

The Foundation works with NGOs, academia, development agencies and local government to implement community programmes that address immediate needs whilst strengthening systems for long term resilience.

Insights and local 'on the ground' experience gathered by the Foundation compliments business' purpose "for every life, for every future", supporting a **more sustainable and insurable future** for local communities where Prudential operates.

The Foundation views philanthropy not just as grant giving, but also as an enabler to incubate or pilot innovative solutions, generate evidence to de-risk early concepts, and catalyse further scale and investment to deliver long term positive social impacts.

Impact thesis and alignment

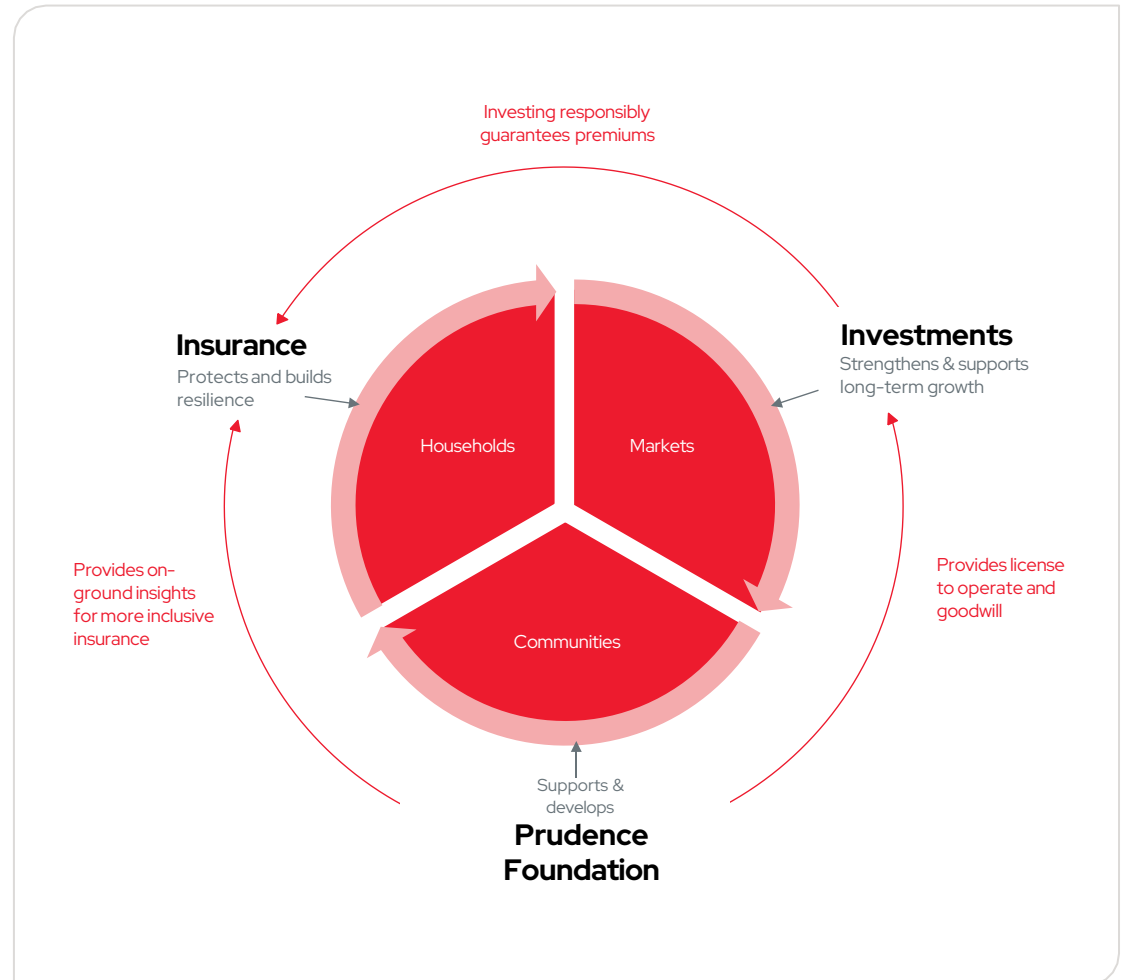
Prudential's insurance solutions and long-term investment approach paired with Prudence Foundation's community programmes work together to deliver coordinated impact across multiple layers of society.

This integrated model helps create healthier, more financially stable and climate-resilient markets, while strengthening resilience for individuals, households and communities.



Photo © Prudence Foundation

Prudential's mutually reinforcing resilience ecosystem



The Rockefeller Foundation: Philanthropic capital's role in catalysing parametric insurance



CA&R SECTOR
Food, Health, Finance

GEOGRAPHY
Global

FUNDING APPROACH
Hybrid

INSTRUMENTS DEPLOYED
Grants

HQ
USA

YEAR ESTABLISHED
1913

ENDOWMENT SIZE
US\$6 billion

Key takeaways

Philanthropic organisations can play a key role in fostering new approaches to insurance and supporting the development of relevant infrastructure (e.g. data, financial systems) to implement them.

Solution and impact thesis

The Rockefeller Foundation has adopted a global climate strategy for the next 5 years – this strategy covers the themes of energy, food, healthcare, and finance, as well as all of the intersections in between.

Finance is seen as a cross-cutting horizontal, and the Foundation intends to engage the finance sector to affect more communities and enhance response to climate change. This is especially so in the emerging markets where the Foundation is present.



Photo © Giuseppe Mondì on Unsplash

Context and challenge

The Rockefeller Foundation seeks to mobilise more finance towards climate, and has noted that private sector capital is critical for this objective. Philanthropic capital is limited, while public capital – though big – is very stressed. Therefore, private capital has an upsized role to play in building climate resilience.

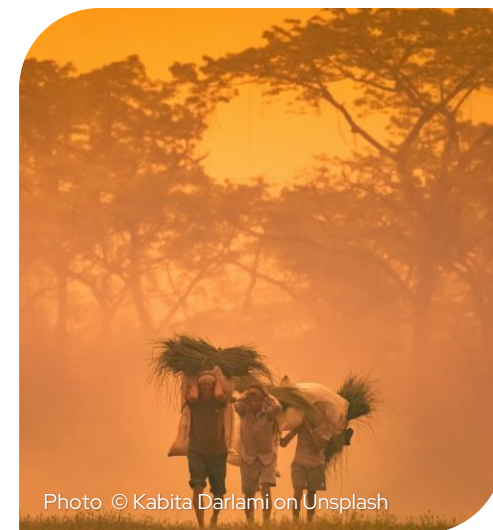


Photo © Kabita Darlami on Unsplash

IMPACT

5,000*

Number of customers for the product

100,000

Number of people reached through information campaign

Initiative – Leveraging insurance for heat action in Nepal

Integrated product design: The pilot bundled health insurance with parametric coverage, improving the financial viability and sustainability of the offering.

Validated commercial model: The pilot demonstrated a viable market-based approach, with customers paying for the product, confirming genuine demand for the solution.

Digital innovation: The program introduced a fully paperless process, showcasing how digital systems can simplify enrollment, claims, and delivery.

Affordable and comprehensive coverage: For a premium of approximately \$2, customers could access benefits of up to \$1,500, including hospitalization coverage and accidental death (including heat) benefits. This significantly expanded the scope of protection and made the insurance more comprehensive in addressing the impacts of extreme heat.

Partners for the programme include eSEWA, Tangerine Consultants, Himalayan Everest Insurance, and Nepal Economic Forum

Key lessons

Drawing from the Nepal pilot, this campaign revealed how communities experience extreme heat and highlighted a major knowledge gap about its long-term impacts. Around 80% of survey respondents were unaware of these effects.



The experience of supporting parametric insurance pilots also showed how philanthropic funding can absorb the upfront costs of innovation, enabling businesses to focus on scaling the product and expanding adoption.



Leveraging insurance across the capital stack can help reduce the cost of capital for small businesses, making them financially sustainable and scalable in the long run.



The pilot established demand and willingness to pay and repeat demand. However, the absence of regulatory capacity is a barrier to diversified product offering.



Future outlook / Next steps

To accelerate innovation in the insurance sector and sustainably manage risks emerging from extreme heat, the foundation supported pilot initiatives across India and Nepal.

Nepal Economic Forum received a grant from The Rockefeller Foundation in support of encouraging the innovative production of affordable insurance products and services to help vulnerable communities in Nepal manage climate risk.

Building on the learnings from these pilots, the foundation also supported ecosystem-level initiatives with the Global Asia Insurance Partnership as well as Humanity Insured.

* Registration was capped at 5000 in absence of a reinsurer. 8000+ expressed interest to buy

SEADRIF: Enabling climate resilience in Southeast Asia through blended finance



CA&R SECTOR
Insurance

HQ
Singapore

GEOGRAPHY
Southeast Asia

YEAR ESTABLISHED
2019

Key takeaways

- **Climate and disaster risk is constraining growth, development, and well-being.** Without prearranged financing, governments or the economy absorb losses, delaying recovery. Transferring risk using insurance ensures capital is available when it is needed most.
- **Member-owned institutions create conditions markets cannot.** A trusted, non-commercial regional counterpart enables risk to move from government balance sheets into international reinsurance markets at transparent terms governments can afford and justify.
- **Navigating government systems is as important as product design.** Budget cycles, institutional mandates, and competing priorities all shape what is possible; technical quality alone does not get a program over the line.

Business model

Products co-designed with governments: SEADRIF works in close partnership with member governments to design solutions that respond to their constraints and priorities. For example, the Lao PDR program evolved over four years into the world's first sovereign insurance policy using official government-reported impact data as the trigger (as the product named #PEOPLE).

Long-term commitment over short-term returns: Without commercial pressure, SEADRIF can take the time to iterate and redesign until a solution meets public needs. The shift to #PEOPLE was the result of sustained engagement and a willingness to fundamentally change approach—producing something better for the government.

De-risking the public sector: SEADRIF uses public capital and insurance market expertise to create the conditions for private reinsurance markets to participate at more favourable terms.

Context and challenge

Governments continue to absorb a large share of disaster losses on public budgets. Without pre-arranged financing, they must reallocate budgets or rely on external assistance, delaying response and recovery. If governments fail to respond, disaster losses lead to welfare losses.

The SEADRIF Insurance Company is a licensed insurer incorporated in Singapore, established and owned by ASEAN+3 member countries to strengthen financial resilience to climate and disaster risks.

As a development insurer, SEADRIF operates at the intersection of public and private sectors—combining advisory engagement and public capital to develop financial solutions and enable access to private re/insurance capacity that helps governments better manage the financial impact of disasters.



Photo © Etienne Giradet on Unsplash

IMPACT

6 business days

Time for a payout to be made from the Lao PDR #PEOPLE insurance in 2025

US\$6.5M

Total payments made to Lao PDR across multiple events from 2023-2025

2025

Launch of #PEOPLE, the world's first sovereign reported impact trigger

Solution and impact thesis

SEADRIF operates with donor-supported capital through a member-owned Trust structure with no external shareholders or dividends. This enables participation in private reinsurance markets, with beneficial public ownership and surpluses reinvested for members. As membership grows, regional risk pooling progressively reduces premiums for all.

SEADRIF operates as a development insurer. This is the insurance equivalent of a multilateral development bank. Like development banks, SEADRIF co-designs solutions with members, provides technical support, and ultimately brings risk to financial markets at better terms.

SEADRIF operates in a blended finance model, using a modest base of public capital to crowd in private reinsurance capacity, making coverage accessible in markets that would otherwise remain underserved.



Photo © Kelvin Zyteng on Unsplash

Key lessons

Insurance only delivers value if it pays out when losses are experienced. While technology can improve modelling, products need to be designed to align as closely as possible with the experience of governments and people affected by disasters.



Simplicity enables adoption. The most effective solution is not always the most technically sophisticated; unless a product is simple enough to be explained, understood, and justified to key decision-makers, public sector insurance will not scale.



Development insurers can move markets. #PEOPLE is a world first that commercial markets would not have developed independently; SEADRIF's willingness to invest in validation and understanding of government data, absorb early uncertainty, and demonstrate viability is what brought international reinsurers to a product type they had not previously priced—creating a template that can now be replicated across the region.



Future outlook / Next steps

Expanding country coverage across ASEAN and developing regional product offerings.

Developing a regional agricultural risk finance facility to strengthen food security and build agriculture market infrastructure across Southeast Asia.

Developing a regional mechanism to embed disaster insurance into development-financed public infrastructure and derisk development to protect public services.

Deep dive: Agriculture



Centre for Impact
Investing and Practices

AgriG8: Closing the smallholder financing gap for sustainable agriculture

AgriG8



CA&R SECTOR
Agriculture,
Financial services



HQ
Singapore



YEAR ESTABLISHED
2021



GEOGRAPHY
Southeast Asia



REVENUE SIZE
Pre-revenue



MATURITY
Seed

Key takeaways

- Use existing social apps and voice tools to bypass literacy and tech barriers.
- Aggregation is inevitable, supporting cooperatives is the path to sustainable scale.
- Behavioral change happens when farmers see a direct link between sustainable practices and lower interest rates.

Business model

AgriG8 operates a lean financial model to prove that rice (low carbon or not) is a bankable asset class. The revenue streams are through loan origination fees, success fees from FIs, and SaaS fees for cooperative management tools.



Context and challenge

Informal credit costs remain a “black box.” While some lenders are well-meaning, others charge up to 60% interest due to malicious intent or a lack of risk-assessment tools.

Farmers face pressure to decarbonize without proven economic incentives. Currently, investments favor MRV protocols over direct financial rewards for the farmers themselves.

Willing financial institutions are restricted by traditional credit systems that remain hypersensitive to the perceived risks of smallholder agriculture.

<p>IMPACT</p>	<p>100% Repayment rate for initial 400-ha pilot</p>	<p>>10 Financial institutions engaged – including state, commercial, and microfinance banks– to validate AgriG8’s alternative credit scoring system</p>	<p>Deployment of proprietary, low-cost water monitoring solution, to provide high-resolution irrigation data</p>
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Solution and impact thesis

AgriG8 triangulates ground, remote sensing, and behavioural data to provide financial institutions with alternative risk assessments for “unbankable” farmers.

By moving from a standalone app to AI chatbots on popular social apps, the platform eliminates technical hurdles and drives massive user adoption.

Leveraging LLMs for voice-entry removes literacy barriers, enabling efficient last-mile data collection and agronomic advisory with zero learning curve.

Reducing operational (onboarding) costs and loan defaults allows banks to offer rebates that reward sustainable practices, like Alternate Wetting and Drying (AWD), turning decarbonization into a direct financial gain for farmers.

Key lessons

Prioritizing familiar communication tools/apps over custom apps increased farmer adoption 100x by eliminating technical and literacy barriers.



“Soft aggregation” via cooperatives/union is essential for achieving economies of scale. Which is also why AgriG8 expanded its digital tools for supply chain and cooperative management.



Scaling requires a delicate balance; interest rates must be high enough to attract commercial capital but low enough to remain a fair alternative to the informal market. The proposed 18% p.a. target demonstrates that commercial sustainability, not just charity and it is the essential driver for transitioning “unbankable” farmers into formal systems.



While blended finance can be a vague concept and initial philanthropic subsidization of commercial partners is often an inevitable hurdle, it must not be aimless. A robust “Theory of Change” must be established at the onset to ensure these early-stage subsidies serve as a temporary catalyst for a long-term, self-sustaining financial engine.



Future outlook / Next steps

AgriG8 will scale to 6,000 hectares in Q2 2026, successfully onboarding farmers into a digital infrastructure and proving the model’s viability.

The company is now refining its Rice Resilience Bond (RRB) concept note.

Aruna: Integrated fisheries supply chain contributing to stable livelihoods for fishers



 CA&R SECTOR Fisheries (wild catch), integrated B2B supply chain	 HQ Jakarta, Indonesia
 GEOGRAPHY Indonesia	 YEAR ESTABLISHED 2016
 MATURITY Series B	 REVENUE SIZE Not publicly disclosed

Key takeaways

- The risks and dangers associated with fishing are increasing as rising ocean temperatures are forcing fisherfolk to venture deeper into the ocean to fish to sustain livelihoods.
- To reduce these risks, sustainable fishing practice and insurance adoption are crucial for these fishing communities.

Business model

Aruna operates as an integrated fisheries supply chain company, combining roles as an off-taker, processor, and producer through its network of partners and infrastructure. This structure enables end-to-end control from sourcing to distribution while ensuring sustainable practices across the value chain.

Aruna focuses primarily on export markets that demand certified, traceable, and sustainably sourced seafood. By improving access to markets and disintermediating supply chains, Aruna contributes to more stable livelihoods for fishers.

To help build climate resilience for fishers, Aruna has partnered with insurance providers like BPJS (Badan Penyelenggara Jaminan Sosial), Indonesia's social security institution. They are piloting affordable insurance models tailored to fisherfolk and using subsidies and village-level rollouts to build trust and adoption. The premium cost is around IDR 60,000 (~US\$3), which is <1% of average fisher income.

Aruna has also gathered detailed data on fisherfolk income, expenses, and payment behaviour to improve product design, affordability, and accessibility.



Context and challenge

Climate change has directly affected Indonesia's fisheries sector—disrupting seasonal cycles, increasing safety risks, and challenging fishers' ability to predict weather conditions.

Increased weather variability affects not just fishing productivity, but also insurance requirements for safety and asset protection. As ocean temperatures continue to rise, fishers are being forced to venture into deeper waters to find fish, exposing them to more tumultuous maritime conditions.

Existing technological tools are limited in their ability to help fishers navigate difficult conditions as they are not species-specific.

These climate-exacerbated challenges are accompanied by additional difficulties fishers face such as fragmented infrastructure across Indonesia's 17,000 islands, low awareness of sustainable practices, and lack of legal registration for assets like boats, restricting collateralisation for loans and other financing.

IMPACT

11,000
Tonnes of seafood purchased
from small-scale fishers

3x
Increase in the income
of Aruna's fishers

800
Fisher partners enrolled in BPJS
Employment schemes

Solution and impact thesis

Aruna is Indonesia's largest fisheries commerce platform. By connecting small-scale fishers directly to global markets via an integrated supply chain, Aruna enables fair pricing, transparency, and traceability—key issues in Indonesia's opaque seafood sector.

Aruna has adopted sustainability as a strategic complement to its commercial operations, and as such has obtained the Marine Stewardship Council (MSC) certification to ensure that their products are sustainably sourced and traced.

Aruna has also formulated several Fisheries Improvement Programmes (FIP) to bring together key stakeholders and collectively improve sustainable fishing for Indonesia.



Photo © Aruna

Key lessons

While it is important to encourage adoption of sustainable fishing practices, especially in the face of climate change, fishers still prioritise market pricing over certifications or ecological considerations. Greater education is needed to increase awareness of the importance of sustainable fishing approaches.



Data can help to drive product design, where understanding fishers' income patterns and needs helped insurance partners to design suitable offerings for specific hazards and assets.



Future outlook / Next steps

Commodity expansion: Scaling operations into similar fishery value chains to strengthen our presence in high-demand global markets.

Sustainability excellence: Accelerating the adoption of international certifications (e.g., MSC CoC, FIP, SMETA) to meet global ecological standards.

New product development: Innovation value-added seafood products to capture new consumer segments and market opportunities.

Koltiva: Integrated financing, technology, and services for agriculture supply chains



CA&R SECTOR
Agriculture and allied services

HQ
Switzerland

YEAR ESTABLISHED
2013

GEOGRAPHY
Global - with offices in Indonesia, Vietnam, Thailand, Ivory Coast, Mexico, Colombia, and France

REVENUE SIZE
US\$8 million

MATURITY
Series A

Key takeaways

- Traditional financing approaches do not work for the agricultural sector. While smallholder farmers and the companies that support them need accessible financing, a mindset shift is first needed to ensure that such financing can be relevant and suitable.
- On top of enhancing protection for smallholder farmers through insurance, a fundamental behavioural change is needed where farmers proactively manage and reduce risk.

Business model

Koltiva addresses climate risks with an integrated approach combining technology, services, and finance.

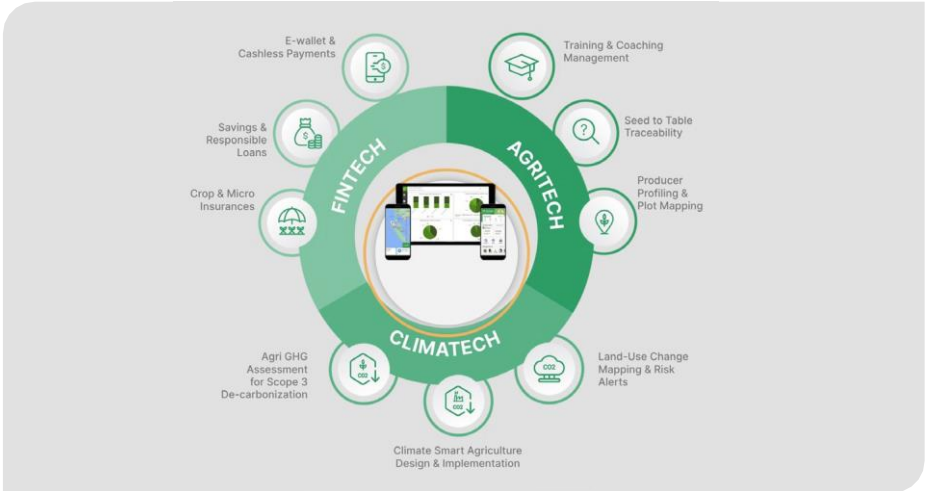
In doing so, they are able to improve farmer incomes through increased yields through access to knowledge and agri-inputs, as well as improved access to financing and markets.

Context and challenge

In Indonesia, the farmers face intensifying climate risks, with key threats such as erratic rainfall patterns, prolonged droughts, floods, landslides, and extreme weather events. For example, unpredictable rainy seasons and extended dry spells have led to harvest losses and pest/disease outbreaks in crops like cocoa and rubber. These decreases in yields have a direct impact on farmer incomes and local food security.

Most smallholders are un- or under-protected, where they typically do not have crop insurance, savings, or reliable extension services to help them manage these climate shocks. Independent smallholder farmers are also not tied to any cooperative or corporate programme and hence lack access to early warnings or financial safety nets, leaving them all the more vulnerable to climate change and effects.

At the company level, crop failures and quality declines due to weather mean fewer commodities flowing through 's platform, which impact their topline.



IMPACT

~2.1 million producers

Supported by 's suite of
services, across 65 countries

4x

Income increase for cocoa farmers in Aceh who benefited
from 's end-to-end platform solution

Solution and impact thesis

Koltiva views financial services as key enablers of smallholder resilience against climate change. Credit and insurance act as safety nets and springboard, where they provide farmers with the means to invest in adaptation, and to withstand climate shocks.

By offering affordable, well-timed loans, Koltiva seeks to enable proactive risk reduction behaviours, such as buying drought-resistant seed varieties or investing in drip irrigation. As for insurance, Koltiva believes that blended solutions, such as bundling micro-insurance with other services, are needed to make insurance viable at scale for smallholders.



Photo © Koltiva

Key lessons

Many investors view the smallholder sector as risky and low-margin, and have concerns around weather risk, rural logistics, and long ROI timelines. This has made it harder for to attract traditional venture capital or bank financing.



To address this, advocates for risk-sharing mechanisms (such as guarantees or first-loss capital) to give lenders comfort.

Future outlook /
Next steps

Koltiva is thinking about creating an insurance or guarantee backstop for their farmer financing portfolio, to unlock more commercial lending.

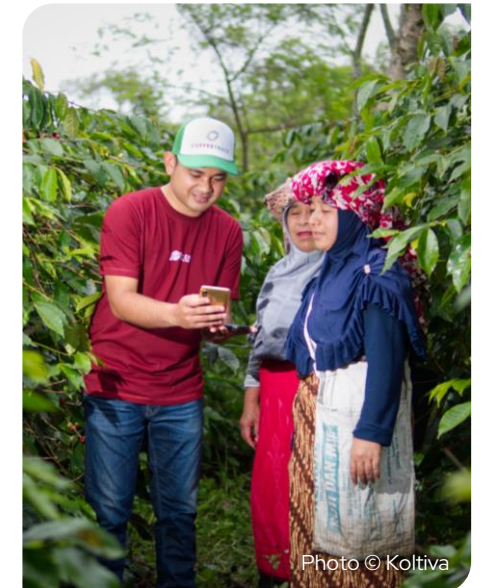


Photo © Koltiva

PasarMIKRO: Trade financing for supply chain resilience



CA&R SECTOR Agriculture	HQ Jakarta, Indonesia
GEOGRAPHY Indonesia, Singapore	YEAR ESTABLISHED 2020
MATURITY Seed	ARR Not publicly disclosed

Key takeaways

- Trade financing can be leveraged to build supply chain resilience and encourage behavioural change among borrowers.
- Innovative and integral use of technology can help to expand broader access to financial services (e.g. loans, insurance, etc) to smallholder farmers.

Business model

PasarMIKRO offers a modular platform and service suite that includes:

Trade & Trade Finance Services, such as digital trade workflows for agri commodities, escrow and proof-of-trade tools, buyer & supplier validation, and credit matching with real-time transaction behaviour.

Credit & Risk Services, such as KYC, Indonesia credit rating, and adverse media checks; financial and operational due diligence, onsite verification and inspection, and transaction-based portfolio monitoring for funders.

Traceability & ESG Solutions, such as end-to-end traceability from farm/fishing grounds to export, Product Carbon Footprint (PCF) calculation, and compliance support for EUDR and other ethical sourcing programmes.



Photo © PasarMIKRO



Photo © PasarMIKRO

Context and challenge

The agricultural sector in Indonesia is highly fragmented and disaggregated, with many intermediaries involved between farmer and end buyer. This poses challenges for the millions of smallholder farmers, such as unreliable payments and an opaque market.

Additionally, there is great opportunity and need for a strong digital infrastructure to be put in place, to ensure compliance with increasing social and environmental compliance requirements.

IMPACT

7,000+
Businesses transacting on platform

20,000+
Cashless digital transactions enabled

US\$83M
In trade supported to date

Solution and impact thesis

PasarMIKRO applies **trade finance that is used instead of conventional finance** to agricultural MSME and traders in Indonesia. Trade financing helps to **strengthen supply chain resilience, build behavioural change among borrowers (through increasing regular interaction with the digital platform), and protect both farmers and financiers.** PasarMIKRO's funding model blends balance-sheet financing with a channeling approach where risk is underwritten by financial institutions. This dual structure helps demonstrate feasibility to funding partners while building toward a full channeling model.

Their digital platform **expands access to financial services, simplifies disbursement and monitoring, enables collaboration across stakeholders who traditionally work in silos and ensures traceability.**

Impact is tracked through farmer income, supply chain stability, sustainability indicators, and trade finance performance.



Photo © PasarMIKRO

Key lessons

While smallholder farmers in Indonesia are increasingly exposed to climate risks, access to effective mitigation and protection solutions such as insurance remains extremely limited. This is **inherently a systems and infrastructure problem, rather than a product design problem.** Therefore, a macro approach is needed to overhaul and transform the existing system.



Future outlook / Next steps

PasarMIKRO is looking to expand to reach more smallholders as well as home based artisans and workers who work with natural fibres such as rattan.

PasarMIKRO is looking to build the digital infrastructure to enable scalable, inclusive insurance in Indonesia. Starting with a pilot on embedded crop and climate insurance, PasarMIKRO seeks to address the systems and infrastructure problem that is preventing widespread adoption of insurance and risk protection.

Akshayakalpa: Regenerative and climate-resilient dairy farming



**Akshayakalpa
Organic**



CA&R SECTOR
Agriculture



GEOGRAPHY
India



MATURITY
Growth stage



HQ
Karnataka, India



YEAR ESTABLISHED
2010



REVENUE SIZE
**US\$61 million
(FY26)**

Key takeaways

Akshayakalpa's regenerative, dairy-led farming model strengthens smallholder farmers' capacity to adapt to climate risks by combining secured offtake and predictable incomes with adoption of sustainable practices that improve fodder security, soil health, water management, and on-farm resource efficiency. By reducing income volatility and embedding quality-linked pricing and traceability at scale, the model enables sustained farmer investment in resilient farming systems and supports livelihood stability amid increasing climate variability.

Business model

Akshayakalpa is a certified organic, farm to fork enterprise offering milk, value-added dairy products, vegetables, honey and eggs free from antibiotics, synthetic additives, hormones, and chemical pesticide residues.

The company has built a diversified branded portfolio of over 200 SKUs across organic milk and value-added products, serving more than 150,000 customers primarily through its digital sales channels. Core products—milk, curd, paneer, ghee, and eggs—contributed over 85% of total sales between FY23 and FY25.

Akshayakalpa has the capacity to procure approximately 195,000 litres of milk per day from its farmer network, collectively managing over 25,000 cows.

To maintain organic integrity at this scale, quality controls are embedded at the source through farm or collection point level chilling, technology enabled milk collection, multi-stage testing, and end to end traceability.



Photo © Akshayakalpa

These controls enable Akshayakalpa to maintain consistent product quality across large milk volumes and reducing variability, spoilage, and contamination risks. The ability to deliver consistent, high integrity organic products at scale underpins consumer trust and pricing power.

Akshayakalpa is therefore able to share value with farmers through secured offtake and payouts linked to milk quality parameters such as fat and protein content, resulting in steadier and more predictable incomes. Greater income stability, in turn, supports farmers' capacity to invest in their farms over time, strengthening their operational resilience.

Context and challenge

Smallholder farmers in India, who typically own 3 to 5 acres of land, are increasingly exposed to climate-related risks such as rising temperatures, erratic rainfall patterns, declining soil health, and diminishing crop diversity. These pressures manifest as crop losses, water scarcity, feed shortages leading to higher fodder prices, reduced milk and crop yields, and heightened income volatility.

For many smallholder farmers, unstable incomes and limited awareness constrains the ability to invest in climate-resilient practices, which typically require upfront investment and longer time horizons to deliver benefits.

As a result, farmers often remain locked into short-term, input intensive practices that strain natural resources, increase vulnerability to climate shocks, and undermine long-term productivity and resilience.

IMPACT

>2,600 farmers
Supported as of 2025

9x increase
In average household
incomes since working with
Akshayakalpa¹

~107 m³
of biogas produced per farm
per month due to improved
manure management²

~4,000 tonnes
of fodder produced
in a month³

Solution and impact thesis

Akshayakalpa supports smallholder farmers to improve milk yields, diversify cropping patterns, and increase household incomes, while reducing exposure to climate-related risks through regenerative practices spanning soil health, water stewardship, and crop diversification.

At the core of Akshayakalpa's approach is livelihood security. By providing secured offtake and predictable income across dairy, poultry, vegetables, and honey, Akshayakalpa gives farmers the financial stability to progressively invest in regenerative and climate resilient practices.

Akshayakalpa's regenerative model integrates climate-resilient practices such as crop rotation, fodder cultivation, soil health enhancement, water stewardship, and improved manure management practices.

Together, these interventions help farmers manage challenges such as heat

stress, water scarcity, feed shortages, while also managing methane emissions from livestock.

While adoption of these practices is not yet uniform across all farms, Akshayakalpa is actively working with farmers along a structured transition pathway, strengthening near-term income resilience and long-term adaptive capacity.

Future outlook

Akshayakalpa plans to deepen its climate adaptation impact by strengthening data systems to track farm-level environmental outcomes, scaling farmer training across regions, expanding adoption of improved fodder and manure management practices, and further embedding regenerative principles across its value chain. Over time, these efforts are expected to enhance adaptive capacity, reinforce income stability, and strengthen the robustness of impact measurement for the sector.



Photo © Akshayakalpa

Key lessons

Climate adaptation outcomes can be stronger and long term when livelihood stability is addressed alongside ecological interventions.



On-the-ground support and field-level engagement are critical for adoption, as structured training, continuous farmer hand-holding, and regular field work help translate resilience practices from concept to consistent implementation across farms.



DigiVridhhi Technologies: Digitalising financial services for dairy farmers



CA&R SECTOR
**Agriculture (dairy),
Financial services**

GEOGRAPHY
India

MATURITY
Series A

AUM/(LOANS)
**INR85.00 Cr
(~US\$9.4 million)**

HQ
**Navi Mumbai,
India**

YEAR ESTABLISHED
2019

REVENUE SIZE
**~US\$500,000
(2025-2026
projected)**

Key takeaways

- By viewing bovines as assets and leveraging the digital footprint of the Farmer (Milk pouring data), Digital dairy loans and digital insurance can be availed to smallholder dairy farmers.
- It is crucial to enable an integrated dairy eco system approach which brings together Technology, Digital footprint of farmers AI & ML and other stakeholders like Banks, Insurance and Dairy processors in an integrated way.

Business model

DGV offers a closed-loop, full-stack platform integrating finance, insurance, and market access—through DGV Money (cash-flow-based lending), DGV Connect (marketplace with embedded finance), and DGV Digital Insurance (AI-led bovine identity and health tracking). This ecosystem makes farmers bankable, ensures asset traceability, improves risk visibility before lending, and keeps default rates low (1.5–2%).



Photo © DigiVridhhi Technologies



Photo © DigiVridhhi Technologies

Context and challenge

Dairy farmers in India are often left out of formal banking and financing services, and insurance (BFSI), due to an informal, under-digitized ecosystem where milk income is not recognised by financial institutions. Farmers face high access costs (5–6% of loan value), long approval cycles

(4–6 weeks), heavy documentation requirements, and limited lender visibility on fund usage. This leads to high perceived risk and ~40–50% reliance on informal, high-cost credit.

<p>IMPACT</p>	<p>>\$9.4M Worth of loans disbursed since inception (INR 85.00 Cr)</p>	<p>Issuance of certificate and insurance: Bovine Health Certificate - 29,651 Life Insurance - 3,847 Bovine Insurance - 3,334</p>	<p>>\$440,000 Total premium collected through DGV's digital insurance (INR 3.6 Cr)</p>
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Solution and impact thesis

DGV addresses the dairy financing gap through a closed-loop, full-stack digital infrastructure connecting farmers, lenders, insurers, dairy processors, and marketplaces into a single ecosystem.

DGV digitises the credit lifecycle by converting milk data into real-time bankable income, enabling collateral-free, cash-flow-based lending through an end-to-end data-driven platform.

A key innovation is DGV's Digital Bovine Insurance (DBI), powered by AI/ML-based muzzle recognition, which creates a unique digital identity and digital health certificate of the bovine. This helps lenders to track asset productivity and allows insurers to underwrite the bovine loan.

Tracking bovine productivity helps identify higher-yield animals at the same emission levels.

Key lessons

Dairy is often a supplementary income (~60% from crops), but during climate shocks it acts as a stable safety net, making it critical to strengthen for smallholder resilience.



With ~75% of dairy participation driven by women but financial access largely in men's names, there is a clear opportunity for gender-intentional products to address borrower-income misalignment and fragmented digital footprints.



Traditional lending struggles due to lack of control over how loans are used, increasing risk for lenders, Embedding credit within a marketplace-linked ecosystem ensures productive utilisation, improving both farmer outcomes and asset quality.



Future outlook / Next steps

DGV is considering at expanding its lending ecosystem and onboard multiple lenders with diverse risk appetites and scale access across 80M+ dairy farmers in India.

Integrate multiple insurance partners across different geographies with diverse livestock categories.

Position DGV as a full-stack infrastructure layer domestically, and as an API-led, globally scalable platform enabling risk-mitigated, cash-flow-based financial inclusion across emerging markets.

Samunnati: Making markets work for smallholder farmers



CA&R SECTOR Financial services	HQ Chennai, India
GEOGRAPHY India	YEAR ESTABLISHED 2014
MATURITY Series E	ARR US\$41 million

Key takeaways

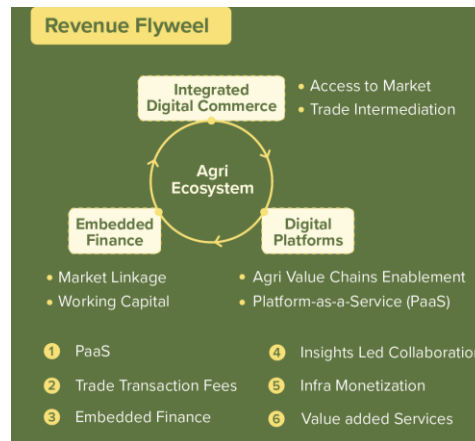
- Providing market infrastructure solutions can generate network effects, which can reinforce inclusive growth for all parties across the value chain.
- Sustaining market infrastructure needs to go beyond commercial approaches, including investing in capacity building for FPOs in areas such as business planning, financial management, and marketing.

Business model

Samunnati's business model emphasises the ALMA Approach: Aggregation, Market Linkage and Advisory.

Samunnati focuses on two customer segments - FPOs and Agri Enterprises - where it aims to establish FPOs as a viable asset class to ensure bankability, and engages Agri Enterprises, to bridge market gaps and unlock new synergies.

As an NBFC, Samunnati also innovates alternative credit models like instant pre-approved loans to unlock capital for farmers. Such loans require minimal documentation, and act as the first capital for FPOs, allowing them to establish a credible credit history.



Ecosystem initiatives and programmes

Samunnati drives a range of ecosystem initiatives to strengthen the agri-ecosystem, beyond financing, with a strong focus on long-term capacity building and market readiness. As a Point of Presence (PoP) for the National Pension System (NPS), it extends financial inclusion and social security to farmers and rural communities by empowering FPOs as Pension Agents. In parallel, platforms like the FPO Academy build leadership, governance, and business capabilities at scale through digital, multilingual e-learning modules.

Complementing this, structured tools such as Samunnati's FPO Assessment Framework, co-developed with Crisil Limited, provide a standardised approach to evaluate governance, finance, and market linkages, helping FPOs become investment-ready, evolve into a credible asset class, and achieve long-term sustainability. Together, these initiatives create an integrated ecosystem that enhances access to knowledge, finance, and markets, enabling stronger and more resilient farmer institutions.

Context and challenge

India's smallholder farmers, who typically own less than 2 hectares of land, comprise of 86% of India's farming community. Yet, they continually face systemic exclusion through a combination of low bargaining power, high input costs, and limited market access.

Furthermore, smallholder farmers bear the heaviest burden in India's agricultural value chain through a structural imbalance, whereby they pay retail prices for input and receive wholesale rates for outputs.

India's agricultural value chain also hosts a complicated and fragmented network of intermediaries that leads to inaccurate understandings of market demand and supply, leading to crop loss and abrupt adjustments in prices.

IMPACT

US\$3.7BGross Transaction Value (GTV)
from inception to date**30,000+**FPOs reached in the
Samunnati network**10M**Farmers impacted directly
and indirectly through
Samunnati's network

Solution and impact thesis

With a mission to "make markets work for smallholder farmers", Samunnati is an ecosystem enabler which integrates trade, embedded finance, and climate-smart interventions to build scalable market infrastructure that can drive network effects, inclusive growth and sustainable capital efficiency.

These market infrastructure include facilitating the establishment of Farmer Producer Organisations (FPOs), building full-stack integration digital platforms which would improve market efficiency, and pilot climate-resilient technologies like drought-tolerant seed variants.

Future outlook/ Next steps

Samunnati is exploring impact areas like climate adaptation and gender equality, with the aim that these projects reach beyond 12-15% of AUM

Samunnati is starting a new phase, Samunnati 2.0, which involves transitioning from a relationship-first model to one that is digital first and platform-led.

Key lessons








Sustaining market infrastructure may require going beyond commercial approaches, including investing in capacity building for FPOs in areas such as business planning, financial management, and marketing. This foundational work—alongside building social trust—is inherently long term. Samunnati undertakes these efforts not as part of its core corporate function, but as a public good through Samunnati Foundation, contributing to the broader development and resilience of India's agricultural sector.



Photo © Samunnati

SarvaGram: Credit and productivity interventions for agricultural households



 	
CA&R SECTOR Financial services, Agriculture	HQ Pune, India
	
GEOGRAPHY India	YEAR ESTABLISHED 2018
	
MATURITY Series D	REVENUE SIZE US\$42 million (FY2026)

Key takeaways

- There is merit in adopting a household-centric approach so that the real requirements and capacity of surplus creation of smallholder farmer households can be deduced and understood.
- Capital is often not patient enough, and there is a mismatch between household realities (volatile due to climate exposure) and funders' expectations (steady, predictable repayment).

Business model

SarvaGram offers a suite of customised financial and capacity-building products designed to meet the unique requirements of rural households, and to equip them with the tools they need to prosper. Services include loans, insurance solutions, and Farming-as-a-Service (FaaS).

SarvaGram distributes its products and services via physical Shoppes which are setup in key commercial rural hubs, which are selected as these are relatively affluent and progressive areas with low risk and appropriate population density. These Shoppes act as the focal point of distribution of financial services products in the catchment.

SarvaGram has developed another key distribution layer of Franchise partners (SarvaMitra) which helps in discovering customers from corners which are typically ignored by traditional players. The SarvaMitra channel engages with the farming community and especially offers farm productivity enhancement solutions to farming households.



Photo © SarvaGram

Context and challenge

Smallholder farmers in India are increasingly exposed to climate-related volatility. Shifting monsoon patterns, long dry spells, and spatial inconsistencies in rainfall hamper farmers' ability to predict rainfall and manage crops effectively.

Short-cycle crops such as vegetables face a high probability of failure in the face of climate hazards, which create unpredictable cash flows. Compounding this climate risk is the price volatility of commodities, which can drastically reduce household surplus and increase credit repayment risk.

On the credit side, SarvaGram's AUM of INR 16 billion (~US\$170 million) consists of 40% exposure to households whose majority of income comes from farming activities. ~90% of these farmers are small and marginal farmers, owning <2 hectares of land.

IMPACT	> 150,000 Households served	>120,000 Households with farming income	88% of small and marginal farming households	88% Households with monthly income <\$810	92% of loans have women as applicant/co-applicant	~18,000 Households insured
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Solution and impact thesis

SarvaGram emphasises the need to “stay with the household” across multiple crop cycles, to fully understand the repayment ability and behaviour of smallholder farmers. It is only after several crop cycles that a farmer is able to earn enough income for daily expenditure and have surplus to repay loans borrowed.

The smallholder farm segment continues to remain the most dominant segment of households that SarvaGram provides credit and productivity interventions to. SarvaGram supports these farmers in transitioning to mechanised agricultural methods, which are cheaper, more efficient, and more predictable (e.g. land preparation, sowing, crop-maintenance, harvesting and post-harvest activities) compared to traditional labour. This helps them save costs and keep their revenues predictable.



Photo © SarvaGram

Key lessons

Climate impacts cannot be easily isolated from market or health shocks, and income volatility often has multiple overlapping causes. However, capital is often not patient enough, and there is a mismatch between household realities (volatile due to climate exposure) and funders' expectations (steady, predictable repayment).



There is a need to gather household-level financial data to better design suitable financial products that align with actual household needs and expenditure patterns. Income diversification and identifying alternative sources of revenue can strengthen household income resilience significantly.



Future outlook / Next steps

SarvaGram intends to double down on their support for farming households.

In addition to current offerings of SarvaGram, the company is mainstreaming its retail offering of consumer products via franchises (SarvaMitras), which provides these farmer franchises with another stream of regular and predictable income.

Tian Tian Xue Nong: Democratizing access to agronomy knowledge



CA&R SECTOR
Agriculture

GEOGRAPHY
China

MATURITY
Series C

HQ
Shenzhen, China

YEAR ESTABLISHED
2017

ARR
Undisclosed

Key takeaways

- Agronomy and agriculture education are not just for farmers – they are necessary for all stakeholders in the agriculture sector to ensure everyone can develop relevant and feasible solutions with better context in mind.
- AI can be leveraged to bridge the knowledge gap between science and actual practices on-ground; and help to provide simple, yet targeted, solutions in a timely and relevant manner.

Context and challenge

China has more than 600 million farmers and is the largest farmer population in the world. Agriculture has transformed drastically, shifting from primarily subsistence farming to farming implemented at scale.

As incomes grow, demand for quality agricultural produce grows as well. However, as the farmer population shrinks, hectares per farmer will increase. To be able to meet growing demand and manage farmlands effectively, better practices and digitalisation is of key importance.

Business model

There are five main customer segments that Tian Tian Xue Nong provides their services to – farmers, urban residents, corporates, governments or agencies looking at rural revitalisation, and schools and institutions. This ensures that there can be a system-level shift once baseline understandings of the agriculture sector are well-established.

Broad course categories include agronomy and agricultural techniques, agricultural technologies, business upgrading, management, industry qualifications, and sales and marketing. These courses bring learners through the agricultural value chain from end-to-end.

Through transforming farmer and agronomy education, Tian Tian Xue Nong also hopes to make farming more accessible and attractive to a younger generation of farmers and to ensure sustainability of the trade into the future.



Photo © Tian Tian Xue Nong



Photo © Tian Tian Xue Nong

IMPACT

> 8 million

Accumulated serviced users across various stakeholder groups

> 60,000

Courses across 100 crop varieties and livestock, developed for a diverse range of users, including farmers, corporate clients, and schools

> 5,000

Corporate users onboarded and serviced

Solution and impact thesis

Tian Tian Xue Nong, a subsidiary of Feng Nong Holdings, is an innovative online agricultural vocation education platform launched in 2017. It is dedicated to cultivating new types of professional farmers and empower rural revitalisation strategies.

Courses are taught by experienced farmers and practitioners, with closeup demonstrations to ensure ease of application in the field. Farmers report meaningful improvements: higher yields, more uniform crop quality, reduced harvest losses, and better market prices - leading to increased productivity, improved incomes, and more resilient livelihoods.

On top of providing agronomy knowledge, Tian Tian Xue Nong's application also includes an agronomy AI feature, where it can translate complex knowledge into a format that farmers can understand and implement easily. Farmers are also able to directly share their challenges with the feature (e.g. share pictures of pests or diseases) and obtain targeted solutions immediately.

Key lessons

Farmers are not a homogenous group – while the average education level of farmers is around 8-9 years (middle school), the new generation of farmers have as much as university and tertiary qualifications. As such, Tian Tian Xue Nong needs to ensure that their educational content is suitable for all types of learners.



In democratising agricultural education and information, it is important to consider the educational and age disparities within the farmer population, and tailor the information to them accordingly.



Future outlook / Next steps

As climate change continues to affect agriculture and food security, Tian Tian Xue Nong is exploring a partnership with local governments in China to improve awareness and increase adoption of agricultural insurance.



Photo © Tian Tian Xue Nong

Thai Wah: Investing in solutions for climate-resilient supply chains



CA&R SECTOR
Agriculture

GEOGRAPHY
Cambodia,
China, India,
Indonesia,
Vietnam

MATURITY
Listed

HQ
Thailand

YEAR ESTABLISHED
1947

ARR
US\$326
million (THB
10.135 billion)
in 2024

Key takeaways

- Large corporates such as Thai Wah are well positioned to invest in solutions, such as bio-fertilisers and disease-resistant tapioca stems to strengthen the capacity of smallholder farmers for climate adaptation and resilience.
- Farmer engagement is crucial in encouraging the adoption of new farming methods and approaches

Business model

Thai Wah produces 500, 000 tonnes of agricultural residue and waste annually. In collaboration with Chulalongkorn University, Thai Wah's in-house R&D team developed a microbe cocktail that would transform Thai Wah's manufacturing by-products into bio-fertilisers.

Changes included tailoring the products to specific requirements and providing local workshops to share best practices. Thai Wah's bio-fertilizer was also more affordable than chemical alternatives, and they occasionally provided the fertiliser at a subsidised rate or free of charge.

Aside from the bio-fertiliser, Thai Wah grows a bank of disease-resistant tapioca stems across 12 greenhouses with strict whitefly pest control alongside the Thai Tapioca Development Institute. In scaling these greenhouses across multiple locations, Thai Wah is disseminating these stems to more farmers. While initial costs to procuring these stems are higher, they provide higher starch content and lower soil contamination.

Context and challenge

Thai Wah is one of the world's largest manufacturers of tapioca starch and starch-related products, while also producing food and biodegradable products sold across Thai and international markets.

Sourcing over 1.3 million tons of crops annually, it is particularly sensitive to agricultural supply chain disruptions caused by climate-related shocks. Due to droughts and a rise in crop diseases, Thai Wah's crop yield for tapioca **decreased by 30% over 2022 and 2025.**



Photo © Thai Wah



Photo © Thai Wah

<p>IMPACT</p>	<p>576,640 Disease-free cassava stems distributed in 2025 across 360 rai of farmland in 4 provinces</p>	<p>20% increase in crop yields Resulting from TWB biological innovations to restore soil health</p>	<p>12% increase in farmer incomes in 2025 Reflecting effectiveness of capacity-building and production support</p>	<p>1,265 farmers trained In production management and Waxy Cassava cultivation in 2025</p>
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Solution and impact thesis

To address climate-related disruptions like droughts and rise in crop diseases, Thai Wah is focusing on soil health and developing a bank of disease-resistant tapioca stems.

To improve soil health, Thai Wah is implementing its own bio-fertiliser composed of by-products from its factories' manufacturing processes. This is expected to improve crop nutrition and increase resilience to environmental stressors like water scarcity, while also reducing farmers' reliance on chemical alternatives.

Since Thai Wah mostly sources from smallholder farmers, whose livelihoods nearly entirely depend on crop yields per season, Thai Wah's bio-fertiliser and disease-resistant stems would not only improve their financial resilience via improvements in crop resilience to climate impacts, but also the resilience of regional food supply chains

Key lessons

Working closely with farmers to adopt new practices is vital, especially when knowledge has been ingrained for generations. Thai Wah had to persuade smallholder farmers to try implementing bio-fertilisers in their farms, even though they typically have low margins of risk. This meant engaging farmers directly, using their feedback to minimize the perceived risk of using a new nature-based agri-inputs in their agricultural practice.



Future outlook/ Next steps

Thai Wah intends to develop their data collection system further to have a more accurate and real-time outlook on crop sourcing, as well as measure carbon footprint reductions.



Photo © Thai Wah

Yara: Improving the entrepreneurial acumen and agronomy knowledge of smallholder farmers



CA&R SECTOR Agriculture	HQ Norway (global), Singapore (regional Asia and Africa)
GEOGRAPHY Global	YEAR ESTABLISHED 1905
MATURITY Publicly listed	ARR US\$15.7 billion (2025 reported)

Key takeaways

- Farmer households are inherently entrepreneurial. In building long-term resilience of smallholder farmers, it is important to educate and enable them with entrepreneurial skills that they could then grow their business (i.e. household incomes) with.
- Collaboration between public, private and philanthropic partners: partnerships are required to maximise the effectiveness and upscale operation of programmes.

Business model

GrowEnterprise is a digitally enabled, 15-week entrepreneurial training programme that strengthens MSMEs and smallholder-linked enterprises within Yara’s supply chain. The model combines structured learning, digital enablement, and coaching support to build business acumen and operational discipline at the last mile.

GrowEnterprise strengthens MSMEs and farmer-linked enterprises by building core skills in financial planning, operations, customer engagement, and digital adoption. By improving business discipline, participants are better positioned to support farmers, provide accurate product guidance, and drive responsible agronomic practices.

The programme is also scalable – its blended, standardised format ensures consistent quality while allowing rapid replication across regions. The model has already evolved from a retailer-focused initiative to a broader ecosystem platform supporting diverse rural enterprises.



Photo © Yara

Context and challenge

Although Yara is an inputs and crop nutrition company, its business is increasingly affected by climate change, impacting soil health, crop productivity, and long-term food system stability. Asia and Africa are among the most climate-vulnerable regions, yet farmers and rural enterprises often lack the capital, tools, and policy support needed to manage these impacts.

Within this environment, rural MSMEs, including agro-retailers, FPOs, youth, and women entrepreneurs, serve as the critical last-mile link for farmers, but most have limited exposure to structured business capability, digital tools, or financial literacy. India also lacks mandated standards for MSME capacity building, resulting in inconsistent advisory quality and weak operational resilience.

Strengthening the entrepreneurial foundations of these rural enterprises is therefore essential to improving farmer prosperity and building a more sustainable agricultural ecosystem.

IMPACT

699 MSMEs
Trained across 70+ districts in India

23.8%
Female participants supported by the
PlusOne model

Solution and impact thesis

Yara's impact platform under Thryve Innovation CoLab, growX, focuses on strengthening the financial resilience of smallholder farmers and MSME retailers by addressing core gaps in business capability and access to knowledge. Through structured entrepreneurial training, growX equips participants with practical business skills—such as financial planning and operational decision-making—that enable them to improve productivity, profitability, and resilience to market and climate-related shocks.

Within this platform, GrowEnterprise is a 15-week, digitally enabled business-training programme designed to strengthen MSMEs within Yara's supply chain. The programme combines short video and audio modules, weekly in-person coaching, quizzes, and practical assignments to support real-world application. MSME retailers serve as trusted, influential nodes in rural value chains and are uniquely positioned to enhance efficiency and sustainability in food production. By building their business, digital, and customer-facing capabilities, GrowEnterprise enables stronger service quality, improved farmer engagement, and long-term shared prosperity across farming communities.

Key lessons

Blended, multi-format learning models are highly effective in low-connectivity rural environments and support sustained behavioural change.



Inclusion requires intentional design – the Plus One model significantly increased meaningful participation of women and broadened household-level capability.



While participation has improved, further intentional effort is needed to embed gender and youth diversity at scale; unlocking their economic and leadership potential remains a major opportunity for business growth and community impact.



Collaboration across public, private, and philanthropic partners is essential to maximise programme effectiveness and scale.



Future outlook / Next steps

As the programme evolves, Thryve and GrowEnterprise aim to deepen its reach and content across Asia and Africa, expanding participation of women and youth, and strengthening digital adoption and operational discipline among MSMEs. The ambition is to develop GrowEnterprise into a scalable capability-building platform that enhances enterprise resilience, elevates advisory quality for farmers, and drives measurable improvements in household prosperity.



Photo © Yara

Agriculture and Rural Development Bank (ARDB): Loans for climate-smart agriculture (CSA)



- CA&R SECTOR
Agriculture
- GEOGRAPHY
Cambodia
- MATURITY
State-owned

- HQ
Phnom Penh, Cambodia
- YEAR ESTABLISHED
2019
- AUM
US\$31 million (2024 estimate)

Case study is written in collaboration with ImpactSF



Key takeaways

- The risk appetites of public development banks to extend smallholder farmer credit at affordable rates can be reduced, provided the loans are appropriately de-risked
- Operational de-risking through targeted use of loan proceeds for CSA adoption along with appropriate parametric insurance product is being currently integrated to achieve total de-risking of the loan

Business model

To address challenges related to weather and climate risks, and its impacts on their lending portfolio, ARDB and ImpactSF collaborated to test and use a weather/climate risk tool called the ImpactSF Analyzer to co-design and release a climate smart agriculture (CSA) loan product

The CSA loan provides dual benefits by offering multiple attributable environmental benefits for the farmer and providing an opportunity for the bank to reduce weather/climate and financial risk in its lending operations.

The use of loan proceeds for CAPEX investments contributes to operational de-risking of the loan, thereby reducing the risk for loan default to weather/climate hazards.

The loan is also structured such that it pays the suppliers directly once the net house and solar powered irrigation kit is installed. This further reduces potential leakages in use of loan proceeds.

This enables the bank to aggregate its lending as the net house and solar irrigation kit suppliers are part of the lending portfolio of the bank

These de-risking measures allow ARDB to provide the CSA loan at lower interest rates than other loan products, improving accessibility to a broader customer base.



Context and challenge

The Agriculture and Rural Development Bank (ARDB) is a public development bank in Cambodia with the mandate to finance agriculture and rural development in the country.

As Cambodia's premier financial institution, ARDB need to balance lending with the risks posed by the agriculture sector, specifically weather and climate risks.

Improvements in the climate adaptation and resilience capabilities of ARDB's loan recipients also contributes positively to the fiscal health of ARDB's agriculture lending portfolio

Solution and impact thesis

A significant portion (80%) of the proceeds from the CSA loan can be used to only acquire net houses and solar powered irrigation kits from select suppliers, while a minor portion (20%) can be used by farmers for operational expenses (such as biofertilisers, seeds etc.)

This loan is only available to farmers who are predicted to be exposed to key weather hazards such as seasonal drought and excessive rainfall. This due diligence of farmers is undertaken using the ImpactSF Analyzer

These CSA loans also enables ARDB to report on the environmental impacts of loan proceeds to regulators and development finance institutions. This is due to the CSA loan's inherent structure, demonstrating clear attribution between the loan and environmental impacts.

Future outlook / Next steps

Weather and climate risks still exist despite efforts to structure the CSA loan to reduce the risk of weather and climate hazard-induced loan defaults. Difficulties in managing such risk are often the result of individual farm management practices. To address this, ARDB and ImpactSF are working with a re-insurer to design a parametric insurance product that will be embedded in the CSA loan, providing automatic payouts in case of instalment defaults due to weather or climate hazards.

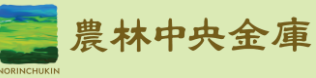
Key lessons

Lending directly to smallholder farmers with appropriate risk mitigation strategies to ensure affordability has been a key challenge for ARDB. Using the ImpactSF Analyzer and loan structuring services offered by ImpactSF, ARDB and ImpactSF have learnt that transaction costs incurred in lending to smallholder farmers can be reduced and scaled using insights provided by science.



Photo © ARDB

Norinchukin Bank: Private sector collaboration for sustainable practice and technology adoption



- FUNDER TYPE**
Commercial banking
- GEOGRAPHY**
Global
- FUNDING APPROACH**
Commercial
- AUM/FUND SIZE**
US\$558.4 billion
(¥83.5 trillion)
- OVERALL PORTFOLIO RETURNS**
0-5%
- AVERAGE TICKET SIZE**
Undisclosed
- TIME HORIZON**
Undisclosed

- HQ**
Tokyo, Japan
- YEAR ESTABLISHED**
1923
- INSTRUMENTS DEPLOYED/
ASSET CLASS**
Private equity

Key takeaways

- As the national financial institution for agricultural, fishery, and forestry cooperatives, Norinchukin Bank plays a key role in supporting resilient food systems in Japan, including climate resilience.
- Value chain partnerships and approaches can help to support sustainable practice and technological adoption by farmers.

Overarching mission

As the national-level financial institution for agricultural, fishery and forestry cooperatives in Japan, The Norinchukin Bank plays a major role in Japanese society as a contributor to the development of the nation's economy and as a supporter of the advancement of the agricultural, fisheries and forestry industries with facilitated finance for its members including Japan Agricultural Cooperatives (JA), Japan Fishery Cooperatives (JF) and Japan Forest owners' Cooperatives (JForest).

Key investment themes

With the stable funding base provided by capital from JA, JF, and JForest, as well as JA Bank and JF Marine Bank deposits from their individual members and customers, the Bank, to achieve its mission, lends funds to members, agricultural, fishery and forestry workers, and companies related to the agricultural, fisheries and forestry industries. This shows how good co-op governance in mature agriculture markets like Japan can create financial benefits through sound management.

The Bank primarily engages in investment and corporate finance with a focus on achieving market-rate financial returns, but also manages specific philanthropic funds targeting Japanese fisheries, forestry, and agriculture, with some funds dedicated to regional revitalisation and sector-specific subsidiaries.

The Bank actively diversifies its portfolio internationally, primarily across the U.S. and Europe, with a strategic focus on sustainable finance. Norinchukin was the first Japanese financial investor to invest in AgFunder's AgFunder Fund IV in 2022, focused on ag-tech and food-tech. As of 2025, they have already achieved ¥9 trillion (US\$56.3 million) of their 2030 goal of ¥10 trillion (US\$62.6 million) in sustainable finance, leading them to consider revising their targets.

Key strategic interests include climate mitigation, efficient agricultural technologies, consolidation of agricultural land, and reduction of Scope 3 emissions alongside private sector partners.



Photo © Norinchukin Bank

CA&R focus and opportunity areas

While access to finance is not a major barrier for Japanese farmers, the high cost of transitioning to sustainable practices and technologies is a challenge, especially given the ageing farming population. These technologies include satellite-based land consolidation and automated machinery.

To address this, Norinchukin Bank is contributing to the creation of value chain consortia involving farmers, manufacturers, and retailers to facilitate the transition to sustainable agriculture and help manage transition burdens, initially focusing on rice and dairy, with plans to expand to other crops. They are also collaborating with startups to introduce smart agriculture technologies to farmers to improve efficiency and environmental outcomes.

Featured projects and portfolio companies

Faegar is a Japanese company that collaborates with farmers to generate carbon credits. Norinchukin Bank is supporting a trial project for emissions measurement and carbon credit generation in Southeast Asia.

Sagri is a Japanese agtech that solves various problems facing agriculture, including by helping to identify and consolidate farmland for better use, using image analysis and AI polygon technologies that combine satellite data and AI.

Key lessons




In Japan, crop and climate-related insurance for farmers continues to be provided primarily by the government. Norinchukin Bank's affiliate companies mainly offer life and health insurance, but government insurance typically covers a significant proportion of losses from disasters.



Reliable data and global standards are needed to incentivise value chain players, particularly corporates, to support farmers in reducing scope 3 greenhouse gas emissions.



Impact framework

	 Strengthening the "earning power" of the AFF industries	 Realizing a resilient food system	 Achieving well-being at both local and international level
Risks	<ul style="list-style-type: none"> Impact on the business base due to labor shortages in the AFF industries and shrinking local economies 	<ul style="list-style-type: none"> Impact on the business base due to lower sustainability of the AFF industries caused by disruption of global supply chains, etc. 	<ul style="list-style-type: none"> Impact on the business base mainly caused by the aging and declining population in domestic communities Criticism for failure to consider inclusion and equity in the business activities in Japan and overseas Impact on the business activities due to global social unrest
Opportunities	<ul style="list-style-type: none"> Conduct investments and loans to the AFF industries and food and agriculture-related companies, etc., and extend business using IT/digital technologies, etc. 		<ul style="list-style-type: none"> Develop local financial services using IT/digital technologies, etc. Extend investments/loans and business that contribute to the resolution of social-related issues such as inequality and social infrastructure
Impacts	<ul style="list-style-type: none"> Contribute to improving the income of farmers, fishermen, and foresters in collaboration with members 	<ul style="list-style-type: none"> Contribute to strengthening the domestic production base and improving Japan's food self-sufficiency rate, through investments and loans as well as building a new food and agriculture value chain in collaboration with members 	<ul style="list-style-type: none"> Improve well-being in local communities Improve social diversity and inclusion and contribute to healthy economic growth through the business activities

Temasek Foundation and Abler Nordic: Sustainable palm oil replanting in Indonesia

The need

Many of Indonesia's smallholder oil palm plantations are **older than 25 years**, and desperately need to be replanted to help boost output.

Sustainable replanting using quality inputs is costly, at around US\$5,000 per hectare.

However, farmers have **limited access to loans and grants**. Agricultural loan interest rates of **>20%** coupled with **lack of proper, legal land titles** prevent farmers from obtaining loans.

Farmers often resort to encroachment and unsustainable land clearing to establish new plantations.

TEMASEK
Foundation

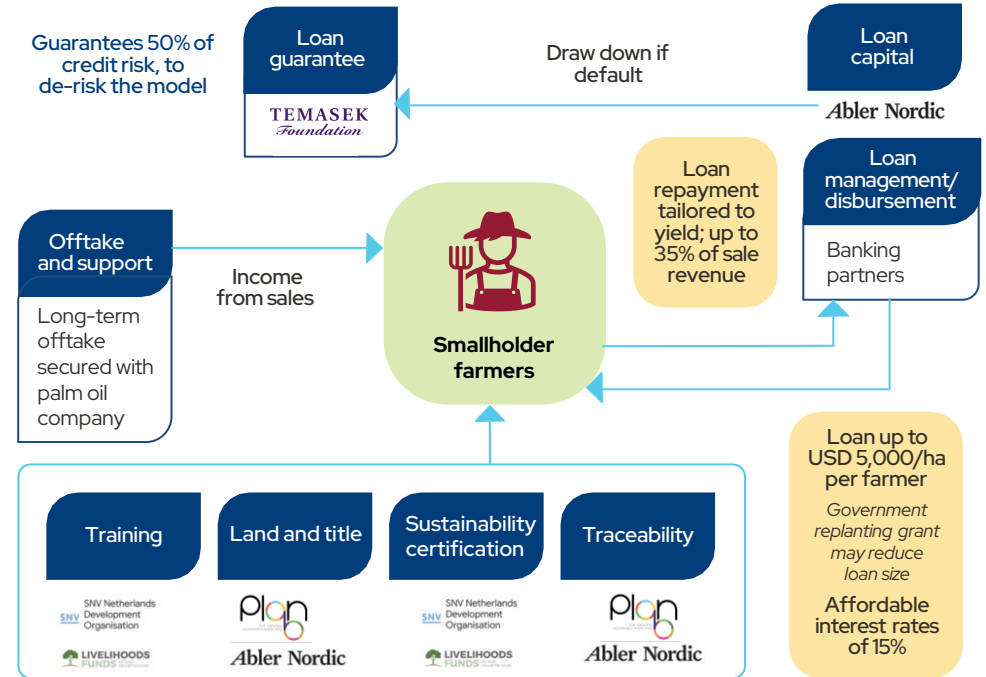
Temasek Foundation's role

Provide a loan guarantee to safeguard loan capital from main funder, which is in turn disbursed to the smallholder farmers through MFIs.

Pilot a Public-Private-Philanthropic blended finance model to make sustainable oil palm replanting accessible to farmers.

Demonstrate that with various safeguards in place, lending is commercially viable, as risks will be lower than expected.

Funding model



TARGET OUTCOMES	>1,900 tonnes	At least 2x	Access to low-interest rate financing
	Of GHG emissions avoided per year through avoided deforestation on peatland, protect forests, and reduction in use of chemical fertilisers	Increase in income for SHFs by Year 11	Provide data to banks And allow them to participate in SHF financing

Temasek Foundation and Rize: Scaling sustainable rice cultivation in Vietnam

The need

High climate footprint of traditional rice planting methods – traditional flooding contributes 12% of global methane emissions and 30% of irrigation water use.

Smallholder farmer (SHF) cooperatives **lack affordable formal credit for planting**, and rely on high-interest lenders.

There is a **liquidity bottleneck** where there are delayed payments and cashflow stress across the supply chain.

Smallholder farmers (SHFs) have limited ability to participate in carbon markets due to a lack of data and inability to verify, which results in a **missed potential carbon revenue opportunity**.

Temasek Foundation's role

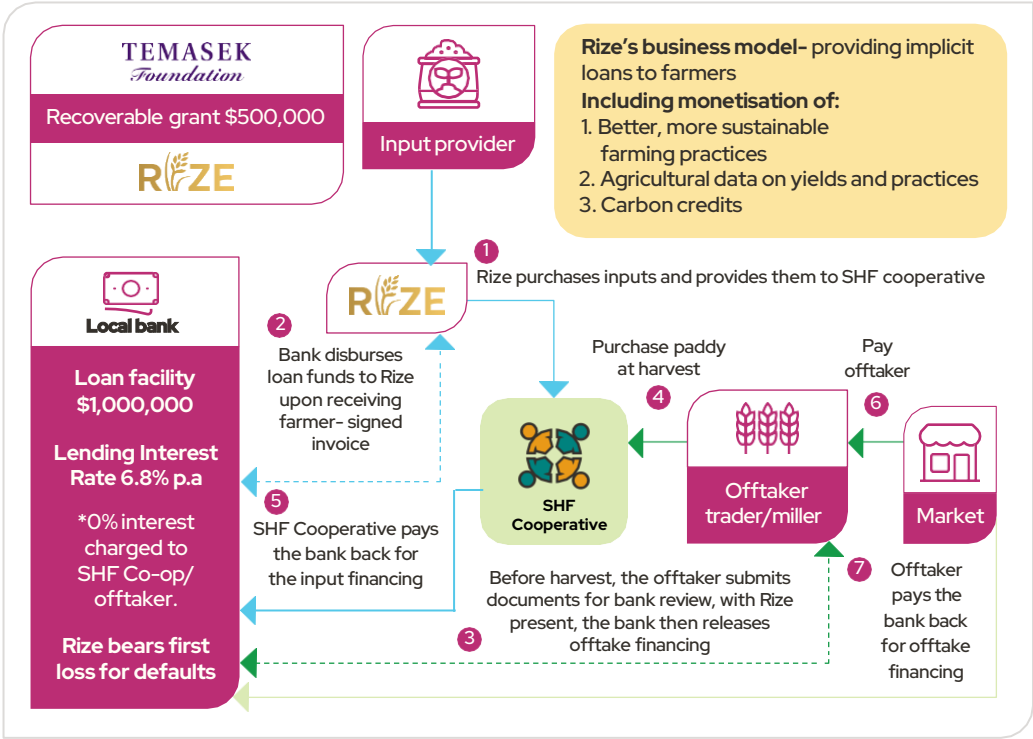
Provide a **recoverable grant** to Rize (solution provider, agtech).

Unlock financing for smallholder farmers and increase adoption of better agronomic practices (e.g. Alternate Wet-Dry planting) – banks typically require companies like Rize to provide 100% guarantee/deposit, which is now offset partially by TF's grant.

With funding unlocked, Rize can get the pilot off the ground, and after gathering ~ 2 years of data, this information could be used to convince the bank of track record and efficacy, allowing them to be assured of taking more risk and lowering deposit requirement by 30-50% more.

By supporting this project, the market can also be prepared for future carbon revenues.

Funding model



TARGET OUTCOMES

50%
Reduction in GHG emissions

20%
Reduction in water consumption

20%
Increase in income

Secure larger low-interest rate loan facility, and banks take more risks to lend to rice value chain

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Read our report and sector deep dive here



Discover insights into CA&R needs and opportunities across Asia, informed by ~250 industry stakeholders, alongside a sector deep dive into agriculture here

Explore our dashboard here



Mapping of ~US\$100B of CA&R financing over the past 5 years and explore over 250 solution categories for actors across the capital spectrum



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