

Unlocking Resilience ROI

How Companies Investing in Mangroves Create a Return on their Investment



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How Companies Investing in Mangroves Create a Return on their Investment

Earth Security is an investment research company advancing the next frontier of planetary resilience.
info@earthsecurity.org
earthsecurity.org

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Currency

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Partners



Executive Summary

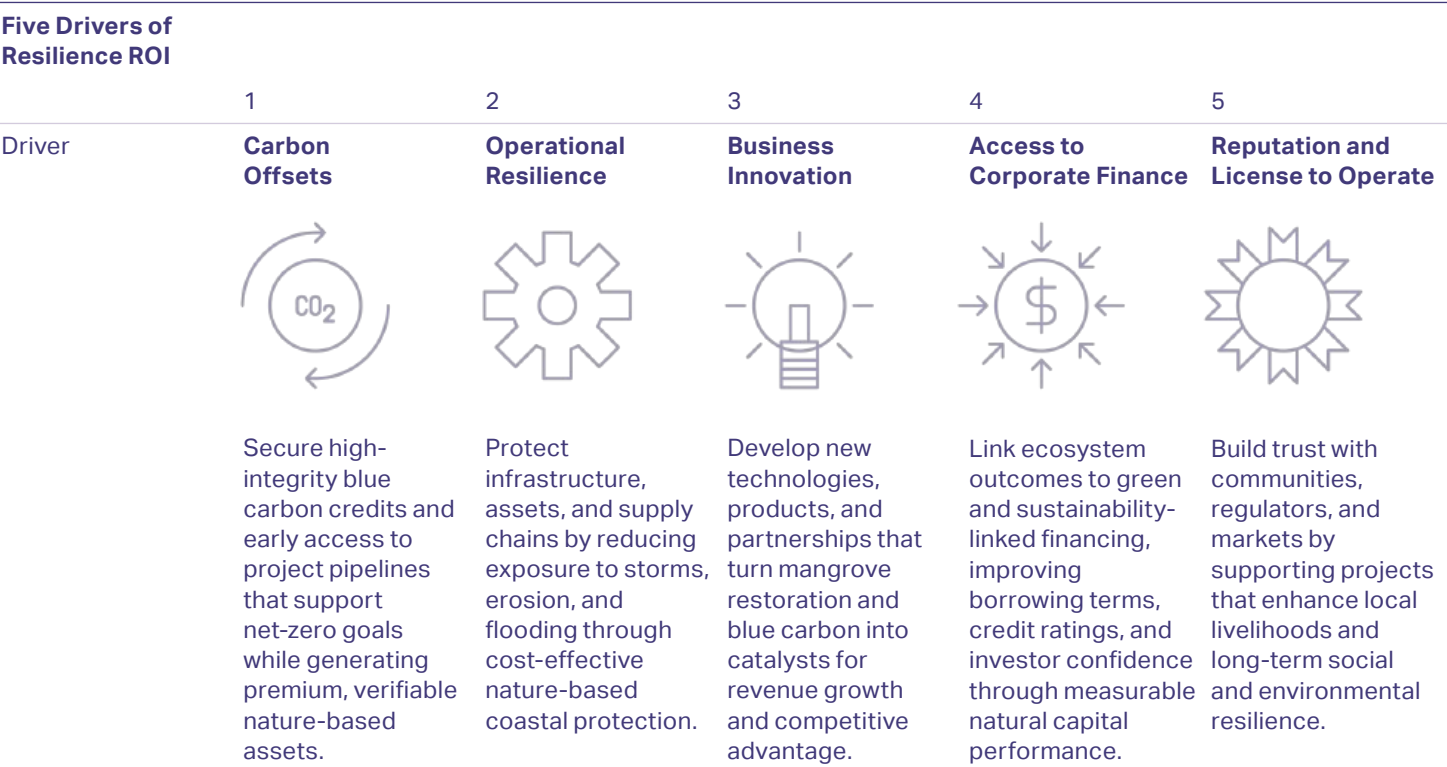
Over the past decade, more than 150 companies — across energy, infrastructure, maritime, consumer goods, and technology sectors — have funded mangrove restoration and conservation projects around the world. The pace of engagement has accelerated dramatically, with **corporate involvement increasing almost fivefold** since 2021 compared to 2016-2020.

This briefing by **Earth Security** unpacks the global trends driving this shift and explains how corporate investments in mangroves — whether financed through CSR, philanthropy, or carbon budgets — are generating tangible returns on investment (ROI).

We define these emerging value streams as **Resilience ROI**: the economic and strategic dividends that nature-based investments yield when businesses integrate ecosystem resilience into their operations and supply chains.

Across 180 projects, Earth Security’s analysis identifies **five distinct drivers** of Resilience ROI — from carbon credit generation to operational cost savings to enhanced access to finance. These insights make **a clear business case**: investing in coastal ecosystems is not only a moral or environmental imperative, but a high-return resilience strategy for long-term value creation.

Figure 1



Five Trends to Watch

Earth Security analysed 180 mangrove conservation and restoration projects that received direct financial or technical support from private-sector partners. **86% of these corporate partnerships were initiated since 2011**, with an exponential surge following the 2021 UN Climate Conference (COP26) — a turning point that placed nature-based solutions at the centre of global climate strategy.

In total, we identified 157 companies that have provided sustained support for mangrove restoration, spanning 44 countries and diverse industries. The findings highlight a fast-evolving landscape where environmental impact, operational resilience, and financial performance are increasingly aligned.

Trend 1

Corporate investment in mangroves is accelerating

Trend 2

Asia-Pacific leads on global corporate action

Trend 3

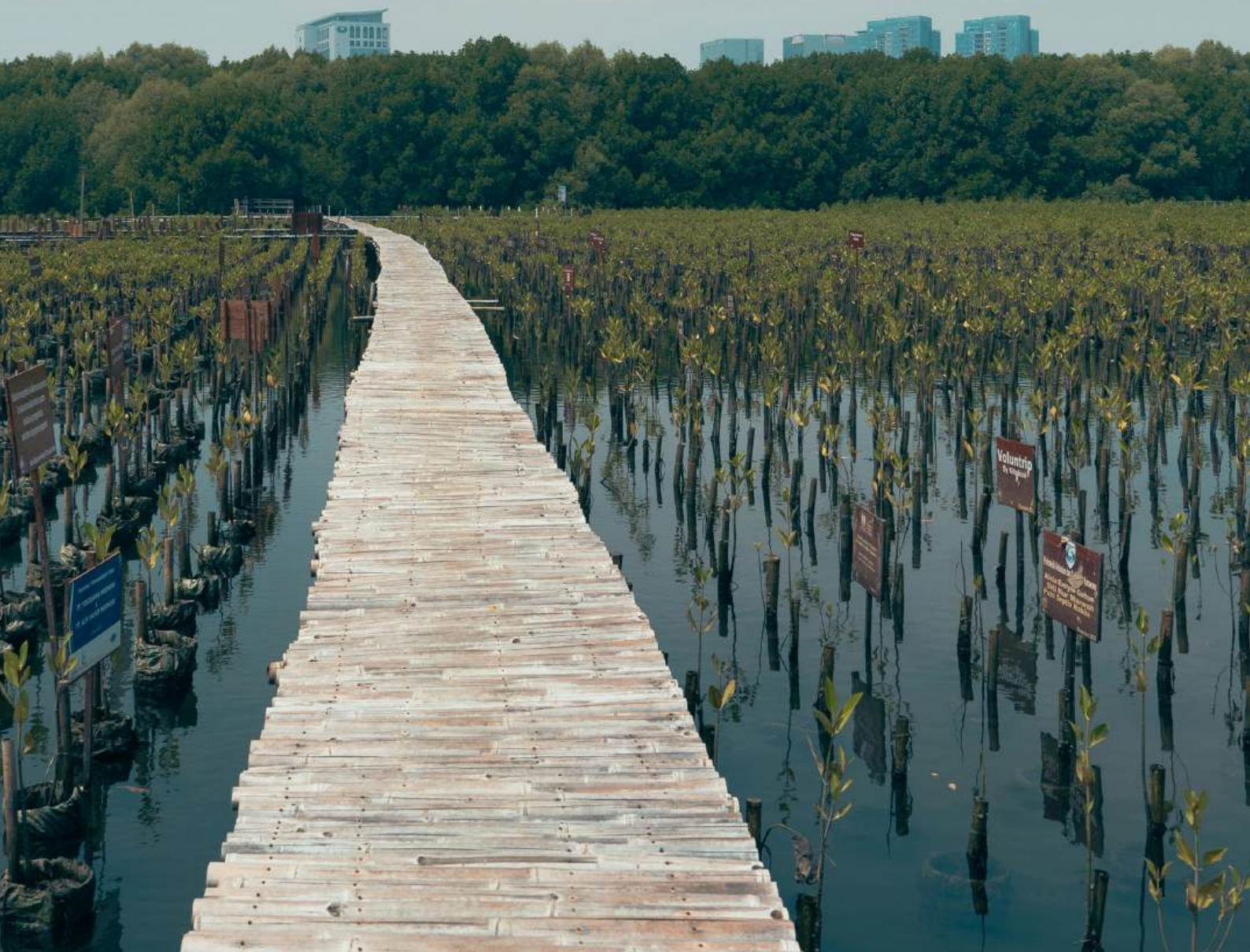
Energy and consumer goods sectors lead

Trend 4

CSR and corporate philanthropy dominate funding models

Trend 5

The rise of blue carbon



Trend 1

Corporate investment in mangroves is accelerating

Since 2021, companies have launched **114 new mangrove projects**, a three-fold increase from the previous decade. The shift reflects how businesses are operationalising net-zero and nature-positive commitments in measurable ways. Over 139 countries and more than half of the world’s largest publicly listed firms now have net-zero targets in place.^{1 2}

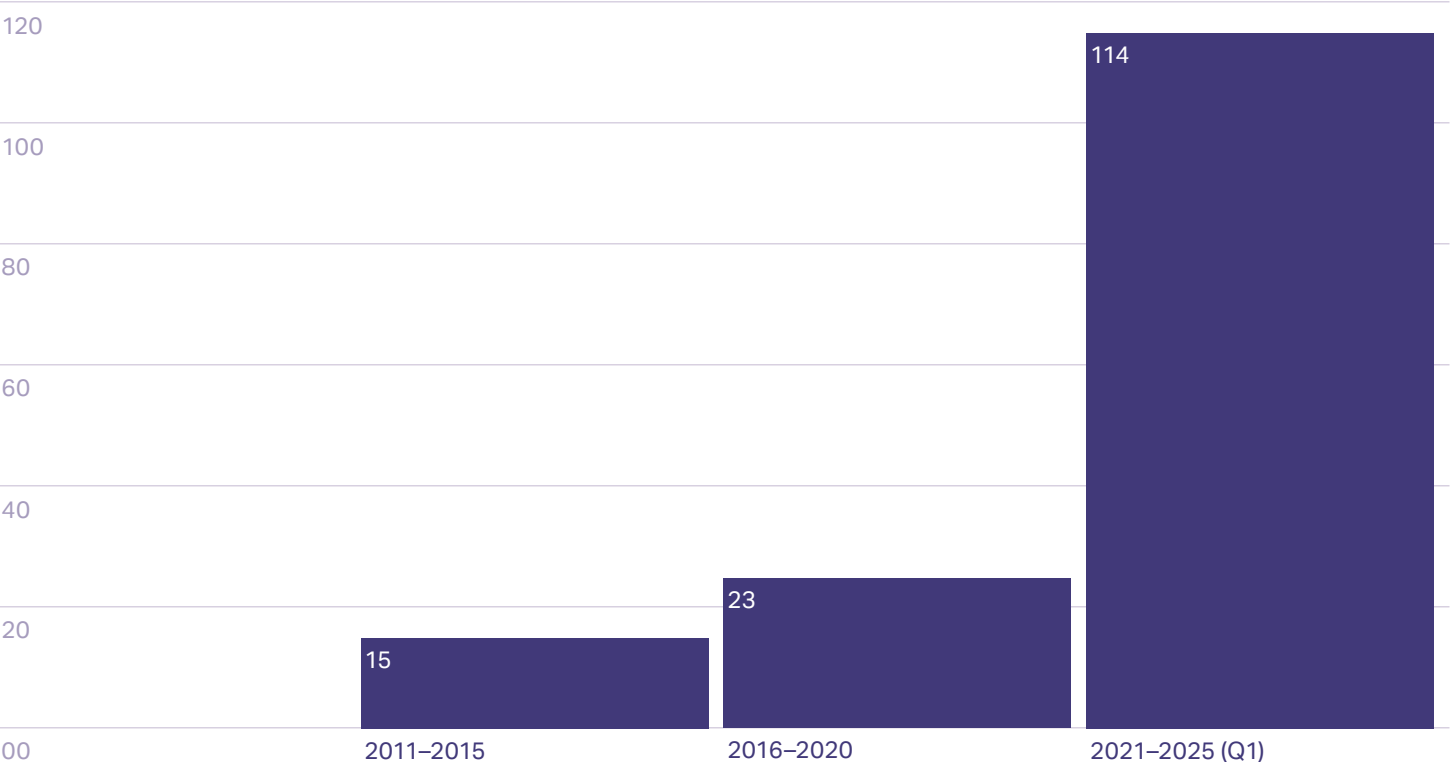
Corporate activities in blue carbon and ecosystem restoration are growing rapidly. This first-mover activity creates early advantages — from brand differentiation to access to premium blue carbon credits — consolidating a leadership tier of companies that recognise nature as infrastructure.

Figure 2

Corporate investments in mangroves by year
2011 – 2025 (Q1)

Note
The year denotes the time at which the project or investment was initiated or first announced.

Investments



Trend 2

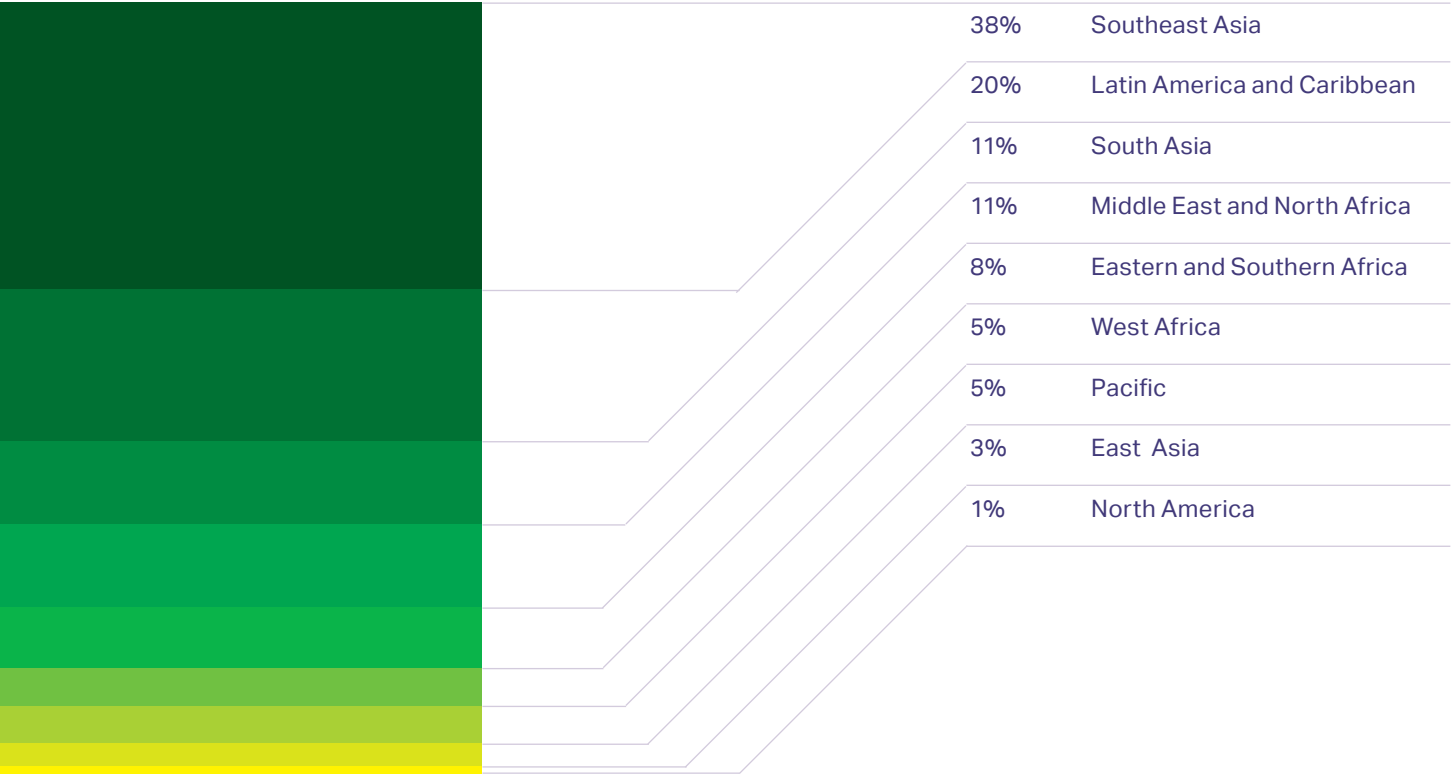
Asia-Pacific leads on global corporate action

Over half of all corporate investments in mangrove restoration in the past 15 years are in the Asia-Pacific region, with Southeast Asia alone hosting 56 initiatives — including 26 in Indonesia. This concentration reflects both ecological significance (the region holds roughly one-third of the world’s mangrove area) and economic exposure: coastal populations, logistics hubs, and manufacturing bases depend directly on the resilience of coastal ecosystems.

In **90%** of the cases, projects occur in countries where the investing company already operates — underscoring that corporate investment in nature is often driven by risk proximity as much as by sustainability commitments.

Figure 3

Corporate investments in mangroves by region
2011 – 2025 (Q1)



Trend 3

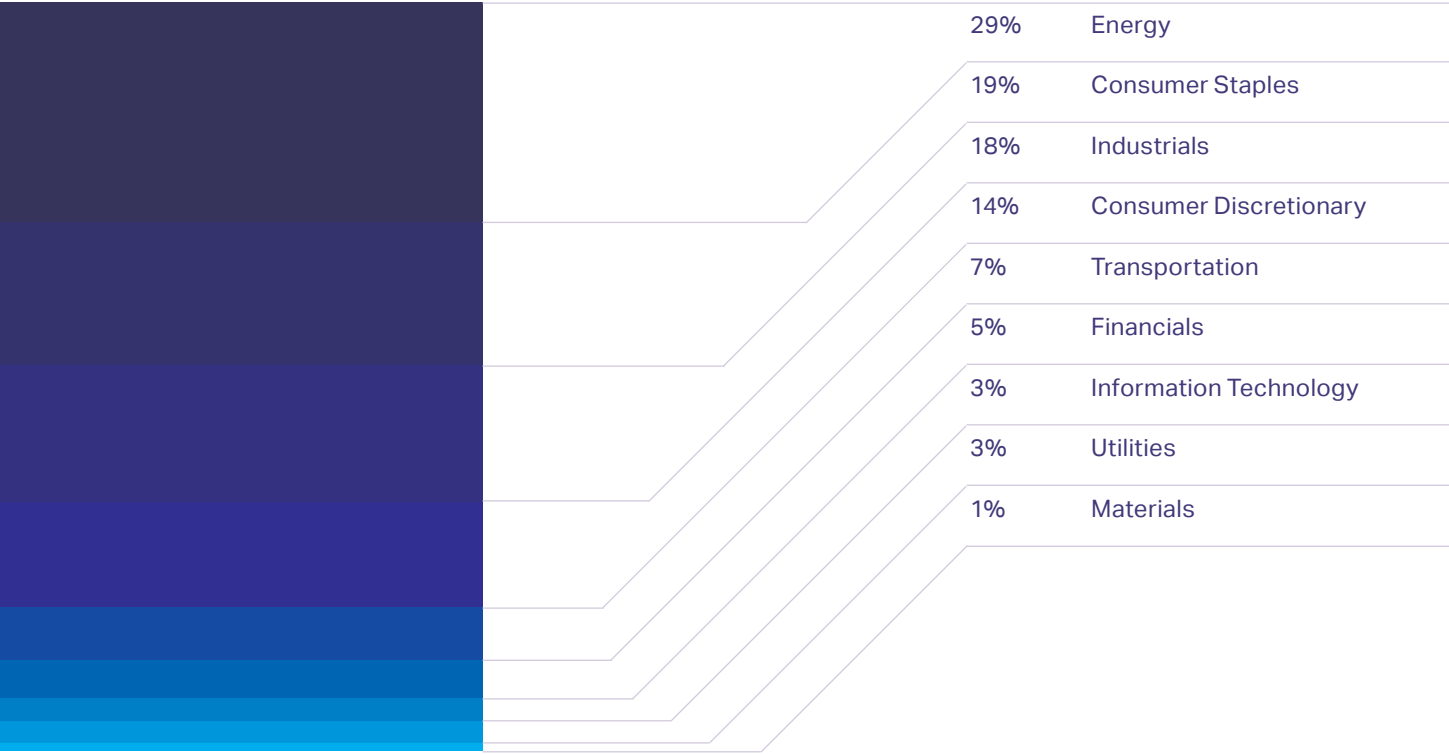
Energy and consumer goods sectors lead

Energy and consumer goods companies account for over **60%** of all corporate investments in mangrove restoration since 2011. Within this group, ocean-linked industries — offshore energy, ports, shipping, logistics, and seafood — represent **53%** of cases.

These sectors face acute exposure to coastal risks, supply chain disruptions, and carbon transition pressures, giving them the strongest incentives to act early.

Figure 4

Corporate investments in mangroves by sector
2011 – 2025 (Q1)



Trend 4

CSR and corporate philanthropy dominate funding models

While blue carbon markets and commercial financing have gained traction, the majority (78%) of projects initiated since 2021 were financed through **corporate CSR and philanthropic budgets**. Flagship examples include Apple, P&G, and Hyundai, which have channelled CSR funds into mangrove restoration aligned with broader environmental strategies.

The trend signals that companies increasingly view mangrove projects as vehicles for community impact and reputation value. Yet CSR funding can be time limited. To ensure lasting outcomes, projects must embed **local revenue streams** — such as sustainable aquaculture and eco-tourism — to prevent dependency and enhance reputational returns.

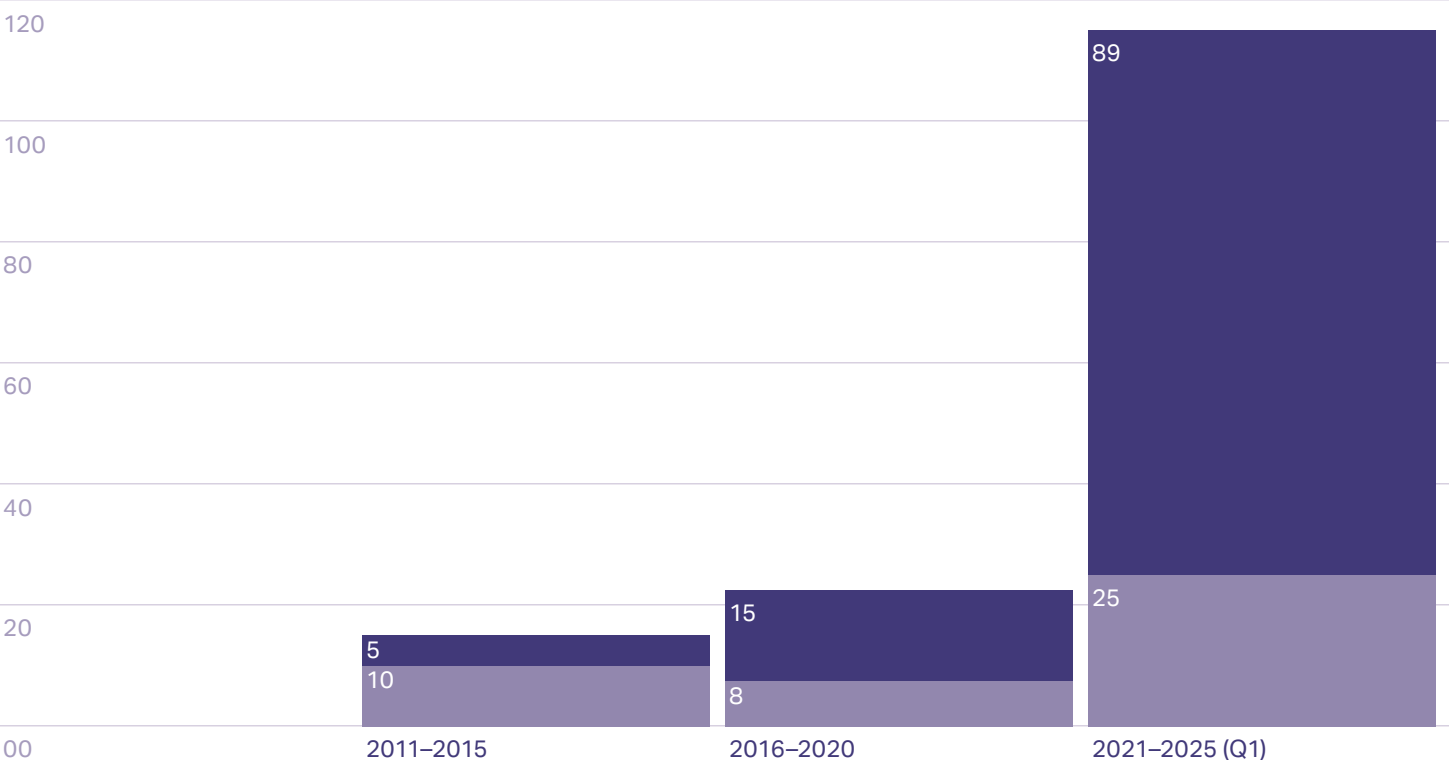
Figure 5

Corporate investments in mangroves by year 2011 – 2025 (Q1)

Note
Commercial investments are defined as projects made with the intention of generating financial returns, such as through carbon credit revenues, cost savings, or other return-linked mechanisms.

CSR
Commercial

Investments



Trend 5

The rise of blue carbon

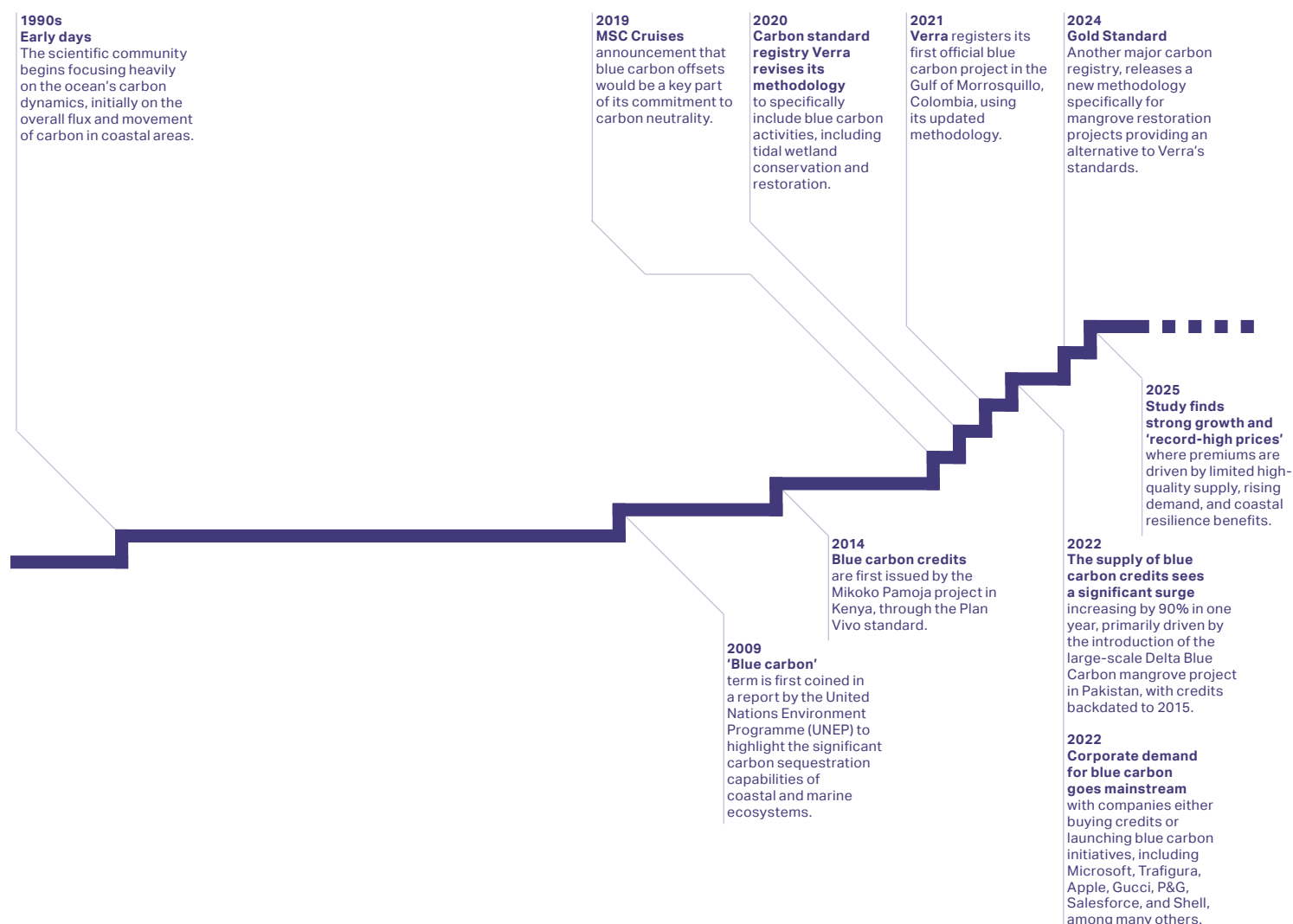
The concept of blue carbon — carbon stored in mangroves, seagrasses, tidal marshes and other marine ecosystems — has rapidly evolved from theory to market reality. Verra's first blue carbon methodology was released in 2020, and project pipelines have since expanded across Africa, Asia, and Latin America.

Corporates are increasingly providing early-stage finance for feasibility and pre-credit development, as in **BHP's** AUD 3 million grants programme supporting blue carbon projects in Australia.³ Similarly, **INPEX** is supporting research to determine blue carbon potential from mangroves in the Northern Territory.⁴

These initiatives are laying the groundwork for a premium carbon segment that values both climate mitigation and local resilience.⁵

Figure 6

The rise of blue carbon



Unlocking Resilience ROI

How Companies can Increase the Return on Investment in Mangroves

Earth Security’s review of more than 150 companies financing or investing in mangrove projects reveals a consistent pattern: companies that treat nature-based investments as strategic assets — rather than philanthropic activities — realise greater long-term value.

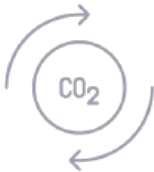
Across sectors, five core drivers of corporate value emerge. These ‘Resilience ROI’ mechanisms function across both commercial and CSR funding models, offering a practical framework for maximising the returns from mangrove-related initiatives.

ROI 1	ROI 2	ROI 3	ROI 4	ROI 5
Carbon Offsets	Operational Resilience	Business Innovation	Access to Corporate Finance	Reputation and License to Operate



Figure 7

Five Drivers of Resilience ROI

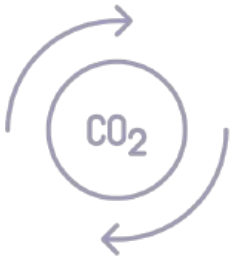
	1	2	3	4	5
Driver	Carbon Offsets 	Operational Resilience 	Business Innovation 	Access to Corporate Finance 	Reputation and License to Operate 
What It Means	Generate or secure access to verified blue carbon credits, through restoration and conservation projects or invest in early-stage pipelines before market entry.	Enhance the physical protection of assets, infrastructure, supply chains, and nearby communities from coastal hazards and climate change.	Develop new technologies, products, and partnerships that create revenue streams tied to mangrove conservation and restoration.	Unlock sustainable finance products, such as green bonds and sustainability-linked loans, that link borrowing costs to environmental outcomes.	Strengthen trust with communities and regulators, through visible contributions to local resilience and well-being.
Resilience ROI	Support corporate net-zero targets and provide credible, high-integrity offsets in a premium carbon segment that values coastal resilience.	Reduce OPEX and financial losses, and manage financial risk through insurance premiums, while mitigating climate and supply chain risks.	Catalyse new products, services, and contracts, positioning companies as first movers in the nature-positive economy.	Improve cost of capital, demonstrate credible climate leadership, and strengthen investor confidence.	Reduce reputational risks, permit barriers, and delays while enhancing social capital and long-term operation stability.

Source
Earth Security analysis

ROI 1

Carbon Offsets

Companies are securing premium blue carbon credit pipelines by providing early-stage investment and technical support to high-potential projects, effectively shaping the next generation of verified offsets.



1	2	3
Early-stage financing unlocks project viability	Technical assistance strengthens credit integrity	Forward credit purchasing signals market confidence
The main bottleneck in the blue carbon market is early-stage funding. Companies like Ørsted and Sumitomo Corporation are filling this gap. Ørsted’s support for mangrove planting in The Gambia involved 10,000 local participants restoring 5,000 hectares ^{6,7} — while Sumitomo is financing projects in Indonesia, Madagascar, and Mozambique, with a plan to offtake credits for the Japanese market. ^{8,9}	Small, community-based projects often face challenges in measuring carbon accurately. Apple, working with Colombia’s Invemar Research Institute, co-funded a new soil carbon methodology that measures carbon stored between mangrove root systems — improving measurement precision and credit value. ¹⁰	Advance Market Commitments (AMCs) led by the Symbiosis Coalition — whose members include Google, Meta, Microsoft, and Salesforce — have pledged to contract up to 20 million tonnes of nature-based carbon credits by 2030. ¹¹ Updated plans indicate the first RFP for mangrove-linked removals will open in late 2025. ¹² In The Gambia, Ørsted agreed to purchase credits from a local consortium with 60% of the money going to the local communities. ^{13,14} Such forward commitments create financial stability for projects and help derisk private capital involvement.

Figure 8

Corporate Investment Toolkit
Financing Mechanisms to
Catalyse Blue Carbon

Early-stage project finance	Carbon credit sourcing	Local community and knowledge development
Direct project financing for early-stage development (grant/equity/debt)	Pre-credit financing	CSR-led direct restoration programs
Direct investment in project developers (equity/debt)	Direct carbon credit purchases	CSR-led direct support to community organisations
Participation in blended finance vehicles or technical assistance funds	Advance offtake agreements	Funding methodology and scientific progress

Source
Earth Security analysis

ROI 2

Operational Resilience

Companies are mitigating physical and financial risks by restoring mangroves around physical assets and supply chains, reducing risk exposure to coastal hazards and business continuity.



1
Natural infrastructure delivers cost-effective protection

Studies show that 100 metres of mangrove forest can reduce wave energy by up to 70%, limiting flood depth during tsunamis by around 30%.¹⁵ The protective value of mangroves can exceed \$100,000 per hectare in coastal zones with dense infrastructure.¹⁶ **ConocoPhillips'** Louisiana project, in partnership with Tierra Resources, used aerial seeding to restore wetlands at just 3% of the cost of conventional restoration.¹⁷ In Pakistan, **Zephyr Power's** wind farm restoration of degraded mangroves in the Indus Delta delivered 20 times asset-protection value and \$7 million in avoided maintenance over 25 years.¹⁸

2
Nature-based resilience drives long-term asset value

When Hurricane Ivan struck in 2004, the **Ritz-Carlton Grand Cayman** was still under construction. It sustained extensive damages, delaying its opening by 18 months and leading to an insurance claim of \$180 million by the previous owner, according to the Urban Land Institute (ULI).¹⁹ The new owner, **Five Mile Capital**, has invested \$25 million on resilience measures, including restoring 8 acres (3.2 hectares) of previously degraded mangroves. It believes these have helped enhance the value of the property, now estimated at over \$500 million. Long-term asset value was a key driver for the resilience efforts and mangrove restoration, which, according to ULI, insurance professionals have indicated could lower insurance premiums.²⁰

3
Resilient supply chains drive margins and business continuity

Disease in shrimp aquaculture ponds is a leading cause of economic losses in the sector, estimated in the billions of dollars annually in Asia alone.²¹ By planting or restoring mangroves in and around aquaculture ponds to filter the water, companies can improve water quality and reduce the risk of disease outbreaks, thereby reducing the risk to their supply chain.²² Since 2006, **Nichirei Fresh** – one of the largest suppliers of shrimp to the Japanese market – has been planting mangroves around aquaculture ponds in Kalimantan (Indonesia). The aim is to reduce the environmental impact of shrimp aquaculture while also ensuring a safe and reliable supply of shrimp.²³



ROI 3

Business Innovation

Companies are translating mangrove restoration into new technologies, business models, and market opportunities.



1
Engineering innovation:
Nature-based infrastructure

Dutch engineering company **Boskalis** has been at the forefront of developing innovative engineering solutions for successful mangrove restoration, notably in Java (Indonesia), where it has developed a solution integrating mangrove restoration with small-scale engineered solutions (such as building permeable dams) to combat coastal erosion.²⁴ This can help position engineering firms to win contracts as nature-based solutions become increasingly attractive. In 2022, Boskalis announced a EUR 55 million contract with the governments of Benin and Togo to carry out shoreline protection activities, including restoring mangroves.²⁵

2
Financial innovation:
Risk products for blue carbon

Companies in financial services can help address some of the main challenges to mangrove restoration and blue carbon projects. For example, specialist carbon insurer **Kita** has developed insurance specifically tailored to blue carbon credits, which helps to derisk early-stage project financing.²⁶

3
Technology innovation:
Monitoring and traceability in the technology sector

Swedish firm **Ericsson** developed a method for using mobile technology to increase the success of mangrove-planting projects by equipping mangrove saplings with sensors that collect real-time data about soil and water conditions.²⁷ The technology, which has increased sapling survival rate from 40% to 85%, potentially has much wider applications in the agriculture and forestry sectors.²⁸

4
Market innovation:
Product differentiation in the seafood sector

German firm **Ristic** has supported mangrove restoration on shrimp farms in Costa Rica's Nicoya Peninsula, strengthening the direct impact of shrimp farming activities and of its value chain behind its premium certified shrimp sold in Germany.²⁹ In the European market, certified organic shrimp retails for an average EUR 35.90/kilo, compared to EUR 26.90/kilo for non-organic shrimp.³⁰



ROI 4

Access to Corporate Finance
Nature-positive commitments are directly influencing companies’ access to sustainable finance instruments.



1	2		
Sustainability-Linked Loans (SLLs)	Blue Bonds		
SLLs are debt instruments where the cost of borrowing is linked to the achievement of pre-agreed sustainability targets.³¹ In 2022, North Queensland Airports agreed an SLL to refinance the company's debt, with the cost of borrowing linked to three sustainability targets including biodiversity in mangrove ecosystems on land belonging to Cairns Airport (see Case Study).	Given the growth of sustainable finance and with more banks and financial institutions seeking to develop products, companies with substantial mangrove commitments are well positioned to negotiate more favourable terms on corporate finance deals contingent on delivering on those commitments.	Global issuance of green and sustainability-linked bonds has increased fourfold since 2018, and in 2023 the total value of the sustainable finance market reached more than \$7 trillion.³² Blue bonds are growing in popularity where proceeds are used to finance marine and coastal resilience projects.³³ In December 2024, ports operator DP World issued a \$100 million blue bond, the first in the Middle East and North Africa (MENA) region.	It was arranged by Citigroup with T. Rowe Price as the anchor investor. Proceeds from the bond will be used to finance initiatives aligned with DP World's Ocean Strategy, including nature-based solutions such as mangrove restoration.³⁴ DP World has previously supported mangrove restoration on Jebel Ali island in the United Arab Emirates and near the company's Posorja port facility in Ecuador.

Case Study

Mangroves and access to corporate finance: North Queensland Airports’ SLL (Australia)	The privately-owned North Queensland Airports Group operates three assets in northern Queensland: Cairns Airport, Mackay Airport, and Mackay Airport Hotel. Cairns Airport is home to a sizeable mangrove area: almost half of the airport’s landholdings consists of coastal forests, mostly mangroves.³⁵ The airport’s mangroves are home to a number of endangered species, sequester and store carbon, provide coastal resilience services, and are of important cultural value to local First Nations people.³⁶	In 2022, North Queensland Airports hit the headlines when it signed Australia’s first-ever Sustainability-Linked Loan (SLL) in partnership with Westpac, Commonwealth Bank, and National Australia Bank. The terms of the loan, which will be used to refinance most of the company’s debt, link the cost of borrowing to whether or not the company achieves three ambitious performance targets linked to social and environmental sustainability.^{37 38} One of these targets involves regenerating mangrove habitat on Cairns Airport’s landholdings to protect three threatened species.³⁹	If performance targets are hit, North Queensland Airports will be rewarded with a lower interest rate on the loan, while if they are missed a higher rate will be applied. The case of North Queensland Airports shows how a commitment to mangrove conservation and restoration, with ambitious quantitative targets for ecosystem health and biodiversity, can be used to secure access to finance on favourable terms, including for spending on general business purposes.
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ROI 5

Reputation and License to Operate
Restoring mangroves reinforces corporate trust, strengthens government relationships, and builds social capital — key for long-term operations in sensitive coastal zones.



1	2	3
Building local value and social benefits	Deploying technical expertise	Strengthening the social and regulatory license to operate
Many companies choose to fund or invest directly in individual mangrove projects that benefit local communities and stakeholders in the areas where they operate, as part of their broader corporate responsibility strategies. In the Sine Saloum delta of Senegal, Shell collaborated with WeForest on restoring mangroves. ⁴⁰ This benefited more than 5,000 families, with livelihood opportunities and food security having improved due to the recovery of fish and shellfish populations. ⁴¹ In Saudi Arabia, the 64 km ² Mangrove Eco-Park funded by oil company Saudi Aramco has created leisure and tourism opportunities as well as creating jobs. ⁴²	From hydrological surveys to satellite baselines, the technical complexities of mangrove restoration can sometimes be significant. In addition to providing funding for mangrove restoration, companies may find ways to use their technical expertise to support mangrove restoration. In 2003–2006, renewable energy company Iberdrola worked together with local stakeholders in the Mexican state of Tamaulipas to develop a technological solution enabling it to transport seawater from the cooling towers at its Altamira III and IV plants to the Garrapatas Estuary, home to significantly degraded mangrove ecosystems. ⁴³ As a result, the hydrology of the estuary was restored, resulting in the recovery of mangrove ecosystems and their biodiversity.	Ports provide a case in point. Nature-based solutions are recognised by port authorities and operators as practical tools to manage climate risk to operations. In Australia, the Port of Townsville ’s Expansion Project positions mangroves and shoreline offsets as an explicit part of the regulatory approval process. ⁴⁴ According to the World Bank , integrating mangroves, marshes, and reefs into design and planning of port investments positions nature-based solutions as part of permitting-ready portfolios. ⁴⁵ Studies show a correlation between effective stakeholder engagement and community investment by port operators and a greater acceptance of port activities. ⁴⁶



4

A Call to Action



A Call to Action

The evidence is clear: corporate partnerships for mangrove conservation and restoration have entered a new phase. What began as scattered CSR initiatives is becoming a business value strategy — integrating returns from **climate resilience**, **risk management**, and **community impact** into the same investment logic.

Whether financed through CSR budgets, corporate foundations, or carbon portfolios, mangrove projects now offer a tangible **Resilience ROI**: measurable financial and strategic returns built on natural capital. Companies have three pathways to unlock this value:



Pathway 1

Learning

Assess existing CSR and environmental portfolios to identify opportunities where mangrove projects already deliver resilience value, quantifying and capturing benefits to operations and finance.

Pathway 2

Partnering

Build alliances with local communities, governments, and expert intermediaries. Combining technical know-how and corporate capital can multiply resilience outcomes and strengthen local economies.

Pathway 3

Investing

Direct funding towards scalable projects that transform coastal livelihoods while reinforcing company value — from risk reduction to finance access and social license.

Putting Resilience ROI into Action

Through a curated global project pipeline and applied strategic insights, Earth Security is connecting companies, funders, and investors with high-impact blue resilience initiatives.

It aligns projects with coastal regeneration, corporate impact strategy, and measurable ROI. To explore partnership opportunities contact us at info@earthsecurity.org



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