



The ROI of responsibility
Pathways through which sustainability
creates enterprise value

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Foreword

Over the past decade, sustainability has undergone a fundamental transformation. What was once viewed primarily as a corporate responsibility agenda is increasingly becoming a strategic business imperative. Across industries, decisions relating to energy, natural resources, supply chains, workforce, climate resilience and governance are no longer shaping sustainability performance alone; they are increasingly influencing competitiveness, access to capital, operational resilience and long-term enterprise value.

This evolution is changing the questions business leaders ask. The discussion is no longer limited to whether organisations should invest in sustainability. Increasingly, the focus is on how those investments contribute to business performance and where that value is created. As sustainability becomes more closely integrated with strategy, finance and risk management, organisations require a clearer understanding of the mechanisms through which sustainability influences financial outcomes.

That need serves as the basis for this report.

Rather than viewing sustainability as a standalone corporate initiative or a reporting obligation, the ROI of responsibility examines sustainability through the lens of enterprise

value creation. It brings together evidence from academic research, industry practice and evolving regulatory and market developments to demonstrate how sustainability performance can influence financial outcomes across multiple dimensions of the business. In doing so, it provides a practical framework for understanding sustainability as an investment that creates measurable returns over time.

This perspective is particularly relevant for India. As businesses navigate the transition towards a more resource-efficient, low-carbon and globally competitive economy, sustainability is becoming increasingly embedded within investment decisions, market access, financing, technology adoption and corporate governance. Organisations that recognise these shifts early will be better positioned to respond to changing expectations and identify new opportunities for innovation and growth.

We hope that this paper contributes to that conversation by providing business leaders with a practical perspective on one of the most important strategic questions facing organisations today: how responsibility can become a source of long-term enterprise value.



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Executive summary

The question facing businesses today is no longer whether sustainability matters, but whether organisations can clearly demonstrate the value it creates. Sustainability is increasingly being evaluated through the same lens as any other strategic business investment: its ability to create long-term enterprise value. While sustainability has historically been associated with compliance, disclosure and corporate responsibility, evolving market expectations, regulatory developments and investor priorities are expanding its role in business decision-making. Increasingly, sustainability performance is influencing the same financial drivers that underpin enterprise value, including operating costs, revenue growth, access to capital, resilience and workforce productivity.

The evidence presented in this paper suggests that these outcomes are not independent of one another. Sustainability creates value through multiple, interconnected pathways that collectively strengthen business performance. Improvements in resource efficiency lower operating costs. More sustainable products and business practices support market access and revenue growth. Stronger sustainability performance improves access to capital, while reducing exposure to regulatory, operational and climate-related risks. At the same time, investments in workforce wellbeing and organisational capability strengthen long-term productivity and execution. Together, these pathways demonstrate that sustainability creates value not through a single financial outcome, but through its influence on the fundamental drivers of enterprise performance.

The implications for organisations are significant. The evidence consistently indicates that financial returns are driven by improvements in sustainability performance, particularly on issues that are financially material to the business, rather than by disclosure alone. Capturing these returns, therefore, requires organisations to move beyond compliance and integrate sustainability into strategic planning, investment decisions, operational improvement, risk management and enterprise governance. Sustainability is increasingly becoming a business capability that influences how organisations compete, allocate capital and create long-term value.

However, as sustainability becomes more closely linked to financial performance, organisations face increasing ambiguity about where value is created, how it should be measured and how it should be reflected in business decisions. The same sustainability initiative may simultaneously influence multiple financial outcomes, with benefits distributed across operating costs, revenue, financing, risk reduction, asset value and workforce productivity. This makes it difficult for companies to move from broad sustainability commitments to a clear view of financial implications. There is therefore a need for a practical framework that helps organisations identify financially material sustainability issues, trace their business impact and evaluate sustainability performance through a value-creation lens.

To support this shift, the paper presents an indicative “ROI of responsibility framework” that organisations can use to understand the financial implications of their sustainability management efforts. The framework links external ESG triggers, such as regulation, customer expectations, capital-market requirements, climate risks and workforce priorities, to financially material sustainability issues and their resulting value pathways. By tracing these issues through five monetary return streams and into financial metrics such as revenue, EBITDA, cash flow, asset value, productivity, risk premium and cost of capital, the framework provides a practical lens for assessing how sustainability performance can translate into enterprise value outcomes, including higher cash flows, lower discount rates, longer asset life and stronger business resilience.



Introduction

This paper has been developed through a review and synthesis of publicly available academic research, policy literature, industry publications, regulatory developments and market surveys and evidence relating to sustainability and enterprise value creation. The objective of the paper is not to quantify a universal financial return from sustainability investments. Rather, it seeks to identify and explain the principal pathways through which sustainability performance may influence enterprise value across costs, revenue, access to capital, risk management and human capital outcomes.

Every strategic investment is ultimately evaluated on its ability to create long-term enterprise value. Whether

organisations invest in technology, manufacturing capacity, acquisitions or innovation, capital is allocated with an expectation of measurable financial returns. For many years, sustainability occupied a different position within this investment framework. It was often viewed as a compliance requirement, a reporting obligation or a reputational consideration—an activity necessary to meet stakeholder expectations but difficult to evaluate through conventional financial metrics. As sustainability has become increasingly integrated into business strategy, this distinction has steadily disappeared.

The question facing business leaders today is therefore not whether sustainability requires investment, but how that investment generates return. Increasingly, sustainability influences the same financial drivers that underpin every major business decision: operating costs, revenue growth, access to capital and resilience.

However, unlike many strategic investments, the returns from sustainability rarely appear as a single line item. They are distributed across operating costs, revenue, financing, risk and long-term competitiveness, making them difficult to attribute despite their economic significance. This paper examines sustainability through that financial lens. Rather than treating sustainability as a separate corporate objective, it demonstrates how sustainability performance influences the financial drivers of enterprise value through multiple return streams, providing a framework for evaluating sustainability with the same financial discipline applied to any other strategic investment.

Why the conversation changed

The increasing financial relevance of sustainability has been driven by a fundamental shift in the business and reporting landscape. Over the past decade, sustainability has evolved from a largely voluntary disclosure exercise into a framework of increasingly standardised, comparable and decision-useful information. Global reporting standards, mandatory disclosure requirements and evolving assurance frameworks such as GRI, SASB, ESRS, BRSR, IFRS Sustainability Disclosure Standards (ISSB), TCFD, TNFD, SBTi and the Integrated Reporting (IR) Framework have significantly improved the quality and consistency of sustainability data available to investors, lenders, customers and regulators.

As sustainability information has become more consistent and comparable, it has become increasingly relevant to business decision-making. Today, sustainability reporting is designed to provide information that supports decisions on capital allocation, lending, procurement and long-term value creation. For example, the IR Framework complements traditional financial reporting by integrating information on six capitals – financial, manufactured, intellectual, human, social and relationship, and natural capital – to

provide stakeholders with a more complete picture of how an organisation creates value over time. In doing so, it enables stakeholders to evaluate sustainability performance alongside traditional financial and operational metrics, reinforcing sustainability's role as an input into enterprise decision-making.

From disclosure to performance

The relationship between sustainability and financial performance has been examined extensively over the past decade. A synthesis of more than 1,000 research papers published between 2015 and 2020 found that 58 percent of corporate studies reported a positive relationship between sustainability and financial performance, while fewer than 10 percent reported a negative relationship.¹ The evidence also suggests that the relationship strengthens over longer investment horizons.

Importantly, the financial return is driven by sustainability performance rather than disclosure alone. The same analysis found that 53 percent of studies measuring sustainability performance identified a positive financial relationship, compared with only 26 percent of studies focused solely on sustainability disclosure.²

Financial returns are therefore realised when organisations improve performance on sustainability issues that are economically material to their business. The return on sustainability is created not through disclosure itself, but through measurable improvements in business performance.

The new boardroom question

As sustainability becomes financially material, it inevitably becomes a boardroom issue. The question is no longer simply what sustainability initiatives will cost, but what the financial consequences of inaction could be. Increasingly, decisions relating to energy, natural resources, emissions, supply chains and workforce practices have implications that extend beyond compliance, influencing competitiveness, access to markets, financing conditions and long-term resilience.

^{1,2} NYU Stern Center for Sustainable Business and Rockefeller Asset Management, *ESG and Financial Performance: Uncovering the Relationship by Aggregating Evidence from 1,000 Plus Studies Published between 2015–2020 (2021)*. (Global. Meta-analysis of 1,141 peer-reviewed studies and 27 meta-reviews (covering approximately 1,400 underlying studies) examining the relationship between ESG and financial performance across multiple industries and investment strategies. Synthesises studies published between 2015 and 2020; report published in 2021),

This shift is increasingly reflected in boardroom priorities. A recent global survey of more than 2,100 C-suite executives found that sustainability now ranks among the top three strategic priorities, alongside technology adoption and artificial intelligence. More than 80 percent of organisations also reported increasing their sustainability investments over the past year, reflecting a growing recognition that sustainability is becoming integral to long-term business performance.³

The broader economic shift further reinforces this shift. The ecosystem services on which economic activity depends, from crop pollination and water purification to flood protection and carbon sequestration, are estimated to be worth US\$125–140 trillion a year, more than one and a half times global GDP.⁴ Meanwhile, climate-related risks such as extreme weather events and ecosystem degradation are increasingly recognised among the most significant long-term risks facing the global economy. As environmental and social issues become more closely linked to business continuity and value creation, sustainability is increasingly becoming an economic consideration rather than solely a corporate responsibility imperative.

The challenge for organisations is therefore not whether sustainability will influence financial performance, but how quickly these issues become financially material within their business model. Organisations that recognise financially material sustainability issues early have an opportunity to shape competitive advantage before those issues become market expectations.

Why assurance matters

Financial decisions rely on trusted information. As sustainability information becomes increasingly relevant to investment, lending and procurement decisions, its credibility becomes equally important. Financial markets can only price information that is reliable, consistent and comparable. As a result, assurance is emerging as a critical link between verified sustainability performance and financial decision-making.

This shift is increasingly reflected in regulatory frameworks. In India, the Business Responsibility and Sustainability Reporting (BRSR) Core framework is progressively introducing assessment and assurance requirements for the largest listed companies across key sustainability indicators. By improving the reliability of reported information, assurance enables investors, lenders, customers and other stakeholders to evaluate sustainability performance with greater confidence.

A framework for understanding return

While the investments associated with sustainability, whether in technology, operational improvements, reporting systems or assurance, are generally visible and measurable, the resulting financial returns are often less explicit and dispersed across different parts of the business.

This paper brings those returns together within a single financial framework. It demonstrates how sustainability performance can generate returns through five distinct streams. These streams do not constitute an exhaustive list of all financial outcomes associated with sustainability. Rather, they reflect the principal pathways most consistently supported by academic research, industry evidence and market practice, and therefore provide a structured lens through which sustainability can be evaluated as a business investment. To develop this perspective, the paper synthesises evidence from Indian and international academic literature, policy institutions, market regulators, multilateral organisations and industry research. The analysis combines global evidence with Indian business and regulatory developments to illustrate how these return pathways are increasingly influencing enterprise value in practice.

Taken together, these pathways provide a more comprehensive perspective on the return on sustainability and a practical lens for evaluating sustainability as a business investment rather than a standalone corporate initiative.

³ Deloitte, [2025 C-suite Sustainability Report](#) (Global; survey of 2,100+ C-suite executives across 27 countries, representing organisations from multiple industries; 2025).

⁴ OECD, [Biodiversity: Finance and the Economic and Business Case for Action](#) (Global estimate; values ecosystem services delivered by biodiversity at US\$125–140 trillion per year, more than one and a half times global GDP; OECD Publishing, Paris, 2019).



The ROI of responsibility

The ROI of responsibility is realised when sustainability performance influences the financial drivers that determine enterprise value. Rather than creating a separate category of business value, sustainability strengthens the same drivers that underpin every organisation's financial performance. It is not limited to a single outcome or metric.



Sustainability→Primary financial outcomes

Return stream	Financial impact
Lower costs	Lower COGS, lower operating expenses, wider margins
Higher revenue and margins	Higher sales, pricing power, export access and access to new markets
Low-cost green capital	Lower cost of debt/equity, increased funding access
Avoided losses and resilience	Reduced penalties, lower disruptions and asset protection
Human capital	Lower attrition, higher productivity, stronger execution

Cost optimisation is often the earliest and most visible financial return from sustainability. By improving resource efficiency, companies can produce the same output while consuming less energy, water and raw materials. These improvements translate to stronger operations by reducing input costs, improving asset efficiency and widening margins.

Revenue growth increasingly depends on sustainability performance as customers and export markets integrate sustainability into purchasing and sourcing decisions. As global supply chains place greater emphasis on credible sustainability performance, companies that can demonstrate lower-impact products and reliable sustainability data are better positioned to access new markets, strengthen customer trust and capture emerging demand.

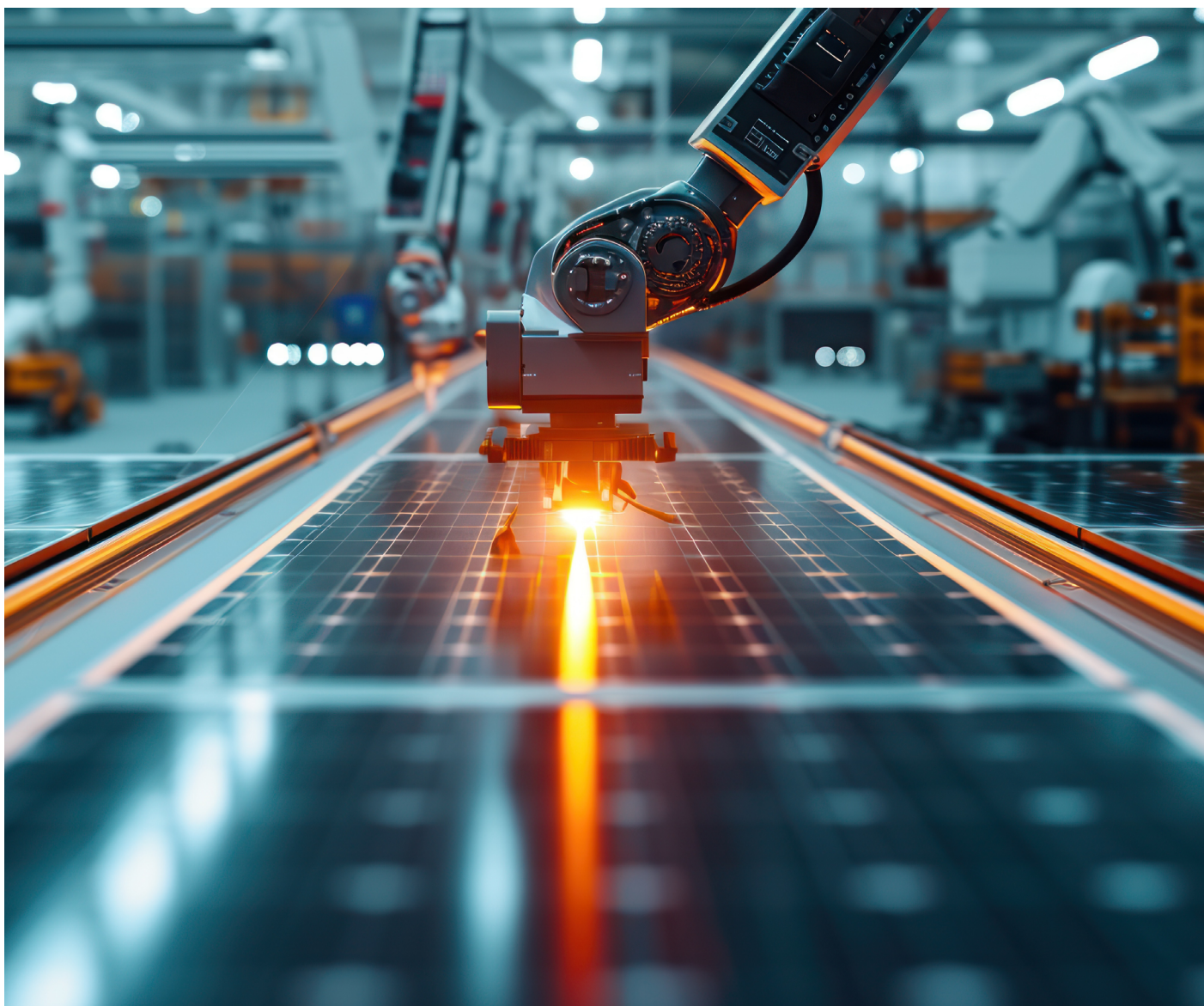
Access to capital is increasingly influenced by sustainability performance as investors and lenders incorporate environmental and social factors into risk assessment and capital allocation decisions. Stronger ESG performance, credible transition plans and assured sustainability data can improve access to sustainable finance and support more favourable financing conditions.

Furthermore, sustainability protects enterprise value by preventing avoidable financial losses. Strong sustainability performance reduces exposure to regulatory penalties, climate-related disruptions, supply chain interruptions, transition risks and asset impairment. The financial return is realised not through additional revenue, but through preserving cash flows, protecting asset values and improving business resilience over the long term.

Finally, responsible businesses are better placed to attract, retain and engage talent. This strengthens execution capacity, reduces avoidable workforce costs and improves productivity, making human capital a direct contributor to the return on sustainability.

Together, these five streams show that responsibility is not a parallel agenda to business performance. It is a strategic lever through which businesses reduce cost, grow revenue, attract capital, protect value and strengthen the workforce required to deliver long-term strategy. The sections that follow examine each return stream in detail.

Although presented separately for clarity, these return streams are interconnected. Improvements in one area frequently reinforce outcomes in others, creating compounding financial benefits over time.



Return stream 1 – Lower costs

The most immediate returns from sustainability arise from doing more with less. Lower energy intensity, reduced material consumption and more efficient use of assets enable businesses to produce the same output with fewer resources, translating directly into lower operating costs and wider margins. Rather than creating new cost centres, many sustainability investments remove existing inefficiencies embedded within the cost base.

Some of these gains are realised more quickly through improvements in energy and resource productivity. In contrast, others are embedded in assets and infrastructure, creating structural cost advantages that persist over time.

Renewable energy integration

The economics of energy have shifted. In 2025, utility-scale solar PV in India recorded a levelised cost of electricity of approximately US\$35/MWh, while the global average stood at US\$44/MWh. Underpinning this shift is a long-term decline in technology costs, with solar PV installed costs falling by 89 percent since 2010. Across technologies, more than 90 percent of renewable capacity added in 2025 delivered electricity at a lower cost than any new fossil-fuel option.⁵ For businesses, lower energy costs translate directly into lower operating expenses. Renewable energy procurement is therefore increasingly becoming a source of margin expansion alongside a decarbonisation pathway.

Energy and resource efficiency

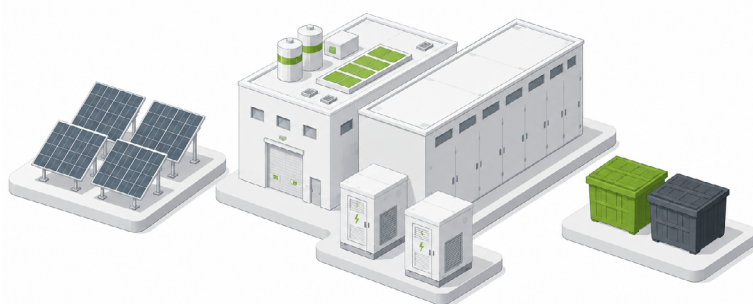
Efficiency improvements are among the fastest-return sustainability investments. A 2025 survey of 1,000 industrial facilities across 14 countries found that approximately 70 percent of firms reported a return on investment exceeding 10 percent from energy-efficiency measures implemented over the previous five years. These returns arise because efficiency improvements reduce recurring operating costs rather than generating one-time savings. Estimates indicate that industrial energy management programmes can deliver more than 10 percent annual energy cost savings within the first three years, with cumulative savings reaching up to 60 percent over the longer term as additional efficiency opportunities are identified. The financial implications extend beyond lower utility expenditure. For energy-intensive industries such as steel, cement and pulp and paper, reducing energy consumption by 10 percent can generate the same improvement in profitability as increasing sales by between 4 percent and 16 percent, illustrating how efficiency improvements translate directly into stronger margins.⁶

Waste-to-value

Waste increasingly represents an avoidable business cost rather than an inevitable by-product of production. By reducing material losses, recovering secondary materials and extending the productive life of resources, circular business practices lower raw material consumption, reduce waste management costs and improve overall resource productivity.

The scale of the opportunity is significant. Estimates suggest that the global economy loses ~€25.4 trillion of value each year through inefficient use of materials and linear production models, illustrating the economic value that can be recovered through more circular approaches.⁷

The opportunity is expected to grow as resource pressures increase. Global waste generation is projected to rise from 2.56 billion tonnes in 2022 to 3.86 billion tonnes by 2050, while the annual cost of municipal waste management is expected to increase from US\$250 billion to US\$426 billion over the same period. As material consumption and disposal costs continue to rise, reducing waste and improving material utilisation can lower production costs and reduce dependence on virgin resources.⁸

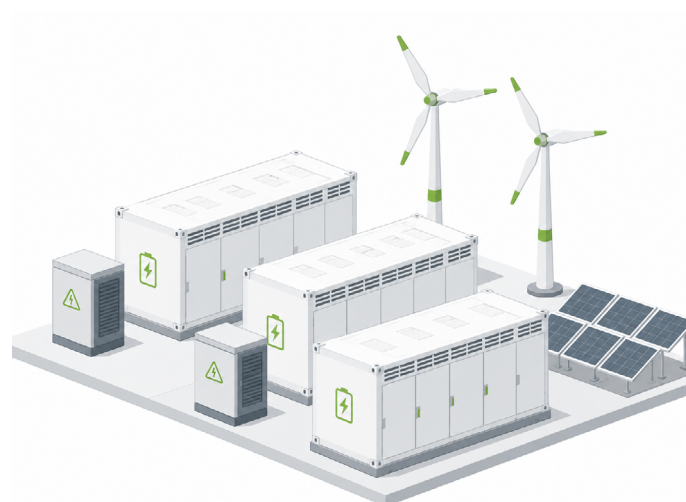


⁵ International Renewable Energy Agency (IRENA), [Renewable Power Generation Costs in 2025](#) (Global analysis of utility-scale renewable power projects commissioned in 2025 across multiple renewable technologies, based on project-level cost and performance data. Published in 2026.)

⁶ International Energy Agency (IEA), [*Gaining an Edge: The Role of Energy Efficiency in Industrial Competitiveness*](#) (Global analysis of industrial energy efficiency, drawing on a survey of 1,000 industrial firms across 14 countries, complemented by historical industry data, sectoral analysis and case studies. Covers energy-intensive and light manufacturing industries, including steel, chemicals, cement, pulp and paper, mining, food processing, machinery, electronics and textiles. Published in 2025).

⁷ Circle Economy Foundation and Deloitte, [The Global Circularity Gap Report 2026: The Value Gap](#) (Global material flow and macroeconomic assessment examining resource use and value loss across the global economy. The analysis applies material flow analysis and economic modelling to estimate the annual value lost through linear production and consumption systems. Covers the global economy across all major sectors and material flows. Published in 2026.)

⁸ World Bank, [What a Waste 3.0: Global Snapshot of Solid Waste Management toward Circularity until 2050](#) (Global assessment of municipal solid waste management based on the most recent publicly available data from 217 countries and economies and 262 cities. The report consolidates information on waste generation, composition, collection, treatment, disposal, legislation, institutional arrangements, plastics management, private-sector participation, employment, environmental impacts, and the costs and financing of municipal waste services. Published in 2026, with 2022 as the baseline year and projections to 2050.)



Battery storage

The rapid decline in battery costs is transforming the economics of renewable energy by making clean power increasingly reliable and commercially attractive. In 2025, the installed cost of a four-hour utility-scale battery fell to approximately US\$140/kWh, representing a reduction of around 95 percent since 2010 and nearly 30 percent in a single year. As a result, around one-quarter of all newly commissioned utility-scale solar capacity in 2025 was paired with battery storage, reflecting the growing adoption of hybrid renewable energy systems. These economic improvements are increasingly reflected in project economics. The firm levelised cost of electricity from solar-plus-battery systems with 95 percent reliability has fallen from more than US\$100/MWh in 2020 to below US\$85/MWh in 2025 at high-quality sites.¹²

Beyond improving the reliability of renewable energy, battery storage creates tangible cost advantages for businesses. In industrial facilities and commercial buildings, battery energy storage systems enable electricity to be stored during periods of low demand and used during peak tariff periods, reducing electricity costs and improving the utilisation of onsite renewable generation. They also reduce dependence on diesel generator sets during grid outages, lowering fuel and maintenance costs.

This shift is increasingly being reinforced by regulation, which is creating structured markets for secondary materials and improving the commercial viability of circular business models. The case for circularity is being reinforced by the growth of India's recycling ecosystem. Under the Extended Producer Responsibility framework for plastic packaging, notified in 2022, producers, importers and brand owners are required to meet mandatory targets for recycling, reuse and recycled content. More than 60,000 such entities are now registered on the centralised portal, and government data reported to Parliament in 2026 shows that over 20 million tonnes of plastic packaging waste have been recycled since the framework came into force.⁹

As industrial supply chains increasingly incorporate recycled feedstock, businesses have greater opportunities to reduce raw material procurement costs while lowering exposure to commodity price volatility.

Green buildings and estates

Green buildings create structural reductions in operating costs by embedding resource efficiency into the asset itself. Compared with conventional buildings, they consume 40–50 percent less energy and 20–30 percent less water.¹⁰ Unlike project-based efficiency measures, these savings are realised over the entire life of the asset, making lower resource intensity and operating costs a permanent feature of the cost base.

In several states, these economies are further strengthened through policy incentives. Green-certified projects are eligible for measures such as additional floor-area ratio, fee waivers, certification reimbursements and capital subsidies.¹¹ By reducing upfront investment requirements and accelerating approvals, such incentives improve project economics and shorten the payback period for green infrastructure investments.

⁹ Government of India, Ministry of Environment, Forest and Climate Change, response to a Parliament Question on Plastic Waste Management (Press Information Bureau, 2026). EPR Guidelines for plastic packaging notified 16 February 2022 under the Plastic Waste Management (Amendment) Rules, 2022; as reported in 2026, 60,128 producers, importers and brand owners registered on the Centralised EPR Portal, and approximately 207 lakh tonnes of plastic packaging waste recycled cumulatively since the guidelines came into force.

¹⁰ Indian Railways, *Handbook on Green Building* (India-specific technical handbook for railway buildings covering green building design, construction and operation, including energy efficiency, water conservation, sustainable materials and indoor environmental quality. Published 2009.)

¹¹ Indian Green Building Council (IGBC), *Government Incentives to IGBC-Rated Green Building Projects* Indian Green Building Council (IGBC), Government Incentives to IGBC-rated Green Building Projects. India. Compilation of central and state government incentives applicable to IGBC-certified green buildings across multiple states, including additional FAR, fee waivers, tax rebates, certification reimbursements and capital subsidies.

¹² International Renewable Energy Agency (IRENA), *Renewable Power Generation Costs in 2025* (Global analysis of utility-scale renewable power projects commissioned in 2025 across multiple renewable technologies, based on project-level cost and performance data. Published in 2026.)



Return stream 2 – Higher revenue and margins

Sustainability creates value by reducing costs and influencing demand. As customer expectations and supply-chain requirements evolve, sustainability is becoming a commercial variable rather than a compliance exercise.

Evidence from consumer purchasing data suggests that this effect is material. Products marketed with sustainability attributes have consistently outperformed conventional alternatives, growing 4.9 times faster over the past five years and accounting for 44.9 percent of total growth in the consumer-packaged goods market between 2013 and 2025, despite representing only 25.4 percent of market share. Sustainability-marketed products also command an average price premium of 26.6 percent, indicating that sustainability can influence both revenue growth and margin expansion.¹³

Eco-premium

The proposition that sustainability attributes generate measurable price premiums – often termed the “eco-premium” – has been extensively studied across global consumer markets. Understanding whether these premiums translate into genuine pricing power requires distinguishing between stated consumer preferences and actual purchasing behaviour, while accounting for demographic, geographic and product-specific variations.

A robust body of peer-reviewed literature, incorporating large-sample meta-analyses, demonstrates a consistent positive Willingness To Pay (WTP) for sustainability claims. A comprehensive meta-analysis aggregating eighty-three discrete research papers across multiple product categories and geographical regions found that the average stated WTP premium for socially and environmentally responsible products is 17.3 percent. Across these studies, ~60 percent of respondents indicated a willingness to pay a positive premium, demonstrating broad, baseline market receptivity. Further meta-analytical evidence aggregating discrete choice experiments involving over 41,000 participants indicates that consumers are willing to pay a premium of approximately 3.79 Purchasing Power Parity dollars (PPP\$) per kilogram for eco-labelled foods, with certified organic labels consistently commanding the highest financial premiums.¹⁴

The strength of the eco-premium is highly elastic and varies significantly across product categories, the nature of the sustainability claim and underlying consumer demographics. Evidence indicates that non-durable goods generally command higher percentage premiums than durable goods. Furthermore, the specific beneficiary of the sustainability claim heavily influences consumer valuation; products associated with direct human benefits, such as fair labour practices and animal welfare, tend to attract a higher proportion of consumers willing to pay a premium than purely environmental claims. In the European seafood

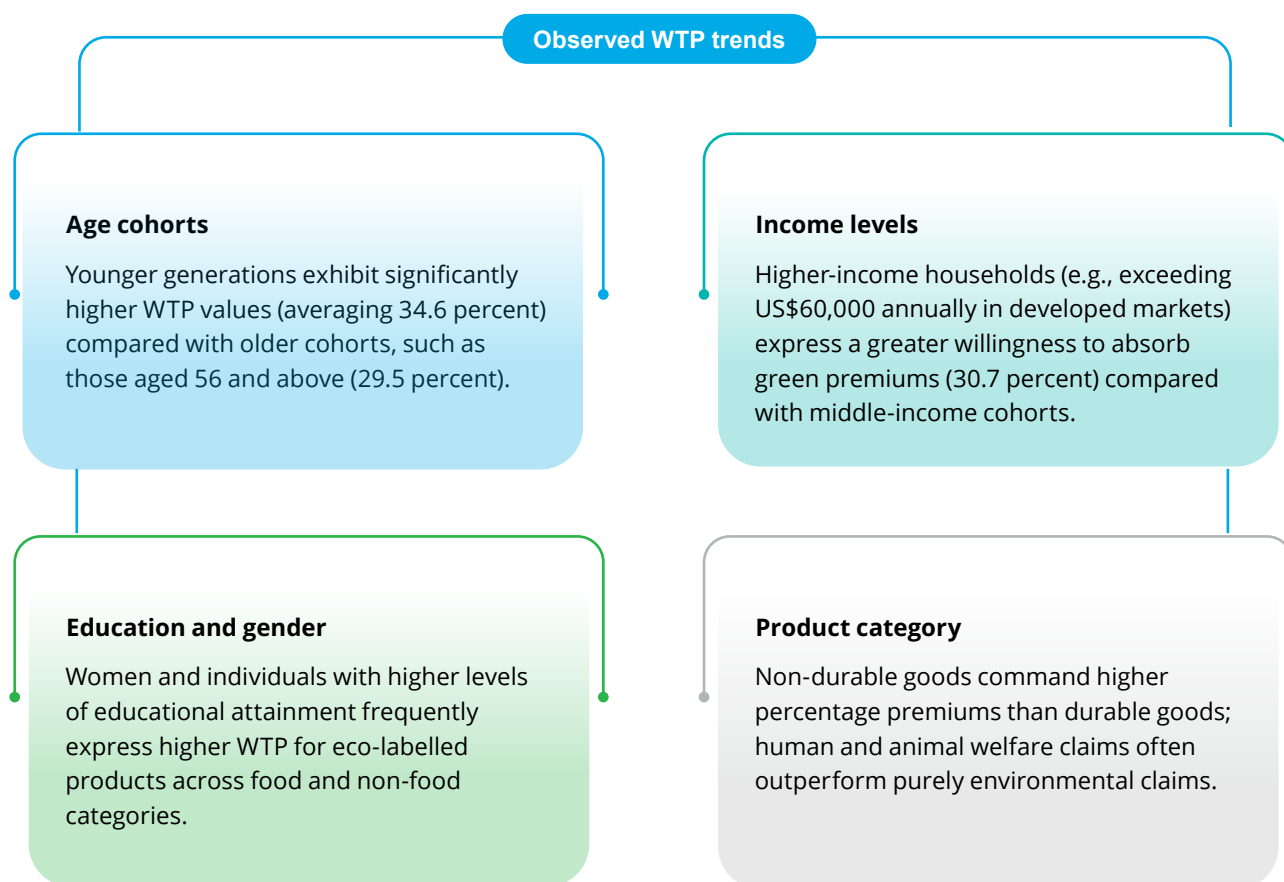
sector, contingent valuation studies reveal a WTP premium ranging between 7 percent and 20 percent for sustainability attributes, provided that the standards applied are trustworthy and clearly communicated to the end consumer.

Willingness to pay is also fundamentally stratified by demographic factors, creating distinct market segments for sustainable products. The demographic heterogeneity of the eco-premium underscores the necessity for targeted commercial strategies.



¹³ NYU Stern Center for Sustainable Business, *Sustainable Market Share Index™ 2025* (Kronthal-Sacco, R. & Whelan, T., April 2026); analysis of Circana retail purchasing data across 36 consumer-packaged-goods categories in the United States, representing approximately 40 per cent of US CPG sales excluding alcohol and tobacco, 2013–2025. Sustainability-marketed branded products grew 4.9 times faster than conventional counterparts (five-year CAGR 10.9 per cent versus 2.2 per cent), accounted for 44.9 per cent of category growth over 2013–2025, and carried an average price premium of 26.6 per cent (2024 analysis).

¹⁴ Tully, S. M. & Winer, R. S., *Are People Willing to Pay More for Socially Responsible Products? A Meta-Analysis*. Stern School of Business, New York University. Global. Meta-analysis of 83 published and unpublished studies examining consumers' willingness to pay for socially responsible products across multiple countries and product categories, including durable and non-durable consumer products. Published in the *Journal of Retailing* in 2014.



The geographical context, specifically the divergence between developed and emerging markets, introduces critical structural nuances. In emerging markets such as India and Saudi Arabia, consumers operate in highly price-sensitive environments, which systematically constrain the realisation of stated eco-premiums. While environmental awareness in these regions has a significant, positive effect on purchase intent, strong price sensitivity acts as a moderating constraint, weakening the translation of sustainability awareness into actual financial premiums. Consequently, in developing economies, the green premium frequently represents an economic friction point rather than a straightforward margin-enhancement opportunity, requiring companies to achieve price parity before sustainability can act as a differentiator.¹⁵

Carbon credits as a revenue line

Carbon markets are beginning to assign an explicit financial value to emissions reductions. For instance, with the launch of the Indian carbon market portal, the infrastructure for issuing and trading carbon credit certificates is now in place. Under the Carbon Credit Trading Scheme, entities that exceed their prescribed emission-intensity targets can earn tradable credits, while those that fall short must purchase them. The scheme is expected to cover hundreds of energy-intensive entities and more than 700 million tonnes of CO₂ equivalent, making it one of the largest carbon market frameworks globally.¹⁶

¹⁵ Tully, S. M. & Winer, R. S., [Are People Willing to Pay More for Socially Responsible Products? A Meta-Analysis](#). Stern School of Business, New York University. Global. Meta-analysis of 83 published and unpublished studies examining consumers' willingness to pay for socially responsible products across multiple countries and product categories, including durable and non-durable consumer products. Published in the Journal of Retailing in 2014.

¹⁶ [International Carbon Action Partnership \(ICAP\), India Notifies Emission Intensity Targets for Nine Sectors under the Carbon Credit Trading Scheme](#) (India, nine energy-intensive industrial sectors, approximately 740 obligated entities, published 2025).

This development reflects a broader structural shift. In 2024, carbon pricing instruments covered approximately 28 percent of global greenhouse gas emissions and generated more than US\$100 billion in public revenues across 80 instruments worldwide. As carbon markets expand, emissions reductions increasingly represent avoided costs and potential sources of monetisable value.¹⁷

Market access and export competitiveness

As global value chains, which account for approximately 70 percent of international trade, become increasingly complex, sustainability requirements are transitioning from voluntary brand enhancements to mandatory conditions for market participation. The ability to navigate this transition dictates export competitiveness, particularly for industrial producers in emerging markets.¹⁸

International regulations and corporate procurement standards are fundamentally altering the competitive landscape. Large multinational buyers are embedding environmental and sustainability requirements directly into supplier selection processes, tender requirements and long-term procurement contracts. This structural shift is driven

by a combination of regulatory pressure, such as the EU's corporate sustainability due diligence directives, and the necessity for large buyers to accurately map and report their Scope 3 GHG emissions.

For suppliers in emerging markets, including India, the ability to provide reliable emissions data, ensure product-level carbon accounting and demonstrate deep supply chain traceability has become a binary determinant of supplier eligibility. Exporters that fail to meet these stringent product standards or lack independent assurance of their emissions data face acute customer concentration risk and the potential loss of lucrative contracts in developed markets. The operational requirement to calculate both direct and indirect emissions across complex supply chains is acting as a de facto non-tariff trade barrier for firms lacking sophisticated carbon accounting infrastructure. Conversely, lower-carbon production processes and transparent ESG reporting directly support export competitiveness, allowing forward-looking industrial firms to capture market share from slower-moving global competitors and secure preferred-supplier status in premium international markets.



¹⁷ World Bank, *State and Trends of Carbon Pricing 2025*. Global analysis of carbon taxes, emissions trading systems and carbon credit markets, covering 80 carbon pricing instruments representing approximately 28 percent of global greenhouse gas emissions, based on 2024 data (published 2025).

¹⁸ Organisation for Economic Co-operation and Development (OECD), *Global Value and Supply Chains. Global*. Policy overview of global value chains and cross-border supply chains, noting that global value chains account for approximately 70% of international trade and highlighting related policy issues around sustainability, efficiency and resilience. Accessed July 2026.



Return stream 3 – Low-cost green capital

Sustainability can influence a company's operating performance and revenue generation, as well as its ability to access capital. As investors and lenders increasingly incorporate sustainability considerations into investment and lending decisions, sustainability performance is

becoming a factor in how capital is allocated and priced. The result is a third source of financial return: access to a broader pool of funding and potentially lower financing costs. For businesses, these benefits can enhance financial flexibility and improve the economics of future investments.

Lower cost of capital

Sustainability performance is increasingly integrated into the fundamental risk assessment models of global financial institutions, central banks and institutional investors, thereby directly influencing the cost and availability of corporate funding.

Evidence from macroeconomic institutions, including the Bank for International Settlements and the European Central Bank, and from peer-reviewed financial modelling indicates a measurable relationship between robust sustainability reporting and reduced corporate financing costs. Specifically, Partial Least Squares-Structural Equation Modelling (PLS-SEM) indicates that the implementation and disclosure of robust ESG frameworks are negatively correlated with the cost of debt, effectively lowering borrowing costs for high-performing firms.

The causal mechanism driving this relationship operates primarily through the reduction of information asymmetry and the recalibration of risk premiums. Lenders and fixed-income investors are increasingly pricing physical climate risks, such as the threat of asset damage from extreme weather, and transition risks, such as regulatory penalties, carbon taxes, or technological obsolescence, into their loan pricing and credit spreads. Firms that demonstrate superior climate-risk management, high-quality governance, and externally assured transition plans provide lenders with greater visibility into the long-term stability of their operating cash flows. Consequently, these firms benefit from lower credit spreads, reduced collateral haircuts on their physical assets and fewer restrictive covenants in their financing agreements.¹⁹

Conversely, firms exhibiting weak sustainability performance or frequent exposure to ESG controversies face a shrinking pool of willing financiers. As major institutional lenders align their portfolios with international net zero banking alliances, highly carbon-intensive firms that lack credible transition plans face elevated risk premiums. This increases their Weighted Average Cost of Capital (WACC) and, in extreme cases, results in the total withdrawal of financing, stranding assets not just through regulatory action but through capital starvation.

The financial implications of this dynamic are systemic. Better ESG performance compresses credit spreads, directly lowering interest expenses on corporate loans and bond issuances. In equity markets, improved disclosure lowers the equity risk premium demanded by investors, reducing the overall WACC. A lower WACC simultaneously lowers internal investment hurdle rates and increases the Net Present Value (NPV) of future cash flows, driving upward revisions to the firm's overall enterprise valuation. Furthermore, high sustainability ratings broaden the investor base by attracting dedicated ESG funds, ensuring liquidity and refinancing flexibility even during periods of broader macroeconomic stress.

Sustainability-linked financing

Sustainability considerations are increasingly influencing capital allocation. India's sustainable debt market has grown to more than US\$55.9 billion, an increase of 186 percent since 2021, making India the fourth-largest source of sustainable debt among emerging markets. This growth reflects rising investor demand for environmental and sustainability-linked investments.²⁰ Sustainability-linked instruments create a direct connection between sustainability performance and financing costs by linking borrowing terms to predefined sustainability targets.



¹⁹ Financial Protection Forum (World Bank Group), [Mobilizing Public-Private Solutions: A Guide to Support Climate and Disaster Risk Finance and Insurance Solutions](#). Presents global evidence on public-private climate and disaster risk insurance programmes, drawing on international case studies and policy experience, published 2024.

²⁰ Climate Bonds Initiative and MUFG Bank, [India Sustainable Debt State of the Market 2024](#). Analyses India's green, social, sustainability and sustainability-linked (GSS+) debt market, reporting cumulative aligned issuance of USD 55.9 billion across sovereign, corporate and financial institution issuers as of December 2024, published 2025.

Government participation further accelerates market development. Since FY23, the Indian government has issued sovereign green bonds totalling INR72,697 crore, including INR15,000 crore in FY26, helping establish a domestic green yield curve.²¹ These issuances provide pricing benchmarks for sustainable finance and help build a deeper pool of capital for sustainability-linked investments.

In sustainability-linked loans, commercial banks link borrowing terms to predefined sustainability performance targets. If the borrower meets the targets, the interest margin may narrow; if it misses them, the margin may widen. In India, a large cement manufacturer raised US\$500 million in sustainability-linked financing in 2024 from a consortium of domestic and international banks, with targets linked to Scope 1 emissions intensity and the share of green energy. Another Indian cement manufacturer similarly raised INR400 crore through a sustainability-linked loan from an international bank's India branch.

Development finance institutions also play an important role in expanding access to sustainability-linked capital. A large Indian diversified manufacturing company raised INR1,250 crore through sustainability-linked non-convertible debentures, subscribed by a global development finance institution, to support investment in a new business line focused on renewable energy and water recycling in manufacturing.

In capital markets, green bonds and sustainability-linked bonds provide another route. Green bonds are use-of-proceeds instruments, while sustainability-linked bonds link bond economics to sustainability performance targets. A major Indian power utility's INR2,000 crore green Masala bond in 2016 demonstrated how Indian issuers could access offshore labelled capital for renewable energy projects. A large Indian cement manufacturer's US\$400 million sustainability-linked bond in 2021 further demonstrated the use of sustainability-linked instruments by Indian corporates.

The pricing advantage is not automatic. It depends on issuer credit quality, market conditions, instrument credibility, target ambition, external assurance and investor demand. However, recent Indian transactions indicate that credible ESG-labelled issuances can achieve beneficial pricing. For example, a major Indian infrastructure and engineering company's 2025 ESG bond was issued at a 6.35 percent coupon, compared with 6.45–6.50 percent secondary-market yields on similar plain-vanilla bonds.

²¹ Government of India, Ministry of Finance, Press Information Bureau, [Government Continues to Deepen India's Sovereign Green Bond Programme](#). Reports cumulative sovereign green bond issuances of INR72,697 crore since FY23, including INR15,000 crore planned for FY26, published 2025.





Return stream 4 – Avoided losses and resilience

The first three return streams demonstrate how sustainability performance can reduce operating costs, support revenue growth and improve access to capital. The fourth return stream operates differently. Rather than generating incremental revenue or expanding margins, it

protects the value the business has already created. This includes penalties avoided, assets that retain their economic value, operations and supply chains that continue despite disruption, and market access that is preserved amid changing regulation or customer expectations.

Although such returns may not appear as a discrete line item in the financial statements, they are economically material. Climate-related risks are now increasingly embedded within mainstream financial reporting and enterprise risk management. The recommendations of the TCFD have informed the architecture of the IFRS climate-related disclosure standard, under which companies are expected to assess and disclose how climate-related risks and opportunities could affect their financial prospects.²² Managing these exposures is therefore becoming central to protecting the value created through cost efficiency, revenue growth and access to capital.

Physical risk and the balance sheet

Physical risks arise from acute climate-related events, such as floods, cyclones and heatwaves, as well as from chronic shifts, such as rising average temperatures and prolonged water stress. Their financial consequences fall into three principal areas.



The **first** is direct damage to physical infrastructure and assets, requiring costly repair or rendering them inoperable.



The **second** is reduced productivity in activities that depend on climatic stability, including agriculture, real estate and certain forms of manufacturing.



The **third** is a higher cost of insurance and finance, as insurers and lenders reprice the risks to which an asset is exposed.

Among these channels, water stress is one of the most financially material in the Indian operating environment, and it illustrates the mechanism with clarity. Where an enterprise depends on a shared, increasingly scarce natural resource, its continued access to it cannot be assumed. The point is shown by events in Kerala, where the severe drought of 2017 led the state authorities to require industrial users drawing groundwater in the affected district to reduce consumption by 75 percent, compelling a major beverage producer to cut extraction from ~600,000 litres to 150,000 litres per day and to halt bottling for the duration of the order.²³ An asset which remains physically intact can still become economically unproductive, and environmental performance, in this case, the efficiency and security of water use, is tied to operational continuity.

The scale of this risk is considerable. NITI Aayog's report states that national water demand will reach twice the available supply by 2030, potentially resulting in an eventual economic loss of around 6% of GDP.²⁴ For an individual business, that scarcity is not an abstraction. Reliance on a contested shared resource leaves operations open to curtailment, rising input costs and penalties for non-compliant discharge. Investment in water efficiency and treated-water reuse, through effluent treatment and zero-liquid-discharge systems, works as a direct hedge. It reduces dependence on external freshwater, reduces recurring costs for a scarce input, and removes the tail risk of discharge penalties, bringing an open-ended liability down to a managed, largely fixed operating cost.

Insurability as an emerging financial constraint

As the frequency, severity and geographical spread of natural catastrophes escalate due to systemic climate change, physical risk is fundamentally altering the availability and affordability of insurance. This dynamic is transforming insurability from a routine operational expense into a systemic macroeconomic constraint that dictates asset viability.

Authoritative data from multilateral institutions, including

²² TCFD Recommendations and IFRS S2 Climate-related Disclosures (Global disclosure frameworks; applicable across sectors and jurisdictions; TCFD recommendations issued as climate-related financial disclosure guidance and IFRS S2 effective for annual reporting periods beginning on or after 1 January 2024).

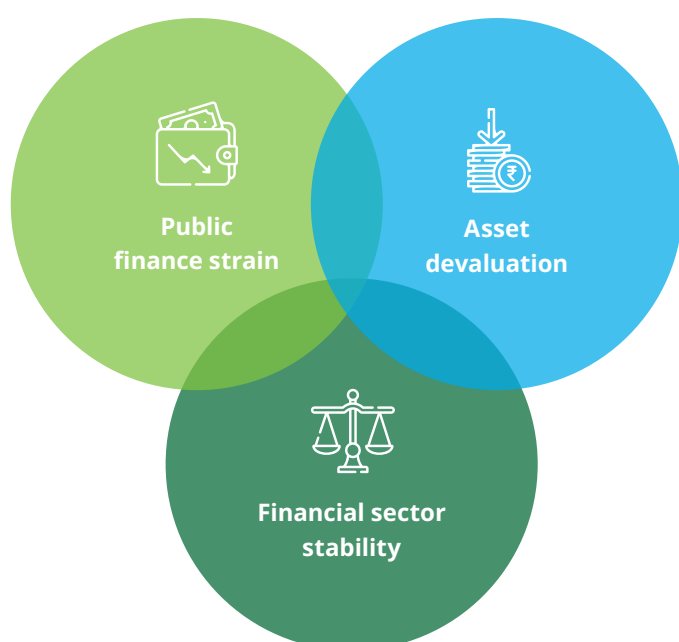
²³ Circle of Blue, The Right to Life and Water: Drought and Turmoil for Coke and Pepsi in Tamil Nadu (2017) Circle of Blue, The Right to Life and Water: Drought and Turmoil for Coke and Pepsi in Tamil Nadu (India, case study of industrial groundwater restrictions affecting beverage manufacturing operations during the 2017 drought in Tamil Nadu, published 2017).

²⁴ NITI Aayog, Composite Water Management Index (Government of India); World Bank water-scarcity assessment for India. NITI Aayog, Composite Water Management Index 2.0 (India, assessment of water resource management performance across 27 States and selected Union Territories using 9 themes and 28 indicators, based on FY 2017–18 data, published 2019).

the United Nations Environment Programme Finance Initiative, the International Association of Insurance Supervisors and the European Insurance and Occupational Pensions Authority, underscores a rapidly widening disaster insurance protection gap. The protection gap is formally defined as the absolute difference between total economic losses from natural catastrophes and the portion of those losses covered by insurance.

In 2023, global economic losses from natural catastrophes totalled ~US\$290 billion. Alarming, 62 percent of these global losses were completely uninsured, leaving households, businesses and governments to absorb the fiscal shock. This gap is highly heterogeneous across regions. While developed nations possess higher baseline coverage, the EU still sees only about 25 percent of climate-related catastrophe losses insured. In emerging economies, the situation is critical; in Africa, for example, only 0.5 percent of extreme weather losses were covered by insurance.²⁵ Macroeconomic projections suggest that without aggressive intervention, uninsured global losses could double to US\$560 billion annually by 2030.

Macroeconomic and commercial impacts of the insurance protection gap



As physical risks intensify, the commercial insurance industry adjusts by raising premiums to maintain solvency, increasing deductibles, imposing stricter coverage limits, and inserting specific-peril exclusions. In areas repeatedly hit by severe floods, wildfires or storms, commercial property, real estate and agricultural assets are becoming effectively “uninsurable”. Insurers are forced to withdraw capacity to protect their own balance sheets and profit-and-loss statements, leading to a localised collapse in risk transfer mechanisms.²⁶

²⁵ International Association of Insurance Supervisors (IAIS), [Global Insurance Market Report \(GIMAR\) - IAIS 2025: Special Topic Edition on Natural Catastrophe Insurance Protection Gaps](#). Presents a global assessment of natural catastrophe insurance protection gaps, drawing on six international case studies to examine implications for the real economy, financial sector and financial stability, published 2025.

²⁶ [United Nations, SYNERGY SOLUTIONS 2025: Closing the Climate and Disaster Insurance Protection Gap](#). Presents a global assessment of climate and disaster insurance protection gaps, drawing on international evidence and country case studies to examine financing mechanisms, insurance coverage and financial resilience, published 2025.

This market failure poses severe, immediate threats to corporate finance. Without adequate comprehensive insurance coverage, physical assets cannot be utilised as reliable collateral for bank loans or mortgages. Banks are forced to apply severe collateral haircuts to uninsurable physical assets, which dramatically reduces a firm's borrowing capacity. Reduced insurability triggers technical defaults on project finance covenants, depresses property prices, destroys asset liquidity and introduces severe cash flow volatility during the prolonged recovery phase following a physical climate shock.²⁷

To counter this constraint, a structural "risk-layering" approach is essential. Firms and governments must invest heavily in pre-planned physical resilience and adaptation measures, such as robust infrastructure, elevated sea walls, supply chain redundancies, and early warning systems. Empirical evidence strongly indicates that pre-emptive resilience interventions limit expected losses and are increasingly required by underwriters as a strict precondition for maintaining premium affordability and ensuring ongoing asset financeability. Ultimately, robust adaptation investments preserve enterprise value by ensuring the firm's physical assets remain insurable and, by extension, bankable.²⁸

Transition risk and asset value

The global macroeconomic pivot towards a net-zero economy introduces profound "transition risks," the aggregate financial risks arising from changes in climate regulation, carbon pricing regimes, rapid technology substitution, and shifting consumer preferences. These structural forces threaten to prematurely impair the economic value, profitability, and useful life of established industrial assets.

Authoritative definitions from institutions such as the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA) characterise "stranded assets" as capital investments that suffer unanticipated or premature write-downs, severe devaluations, or rapid conversion to liabilities before the end of their initially projected economic life. A closely related phenomenon, "carbon lock-in," occurs when capital-intensive, fossil-fuel-dependent infrastructure is built today, locking the operator into high-emissions trajectories that will soon become economically unviable under tightening domestic and international carbon regulations.²⁹

Heavy industries such as steel, cement, power generation and petrochemicals face the most acute transition risks, given their massive capital requirements and long asset lifecycles. In India, for example, over 75 million tonnes per annum (~72 percent) of the operating blast furnace capacity in the steel sector was developed within the last two decades. Because these heavy industrial facilities typically have operational lifespans exceeding 40 years, early retirement to meet the 2070 net-zero targets – or to remain competitive against mechanisms like the EU CBAM – poses a massive stranded asset risk. The NITI Aayog's net-zero scenario projects that heavy industry must execute a monumental technological pivot, slashing its reliance on fossil fuels from 83 percent of the energy mix today to just 26 percent by 2070. This transition requires cumulative capital investments totalling trillions of dollars, shifting reliance towards green hydrogen, electrification and circular material flows.³⁰

²⁷ Financial Stability Institute (Bank for International Settlements) and International Association of Insurance Supervisors (IAIS), FSI-IAIS [Insights on Parametric Insurance: Uncertain Waters – Can Parametric Insurance Help Bridge Natural Catastrophe Protection Gaps?](#). Global analysis of parametric insurance, informed by surveys of 12 insurance supervisory authorities and 7 insurance market participants from IAIS member jurisdictions, published 2024.

²⁸ International Association of Insurance Supervisors (IAIS) and World Bank Group, [G20 Sustainable Finance Working Group Input Paper: Identify and Address Insurance Protection Gaps. Presents a global framework for addressing natural catastrophe insurance protection gaps](#), drawing on international evidence and practical examples with a particular focus on emerging markets and developing economies (EMDEs), published 2025.

²⁹ [Global Energy Monitor](#), Why India's "Build Now, Decarbonise Later" Approach to Achieving a Net-Zero Steel Industry Will Fail. Examines India's steel sector, analysing operating and planned steelmaking capacity, technology pathways and stranded asset risks using data from the Global Iron and Steel Tracker, published 2024.

³⁰ [Scenarios Towards Viksit Bharat And Net Zero Sectoral Insights: Industry – Niti Ayog](#). Examines India's industrial sector, assessing decarbonisation pathways, technology transitions, energy demand and investment requirements under multiple development and net-zero scenarios, published 2026.



Transition risk directly impacts asset values through several distinct financial channels. The introduction of carbon pricing mathematically reduces the terminal value and operating cash flows of high-emission assets, as a growing percentage of revenue is diverted to compliance costs. Regulatory mandates can force the premature retirement of fossil-fuel infrastructure, forcing companies to accelerate depreciation schedules and absorb massive, sudden impairment charges that devastate book equity. Delayed decarbonisation creates a compounded, deferred capex liability, requiring massive, highly disruptive capital outlays to retrofit facilities at the last minute as regulatory deadlines loom. Furthermore, as global customer demand shifts towards sustainable products (e.g., green steel mandates in automotive manufacturing), legacy assets lose market share, customer relevance and pricing power.³¹

Firms that invest early in lower-carbon technologies – despite facing the short-term friction of the green premium on capex – are actively and effectively hedging against transition risk. By modernising production routes ahead of the regulatory curve, these firms extend the useful life of their physical assets, preserve their competitive positioning, maintain unhindered access to global export markets and ultimately safeguard their enterprise value from abrupt regulatory or market shocks.³²

Regulatory and market-access exposure

A specific, increasingly quantifiable form of transition risk arises when environmental performance determines continued access to a market. From January 2026, the EU's Carbon Border Adjustment Mechanism prices the embedded carbon of imported goods at the border across six carbon-intensive sectors, turning the carbon intensity of production into a direct cost of trade.³³ The burden is substantial and concentrated on carbon-intensive producers in emerging economies. Independent estimates indicate that India could bear ~18 percent of total global costs under the mechanism, almost double its share of European import value, a disproportion attributed to coal-reliant production methods and the absence of an equivalent domestic carbon price.

Considered as risk, the cost is recurring and structural: a producer whose emissions intensity exceeds the relevant benchmark pays a carbon charge on every tonne exported that a lower-emission competitor does not, and as that difference persists for as long as the intensity gap remains, it compounds into a durable disadvantage in margin and in long-term asset viability. The financial materiality of this risk is therefore directly driven by environmental performance.

³¹ [Scenarios Towards Viksit Bharat And Net Zero Sectoral Insights: Industry – Niti Ayog](#) Examines India's industrial sector, assessing decarbonisation pathways, technology transitions, energy demand and investment requirements under multiple development and net-zero scenarios, published 2026.

³² [Scenarios Towards Viksit Bharat And Net Zero Sectoral Insights: Industry – Niti Ayog](#) Examines India's industrial sector, assessing decarbonisation pathways, technology transitions, energy demand and investment requirements under multiple development and net-zero scenarios, published 2026.

³³ [European Commission, Carbon Border Adjustment Mechanism](#). Describes the European Union's Carbon Border Adjustment Mechanism, applicable across the European Union, covering imports of carbon-intensive goods including cement, iron and steel, aluminium, fertilisers, electricity, hydrogen and certain precursor and downstream products, updated 2026.



Non-compliance and the cost of governance failure

Beyond the gradual repricing of climate risk, environmental and governance lapses impose immediate financial costs. Regulatory penalties are the most visible. In 2022, the National Green Tribunal imposed a fine of INR25 crore on the operator of an alumina refinery in Odisha for undertaking expansion without prior environmental clearance, applying the polluter-pays principle.³⁴ At the limit, the consequence is not a fine but the loss of the asset itself. A major copper smelter in Tamil Nadu was ordered closed by state authorities in 2018, a closure later upheld by the Supreme Court in 2024, demonstrating that an environmental-compliance failure can end an operating asset entirely rather than merely subjecting it to a tax.³⁵

These costs are not confined to formal penalties. A study of firms with a history of environmental, social and governance incidents found that they underperformed comparable firms by approximately 3.5 percent per year on a risk-adjusted basis, even after controlling for other factors, as the market priced in the elevated risk that such lapses signal.³⁶ Sound governance, on this evidence, is one of the principal means by which the enterprise avoids the losses that the other return streams would otherwise have to absorb.

Unlike the previous return streams, which create additional enterprise value, this stream preserves value that has already been created. Every disruption avoided, asset protected and penalty prevented represents a financial return because it prevents erosion of future cash flows.

³⁴ [Business Standard, NGT slaps ₹25 cr fine on Vedanta's Odisha plant for green violations \(May 2022\)](#). Business Standard, reporting on the National Green Tribunal's order imposing INR25 crore environmental compensation on Vedanta's Lanjigarh alumina refinery in Odisha for expansion without prior environmental clearance. India (Odisha), Environmental compliance case; Published 6 May 2022.

³⁵ [Supreme Court of India, Vedanta Limited v. State of Tamil Nadu & Ors., judgment dated 29 February 2024, dismissing Vedanta's appeal seeking reopening of the Sterlite Copper smelter at Thoothukudi, Tamil Nadu; review petition dismissed by order dated 22 October 2024](#). LiveLaw, "Supreme Court Dismisses Vedanta's Plea to Reopen Sterlite Copper Smelter in Tamil Nadu's Tuticorin" and Business Standard, "SC dismisses Vedanta's review petition to reopen copper plant in Tamil Nadu".

³⁶ [NYU Stern Center for Sustainable Business and Rockefeller Asset Management, ESG and Financial Performance: Uncovering the Relationship by Aggregating Evidence from 1,000 Plus Studies Published between 2015–2020 \(2021\)](#). Global. Meta-analysis of 1,141 peer-reviewed studies and 27 meta-reviews (covering approximately 1,400 underlying studies) examining the relationship between ESG and financial performance across multiple industries and investment strategies. Synthesises studies published between 2015 and 2020; report published in 2021.



Return stream 5 – Human capital

A company's performance depends on the people it employs - on their effort, their well-being and their willingness to stay. How well a company manages them is itself a matter of sustainability performance. Under the SASB Standards, which assess sustainability issues by their financial materiality across industries, the workforce is treated as a financially material sustainability dimension. It is the most

widely material sustainability issue after climate, affecting 50 of the 77 industries covered by the standards, with workforce-related topics among the most consistently financially material sustainability issues across industries, including employee health and safety, labour practices, workforce engagement and diversity.³⁷

³⁷ IFRS Foundation, [SASB Human Capital Project](#). Global. Evidence-based review of financially material human capital issues across all 77 SASB industry standards spanning 11 sectors. Covers publicly listed companies across multiple industries; project transitioned to the ISSB in 2022.

Health, safety and well-being

The most direct of these, and the most often overlooked in financial terms, is employee health and safety. Poor management of workforce health and safety carries a measurable financial cost. The International Labour Organisation estimates that occupational accidents and work-related illness result in an annual loss of ~4 percent of global GDP, around US\$2.8 trillion, through lost working time, medical costs, compensation and interrupted production.³⁸ For an individual enterprise, these losses are substantially avoidable through investment in safe systems of work, and the return on that investment is the loss not incurred: fewer disrupted operations, lower compensation and insurance costs, and the retention of experienced workers who would otherwise be lost to injury. In asset-intensive and industrial settings, where the physical risk to workers is greatest, the financial case for strong safety performance is correspondingly stronger.

Beyond preventing injuries and illness, the quality of the working environment also influences workforce productivity. Research involving office workers across six countries, including India, found that higher concentrations of fine particulate matter (PM2.5) and inadequate ventilation were associated with slower response times, lower accuracy and reduced cognitive performance at pollution levels commonly encountered in office environments.³⁹ These findings suggest that investments in healthier workplaces, through improved ventilation, air quality and indoor environmental conditions, can enhance employee performance while supporting broader health and wellbeing objectives.

The attraction and retention of talent

In an increasingly competitive labour market, the ability to attract and retain skilled employees has become an important source of competitive advantage. Sustainability is also becoming an increasingly influential factor in employer choice, particularly among younger generations entering the workforce. Recent global survey findings indicate that environmental sustainability is one of the key considerations

shaping where Gen Z and Millennial professionals choose to work. At the same time, many also report changing jobs or intending to do so because they believe their employer is not taking sufficient action on environmental sustainability. As competition for skilled talent intensifies, organisations with credible sustainability commitments are better positioned to strengthen employer attractiveness, improve retention and reduce workforce-related costs.⁴⁰

The financial significance lies in lower recruitment costs and preserving organisational knowledge, customer relationships and operational continuity. By strengthening employer attractiveness and improving employee retention, credible sustainability performance reduces workforce disruption, shortens recruitment cycles, and lowers the recurring costs of replacing experienced employees.



³⁸ International Labour Organisation (ILO), [ILO Calls for Urgent Global Action to Fight Occupational Diseases \(2013\)](#). ILO estimates based on global occupational safety and health statistics covering workers across all sectors. Highlights that occupational accidents and work-related diseases result in an annual economic loss equivalent to approximately 4 percent of global GDP.

³⁹ [Harvard T.H. Chan School of Public Health, summarising Cedeno-Laurent et al. \(2021\)](#), Environmental Research Letters. China, India, Mexico, Thailand, the United Kingdom and the United States. Longitudinal study of 302 office workers across commercial office buildings in six countries. Data collected between May 2018 and March 2020; published in 2021.

⁴⁰ [Deloitte, 2026 Gen Z and Millennial Survey \(2026\)](#). Global. Survey of 22,595 Gen Z and Millennial respondents across 44 countries, including 806 respondents from India. Conducted between October and December 2025; published in 2026.



Workforce capability and long-term competitiveness

The financial value of human capital extends beyond attracting and retaining employees. As sustainability becomes increasingly embedded within business strategy, organisations require new technical capabilities, operational skills and cross-functional expertise to execute their transition effectively. Workforce capability, therefore, becomes a direct driver of financial performance. Delivering energy efficiency programmes, implementing circular business models, managing climate risks, adopting new technologies and complying with evolving sustainability regulations all depend on employees possessing the skills required to execute these changes successfully.

The scale of this challenge is significant. A 2025 global survey of more than 1,000 employers found that 63 percent identified skills gaps as the single largest barrier to business transformation, while 59 percent of the global workforce

is expected to require reskilling or upskilling by 2030. In response, 77 percent of employers plan to prioritise workforce upskilling over the coming years.⁴¹ These findings suggest that investment in workforce capability is increasingly viewed not as an HR initiative alone, but as a strategic business investment that enables organisations to respond to technological, environmental and economic change.

Ultimately, the financial returns associated with sustainability depend on an organisation's ability to execute change. Investments in workforce capability strengthen innovation, operational improvement and organisational resilience, enabling businesses to realise the cost, revenue, capital and risk benefits discussed throughout this paper. Sustainability therefore creates value by improving environmental or social performance and by strengthening one of the organisation's most important productive assets: its people.

⁴¹ World Economic Forum, *The Future of Jobs Report 2025 (2025)*. Global. Survey of more than 1,000 leading employers representing over 14 million workers across 22 industry clusters and 55 economies. Survey conducted in 2024 to assess workforce, skills and business transformation expectations for the 2025–2030 period; report published in January 2025.



The Risk-Opportunity lens (synthesis)

The five return streams described in this report demonstrate that sustainability influences financial performance through multiple pathways simultaneously. Some of these pathways create value directly through lower costs, higher revenues and improved access to capital. Others protect value by reducing operational, regulatory, market and financing risks. Viewed collectively, sustainability is not a standalone initiative but a business strategy that affects both sides of the risk-return equation.

Research suggests that sustainability creates financial value through several identifiable mechanisms. Environmental initiatives often improve resource productivity by reducing energy, water, and material consumption, resulting in efficiency gains and lower operating costs.

Sustainability considerations can also drive innovation by encouraging the development of new products, services and business models that respond to changing customer, regulatory and market expectations. Meanwhile, stronger sustainability performance can improve an organisation's ability to identify, manage and mitigate risks arising from factors such as resource scarcity, regulatory change, climate impacts and stakeholder scrutiny. These mechanisms are consistently reflected in the evidence base. Studies examining innovation-related effects reported positive findings in all 17 cases reviewed, while improvements in operational efficiency were associated with positive outcomes in 59 percent of studies examined.⁴²

The timing of these benefits is often determined by materiality. Sustainability issues rarely become financially significant overnight. Instead, they typically progress through a sequence of catalysts, stakeholder attention, corporate responses, market adoption and, in some cases, regulatory intervention. As issues move from being perceived as external concerns to financially material business factors, their impact becomes increasingly visible in costs, revenues, capital allocation and risk assessments.⁴³

This progression helps explain why sustainability can create opportunity and resilience. Organisations that identify emerging issues early may benefit from first-mover advantages, innovation opportunities and stronger stakeholder relationships. Those that respond only after issues become financially material may face higher compliance costs, constrained market access, capital market pressures or reputational impacts. In this sense, sustainability is not simply a response to current expectations but a mechanism for anticipating future sources of value creation and risk.



⁴² NYU Stern Center for Sustainable Business and Rockefeller Asset Management, [ESG and Financial Performance: Uncovering the Relationship by Aggregating Evidence from 1,000 Plus Studies Published between 2015–2020 \(2021\)](#). Global. Meta-analysis of 1,141 peer-reviewed studies and 27 meta-reviews (covering approximately 1,400 underlying studies) examining the relationship between ESG and financial performance across multiple industries and investment strategies. Synthesises studies published between 2015 and 2020; report published in 2021.

⁴³ Freiberg, D., Rogers, J. & Serafeim, G., [How ESG Issues Become Financially Material to Corporations and Their Investors, Harvard Business School Working Paper No. 20-056 \(revised 2020\)](#). Global. Conceptual research paper synthesising published academic literature and illustrative corporate and investor examples to develop a framework explaining how ESG issues become financially material across industries. Originally published in 2019 and revised in 2020.



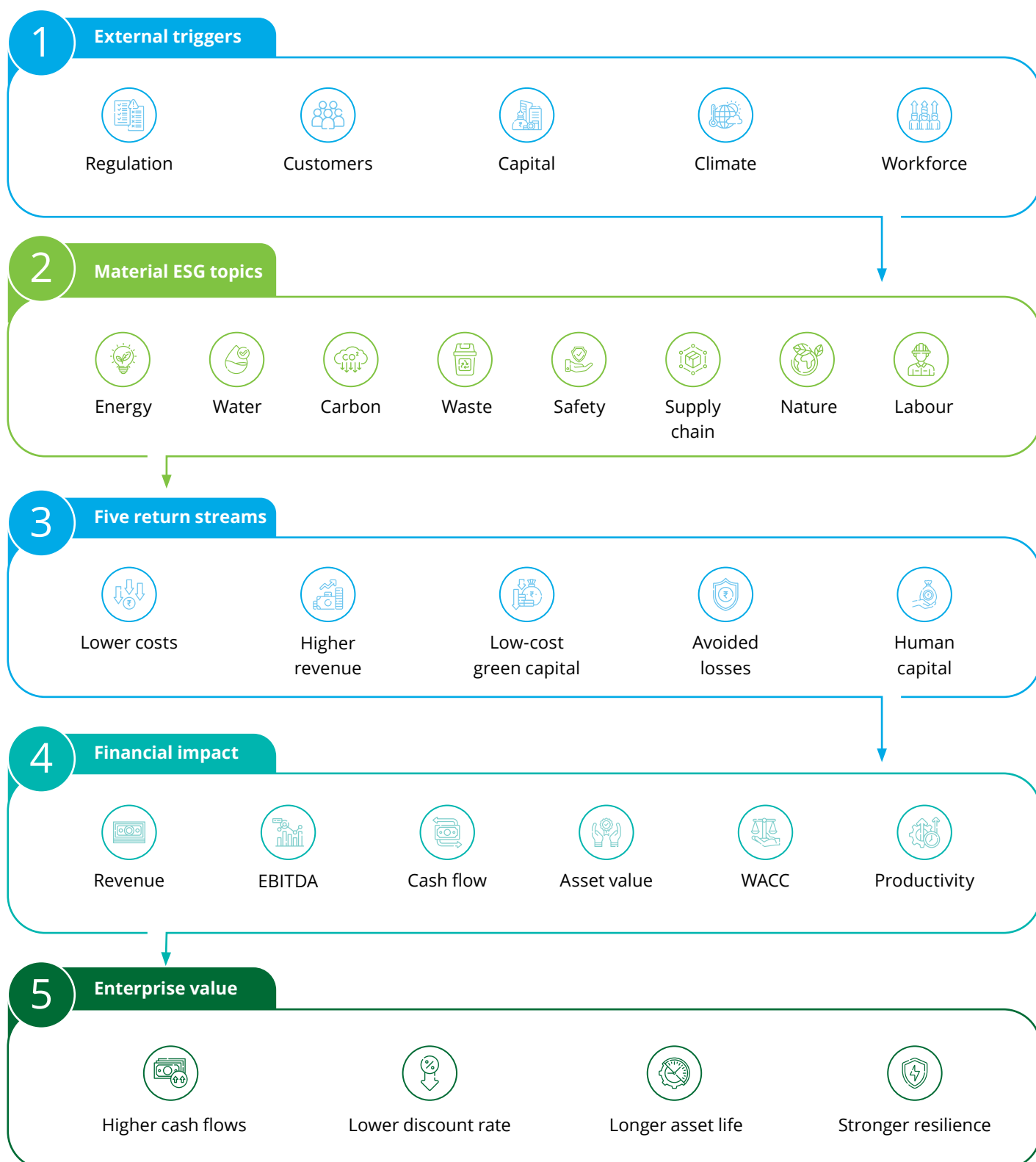
The ROI of responsibility framework

Translating sustainability performance into enterprise value

The ROI of responsibility framework shows how sustainability moves from an external pressure to a driver of enterprise value. It begins with a forward-looking assessment of regulation, customer expectations, capital-market requirements, climate and nature risks, workforce priorities and technological change, considering current

pressures and how they may evolve over time. Through horizon scanning and scenario planning, organisations can anticipate which sustainability issues may become financially material and act before emerging expectations become minimum market requirements.

The organisation's response then creates or protects value through five return streams, influencing revenue, costs, cash flow, asset value, productivity and the cost of capital. The framework, therefore, provides a practical basis for evaluating sustainability using the same financial discipline applied to other strategic investments. Responsibility generates a return when sustainability performance can be traced through a credible financial pathway to measurable business value, stronger resilience and greater strategic flexibility.



External ESG triggers

The framework begins with external forces that change the conditions under which a business operates.

Trigger	How it affects the business
Climate and nature	Affects resource availability, asset productivity, insurance and operational continuity
Regulation	Introduces disclosure obligations, carbon costs, environmental standards and penalties
Capital providers	Influences lending conditions, investment eligibility and risk assessment
Customers	Changes product preferences, procurement requirements and willingness to pay
Workforce	Influences talent attraction, retention, engagement, safety and productivity

The triggers listed above are non-exhaustive and indicative; an organisation may face any type of trigger depending on its geography, sector and nature of business. These triggers do not automatically create financial impacts. Their significance depends on the sustainability issues to which the company is exposed.

Financially material sustainability issues

The second stage identifies the issues that could affect the company's financial prospects. Energy, water, carbon, waste and circularity, employee safety, labour practices, supply-chain resilience, nature dependencies, governance and sustainability-data integrity may each become financially material depending on the company's sector, geography, operating model and value chain.

The core materiality question is:

Could this sustainability issue reasonably affect the company's revenues, costs, assets, liabilities, financing conditions or ability to continue operating?

This ensures that the analysis moves beyond broad ESG themes and focuses on issues with identifiable financial transmission pathways.

Five monetary return streams

Once a material issue has been identified, the company can assess how managing it creates or protects monetary value.

Return stream	Primary value mechanism
Lower costs	Reduces energy, water, material, waste and operating expenditure
Higher revenue and margins	Supports sales growth, pricing power, customer retention, carbon credit revenues and access to new markets
Low-cost green capital	Reduces financing costs and expands access to sustainability-focused funding
Avoided losses and resilience	Prevents penalties, disruptions, asset impairment, insurance constraints and market exclusion
Human capital	Reduces attrition and safety costs while improving productivity, engagement and execution

A single sustainability issue may contribute to more than one return stream. Water efficiency, for example, may reduce operating costs while also preventing production interruptions. Carbon reduction may lower energy costs, preserve export access and reduce transition risk.

Financial and valuation impact

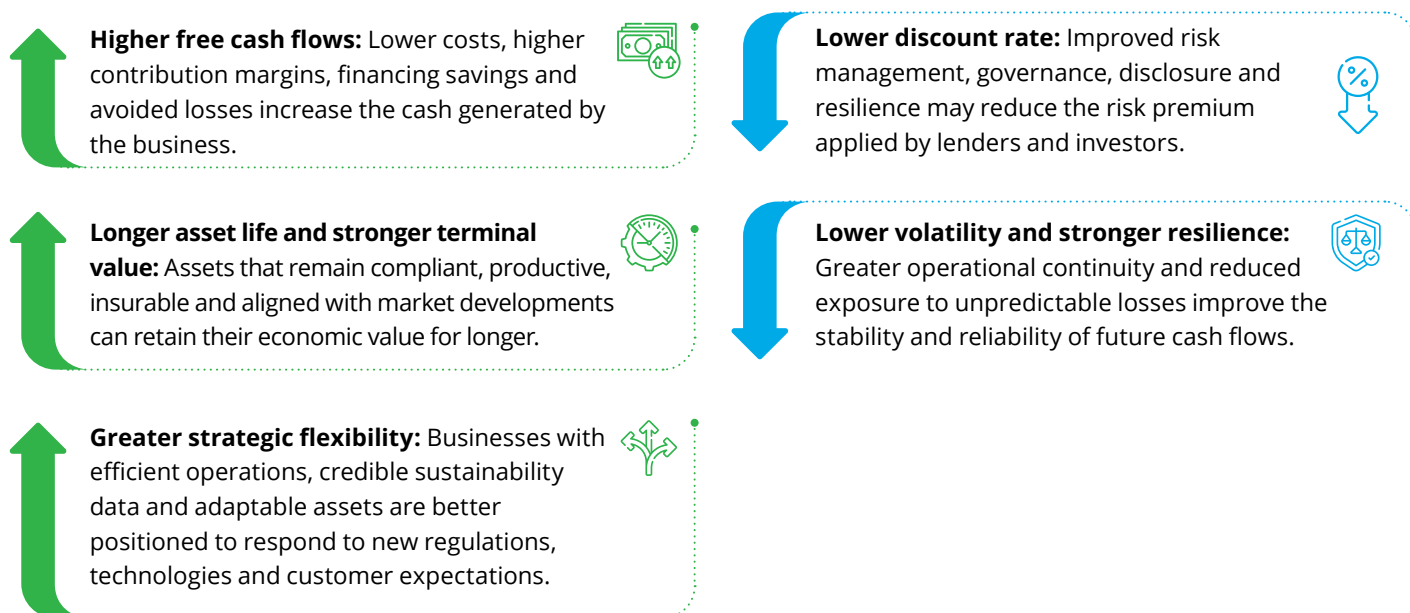
The return streams must then be translated into conventional financial metrics.

Financial channel	Illustrative sustainability impact
Revenue	Incremental sales, export access, customer retention and sustainable-product premiums
COGS and operating expenses	Lower energy, water, material, waste and workforce-related costs
EBITDA and margins	Higher revenue combined with lower operating expenditure
Finance costs	Reduced interest expense or improved borrowing terms
Cash flow	Higher operating cash flow, avoided cash outflows and more predictable expenditure
Asset value and asset life	Reduced impairment risk, improved utilisation and longer productive life
Productivity	Higher output per employee, lower absenteeism and fewer disruptions
WACC and risk premium	Lower perceived business risk and potentially lower required returns
Earnings volatility	Reduced exposure to resource scarcity, climate events, regulatory costs and supply disruption

This stage is where sustainability performance becomes financially measurable. Operational indicators such as megawatt-hours saved, water reused, emissions reduced or attrition avoided must be converted into monetary effects.

Enterprise value outcomes

The final stage links these financial impacts to the fundamental determinants of enterprise value.





Role of Chief Sustainability Officer (CSO)

The financial returns from sustainability are unlike those from most business investments. They do not accrue to a single function, business unit or line of the financial statements. Lower operating costs are realised through operations and engineering. Revenue growth is influenced by commercial teams, product development and procurement.

Access to capital depends on finance and investor relations. Risk reduction spans enterprise risk, legal, operations and supply chains, while workforce performance sits within human resources. Sustainability creates value across all these functions, yet no single function owns the return in its entirety.

This creates a fundamental governance challenge. Historically, sustainability has been managed in a fragmented manner. Instead of having a single custodian equipped with the necessary subject-matter expertise, responsibility has been distributed across multiple functions. While these activities are individually important, they are rarely managed as part of a single value-creation strategy. As a result, sustainability is frequently considered after investment decisions have been made, rather than informing how those decisions are made in the first place.

The increasing financial materiality of sustainability is changing this model. As sustainability becomes more closely linked to enterprise value, organisations require stronger performance data, clearer accountability, robust governance and greater integration with strategic and financial planning. Sustainability is no longer evaluated solely through disclosures or compliance; it is increasingly assessed through its contribution to operational performance, growth, resilience and long-term competitiveness.

This evolution is redefining the CSO's role. Rather than acting primarily as the custodian of sustainability reporting or regulatory compliance, the CSO is increasingly becoming the organisation's integrator of sustainability-driven value creation. The role is shifting from coordinating reporting requirements to embedding sustainability into business strategy, investment decisions and operational execution.

At the same time, the function itself has reached a turning point. Organisations are looking for their sustainability leaders to demonstrate measurable business value from sustainability investments, not just monitor disclosures and compliance. The need to demonstrate the financial benefits of sustainability investments is becoming more acute, and the CSO's ability to prove its value is becoming crucial. Rather than diminishing the position, this expectation is redefining it by elevating the CSO to the strategic business leader rather than a functional specialist.⁴⁴

The evolving regulatory framework is fuelling this change. With the expansion of instruments such as the BRSR Core, India's CCTS and CBAM, sustainability indicators are

gradually becoming financial metrics that affect market access, compliance costs, investment, and competitiveness.⁴⁵ To make better business decisions informed by an understanding of carbon and climate risks, there is a growing need for leaders who can bridge sustainability and finance.

The role, therefore, extends well beyond sustainability expertise. The CSO increasingly serves as the link between sustainability and the core business, translating sustainability priorities into the language of business: how they relate to capital expenditure, efficiency, margins, cost of capital, enterprise risk, resilience, and ultimately, value creation. Importantly, it ensures that the sustainability perspective is incorporated into the decision-making process rather than being considered after decisions have already been made.

Sustainability goals will have to be achieved through the collective execution of all relevant processes. Carbon reduction, transition planning, sustainable sourcing, innovation and climate risk management cannot be accomplished by any single function working in isolation. Delivering sustainability outcomes requires coordinated execution across finance, operations, procurement, strategy, risk, R&D and the business itself. The CSO therefore acts as the integrator of these functions, aligning governance, data, investment priorities and execution around common sustainability objectives. As sustainability metrics increasingly influence financial performance, the relationship between the CSO and the CFO is also becoming central to enterprise decision-making.

Ultimately, the success of the CSO will no longer be defined solely by the quality of sustainability reporting. It will increasingly be measured by the organisation's ability to convert sustainability into measurable enterprise value. As sustainability becomes embedded within business strategy, the organisations that realise the greatest return will be those that empower the CSO not simply to oversee reporting, but to integrate sustainability into the decisions that shape cost, growth, capital allocation, resilience and long-term competitiveness.

⁴⁴ Eco-Business, "What chief sustainability officers fear in 2026" (2026). Asia-Pacific and international. Article based on interviews with Chief Sustainability Officers, sustainability consultants and recruiters, examining concerns around policy delays, budget pressure, role uncertainty, ESG pushback, greenwashing risk and the need to demonstrate business value. Published on 19 January 2026.

⁴⁵ International Carbon Action Partnership (ICAP), "India notifies emission intensity targets for nine sectors under Carbon Credit Trading Scheme" (2025). India. Describes India's Carbon Credit Trading Scheme compliance mechanism across nine energy-intensive sectors, covering approximately 740 obligated entities at full implementation. Published on 17 November 2025.



Way forward

This paper has demonstrated that sustainability is no longer solely a corporate responsibility agenda. It is increasingly a business discipline that influences costs, revenue, capital allocation, resilience and workforce performance. The challenge for organisations is therefore no longer to justify investing in sustainability, but to embed sustainability into

the way strategic business decisions are made. The return on sustainability is not created through reporting alone; it is realised when sustainability considerations influence how organisations allocate capital, manage risk, design products, operate assets and compete in the market.

Achieving this requires a shift from sustainability programmes to sustainability-led business decisions. A few priorities are particularly important.

Focus on financially material issues

The strongest financial returns arise from improving performance on sustainability issues that are economically material to a business, rather than attempting to improve performance across every possible indicator. Organisations should therefore begin by identifying the sustainability issues that have the greatest influence on enterprise value within their sector and business model, and align investment accordingly. Materiality should serve as a tool for prioritising capital allocation, not merely for determining disclosure.

Integrate sustainability into investment decisions

Sustainability should increasingly be evaluated alongside every major investment decision rather than through separate programmes or budgets. Whether investing in new manufacturing capacity, infrastructure, technology, procurement or product development, organisations should consider how sustainability performance influences the investment's expected financial return over its lifetime. Decisions that strengthen energy efficiency, resource productivity, resilience or market access should be assessed within the same investment framework as any other strategic initiative.

Build the data and governance needed to manage performance

As sustainability becomes increasingly relevant to investors, lenders, customers and regulators, reliable data becomes a strategic asset rather than a reporting requirement. Organisations should invest early in the systems, governance processes and assurance mechanisms needed to produce consistent, decision-useful sustainability information. Robust data enables better internal decision-making while strengthening credibility with external stakeholders, allowing sustainability performance to be incorporated into financing, procurement and investment decisions.

Measure value across the full business case

Not every return from sustainability appears immediately within a single financial statement line. While efficiency initiatives may generate visible cost savings, resilience and

avoided losses, they often create value by protecting future cash flows rather than increasing current-period earnings. Organisations should therefore evaluate sustainability investments across both value creation and value protection, recognising that avoided disruption, stronger resilience and improved organisational capability represent measurable economic returns.

Embed accountability across the enterprise

The financial benefits of sustainability are realised functions. Capturing those returns, therefore, requires coordinated execution rather than isolated sustainability initiatives. As sustainability becomes increasingly integrated into enterprise performance, organisations should establish governance structures that embed sustainability into strategic planning, capital allocation and operational decision-making, with clear accountability for delivering measurable business outcomes.

The organisations that will create the greatest value from sustainability are unlikely to be those that produce the most comprehensive sustainability reports. They will be those who systematically integrate sustainability into the decisions that shape enterprise performance every day. As sustainability becomes increasingly intertwined with competitiveness, capital markets and long-term resilience, it will increasingly be managed in the same way as every other strategic investment: by identifying where value can be created, allocating capital with discipline, measuring performance rigorously and continuously improving outcomes.

Ultimately, the return on responsibility is not a single financial outcome but a capability. It reflects an organisation's ability to consistently convert sustainability performance into stronger financial performance over time. The evidence presented throughout this paper suggests that this transition is already underway. The question for organisations is therefore no longer whether sustainability creates value, but whether they are prepared to recognise, measure and capture that value before it becomes a competitive necessity.

Abbreviations

BRSR: Business Responsibility and Sustainability Reporting

CBAM: Carbon Border Adjustment Mechanism

CSO: Chief Sustainability Officer

ESG: Environmental, Social, and Governance

ESRS: European Sustainability Reporting Standards

GRI: Global Reporting Initiative

IFRS: International Financial Reporting Standards

ISSB: International Sustainability Standards Board

SASB: Sustainability Accounting Standards Board

SBTi: Science Based Targets initiative

TCFD: Task Force on Climate-related Financial Disclosures

TNFD: Taskforce on Nature-related Financial Disclosures

Glossary

- **Asset impairment:** A reduction in the recoverable value of an asset when its carrying value exceeds the economic benefits it can generate in the future.
- **Assured sustainability data:** Sustainability information that has been independently verified by a third party to improve its reliability, accuracy, and credibility for decision-making.
- **Business Responsibility and Sustainability Reporting (BRSR):** India's sustainability disclosure framework mandated by SEBI for listed entities, requiring reporting on environmental, social, and governance performance.
- **BRSR core:** A subset of key sustainability indicators within the BRSR framework that are subject to assessment and assurance requirements for larger listed companies.
- **Carbon Border Adjustment Mechanism (CBAM):** A European Union policy that places a carbon price on certain imported goods based on their embedded emissions, helping ensure that imported products face a similar carbon cost as products manufactured within the EU.
- **Carbon credit:** A tradable certificate representing the reduction, avoidance, or removal of one tonne of carbon dioxide equivalent (tCO₂e).
- **Carbon Credit Trading Scheme (CCTS):** India's emerging carbon market mechanism under which entities can earn or purchase carbon credits based on their emissions performance.
- **Circular economy:** An economic system designed to minimise waste and maximise resource use through reuse, recycling, remanufacturing, and recovery of materials.
- **Climate risk:** The potential financial impacts arising from climate change, generally classified into physical risks and transition risks.
- **Cost of capital:** The minimum return required by investors and lenders for providing capital to a company. Often represented through the Weighted Average Cost of Capital (WACC).
- **Decarbonisation:** The process of reducing greenhouse gas emissions associated with an organisation's operations, products, or value chain.
- **EBITDA:** Earnings Before Interest, Taxes, Depreciation and Amortisation; a commonly used measure of operating profitability.

- **Ecosystem services:** Benefits provided by nature that support economic activity and human well-being, such as water purification, pollination, flood protection, and carbon sequestration.
- **Environmental, Social and Governance (ESG):** A framework used to assess an organisation's performance on environmental, social, and governance issues relevant to stakeholders and financial performance.
- **ESG performance:** The measurable outcomes of a company's management of environmental, social, and governance issues.
- **ESG rating:** An external assessment that evaluates a company's ESG performance, risks, policies, and management practices.
- **Free cash flow:** The cash generated by a business after accounting for operating expenses and capital expenditure, available for distribution to investors or reinvestment.
- **Greenhouse Gas (GHG) emissions:** Atmospheric gases that contribute to global warming, including carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).
- **Green building:** A building designed, constructed, and operated to minimise environmental impacts while improving resource efficiency and occupant wellbeing.
- **Human capital:** The collective skills, knowledge, health, experience, and capabilities of an organisation's workforce.
- **Integrated reporting:** A reporting approach that combines financial and non-financial information to explain how an organisation creates value over time using multiple forms of capital.
- **International Sustainability Standards Board (ISSB):** The IFRS Foundation board responsible for developing global sustainability-related disclosure standards.
- **Levelised Cost of Electricity (LCOE):** The average lifetime cost of producing electricity from a generating asset, expressed per unit of electricity generated.
- **Materiality:** The principle used to determine which sustainability issues are sufficiently significant to influence business performance, stakeholder decisions, or enterprise value.
- **Net zero:** A state in which greenhouse gas emissions released into the atmosphere are balanced by an equivalent amount removed or offset.
- **Natural capital:** The stock of natural resources and ecosystems, including air, water, land, biodiversity, and minerals, that provide economic and social value.
- **Physical risk:** Risks arising from acute events such as floods, storms, heatwaves, and droughts, or chronic changes such as rising temperatures and water scarcity.
- **Resilience:** The ability of an organisation to anticipate, withstand, adapt to, and recover from disruptions while continuing to operate effectively.
- **Return on Investment (ROI):** A measure used to evaluate the financial benefit generated relative to the cost of an investment.
- **Science Based Targets initiative (SBTi):** A global initiative that enables companies to set greenhouse gas reduction targets aligned with climate science.
- **Stakeholder:** Any individual or group affected by or capable of affecting an organisation's activities, including investors, employees, regulators, customers, suppliers, and communities.
- **Stranded asset:** An asset that suffers premature devaluation, impairment, or obsolescence due to regulatory, market, technological, or environmental changes.
- **Sustainability-linked financing:** Financing instruments whose terms, such as interest rates, are linked to the borrower's achievement of predefined sustainability targets.
- **Task Force on Climate-related Financial Disclosures (TCFD):** An international framework that provides recommendations for reporting climate-related risks and opportunities.
- **Taskforce on Nature-related Financial Disclosures (TNFD):** A framework that helps organisations identify, assess, and disclose nature-related dependencies, impacts, risks, and opportunities.
- **Transition Risk:** Financial risks arising from the transition to a low-carbon economy, including changes in regulation, technology, investor expectations, and market demand.
- **Weighted Average Cost of Capital (WACC):** The average rate of return required by a company's debt and equity providers, weighted according to their proportion in the capital structure.
- **Zero Liquid Discharge (ZLD):** A water management approach in which all wastewater is treated and reused, eliminating liquid waste discharge from a facility.

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