



# Breaking down silos:

Navigating the intersection of  
environmental and social risks for investors

*With insights from agrifood systems*

## The University of Cambridge Institute for Sustainability Leadership (CISL)

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### Lead Author

Trisha Mani (CISL)

### Supported by

Felicity Alvey (CISL)

## Citing this report

University of Cambridge Institute for Sustainability Leadership (CISL). (2026). *Breaking down silos: Navigating the intersection of environmental and social risks for investors*. Cambridge Institute for Sustainability Leadership.

## Acknowledgements

We are grateful to the following, whose insights on finance, climate and social risks greatly supported the work:

**CISL Contributors:** Dr Nina Seega, with input from Eliot Whittington, Gwyn Rhodes and Sibusiso Nkomo. We also acknowledge the early contribution of Elizabeth Clark, while at CISL.

**ILG Social Steering Group:** Craig Campbell (Aon), Jeremy Ng (Bridgewater Associates), Sudip Hazra (First Sentier MUFGE Sustainable Investment Institute), Iraz Soyalp (Manulife Investment Management), Benjamin Briceno (MUFGE), Erwin Houbrechts (PGB Pensioendiensten), Sophie Lawrence and Kate Elliot (Rathbones), Paul Ruijs (Robeco), Victoria Leggett and Seraina Stiner (UBP).

**Expert Advisory Group:** Chaitra Nayak (AIGCC), Paul Gilding (CISL Fellow), Beth Knight (CISL Senior Associate), Kayenat Kabir (FinDev Canada), Drew Johnson, Vibhuti Mendiratta (IFAD), Camilla Roman (ILO), Mohammed Saffar (LSE CETEx), Alexander Weston and Judith Tyson (LSE Grantham Institute), Jens Sedemund (OECD), Delilah Rothenberg (Predistribution Initiative), Andrea Saldarriaga and Vincent Siegerink (TISFD).

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# Executive summary

**Environmental and social factors are increasingly interacting in ways that create compounding, financially material impacts across the global economy.** These interlinkages lead to risks that are not confined to individual assets or sectors – but propagate across value chains, geographies and socio-economic systems, leading to challenges in diversification, increased volatility and amplified exposure in investment portfolios. Yet prevailing risk assessment frameworks often treat environmental and social factors in isolation, underestimating their combined, cumulative financial impacts.

**From a portfolio perspective, intersecting climate and social risks are financially material.** This is because underestimated downside risks can lead to capital misallocation, feedback loops are often overlooked by traditional scenario models, and climate–social interlinkages operate across time horizons, eroding long-term returns. For investors, applying an integrated lens enables more effective risk management practices by strengthening capital allocation, engagement strategies, risk pricing and portfolio resilience.

**To clarify how these interactions unfold, this report introduces an integrated, systems-based conceptual framework.** Inspired by existing approaches, including the Conceptual Foundations developed by the Taskforce on Inequality and Social-related Financial Disclosures (TISFD), the framework explains how environmental and social risks compound across three dimensions: geographic scale (local to global transmission of risk), value chain complexities (how disruptions propagate through supply chains) and socio-demographic





vulnerabilities (how inequalities shape exposure, vulnerability and adaptive capacity). It offers a practical lens for investors to identify compounding risks and opportunities for resilient transformation.

**Using agrifood systems as an example, the report illustrates how these compounding dynamics operate in practice. From an investor perspective,** these interlinkages manifest in higher portfolio volatility, increased correlation across assets, impaired credit quality and supply chain disruption. **For corporates and agribusinesses,** environmental risks intersect with labour conditions, land tenure, access to finance, and infrastructure dependencies, shaping operational resilience, cost structures and reputational risk. **Finally, for economic decision-makers in governments and public finance institutions,** food system shocks can translate into macroeconomic risks creating inflationary pressures, fiscal strain and sovereign credit risks.

**Yet the same systems that generate compounding risks also hold the greatest potential for significant investment opportunities. From an investor perspective,** targeted investments in regenerative agriculture, adaptation and resilience, inclusive value chains and resilient food infrastructure can reduce volatility, strengthen portfolio resilience and improve long-term risk-adjusted returns. **For corporates and agribusinesses,** these interventions enhance supply chain stability, labour productivity and business performance while lowering operational and transitional risks. **And finally, for governments and public finance institutions,** catalytic public capital, policy alignment and blended finance structures can crowd in private investment, lower the cost of capital



**Figure 1: Financial implications of intersecting risks in agrifood systems**

	Current Status Quo	Risks (Costs of Inaction)	Opportunities (Benefits of Action)
Private Finance	 <p><b>Investors</b></p> <ul style="list-style-type: none"> <li>High exposure to climate-sensitive sectors (agriculture, food, infrastructure).</li> <li>Underpriced sovereign and corporate risks due to limited integration of compounded climate-social risks.</li> </ul>	<ul style="list-style-type: none"> <li>Loss of assets, stranded investments in climate-stressed regions.</li> <li>Increased portfolio volatility from climate shocks, food price spikes.</li> <li>Underestimation of sovereign risk and downgrades linked to food/climate stress.</li> </ul>	<ul style="list-style-type: none"> <li>Access to rapidly expanding resilience/adaptation markets (climate-smart agri, insurance, fintech, critical infrastructure).</li> <li>Portfolio diversification through EMDE* resilience projects, blended finance structures.</li> <li>Enhanced risk management and decision-making.</li> </ul>
	 <p><b>Corporates</b></p> <ul style="list-style-type: none"> <li>Heavy dependence on vulnerable agricultural supply chains.</li> <li>Rising exposure to climate-driven input volatility and labour risks in food-producing regions.</li> </ul>	<ul style="list-style-type: none"> <li>Supply chain disruptions, production losses, and higher operational costs.</li> <li>Reputational and regulatory risks from social instability and labour conditions.</li> <li>Difficulty securing raw materials at predictable prices.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthened supply chain resilience through adaptation investment and capex investments.</li> <li>Stable input prices and long-term sourcing security.</li> <li>Competitive advantage and market share from socially responsible and climate-resilient sourcing.</li> </ul>
	 <p><b>Public Finance</b></p> <ul style="list-style-type: none"> <li>Fiscal exposure to climate disasters and rising social protection needs.</li> <li>High dependence on agriculture and food imports in climate-vulnerable regions.</li> </ul>	<ul style="list-style-type: none"> <li>Escalating fiscal pressures from climate events and food system shocks.</li> <li>Sovereign credit downgrades driven by food/climate instability.</li> <li>Growing demand for concessional finance despite limited budgets.</li> </ul>	<ul style="list-style-type: none"> <li>Mobilisation of private capital via risk-sharing instruments.</li> <li>Lower long-term sovereign risk through resilience investments.</li> <li>Enhanced fiscal management through stress testing that integrates climate and social risks.</li> </ul>
	 <p><b>Policy &amp; Regulation</b></p> <ul style="list-style-type: none"> <li>Fragmented climate and social policy frameworks.</li> <li>Limited integration of food system risks into national adaptation strategies.</li> </ul>	<ul style="list-style-type: none"> <li>Macroeconomic instability (inflation, food price shocks, migration pressures).</li> <li>Higher future adaptation and social protection costs.</li> <li>Rising cross-border tensions linked to food and climate insecurity.</li> </ul>	<ul style="list-style-type: none"> <li>Improved food security and national resilience.</li> <li>Ability to shape regulatory frameworks that channel private finance.</li> <li>Scientifically informed policy decisions at the local, regional, country level.</li> </ul>

\*Emerging Markets and Developing Economies

and strengthen system-wide resilience.

To mobilise private capital effectively, investors can focus on three key levers: **value chain finance**, by supporting corporates to strengthen supply chain resilience; **stewardship and active engagement**, by using influence to shape corporate behaviour and policy to address interconnected environmental, social and economic risks; and **blended finance and catalytic capital**, by combining public, philanthropic and private capital to de-risk transformative investments with compounding opportunities.

**Realising a systems-level transformation therefore requires bridging traditional silos in policy, finance and governance.** It demands integrated (environmental and social) risk frameworks, co-ordinated public-private action, systems-level approaches instead of siloed strategies and strong governance in order to strengthen long-term portfolio resilience. Ultimately, the integrated approach outlined in this report provides a foundation for shifting interconnected systems from sources of vulnerability to drivers of long-term stability, inclusive development and sustainable economic opportunity.

# 1. Financial materiality of intersecting environmental and social risks

**The intersection of environmental and social risks has a financially material influence on the resilience of investment portfolios over time.** Physical climate impacts, transition pressures and nature-related degradation affect asset values, cash flows and portfolio volatility. What is increasingly evident, but remains underpriced, is that these environmental risks rarely materialise in isolation. They interact systematically with social and economic vulnerabilities (such as inequality, labour conditions, access to finance, etc) to amplify losses, delay recovery and transmit shocks through markets and financial systems.

**These interlinkages create self-reinforcing feedback loops that turn individual environmental or social risks into systemic mechanisms,** leading to greater losses, reduced ability to adapt and increased portfolio volatility over time. A growing body of evidence increasingly recognises these linkages, highlighting that climate investments are most effective when integrated with social protection systems, such as [Integrated National Financing Frameworks \(INFFs\)](#) and [Climate Prosperity Plans](#).<sup>1</sup>

**From an investor perspective, these intersections create compounding impacts that can determine:**

- whether environmental and/or social shocks remain localised or escalate into systemic disruptions
- how quickly losses cascade across value chains and geographies
- the scale, duration and volatility of financial impacts
- whether capital deployed for resilience generates stable long-term returns or becomes stranded.

For the purpose of this paper, we leverage the [Intergovernmental Panel on Climate Change \(IPCC\)](#) definitions of risks, vulnerabilities and impacts as follows:<sup>2</sup>

<b>Risks</b>	The potential for adverse consequences of a climate-related <i>hazard</i> , or of <i>adaptation</i> or <i>mitigation</i> responses to such a hazard, on lives, <i>livelihoods</i> , health and <i>well-being</i> , <i>ecosystems</i> and species, economic, social and cultural assets, services (including <i>ecosystem services</i> ), and infrastructure. Risk results from the interaction of <i>vulnerability</i> (of the affected system), its <i>exposure</i> over time (to the hazard), as well as the (climate-related) hazard and the <i>likelihood</i> of its occurrence.
<b>Vulnerabilities</b>	The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.
<b>Impacts</b>	The consequences of realized <i>risks</i> on natural and <i>human systems</i> , where risks result from the interactions of climate-related <i>hazards</i> (including <i>extreme weather and climate events</i> ), <i>exposure</i> , and <i>vulnerability</i> . Impacts generally refer to effects on lives; <i>livelihoods</i> ; health and <i>well-being</i> ; <i>ecosystems</i> and species; economic, social and cultural assets; services (including <i>ecosystem services</i> ); and infrastructure.

## Intersecting risks and macroeconomic implications

The relationship between environmental pressures and social inequality is often described as a vicious cycle with each intensifying the effects of the other.<sup>3</sup> The Taskforce on Inequality and Social-related Financial Disclosures (TISFD) characterises these system-level interactions through three reinforcing mechanisms:<sup>4</sup>

1. **Cascading risks:** Chain reactions across interdependent systems
2. **Feedback loops:** Self-reinforcing interactions between systems
3. **Synchronous failures:** Simultaneous breakdowns across multiple systems

**A particularly important feedback loop exists between climate change, nature loss and inequality.** Climate shocks erode assets, livelihoods, and human and natural capital, deepening poverty and social exclusion. In turn, inequality heightens vulnerability to future shocks by constraining access to finance, technology, and institutional support. Over time, this cycle weakens economies and systems.

Climate hazards such as droughts, floods, heat stress or storms directly affect physical assets and production systems. **However, the severity of financial outcomes depends heavily on underlying social conditions. Conversely, where structural inequalities persist, both the vulnerability of communities to climate shocks and the adaptive capacity to recover from them are severely constrained.** Where social vulnerability is high, climate shocks are thus more likely to:

- disrupt labour availability and productivity
- trigger supply chain breakdowns rather than temporary delays
- cause prolonged income loss and demand contraction
- increase default risk among households, small and medium-sized enterprises (SMEs) and sovereigns
- require fiscal intervention that strains public balance sheets.

The Network for Greening the Financial System (NGFS) highlights how physical climate risks can simultaneously affect growth, inflation, and financial stability – turning localised climate events into macroeconomic shocks.<sup>5</sup> This dynamic explains why **climate events increasingly lead to second- and third-order impacts that have direct financial implications:** food price inflation, credit downgrades, insurance losses, migration pressures and policy interventions.



**Recent events illustrate this interconnection vividly:**

In the UK, food inflation rose to the highest rate in more than a year, amounting to 3.7 per cent in June 2025 as a result of hot, dry weather and lack of rainfall.<sup>6</sup> In the Philippines, successive typhoons have repeatedly disrupted supply chains, leading to spikes in food prices, lost livelihoods and inflationary pressures – demonstrating how climate events in socially vulnerable contexts can transmit into broader macroeconomic challenges.<sup>7</sup> Leveraging a longer timeframe, the world food crisis of 2006–08 serves as a strong example of multiple drivers coinciding to result in widespread social impacts across different countries.<sup>8</sup> Thus, in contexts **where social vulnerability is high, or adaptive capacity is low**, recovery from climate shocks is slower, fiscal buffers are thinner, and secondary effects can often intensify. These dynamics underscore the need for integrated risk frameworks that bridge financial, social and climate-related challenges.

## Examples of environmental and social interlinkages across sectors

The following section illustrates how intersecting environmental–social risks translate into material financial impacts across select sectors. By outlining how physical climate hazards interact with social vulnerability and institutional conditions, we see how losses are amplified, creating cascading effects that directly influence asset performance, credit quality and risk premia.



### Agriculture and Food Systems

Repeated droughts in climate-vulnerable agricultural regions demonstrate how environmental and social risks compound into material financial impacts for investors and financial institutions. Structural inequalities often directly affect production, access and affordability of food. These are further exacerbated when combined with environmental risks such as declining rainfall and rising temperatures, which ultimately undermine social and economic outcomes such as crop yields, livelihoods, health and nutrition. These livelihood pressures can **increase default risk** on agricultural loans and **weaken collateral values**, leading to higher non-performing assets and reduced profitability for portfolios with significant agriculture exposure. This dynamic is illustrated by [recent research by CISL](#) that analysed hypothetical nature loss scenarios linked to an intensified El Niño in Indonesia and Malaysia. The results highlighted how disruption to ecosystem services critical to the palm oil industry translate into social risks through reduced access and affordability of agricultural products, leading to **differentiated**

**credit risk outcomes across lending portfolios for banks**, particularly for upstream producers and firms with weaker financial resilience.<sup>9</sup>

Building on this, in a study looking at stress-testing of banking portfolios across Brazil, China, Mexico and the US, it was found that extreme drought scenarios, when combined with high social vulnerability such as limited insurance coverage, insecure land tenure and restricted access to finance, could **increase loan default losses by up to ten-fold in the most exposed portfolios**, with agriculture and water-dependent sectors among the worst affected.<sup>10</sup> This highlights how the intersection of climate hazards with social and economic constraints translates into the deterioration of credit quality due to the limited ability of borrowers to absorb and recover from shocks. At the macro level, shortfalls in production contribute to food price volatility and inflation, **amplifying risks across commodity markets and consumer sectors**.

### Key financial implications for investors:

- **Credit exposure:** Increased default risk among agriculture-exposed portfolios leading to potential rating downgrades and weaker performance in debt portfolios.
- **Asset impairment:** Deterioration in the value of land-backed assets, resulting in weaker collateral coverage and potential write-offs.
- **Earnings and valuation impact:** Lower profitability and earnings for agriculture-exposed firms and financial institutions, translating into reduced dividends, valuation and long-term return expectations.
- **Macro and market transmission:** Increased food price volatility feeding into inflation dynamics, increasing risk premia and correlation across asset classes, which can reduce the benefits of portfolio diversification.



### Energy and Utilities

In the context of the energy transition, both physical climate risks (eg, heatwaves and droughts) and transition risks (eg, mining projects for critical minerals) can create compounding social and environmental impacts that result in financial losses downstream. Where energy systems are already strained by depreciating assets, regulatory constraints or social vulnerability, these shocks translate into **service interruptions, higher operating costs and delayed recovery**. For example, repeated summer heatwaves have strained energy systems by **driving**

**sharp increases in electricity demand** while forcing some power plants to curtail production due to operational and safety risks. When these physical shocks intersect with social factors such as high levels of energy poverty and limited demand flexibility, they drive extreme price volatility. In June 2025, during Europe's hottest month on record, a rise in the use of air-conditioning increased average daily power prices by two to three times, due to the strain on power systems, highlighting how physical climate constraints can rapidly translate into extreme price volatility with longer term impacts on affordability.<sup>11</sup>

For utilities, the underestimation of intersecting environmental and social risks can lead to **increased operating costs, heightened exposure to regulatory intervention and unintended social consequences**. In the UK, climate-related stress on water infrastructure has translated into significant service disruptions with large-scale social effects. In early 2026, supply failures caused by both climate-linked pressures and ageing infrastructure resulted in tens of thousands of households without safe running water for several days.<sup>12</sup> These disruptions were further exacerbated by existing structural inequalities, carrying broader financial implications such as increased regulatory scrutiny, compensation costs for affected customers, operational losses for local businesses, and the need for resilience-focused investments to build adaptive capacity.

**Key financial implications for investors:**

- **Revenue and earnings visibility:**  
Physical climate impacts combined with demand spikes and affordability constraints make it difficult for investors to accurately predict earnings, increasing cash-flow volatility across energy and utility exposures.
- **Asset impairment and capex risk:**  
Generation constraints and physical damage from climate hazards raise capital requirements for portfolio companies, accelerate asset depreciation and may negatively affect valuations.
- **Regulatory and policy risk premia:**  
Social affordability pressures heighten the likelihood of tariff caps, payment deferrals and other interventions, increasing regulatory risk premia across both equity and credit exposures, resulting in underinvestment in energy and grid systems.
- **Valuation and credit impact:**  
The interaction between physical climate risk, market volatility and regulatory changes can contribute to reduction in valuations, credit rating downgrades and higher costs of capital, if social vulnerability is ignored during risk assessments.





## Infrastructure and Transport

Transport and logistics corridors are increasingly exposed to intersecting environmental and social risks. Flood events disrupt road, rail and port networks, limiting access to labour, markets and essential services. Conversely, droughts and heatwaves can lower river levels, making navigation difficult and limiting inland shipping, as seen on the Rhine, where low water disrupted Germany's industrial supply chains.<sup>13</sup> Where large segments of the workforce rely on informal employment or lack alternative transport options, disruptions are more severe and recovery is slower, amplifying economic losses beyond the physical damage to assets.

For investors, these disruptions translate into **reduced revenues, delayed logistics and an increasing cost of capital for exposed portfolios**. Supply chain disruptions often cascade across sectors, increasing costs for corporates and reducing demand for transport services, **raising operating costs and insurance premia**. Evidence from the World Bank highlights the scale of these impacts: in Kinshasa, Democratic Republic of the Congo, flood-related **travel delays alone generate an estimated US\$5.4 million in opportunity costs per flood day** during a typical ten-year flood event (ie, a flood with a 10 per cent annual probability).<sup>14</sup> These losses are amplified by social factors such as reliance on informal employment, limited alternative transport options and high exposure of low-income households. This illustrates how flooding, when intersecting with social vulnerability, can rapidly compound into significant economic and financial losses across urban transport systems.

### Key financial implications for investors:

- **Revenue and demand risk:** Flood-related disruptions reduce usage, delay logistics and weaken revenue stability for transport and infrastructure assets.
- **Asset performance and capex risk:** Recurrent damage and accelerated wear increase maintenance costs and require additional resilience investment, pressuring returns.
- **Financing and cost-of-capital impact:** Heightened operational and social risk increases risk premia, insurance costs and financing constraints, particularly in vulnerable regions.
- **Systemic spillovers:** Transport disruptions propagate through supply chains and labour markets, amplifying economic losses and increasing correlated risk across infrastructure and real-asset portfolios.



## Real estate and housing

In high-risk zones with low adaptive capacity, repeated climate events reduce property resilience, **increase damage and repair costs, and lead to decreasing asset values**. Where households lack insurance coverage, savings or access to finance, losses are more likely to translate into long-term disinvestment rather than recovery, reinforcing structural inequalities and weakening housing markets.

For investors, these dynamics manifest through **declining property valuations, higher vacancy rates and increased credit risk on housing-related exposures**. Limited insurance coverage further amplifies losses: in the EU, only around 25 per cent of economic losses from natural catastrophes are insured, meaning that most climate-related damage is absorbed directly by households.<sup>15</sup> When underinsurance intersects with social vulnerability – particularly among low-income households with limited savings, restricted mobility and lower capacity to invest in resilience or retrofits – physical climate shocks are more likely to translate into persistent property devaluation, mortgage stress and slower recovery, amplifying financial risks for housing and real estate investors.

Over time, repeated climate losses and underinsurance raise risk premia on housing finance, **reduce liquidity in exposed markets and increase uncertainty around long-term asset performance**. These pressures can also trigger regulatory and policy responses that may further affect valuations and financing conditions.

### Key financial implications for investors:

- **Asset value erosion:** Repeated climate damage leads to declining property values and higher impairment risk in exposed locations.
- **Credit and mortgage risk:** Underinsurance and household vulnerability increase default risk and arrears on housing-related investments.
- **Rising risk premia:** Greater uncertainty around insurability and resilience drives higher financing costs and weaker market liquidity.
- **Portfolio and systemic transmission:** Housing market stress can spill over into financial institutions and local economies, increasing correlated losses across real estate and credit exposures.

## 2. Intersecting risks and portfolio implications

### The challenge with siloed approaches

Despite the growing recognition of climate change as a material financial risk, most risk assessment approaches remain fragmented – treating environmental and social risks in silos rather than as interdependent forces. Climate risk assessments often focus on physical exposure or transition pathways, while social risk frameworks assess workforce, community or inclusion issues independently. This separation limits the capacity to understand how risks manifest in the real economy, where environmental shocks and social vulnerabilities interact continuously, compounding one another. Furthermore, emerging physical risk data and climate scenario tools increasingly highlight the likelihood of tail risks, cascading socio-economic shocks, and system-level tipping points if investors fail to integrate these dimensions – underscoring the need for more holistic, integrated risk frameworks.

For institutional investors, the financial impact of climate hazards depends not only on the severity of the physical event but also on underlying social and institutional conditions. Climate shocks often exacerbate existing social inequalities: in low-income or vulnerable communities, extreme heat and drought can reduce worker productivity, increase health risks, trigger labour shortages, and push more people into informal or unsafe work, with long-term consequences for human capital and systemic inequality. At the same time, social inequalities increase susceptibility to environmental risks: populations with limited access to finance, insecure land tenure or inadequate social protection are less able to absorb shocks, making losses more persistent and likely to cascade into supply disruptions, credit stress and sovereign risk. Traditional assessments often capture only the immediate economic losses, overlooking these interconnected social feedback loops that shape long-term recovery and portfolio resilience.

### Financial implications on investment portfolios

From a portfolio perspective, intersecting climate and social risks are financially material because:

#### 1. Underestimated downside risks can lead to capital misallocation

When climate and social risks are assessed individually, investors run the risk of underestimating the probability, severity and persistence of losses. Physical climate hazards may be modelled as isolated shocks, while social vulnerabilities (such as labour informality, inequality, weak social protection or affordability constraints) are often treated as non-financial or out of scope. **In practice however, these social conditions determine whether a climate event results in a short-term operational risk or a long-term financial risk.**

For investors, this mispricing leads to capital being allocated towards assets and regions that may appear resilient on paper but are structurally fragile in reality. As a result, expected cash flows may be overstated, recovery assumptions optimistic and risk-adjusted returns miscalculated. Over time, this results in reduced portfolio resilience as capital may be locked into assets with hidden downside risks.

#### 2. Feedback loops are often overlooked by traditional scenario models

Compounding risks arising from intersecting climate and social risks create self-reinforcing feedback loops that traditional scenario models struggle to capture. A climate shock can reduce incomes or employment, which in turn weakens demand, increases default risk, and constrains public and private investment in recovery. Similarly, structural inequalities can increase vulnerability to climate impacts and prolong the persistence of losses by limiting access to resources, adaptive capacity and social protection. **These effects heighten exposure to subsequent shocks, turning isolated events into compounding losses.**

From a portfolio perspective, these dynamics increase correlation of losses across assets and sectors, undermining the benefits of diversification. Losses emerge simultaneously across equity, credit, real assets and sovereign exposures, particularly in systems where social vulnerability is high. As these feedback mechanisms and second-order effects are difficult to model, portfolios remain highly exposed to compounding risks in practice.

However, the converse dynamic is also true where interventions that strengthen social resilience and adaptive capacity can generate compounding opportunities. Early investments in adaptation and resilience, infrastructure and human capital can enhance recovery, productivity and long-term portfolio value.

### 3. Climate and social interlinkages operate across time horizons, eroding long-term returns

Compounding risks arising from intersecting climate and social risks rarely conform to a single time horizon. Environmental pressures (both chronic and acute) interact with chronic social challenges (such as inequality, underinvestment in infrastructure or limited access to finance) **resulting in the erosion of productive capacity, asset values and human capital over time.**

For long-term investors, assets exposed to such compounding risks may experience declining asset values, increasing operating costs and increasing capital expenditure needs. In portfolios that overlook these dynamics, investors face a gradual but material deterioration in risk-adjusted returns that compounds over time.

## Benefits of an integrated risk lens

For investors, applying an integrated lens extends beyond recognising social dynamics; it also enables more effective climate- and risk-management assessments by strengthening:

- **Capital allocation:** Identifying where resilience investments reduce downside risk (reduce loss severity and volatility) rather than increase exposure to risks that are likely to re-emerge through policy, market or social feedback loops.
- **Engagement strategies:** Clarifying when corporate action alone is insufficient without policy, public finance or community-level intervention.
- **Risk pricing:** Improving assessment of long-term risks, especially in climate-exposed sectors and regions.
- **Portfolio resilience:** Anticipating correlated shocks that affect multiple asset classes simultaneously.

Additionally, an integrated approach also highlights where investing in resilience can generate **compounding financial benefits**. Interventions that strengthen social capacity (such as access to finance, secure livelihoods, inclusive value chains, social protection) often reduce environmental risk exposure by strengthening adaptive capacity. For investors, this creates opportunities to deploy capital in ways that stabilise cash flows, protect asset values and support long-term growth.



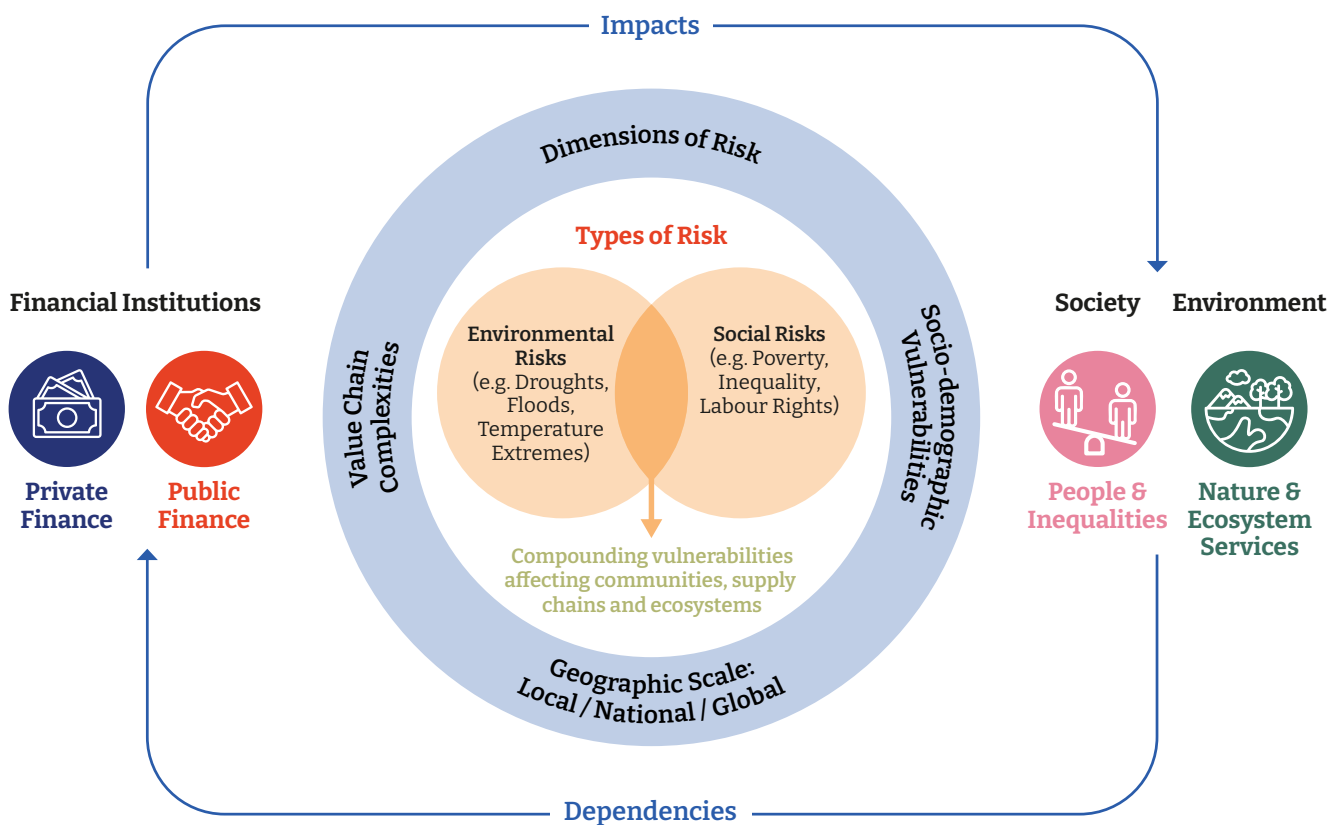
# 3. Conceptual framework: understanding intersecting environmental and social risks

In order to understand these dynamics more clearly, we have developed a conceptual framework to provide a structured, systems-based view of explaining how environmental and social risks interact.

The purpose of this framework is to help investors, policymakers and practitioners move beyond siloed assessments of environmental or social risk by illustrating the mechanisms through which shocks emerge, reinforce one another, and transmit through supply chains, markets and communities.

This framework can be applied across sectors, drawing on underlying principles centred on geographic scale, value chain complexities and socio-demographic vulnerabilities. These features allow it to be readily adapted to areas such as energy, manufacturing or infrastructure, enabling robust analysis of systemic risk in contexts where climate exposures, social inequalities and economic dependencies intersect.

Figure 2: Conceptual framework for intersecting risks



## How does this fit into the landscape?

While our framework draws inspiration from different sources, the Taskforce for Inequality and Social-related Financial Disclosures (TISFD) Conceptual Foundations has served as an important reference point for this work. The Conceptual Foundations seeks to clarify the complex interactions between people, businesses, financial institutions and their connections to climate and nature. It also provides a structured way to understand impacts and dependencies on people, the pathways through which these translate into financial risks and opportunities, and how these interactions shape both impact and financial materiality within systems.<sup>4</sup>

Drawing on this conceptual framing, our framework applies some of these ideas to the dynamics of the agrifood sector – where climate exposures, social inequalities and value chain dependencies converge most visibly. In doing so, we provide a sector-specific perspective, offering a practical lens for investors and policymakers to identify compounding risks, system-level interactions and opportunities for resilient transformation.

In this sense, this research complements and reinforces TISFD’s ongoing work towards a future disclosure framework, demonstrating how its principles can be translated into sector-specific analytical tools that support more effective risk assessment and decision-making.

## Defining components of the framework

### Types of risk

For the purpose of this paper, we leverage the concepts of risk shown in the table below.

When these risks interact, they can create reinforcing feedback loops that increase the likelihood, severity and persistence of financial and economic losses across sectors and geographies – generating compounding risks and compounding vulnerabilities.

While compounding risks explain why certain shocks are unexpectedly severe, compounding vulnerabilities can explain the persistence, spread and intensity of the shocks across systems. Similarly, compounding vulnerabilities can also reduce the adaptive capacity of communities over time, resulting in higher exposure to compounding risks. **As a result, depending on the time horizon and nature of the investor, these dynamics may have varying levels of significance in terms of portfolio decision-making.**

<b>Environmental Risk</b>	According to the NGFS, environmental risks refer to financial risks posed by the exposure of financial institutions and/or the financial sector to activities that may potentially cause or be affected by environmental degradation (such as air pollution, water pollution and scarcity of fresh water, land contamination and desertification, biodiversity loss and deforestation) and the loss of ecosystem services. This includes climate-related risks, ie, physical or transition risks caused by or related to climate change. <sup>16</sup>
<b>Social Risk</b>	While there are many approaches to defining social risk management, we refer to the explanation outlined by <u>British International Investment</u> : the ways that companies interact with their employees, customers and stakeholders, including the communities in which they operate. Left unaddressed, social risks can have serious consequences such as human rights violations or health and safety incidents. Proactive management of social risk can also bring multiple commercial benefits for businesses, including increased worker retention and productivity as well as access to international capital and global value chains. <sup>17</sup>
<b>Compounding Risks</b>	Compounding risks arise when multiple social, economic and environmental risks coincide, creating higher cumulative exposure than any single factor alone.
<b>Compounding Vulnerabilities</b>	Compounding vulnerabilities occur as these risks accumulate over time, transforming initial shocks into long-term losses, resulting in the cumulative loss of resilience or the ability to adapt and/or respond to shocks.

## Dimensions of risk

The framework is structured around three interlocking dimensions – geographic scale, value chain complexities and socio-demographic vulnerabilities – each shaping how risks are generated and transmitted.

- **Geographic scale:** Compounding risks are often heterogeneous in origin but systemic in financial impact. While certain shocks may typically emerge at the local level (such as extreme weather, constrained public services, or social vulnerabilities such as unemployment, income inequality, etc), their consequences scale rapidly through economic, fiscal and financial channels to national and global markets. Institutional capacity, market integration and policy responses determine whether losses remain localised or propagate through asset prices, trade flows, sovereign balance sheets and/or cross-border capital markets. **For investors, assessing risk across geographies is critical to understanding correlation, contagion and exposure to macro-financial instability.**
- **Value chain complexities:** Today, economic activity is organised through interconnected value chains, where climate and social risks transmit and amplify across firms, sectors and regions.

Disruptions linked to physical hazards, labour constraints, infrastructure failures or policy intervention cascade through production, logistics and distribution markets, affecting revenues, costs and performance of companies. **For investors, value chain complexity is a key driver of earnings volatility, supply-side shocks and correlated losses across portfolios, particularly where dependencies are opaque or highly concentrated.**

- **Socio-demographic vulnerabilities:** Socio-demographic conditions shape exposure to climate hazards, adaptive capacity and recovery dynamics, acting as a structural amplifier of financial risk. Inequalities related to income, labour conditions, access to finance and social protection influence whether shocks result in temporary disruption or persistent economic damage. These vulnerabilities determine the severity and duration of losses across households, firms and public finances, with implications for credit quality, insurance losses, sovereign risk and long-term asset performance. **For investors, integrating this dimension is essential for identifying where environmental risks are most likely to generate tail risks and systemic impacts.**



## 4. Application: agrifood systems – a sector at the nexus of environmental and social risks

**While environmental and social risks interact across all sectors, this convergence is most visible and immediate in agriculture and food systems.** Global agrifood systems contribute nearly 30 per cent of global greenhouse gas emissions and are among the most climate-vulnerable sectors.<sup>18</sup> There is also an increasing body of evidence that outlines how climate change affects the functioning of all the components of food systems, often in ways that exacerbate existing predicaments and inequalities.<sup>19</sup>

**Using the worked example of agrifood systems, we illustrate how environmental and social risks compound and translate into financially material outcomes for investors and policymakers.** The same analytical logic can be applied across other sectors where climate exposures interact with social and institutional dynamics, shaping risk, resilience and investment performance.

### What are Agrifood Systems?

**Agrifood systems** encompass all activities and actors involved in the journey of food from production to consumption, including processing, transport, trade and disposal, as well as the people, investments and choices that shape these processes. They extend beyond food to include non-food agricultural products such as biofuels, fibres and raw materials, which support livelihoods, influence environmental conditions and contribute to economic development.<sup>20</sup>

### Why have we chosen this sector?

- **Agrifood finance gap:** Global agrifood systems drive a third of greenhouse gas emissions and yet only receive 7 per cent of total climate investment.<sup>21,22</sup>
- **High vulnerability:** Smallholder farmers and rural communities rely on stable rainfall, soils and ecosystems, but climate shocks disrupt yields, livelihoods and value chains.<sup>18</sup>
- **Nexus of environmental, social and economic flows:** Food systems underpin employment, income, nutrition and social stability –

as a result, disruptions trigger amplified social impacts such as price spikes, livelihood insecurity and rising inequality.<sup>19</sup>





- **High opportunity for transformation:** System-wide shifts in food production and resilience could deliver US\$4.3 trillion in 2030, a 16-to-1 return on investment costs.<sup>23</sup>
- **Climate-linked risks to food security:** Extreme weather, price volatility and supply chain disruptions threaten agricultural livelihoods and food access. Climate shocks currently cause a loss of 5 per cent of total agricultural output, and this is expected to increase as climate change intensifies, affecting food prices globally.<sup>24</sup>

### Deep dive: compounding risks in agrifood systems and financial implications across stakeholders

**Understanding the financial implications of environmental and social risks requires looking beyond isolated shocks to the compounded pressures that shape real outcomes.** The compounding impacts observed in agrifood systems provide a clear illustration of how environmental and social risks translate into differentiated financial outcomes across stakeholders.

As summarised in the stakeholder matrix below, the current status quo leaves private and public actors highly exposed to climate-sensitive sectors, with risks that are often underpriced and poorly integrated into investment, lending and policy decisions. **The deep dive below applies the conceptual framework outlined in Section III to agrifood systems – explaining how these risks propagate across geographic scales, value chains and socio-demographic groups, and how they manifest as rising losses, volatility and fiscal stress for investors, corporates and governments alike.**

**Figure 3: Financial implications of intersecting risks in agrifood systems**

	Current Status Quo	Risks (Costs of Inaction)	Opportunities (Benefits of Action)
Private Finance	 <p><b>Investors</b></p> <ul style="list-style-type: none"> <li>High exposure to climate-sensitive sectors (agriculture, food, infrastructure).</li> <li>Underpriced sovereign and corporate risks due to limited integration of compounded climate-social risks.</li> </ul>	<ul style="list-style-type: none"> <li>Loss of assets, stranded investments in climate-stressed regions.</li> <li>Increased portfolio volatility from climate shocks, food price spikes.</li> <li>Underestimation of sovereign risk and downgrades linked to food/climate stress.</li> </ul>	<ul style="list-style-type: none"> <li>Access to rapidly expanding resilience/adaptation markets (climate-smart agri, insurance, fintech, critical infrastructure).</li> <li>Portfolio diversification through EMDE* resilience projects, blended finance structures.</li> <li>Enhanced risk management and decision-making.</li> </ul>
	 <p><b>Corporates</b></p> <ul style="list-style-type: none"> <li>Heavy dependence on vulnerable agricultural supply chains.</li> <li>Rising exposure to climate-driven input volatility and labour risks in food-producing regions.</li> </ul>	<ul style="list-style-type: none"> <li>Supply chain disruptions, production losses, and higher operational costs.</li> <li>Reputational and regulatory risks from social instability and labour conditions.</li> <li>Difficulty securing raw materials at predictable prices.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthened supply chain resilience through adaptation investment and capex investments.</li> <li>Stable input prices and long-term sourcing security.</li> <li>Competitive advantage and market share from socially responsible and climate-resilient sourcing.</li> </ul>
	 <p><b>Public Finance</b></p> <ul style="list-style-type: none"> <li>Fiscal exposure to climate disasters and rising social protection needs.</li> <li>High dependence on agriculture and food imports in climate-vulnerable regions.</li> </ul>	<ul style="list-style-type: none"> <li>Escalating fiscal pressures from climate events and food system shocks.</li> <li>Sovereign credit downgrades driven by food/climate instability.</li> <li>Growing demand for concessional finance despite limited budgets.</li> </ul>	<ul style="list-style-type: none"> <li>Mobilisation of private capital via risk-sharing instruments.</li> <li>Lower long-term sovereign risk through resilience investments.</li> <li>Enhanced fiscal management through stress testing that integrates climate and social risks.</li> </ul>
	 <p><b>Policy &amp; Regulation</b></p> <ul style="list-style-type: none"> <li>Fragmented climate and social policy frameworks.</li> <li>Limited integration of food system risks into national adaptation strategies.</li> </ul>	<ul style="list-style-type: none"> <li>Macroeconomic instability (inflation, food price shocks, migration pressures).</li> <li>Higher future adaptation and social protection costs.</li> <li>Rising cross-border tensions linked to food and climate insecurity.</li> </ul>	<ul style="list-style-type: none"> <li>Improved food security and national resilience.</li> <li>Ability to shape regulatory frameworks that channel private finance.</li> <li>Scientifically informed policy decisions at the local, regional, country level.</li> </ul>

\*Emerging Markets and Developing Economies

## Geographic Scale

Agrifood systems are hyper-localised and compounding risks within this sector are often geographically heterogeneous: their causes, impacts and financial implications vary significantly by scale.

**At the local level, the impacts of agrifood shocks are immediate and tangible.** Droughts, floods and temperature extremes directly affect different parts of the agrifood system, from smallholder farmers to corporates and agribusinesses – reducing yields, incomes and supply of food. **For financial institutions and investors**, these localised impacts translate into credit and asset-quality risks. As loan defaults among producers and SMEs rise, collateral values weaken,

and recovery assumptions become less reliable.

**For corporates** sourcing from exposed regions, local shocks translate into supply instability, higher procurement costs and operational disruption.

**When multiple regions or producers are affected at the same time, these local shocks can ripple across portfolios and markets, making losses more correlated than expected.** This happens when production or supply is concentrated in certain regions, adaptive capacity is limited, and buffers are insufficient to absorb the shock. As a result, risks that appear geographically diversified spread across systems and amplify losses, increasing wider financial instability.

When local shocks accumulate or coincide, they generate national-level risks, and these are particularly pronounced in climate-vulnerable regions. Reduced domestic production can trigger food price inflation, strain social safety nets, erode fiscal buffers and lead to political risks such as instability or conflict. Additionally, environmental pressures can also affect domestic production patterns, driving changes in agriculture practices that strain natural ecosystems, resulting in increased vulnerability to future shocks. These effects spread through economic channels (such as rising input costs, disrupted supply chains and declining household incomes) that **escalate fiscal pressures and sovereign credit risks**, particularly in economies with a large share of agriculture-driven employment. National food systems planning and financing therefore play a central role in absorbing shocks and preventing local losses from becoming macroeconomic crises. Uganda's recent national food systems financing initiative illustrates how co-ordinated policy and blended finance can strengthen resilience by channelling resources to vulnerable producers and critical infrastructure.<sup>25</sup>

**At the global scale, regionally concentrated shocks can ripple through trade networks and commodity markets.** Simultaneous production shortfalls in major exporting regions, export restrictions or supply chain bottlenecks can produce global price spikes and trade disruptions that transmit risk across borders. Recent analyses show that climate-driven extreme weather has been a material driver of recent global food price volatility, with direct implications for inflation, sovereign finances and international trade flows.<sup>26</sup> **These systemic dynamics mean that shocks originating in local agricultural systems can quickly affect portfolios and macro-financial stability, with impacts that can persist over multiple production cycles due to slow ecosystem recovery and entrenched social vulnerabilities.**

#### Investor lens: geographic scale

Local climate shocks in agrifood systems can rapidly translate into portfolio losses, as localised defaults, asset impairments and supply disruptions scale into food price inflation, fiscal stress and macroeconomic volatility. Risks that appear diversified across regions may converge during systemic events, increasing exposure to underpriced risk across equities, credit and sovereign debt.

## Value Chain Complexities

Financial performance in agrifood systems is **fundamentally dependent on the stability, health and resilience of the people and communities** that underpin production, labour supply and consumption. While diversification may provide interim resilience to the supply chain, the cascading and systemic nature of climate–social risks makes agrifood systems particularly vulnerable to financial risks across a wide array of actors, including processors, logistics firms, retailers and financiers. A case study by CISL in partnership with Robeco shows that exposure to degraded land amplifies financial risks across the agricultural value chain – with small, local companies experiencing up to 45 per cent valuation losses as a result of extreme weather.<sup>27</sup> Social risks (both standalone and those exacerbated by climate change) therefore represent direct drivers of revenue stability, cost structures and asset valuation.

#### How risks manifest along the value chain:

- **Production:** Social risks including insecure land rights, limited access to finance, and declining worker health and productivity directly constrain production and the adaptive capacity of corporates. These vulnerabilities are often intensified by climate hazards such as drought, heat and flooding, which further reduce yields and crop quality.<sup>28</sup> Together, these dynamics increase income volatility and default risk, particularly among smallholder farmers and informal producers.
- **Processing and storage:** Challenges around inadequate storage or processing capacity, and unreliable energy supply across socially vulnerable regions increase the risk of post-harvest losses and operational disruptions. This can erode revenue margins for processing and logistics firms. Recent studies show how inadequate storage, fragmented cold chains and poor processing amplify food loss and emissions, having a direct impact on both food security and business performance.<sup>29</sup>
- **Transport and distribution:** Logistics are particularly sensitive to both social and environmental risks: informal working conditions, lack of infrastructure and extreme weather conditions are examples of inefficiencies that directly undermine the reliability of logistics networks. Disruption to roads, ports or cold chains, particularly at nexus hubs where large quantities of commodities pass through, can rapidly translate into product spoilage, price volatility and contractual defaults further down the chain.<sup>30</sup> For corporates, these interdependencies explain rising input volatility, supply disruptions and difficulty securing raw materials at stable prices. For investors, value chain complexity drives earnings volatility, correlated losses across holdings and exposure to underpriced supply-side risks.

- **Retail and consumption:** Downstream, price spikes and supply shocks hit low-income consumers hardest, increasing the risk of malnutrition and social stress. Retailers struggle with the lack of stock and squeeze on margins while consumers face affordability shocks, highlighting dynamics that can feed back to producers through reduced demand or unstable purchasing terms.<sup>31</sup> [A policy brief](#) by CISL and the University of Leeds on the projected impact of climate change on household diets in Kenya finds that by 2050, basic calorie-adequate diets will become unaffordable for poor families.<sup>32</sup>

Conversely, investment in resilient storage and processing facilities, stable long-term sourcing and sustainable value chains directly target these transmission channels. **Strengthening value chain resilience reduces volatility, improves earnings predictability and creates more inclusive market participation, thereby supporting more stable long-term returns.**

#### Investor lens: value chain complexities

Interconnected agrifood value chains transmit environmental and social risks across firms, sectors and regions, driving volatility in earnings, commodity price shocks and correlated losses across portfolios. Disruptions across production, logistics or processing can impair financials across multiple assets simultaneously. Investment in resilient infrastructure, storage and sourcing is therefore critical for financial stability in vulnerable regions.

## Socio-demographic Vulnerabilities

**Socio-demographic vulnerabilities describe how people's social and economic positions shape their exposure and ability to cope with climate shocks.**

For investors, these inequalities reflect a systemic risk: when communities are disproportionately exposed to climate and transition shocks, their reduced adaptive capacity can amplify supply chain fragility, labour disruptions, consumption shocks and credit deterioration across markets. [The Asia Investor Group on Climate Change \(AIGCC\)](#) has developed a framework highlighting those socio-demographic groups that are most exposed to just transition risks – including rural and marginalised communities, ethnic minorities, women, etc.<sup>33</sup> These dynamics translate into tangible financial risks as explained below through impacts on credit quality, operational risks, labour disruptions and portfolio volatility.

## Direct impacts on individuals and households

Direct impacts are most acute for smallholder farmers, women and youth, migrant and informal workers, and indigenous communities, for whom even moderate climate shocks can result in severe and persistent livelihood losses. On the consumer side, persistent structural inequalities influence the access and affordability of food, resulting in certain communities being especially vulnerable to food shocks. **For financial institutions, these vulnerabilities directly affect the underlying cash flows and operational stability of the businesses and sectors in which they invest.** As a result, they face an increasing risk of credit defaults, supply chain disruptions and decline in productivity, particularly in portfolios exposed to labour-intensive and informal segments of the economy.

## Indirect impacts through markets, employment, migration and food access

Indirect impacts extend through markets, employment and migration: food price inflation disproportionately affects low-income consumers, while agribusinesses and SMEs face reduced supply, tight margins and heightened operational risk. **As a result, for financial institutions compounding risks threaten credit quality, business continuity and stability of returns across agrifood-exposed portfolios.**

## Macro implications for financial systems and national economies

At the macro level, these interlinkages translate into financial risks that extend beyond individual actors to markets:

- **Credit, insurance and portfolio risk:** Climate-driven livelihood losses and business disruptions can elevate default risk, strain insurance systems, and increase volatility across agrifood-exposed lending and investment portfolios. Widespread defaults or operational shocks in labour-intensive, vulnerable sectors can result in downward pressure on sovereign credit ratings and increased borrowing costs.
- **Food system stability and resilience:** When climate and social vulnerabilities converge, they undermine food availability, affordability and political stability, amplifying fiscal pressures and reducing resilience to future shocks. This can trigger monetary and fiscal policy responses including emergency spending, subsidies or interest rate adjustments that affect inflation dynamics.

- **Cross-asset correlations and systemic exposure:** Interconnected risks across agrifood systems mean that shocks rarely remain isolated. Even assets thought to be diversified can experience correlated losses, as climate and social vulnerabilities propagate across equity, credit, real assets and sovereign exposures, weakening portfolio resilience.
- **Repricing and risk premia formation:** Persistent or compounding shocks drive higher risk perception and repricing in capital markets. Elevated default probabilities, supply chain fragility and labour shortages can feed into risk premia across sectors, affecting cost of capital and long-term investment valuation.

**From an investor perspective, addressing socio-demographic vulnerabilities is therefore not only a social objective but also a financial risk management strategy.** Capital deployed strategically, through a resilience framework that accounts for intersecting climate and social risks, can manage cascading shocks, capture compounding social, environmental and economic benefits, and drive systemic transformation.

### **Investor lens: socio-demographic vulnerabilities**

Socio-demographic vulnerabilities determine whether climate shocks result in temporary disruption or persistent economic damage. When adaptive capacity is low, climate events lead to higher default risk, challenges to insurability, labour disruptions and fiscal stress. Integrating this lens enables investors to better identify where physical climate risk is most likely to generate long-term losses, and where targeted blended finance and risk-sharing mechanisms can materially reduce future risks and drive long-term portfolio resilience.



## 5. Unlocking capital: insights from agrifood systems

**Applying an integrated lens to investment decision-making strengthens the case for deploying capital in ways that address environmental, social and financial risks simultaneously.** By explicitly considering how vulnerabilities and opportunities intersect, investors can identify where risks are systemic, where interventions generate compounding benefits, and where co-ordinated action can trigger positive tipping points. *To make these dynamics tangible, we use food security as a concrete example to bring this to life.*

### The 'why': recognising integrated risk management as an investment priority

#### Reframing intersecting risks as systemic economic risks

Recent research from the World Economic Forum shows that rising commodity prices, supply chain disruptions and post-pandemic instability are driving global concerns around food availability and affordability, **conditions that create financial volatility across global markets.**<sup>34</sup>

At a macroeconomic level, governments are increasingly treating food security as strategic economic infrastructure, reflecting both its fundamental importance as a basic human need and its critical role in economic stability, particularly in contexts highly exposed to import dependence or supply chain risks. The [UK Food Strategy](#) explicitly highlights resilient food supply as a prerequisite for economic stability, a healthier population, better environmental outcomes and improved resilience.<sup>35</sup> Similarly, Singapore maintains strategic stockpiles of essential food items, alongside diversified import sources and domestic production targets to safeguard the nation's food supply against climate, geopolitical and supply chain shocks.<sup>36</sup>

**The investment takeaway:** Moving beyond siloed approaches of climate and social risk assessments to recognise the compounding impacts of the intersection can help financial institutions strengthen portfolio resilience, adequately price risk and build long-term resilience.

#### Leveraging compounding opportunities

**An integrated lens reveals opportunities where a single intervention can generate multiple, reinforcing benefits across social, environmental and economic dimensions.** In the context of food systems, the same interventions that reduce exposure to environmental risks often strengthen social outcomes and vice versa, producing reinforcing feedback loops across health, livelihoods, markets and ecosystems. According to recent studies, "a shift towards a more sustainable global food system could create up to USD 10tn of benefits a year", improving health and reducing environmental damage.<sup>37</sup>

Investments that enhance **adaptation and resilience** in agrifood systems illustrate how compounding opportunities can deliver both financial returns and positive social and environmental impact. For example: deploying drought-resistant seeds, climate-smart irrigation, and improved soil and water management improves agricultural productivity and reduces exposure to climate shocks. Similarly, investments in increasing social adaptive capacity such as microfinance and access to credit, community-based early warning systems, and health and nutrition interventions, can help strengthen supply chains and build long-term resilience. Evidence suggests that every US\$1 invested in climate adaptation yields between US\$2 and US\$10 in benefits, from higher productivity and job creation to loss reduction and fiscal savings.<sup>38</sup> These reinforcing benefits align with broader studies indicating that transforming global food systems could generate up to US\$10 trillion in economic, health and environmental benefits per year, further underscoring the scale of opportunity in solutions that integrate climate adaptation and social outcomes.<sup>37</sup>

**The investment takeaway:** Investments in adaptation and resilience can help investors identify high-impact opportunities where a single investment can achieve multiple objectives, creating reinforced benefits to the environment and society in addition to resilient portfolios.

## Positive tipping points

**The transformation of economic systems depends not just on individual interventions but on reaching system-wide tipping points** – critical thresholds at which a combination of changes in production, demand, finance and policy triggers self-reinforcing cycles of resilience, sustainability and social benefit.<sup>39</sup> An integrated perspective highlights where risks and opportunities converge, identifying certain strategic actions that can generate system-wide tipping points.

For example, the Food and Land Use Coalition (FOLU) developed a [roadmap](#), along with the University of Exeter, to understand how these tipping points can be triggered and scaled, identifying five key priority actions to scale productive and regenerative agriculture.<sup>39</sup>

- **Shift agricultural subsidies towards regenerative farming**  
Redirect agricultural subsidies towards regenerative practices and ecosystem services, rewarding outcomes like increased soil carbon while phasing out adverse incentives.
- **Use other public finance to incentivise regenerative farming**  
Leverage taxes, procurement policies and financial incentives to encourage sustainable production and support regenerative supply chains.
- **Share information through better open-source networks and training**  
Expand extension services, farmer-to-farmer learning and seed networks to spread regenerative practices and adaptive technologies.
- **Increase research and development spending and innovation**  
Invest in research, technology and supply chain systems that make regenerative practices economically viable and widely adoptable.
- **Engage business and investors**  
Encourage companies and investors to account for natural and social capital, fostering partnerships and supply chain initiatives that scale regenerative agriculture.

**The investment takeaway:** By recognising such compounding risks and opportunities, investors can identify high-leverage actions that can trigger system-wide transformation. These tipping points unlock compounding returns – improving resilience, advancing social inclusion and enhancing environmental outcomes, while mitigating cascading risks that would otherwise threaten portfolio stability.

## The 'how': three key levers to mobilise private capital

Transforming complex systems requires a fundamental realignment of capital towards models that deliver climate resilience, social equity and long-term economic value. Yet today's financial flows are often structured around short-term returns, fragmented risk assessments and incentives that fail to capture systemic value. **The challenge is not a lack of capital, but rather a misalignment between how risks, returns and long-term benefits are measured.** The three levers identified below provide a starting point for investors to support a broader system-wide transformation – outlining where targeted deployment of capital can help catalyse systemic resilience.

### 1. Value chain finance

In many sectors, the actors most exposed to environmental and social shocks are often the least able to access finance, while larger downstream companies have stronger balance sheets and greater ability to absorb risk. By **extending targeted financing across the vulnerable parts of the value chain**, investors can support resilience and transformation across the wider system without placing disproportionate risk on its most vulnerable participants.

In the context of agrifood systems, the [World Economic Forum](#) recommends **offering discounted loans to corporates to support strengthening their value chains**.<sup>40</sup> Commercial lenders can help companies invest in decarbonisation, climate adaptation and supplier support programmes, which indirectly benefits smallholder farmers and upstream producers who are most vulnerable to shocks. In parallel, financing adaptation across the value chain helps investors protect long-term returns and portfolio resilience.

### 2. Stewardship and active engagement

From a systemic perspective, stewardship and engagement are essential tools for addressing compounding risks arising from intersecting climate and social risks that cannot be mitigated through capital allocation alone. **Investors can use their influence to ask the right questions – encouraging corporates and policymakers to account for the interdependencies** between climate, social outcomes and economic performance, helping to shift norms, incentives and governance structures in ways that reduce long-term systemic risk.

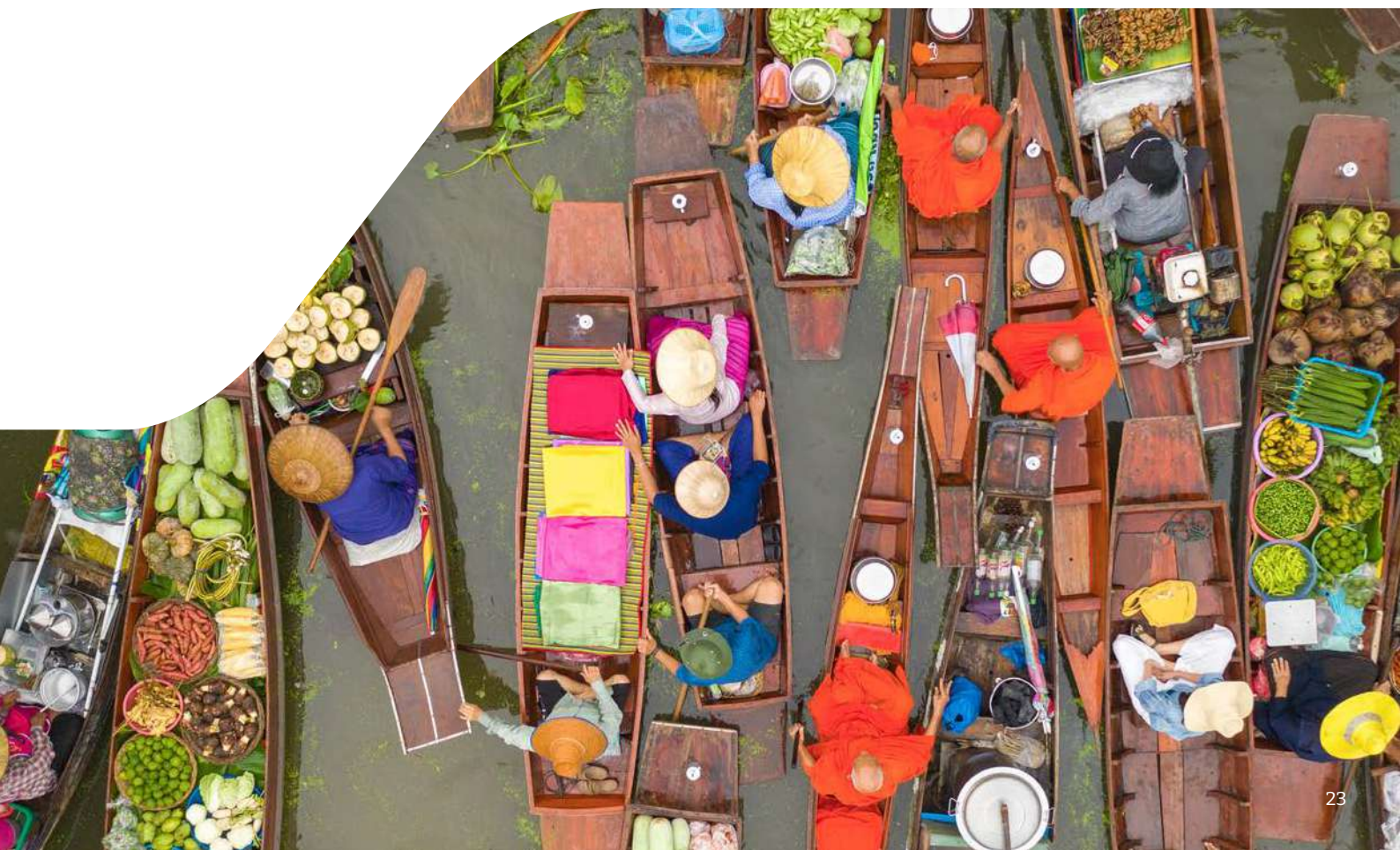
In agrifood systems, investor stewardship brings these interconnections into sharp focus. Engagement with agribusinesses on issues such as land use, labour conditions and supply chain resilience addresses environmental and social risks that directly affect financial performance. The Investor Memo published by Inside Track provides a useful reference point for investors, **setting out a series of practical questions** that encourage a systems-based view of food sector resilience.<sup>41</sup> Rather than focusing solely on the reporting and measurement of climate, nature and social risks, the memo explicitly **challenges investors to assess how these risks are being managed in practice and at scale across value chains, geographies and time horizons**. The questions highlighted in the memo help shift investor attention from disclosure compliance towards governance, incentives and capital allocation, making them a valuable tool for strengthening integrated risk management.

At the policy level, **initiatives such as FAIRR** demonstrate how **collective investor engagement** can push for public incentives that reduce climate and nature risks while supporting inclusive, resilient food production. Similarly, the EAT–Lancet Commission highlights policy mechanisms through which public institutions can help catalyse private investment in food system transformation, including the use of **central bank stress testing frameworks** that more fully account for climate, environmental and social externalities.<sup>42</sup>

### 3. Blended finance and catalytic capital

**Blended finance remains essential for de-risking investments in emerging markets and financing early-stage transformative practices where risk perceptions may be high.** By combining public, philanthropic and private capital, blended finance structures can identify opportunities for compounding impacts and channel finance to solutions that strengthen resilience across multiple dimensions simultaneously.

The Blended Finance Playbook developed by ClimateShot Investor Coalition (CLIC) and ISF Advisors provides a useful guide for navigating investments in agrifood systems, with detailed case studies for investor reference. The research summarises **five broad “investment plays”** providing associated examples for each: deploying a system-level investment approach, supporting large-scale restoration of natural capital assets, strengthening climate-smart infrastructure shared across value chains, expanding technical assistance for climate innovation, and incubating and scaling local financial intermediaries.<sup>18</sup>



## 6. Conclusion

**The interconnected nature of environmental and social risks means that today's challenges cannot be solved through isolated interventions, siloed risk assessments or single-sector strategies.** An integrated lens is therefore not optional – it is essential. It enables investors and policymakers to recognise hidden vulnerabilities, anticipate systemic disruptions and design interventions that support those most affected by climate change. By embedding this lens into financial decision-making, institutions can more accurately assess risk exposure and unlock opportunities that traditional models overlook.

**Driving resilient, inclusive and sustainable transformation across economic and social systems requires co-ordinated action and targeted investment.** Institutional investors can mobilise capital effectively by focusing on three key levers:

- **Value chain finance:**  
Support corporates to build resilient value chains and create resilient economies that address both climate and social risks.
- **Stewardship and active engagement:**  
Use investor influence to shape corporate behaviour and public policy, addressing interconnected climate, social and economic risks.
- **Blended finance and catalytic capital:**  
Combine public, philanthropic and private capital to de-risk early-stage or high-impact investments that unlock compounding opportunities across environmental, social and economic dimensions.

**For financiers, the imperative is clear:** adopting systems-level approaches, integrating environmental and social metrics, and deploying capital through de-risked, blended and partnership-driven models are central to managing long-term financial risk and unlocking stable returns. **For policymakers and public finance institutions,** success depends on coherent governance, strategic public investment, and the creation of enabling conditions that crowd in private capital while protecting those most exposed to climate and social shocks.

**Ultimately, addressing intersecting environmental and social risks is not only a sustainability or development objective, but also a prerequisite for financial stability and long-term economic resilience.** By breaking down silos and responding to the systemic nature of risk, investors, corporates and governments can shift from reactive strategies towards proactive value creation, supporting a more resilient global economy for people and the planet



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### Head office

The Entopia Building  
1 Regent Street  
Cambridge CB2 1GG, UK

T: +44 (0)1223 768850  
[info@cisl.cam.ac.uk](mailto:info@cisl.cam.ac.uk)

### EU office

Norrskan House  
Rue du Commerce 72  
B-1040 Brussels  
Belgium

T: +32 (0) 2887 92 40  
[info.eu@cisl.cam.ac.uk](mailto:info.eu@cisl.cam.ac.uk)

### Cape Town

Workshop17 NCG 146  
Campground Road  
Newlands 7780  
Cape Town, South Africa

T: +27 (0)21 300 5013  
[info.sa@cisl.cam.ac.uk](mailto:info.sa@cisl.cam.ac.uk)

