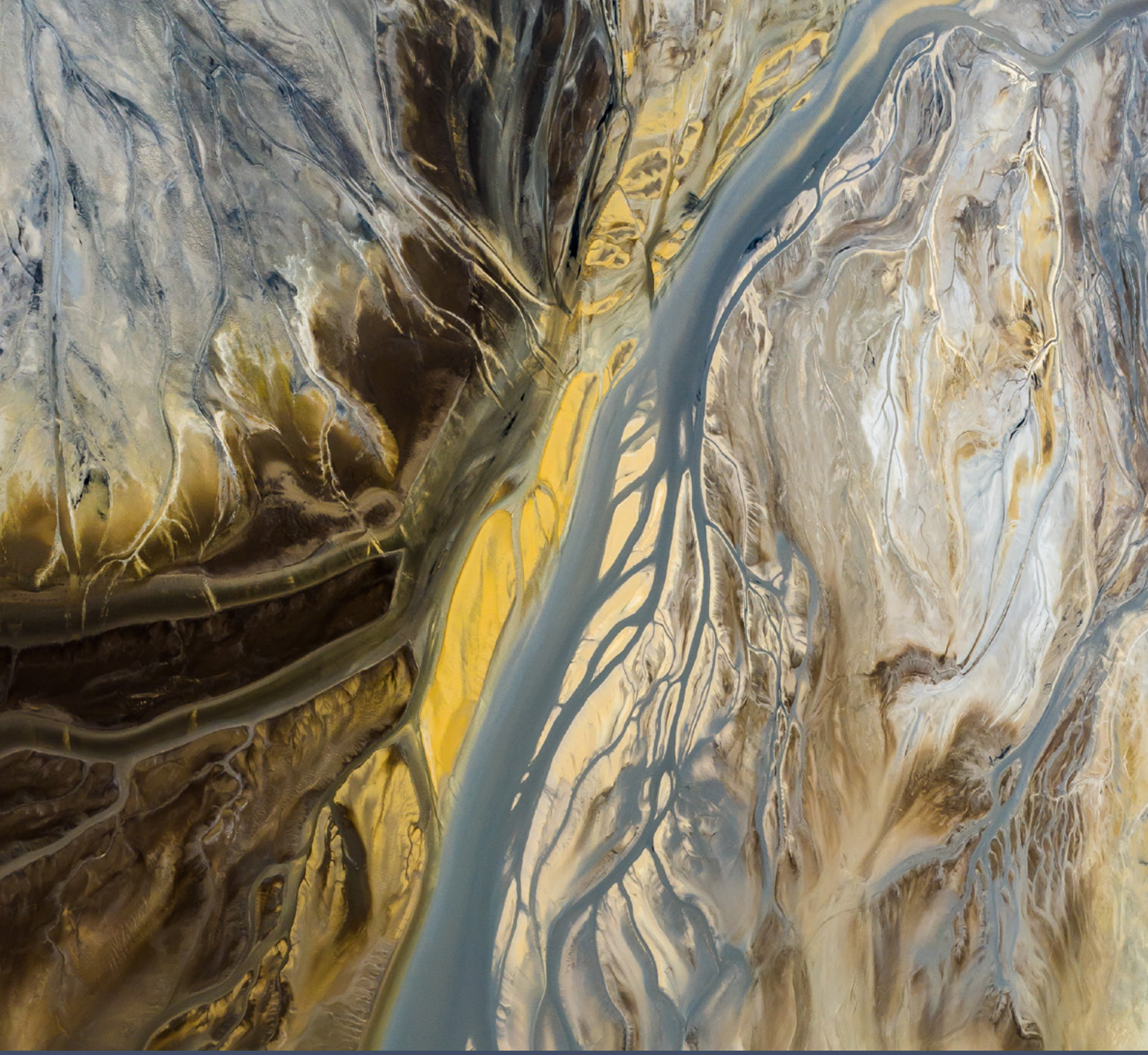


Financial Institutions' Role in Driving the Transition to Safe and Sustainable Chemicals

The Challenge, the Response and the Opportunity for Action

November 2026



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About this report

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Foreword

Chemicals are fundamental to modern economies, supporting industries, livelihoods and development across the world. Yet, the lack of proper management including in production, use and disposal of hazardous chemicals poses significant challenges to human health, the environment and long-term economic resilience. Addressing these challenges requires a fundamental shift in how chemicals are produced, managed and used, and in how financial institutions through their decisions support that transition.

The Global Framework on Chemicals, adopted in September 2023, provides a shared vision for a planet free from harm from chemicals and waste. Realising this vision requires concerted action across governments, industry, financial institutions and wider society. The financial sector has a particularly important role to play. Beyond providing capital, financial institutions can influence business practices, shape market expectations and support the development and adoption of safer and more sustainable alternatives. Through their investment, lending, underwriting and engagement activities, they can help drive change across sectors and value chains.

There are encouraging signs of progress. As this report illustrates, a growing number of financial institutions and supporting organisations are recognising chemicals-related impacts and risks and taking steps to address them. The report highlights pioneering efforts by investors, banks, insurers and specialist organizations, demonstrating that practical approaches already exist to identify, assess and address chemicals-related risks. These efforts, however, remain far from mainstream. Bridging the gap between awareness and action, and between financial exposure and financial decision-making, is essential to achieving change at the scale required.

The transition towards safe and sustainable chemistry presents not only a challenge, but an opportunity to strengthen economic resilience, encourage innovation and direct finance towards solutions that benefit people and the environment. Unlocking this potential requires stronger collaboration, greater transparency, more consistent approaches to assessing chemicals-related risks and impacts, and enabling conditions, including improved chemical assessment, greater value-chain transparency, supportive regulatory frameworks and credible transition planning for safe and sustainable chemistry.

This report, developed collaboratively through the Global Framework on Chemicals Private Sector Financing and Investment Workstream, is an important contribution to that effort. By bringing together emerging practices, experiences and insights from across the financial sector and its supporting organisations, it seeks to encourage greater awareness, ambition and collective action.

As we look towards the Framework's 2030 and 2035 targets, the priority needs to be to translate this growing understanding into practical and sustained action. Financial institutions have both an opportunity and an important role in shaping this transition. We hope this report inspires more institutions to take that step, build on the experiences of those already leading the way, and work together towards a global economy based on safe and sustainable chemistry.

Kay Williams
Head of the Global Framework on Chemicals Secretariat

United Nations Environment Programme

Executive Summary

The Global Framework on Chemicals (GFC), adopted in 2023, provides a global framework for the sound management of chemicals and waste throughout their life cycle. It recognises that achieving its vision will require action across the economy and identifies the financial sector as an important source of capital and a potential driver of systemic change. Several of the GFC's 28 targets have direct implications for the financial sector. These include **Target D3**, which calls for the private sector, including financial institutions, to integrate sound chemicals management into business models and reporting standards by 2030; **Target D6**, which calls for sustainable chemicals and waste management strategies across major economic and industry sectors; and **Target E3**, which focuses on mobilising finance, including blended finance, for sound management of chemicals and waste. The delivery of several other targets also requires the financial sector to play a role.

This report, produced by the GFC Private Sector Financing and Investment Workstream, examines the extent to which the financial sector is responding to this challenge: what financial institutions are doing today, where significant gaps remain, and what is needed to move from emerging activity to systematic and scalable action. It considers the roles of institutional investors, banks and insurers, recognising that each has different forms of exposure to chemicals-related risks and different points of leverage over companies and markets.

The report is structured in two parts. **Part 1** examines the scale and nature of the chemicals challenge, the policy and regulatory context, the financial risks arising from the production, use and disposal of hazardous chemicals, and the ways in which different types of financial institutions can respond. It draws on a UNEP-FI survey, a review of publicly available policies and frameworks of financial institutions, interviews and other research. **Part 2** provides 24 detailed case studies from institutional investors, investor networks and not-for-profit organisations that provide vital research and support, demonstrating how action is already being taken in practice.

The Scale of the Challenge and the Financial Exposure

The chemical industry is one of the world's largest industries, generating approximately US$6.2 trillion in revenues in 2024 and employing around 10 million people. Chemicals are embedded in approximately 95% of manufactured goods and used extensively in agriculture, with more than 350,000 chemicals and mixtures are registered for commercial production and use. Chemical production is expected to continue to grow substantially, potentially doubling by 2050. The sector also accounts for around 6% of global greenhouse gas emissions.

The chemical industry is a cornerstone of the global economy, yet its growth has outpaced the ability of regulators to ensure the safety of the tens of thousands of hazardous chemicals now on the market. The production, use and disposal of these chemicals contributes to substantial biodiversity loss and threatens ecosystem services on which economic activity depends. They also cause significant harm to the health of workers, communities, consumers and generate very significant market and non-market costs of inaction on chemicals and chemical pollution. These impacts create financial risks that extend well beyond companies directly involved in chemical manufacturing. Chemicals are used throughout global value chains, meaning that investors, banks and insurers can be exposed to risks arising from chemical production, use, emissions, contamination and waste across a wide range of sectors.

For institutional investors, these risks can affect portfolio companies through changing regulation, litigation, remediation costs, market shifts, reputational damage and the potential for stranded assets. For banks, chemicals-related risks can affect the creditworthiness of borrowers, the value of financed assets and the risks associated with corporate lending, project finance, trade finance and refinancing. For insurers, chemicals-related risks affect all three dimensions of their business: as risk carriers, through underwriting and claims; as risk managers, through risk assessment and prevention; and as investors, through their investment portfolios. Long-tail liabilities, including those associated with persistent substances such as PFAS, demonstrate how risks can emerge or escalate many years after exposure occurs.

The financial implications of hazardous chemicals can also compound over time. Scientific findings, regulatory action, litigation, media attention, consumer concern and investor pressure can reinforce one another, potentially accelerating the financial materialisation of previously under-recognised risks.

The Response Gap

The central finding of the report is that the finance sector's exposure to chemicals-related risks is widespread but that systematic finance sector-wide responses remain limited and uneven.

There is evidence of growing awareness and of pioneering action by individual institutions. However, chemicals are often treated as a subset of broader environmental, sustainability or pollution risks rather than as a distinct issue requiring systematic identification, assessment and management. This creates a significant gap between the scale of the chemicals challenge and the extent to which it is reflected in financial decision-making.

A UNEP-FI survey provides an important baseline of current practice. Respondents reported taking a range of actions, including adopting exclusions, client or investee engagement, enhanced due diligence, and investment in safer chemistry and materials innovation. However, chemicals-related impacts and risks are frequently subsumed within broader environmental risk processes. The survey also highlights persistent barriers around data, traceability, reporting systems and the ability to scale proven safer alternatives. Regulatory tightening has not yet translated into widespread changes in financial decision-making.

The report also presents the results of a review of publicly available policies and frameworks from 51 banks and 26 insurers and reinsurers. This review indicates that chemicals remain relatively marginal within many financial institutions' public sustainability frameworks. Banks most commonly address chemicals through exclusions and due diligence, often based on specific substances, conventions or hazard classifications. Comparatively few approaches consider the hazards associated with products made or sold by clients, the availability of safer alternatives, or the need for a broader transition towards safe and sustainable chemistry. Disclosure of chemicals-related risks also remains limited.

The findings should be interpreted in light of the evidence base. The UNEP-FI survey provides an indication of current practice but is not intended to be a statistically representative assessment of the entire global financial sector. Similarly, the policy review assesses publicly available financial institutions' policies and disclosures and therefore cannot capture unpublished internal approaches or the extent to which published commitments are implemented in practice. Nevertheless, the consistency of the findings across the different sources points to a clear pattern: some financial institutions are taking action but it is not yet commensurate with the scale, complexity and systemic nature of chemicals-related risks.

From Fragmented Activity to Systematic Action

The report identifies a particular challenge in the way chemicals-related risks are identified and assessed. The sheer number of chemicals and mixtures, evolving scientific understanding, inconsistent regulatory classifications and limited visibility across global value chains make it difficult for financial institutions to establish a consistent picture of exposure.

This creates a 'known unknowns' problem. Financial institutions that focus only on substances that are already regulated or widely recognised may fail to identify emerging risks. Scientific understanding can change, regulatory classifications can evolve, and substances may be replaced by alternatives that subsequently prove to create similar or different hazards. The phenomenon of regrettable substitution demonstrates why a focus on individual substances alone is insufficient.

A more effective approach requires financial institutions to consider chemicals throughout their life cycle and across value chains, including the hazards associated with products and processes, the use of safer alternatives, exposure pathways and the potential for future regulatory or liability risks.

The report identifies different points of leverage for different financial institutions.

Institutional investors can use investment research, ESG integration, screening and exclusion, voting, shareholder resolutions, bilateral and collaborative engagement, policy advocacy and investment in safer chemistry and alternative technologies.

Banks can incorporate chemicals into client due diligence, onboarding, credit assessment, lending criteria, project finance, trade finance, onboarding, refinancing and other contractual relationships. Their direct relationships with borrowers provide opportunities to influence corporate behaviour, including through conditions attached to finance and engagement at refinancing or renewal.

Insurers can address chemicals-related risks through underwriting, exclusions and conditions, risk-management requirements, renewal decisions, risk advice and claims management, while also using their investment activities to influence corporate behaviour. Their role as risk carriers gives insurers a particularly important incentive to anticipate long-tail liabilities and emerging risks.

These points of leverage for financial institutions already exist. The challenge is to make chemicals a more explicit and systematic consideration within them.

Evidence of Action: Part 2

The 24 case studies in **Part 2** demonstrate that practical approaches are already being developed and implemented.

The cases, contributed by institutional investors, investor networks and not-for-profit organisations, cover a range of approaches including:

- research and integration of chemicals-related risks into investment decision-making;
- screening and exclusion of particularly hazardous substances or activities;
- bilateral and collaborative engagement with companies;
- shareholder voting and resolutions;
- policy and regulatory advocacy;
- development of data, tools and methodologies to identify chemicals-related exposure; and
- investment in safer chemistry, materials innovation and alternative technologies.

The case studies cover chemicals including PFAS and highly hazardous pesticides, as well as chemicals-related risks in sectors such as apparel, agriculture and chemicals manufacturing. They demonstrate different forms of leverage across the financial system and show the value of collaboration between financial institutions, specialist research organisations, NGOs and investor networks.

Importantly, the case studies demonstrate not simply that action is possible, but what action can look like in practice. They provide examples of approaches that can inform wider financial-sector practice, while also emphasising the need for better data, common methodologies and enabling policy frameworks if these approaches are to be replicated and scaled.

What is Needed to Scale Action

The evidence from Part 1 and the experience documented in Part 2 point to five mutually reinforcing conditions needed to move from fragmented and pioneering activity towards systematic financial-sector action.

1. Consistent chemical characterisation and assessment

Financial institutions need better ways of identifying and assessing chemical hazards and exposure. This requires approaches that extend beyond limited lists of regulated substances and take account of hazardous properties, exposure pathways, evolving science and emerging risks, including 'known unknowns'.

2. Globally aligned regulation

Greater international alignment of chemicals regulation would provide clearer and more predictable signals for companies and financial institutions. More consistent regulatory approaches can reduce uncertainty, improve comparability and help financial institutions assess the implications of regulatory change for companies, assets and investments.

3. Value-chain transparency

Financial institutions need greater visibility of where chemicals are produced, used, released and disposed of across value chains. Improved traceability and corporate disclosure are essential to enable investors, banks and insurers to identify exposure and assess the effectiveness of risk-management and transition strategies.

4 Transition planning for safe and sustainable chemistry

Companies need credible transition plans that set out ambitions, interim targets, governance arrangements, investment and R&D requirements, supply chain actions and measures to reduce dependence on hazardous chemicals. Such frameworks would give financial institutions a more effective basis for assessing whether companies are managing chemicals-related risks and progressing towards safer chemistry.

5. Comparable corporate disclosures

Financial institutions need decision-useful information on chemical-related impacts, dependencies, risks, opportunities, revenues and progress. More consistent corporate disclosures would enable better capital allocation, credit assessment, underwriting decisions and engagement, while improving comparability between companies and across sectors.

These conditions reinforce one another. Better chemical characterisation and disclosure improve the ability of financial institutions to identify and assess risks. Greater value-chain transparency enables more targeted engagement and financing decisions. Stronger and more consistent regulation creates clearer market signals. Credible transition plans provide a basis for assessing corporate progress. Together, these measures can help convert chemicals from a relatively marginal sustainability consideration into a more systematic component of financial decision-making.

Possible Actions to Deliver the Changes Needed

The report identifies how financial institutions themselves, policymakers and companies could take steps to deliver the changes needed.

Financial institutions could:

- make chemicals-related impacts and risks an explicit consideration within investment, lending, underwriting and broader risk-management policies;
- assess chemical risks across value chains and throughout the life cycle of chemicals and products, rather than focusing only on directly regulated substances or chemical manufacturers;
- strengthen due diligence and engagement on the phase-out of hazardous chemicals and the adoption of safer alternatives;
- consider the risk of regrettable substitution when assessing transition strategies;
- use financing, investment and insurance conditions to encourage improved chemicals management and credible transition plans;
- support investment in safer chemistry, materials innovation and technologies that can reduce dependence on hazardous chemicals;
- collaborate to develop data, methodologies and common approaches; and
- use their influence with companies, policymakers and other stakeholders to strengthen the enabling environment for safe and sustainable chemistry.

Policymakers and regulators could:

- strengthen and align chemicals regulation and hazard assessment internationally;
- improve corporate requirements for chemicals-related disclosure and transparency;
- support consistent approaches to chemical characterisation and risk assessment;
- provide clearer policy signals for the transition to safer chemistry; and
- use public and blended finance to help mobilise capital towards safer alternatives and improved chemicals and waste management.

Companies could:

- improve transparency concerning the hazard categorisation of the chemicals they produce, use and place on the market, i.e., move away from an approach based solely on risk;

- identify and proactively manage hazardous chemicals throughout their value chains working on the basis of chemicals' hazards not simply current regulatory lists;
- develop credible transition plans for safe and sustainable chemistry;
- invest in safer alternatives and put practices in place to avoid regrettable substitutions; and
- provide financial institutions with the information needed to assess exposure, risks, impacts and progress.

Financial-sector initiatives, investor networks and civil-society organisations could continue to develop shared methodologies, research, engagement approaches and practical tools that enable financial institutions to act collectively and scale effective approaches.

From Exposure to Systemic Change

The transition to safe and sustainable chemistry is both an environmental and public-health imperative and a financial one. The evidence presented in this report indicates that chemicals-related risks are already relevant to financial institutions, but that they are not yet being identified and managed consistently or at a scale commensurate with the challenge.

The financial sector therefore has an opportunity to move beyond managing the risks created by the current chemicals economy. Through capital allocation, lending, underwriting, stewardship, engagement and policy advocacy, financial institutions can influence corporate behaviour, shape market signals and support the development and commercialisation of safer alternatives.

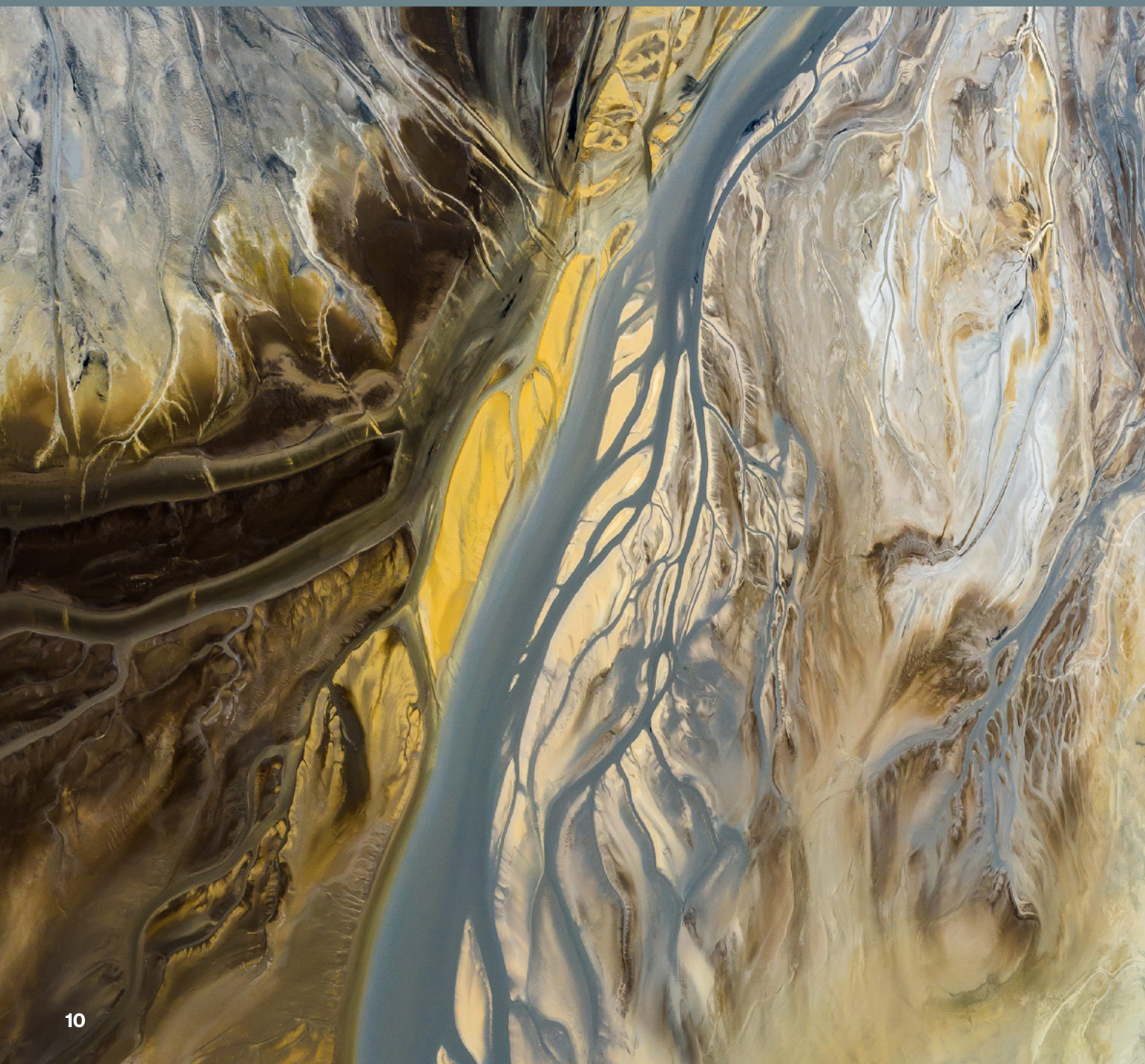
The 24 case studies in Part 2 demonstrate that many of the necessary approaches are already being tested and implemented. It is imperative that others join these pathfinders, learning from their leadership, to address the information and policy barriers that constrain wider adoption, and move from pioneering and fragmented activity towards systematic, comparable and scalable action.

Alignment with the GFC provides an important framework for doing so. By integrating sound chemicals management into financial decision-making, supporting sustainable chemicals strategies across economic sectors and mobilising capital towards safer and more sustainable solutions, the financial sector can help turn the GFC's objectives and targets into practical economic change.

The opportunity is not simply to reduce financial exposure to chemical risks, but to use finance as a lever to reshape markets, business models and value chains around safer and more sustainable chemistry — helping to deliver the GFC's vision of chemicals that provide their benefits without causing unacceptable harm to people or the planet.



Part 1



Introduction

The role of financial institutions in implementing the GFC

The Global Framework on Chemicals – for a planet free of harm from chemicals and waste, provides the global policy framework for strengthening the sound management of chemicals and waste throughout their life cycle. Adopted at the 5th International Conference on Chemicals Management in September 2023, the GFC establishes a shared vision of a world where chemicals are produced, used and managed in ways that minimise adverse impacts on the environment and human health, whilst supporting sustainable development.

The GFC recognises the central role of the finance sector in delivering this vision, both as a source of capital and, critically, a driver of systemic change, so that investments in safer chemicals and sustainable value chains become increasingly attractive and investable. Resolution V/3 *'welcomed the financial and non-financial contributions of the private sector, including and beyond the chemical industry, to the sound management of chemicals and waste to date, and encourages their commitment to achieving the objectives of the GFC'*. Several of the GFC's 28 targets bear directly on financial institutions:

- **Target D3** asks the private sector, including the finance sector, to integrate sound chemicals management into business models and reporting standards by 2030.
- **Target D6** calls for sustainable chemical and waste management strategies across major economic and industry sectors by 2030, including chemical-footprint approaches to reduce impacts along value chains.
- **Target E3** calls for mobilising finance, including through blended-finance schemes, for sound management, in alignment with GFC targets.

Other targets require the contribution of financial institutions alongside other stakeholders, including but not limited to, Target A7, relating to phasing out the use of highly hazardous pesticides, and Target B4, urging stakeholders to apply appropriate guidelines, best available practices and standardised tools for hazard and risk assessment and chemical and waste management.

Purpose and structure of the report

This report aims to take stock of, and illustrate how, some leading financial institutions are already taking steps to help to realise the objectives and targets of the GFC. It has two parts:

Part 1 provides an overview of the role of different types of financial institutions — institutional investors, banks and insurers — for stakeholders not familiar with the sector, and then lays out the structure, scale and impacts of the chemical sector. This is followed by:

- A summary of the current structure of chemicals policy and the policy gaps that remain;
- A review of the financial risks associated with the production, use and disposal of hazardous chemicals, why and how the sector needs to transform;
- An overview of the considerations that financial institutions need to take into account when assessing chemical impacts and risks;
- Practical examples of investor actions and insights gained from the 24 case studies presented in Part 2 — explained further below.

Part 1 concludes by identifying gaps in financial institutions' actions and how they could bridge them - individually, working together, and/or with other stakeholders - to support and accelerate the transition to safe and sustainable chemistry. It also identifies constraints that are inhibiting further action and suggests how they could be overcome. Part 1 has been supplemented with insights from responses to a survey of the financial sector conducted by UNEP-FI in support of this Workstream and complemented by desktop research on current practices on chemicals management in the financial sector.

Part 2 comprises 24 detailed case studies provided by institutional investors, investor networks and not-for-profit organisations that are spearheading action to address the risks associated with chemical production, use and disposal.

Context

The role of different financial institutions

The role of institutional investors

Institutional investors are entities that manage and invest large amounts of funds on behalf of clients or beneficiaries, such as the pension funds or asset managers featured in this report. As such, they provide capital to companies that make and use chemicals by buying their shares (in private and publicly listed companies) or by purchasing their bonds. Asset owners and asset managers are bound by various obligations and duties (often known as fiduciary duties), not just to deliver returns to their beneficiaries or clients, but also to, inter alia: incorporate environmental, social and governance (ESG) issues into investment analysis and decision-making processes, consistent with their investment time horizons; encourage high standards of ESG performance in the companies or other entities in which they invest and support the stability and resilience of the financial system. Investors fulfil these duties through 'stewardship'.

According to the UK Financial Reporting Council, where stewardship practice and reporting is particularly advanced, stewardship is *"the responsible allocation, management and oversight of capital to create long-term sustainable value for clients and beneficiaries. Effective stewardship supports investors to make well-informed investment decisions to deliver returns that meet the objectives of their clients and beneficiaries today, without compromising the ability to do so in the future"* (Financial Reporting Council [FRC], 2025).

When making investment decisions, many investors take account of long-term risks and opportunities, of environmental, economic and societal considerations, and of their beneficiaries' interests. Which stewardship activities investors undertake depends on their role in the investment chain, as well as their investment approach and assets.

Investors typically use a variety of stewardship tools, and often combine them. These include:

- Integrating sustainability considerations into their investment analysis and decisions, including by excluding certain companies, activities and sectors from individual funds or across their whole portfolios based on specific criteria;
- Voting at Annual General Meetings;
- Filing shareholder resolutions;
- Engaging directly with companies on their approach to governance and sustainability, either on a one-to-one basis or via collaborative investor initiatives; and
- Engaging with policymakers on proposed regulation, standards and guidance.

Various not-for-profit organisations, research agencies and academics support investors in their work, some of which are supported by philanthropic foundations.

The role of banks

Banks provide capital to the chemicals value chain in various ways — through corporate lending, project finance for plants and infrastructure, trade finance for the international movement of chemicals and pesticides, or lending to the small and medium-sized distributors, formulators, farms and manufacturers that use chemicals. They can also finance and arrange bond and share issues for chemical companies. Unlike most institutional investors, banks have a direct contractual relationship with borrowers, renegotiated at renewal and refinancing; this relationship can help them gain insights into chemical risks and may provide them with some leverage to encourage their borrowers to address these risks (FRC, 2025).

Banks most often address chemical risks through exclusions and due diligence, particularly in relation to sensitive sectors. Such due diligence could result in the approval of a project or deal, in the approval being subject to the implementation of an action plan, or in rejection. These approaches tend to focus on risk management and operations, such as examining the ways in which chemicals are stored or chemical waste is managed, rather than assessing the hazard levels of particular chemicals or encouraging safer alternatives.

Some banks set general expectations and recommendations about how clients manage chemical risks. Others may take an approach based on legal requirements, through which the bank verifies that a company meets its obligations related to hazardous substances under national law, such as requirements around licensing, storage, spill containment, labelling, handling of expired chemicals and protective equipment for workers, among others (Nedbank Group, 2020). The effectiveness of such legal approaches depends upon the extent to which national law addresses chemicals and how well legal requirements are enforced.

The role of insurers

Insurers play three roles: as **risk carriers**, paying claims for chemical-related losses; as **risk managers**, assessing risk and advising clients through risk engineering; and as **investors** of the premiums they collect (UNEP FI, 2019). Chemical risks affect insurers in all three of these roles. As risk carriers, they bear claims for chemical-related losses suffered by their clients, and as risk managers they need to assess and provide advice on these evolving risks. In particular, insurers face long-tail claims that can emerge decades after policies were written, as was the case with asbestos and more recently with PFAS. Insurers can also help to address chemical risks and impacts in each of their three roles.

As **underwriters**, insurers can:

- Integrate chemical-related risks into due diligence on new and renewing clients;
- Use exclusions and conditions and set conditions at renewal;
- Offer insurance cover for safer alternatives and waste management, helping these to secure finance and scale up;
- Take chemicals in waste into account when insuring waste management, recycling and circular economy activities, where hazardous substances can re-enter supply chains;
- Offer pollution insurance, including pollution insurance aimed explicitly at companies that handle toxic substances; and
- Specify safer materials when paying claims for the repair and reinstatement of property.

As **risk managers**, insurers can help clients manage chemicals safely and plan transitions to safer alternatives. As **investors**, insurers can use the stewardship tools described in this report, aligning underwriting and investment approaches. A desk review of the published policies of 26 insurers and reinsurers found that several insurers engage with chemicals mostly through their investment arms.

Reinsurers and brokers also shape clients' practice through emerging risk analysis and advice, as well as their own requirements for reinsurance. For example, reinsurers may require a risk survey of chemical plants and warehouses, covering containment, fire suppression and the separation of incompatible chemicals, before accepting property risks.[1]

The majority of the remaining content in this introduction is drawn from the Briefing Note: Hazardous Chemicals — Why they matter to financial institutions, a complementary output of the Private Sector Financing and Investment Workstream. Readers are encouraged to refer to that document for greater detail.

The chemical value chain

The chemical sector

The chemical industry is one of the world's biggest, generating revenues of approximately US$6.2 trillion in 2024 (Markets and Markets, 2024) and employing around 10 million people (Townsend, 2026). Over 350,000 chemicals and mixtures of chemicals are registered for commercial production and use (Wang et al., 2020). The growth of the global population and of emerging economies — particularly China and India — is expected to lead to a doubling of total chemical production from current levels by 2050 to more than 5 billion metric tonnes a year. Moreover, AI-powered automation for chemical formulation R&D is projected to grow from 31% in 2025 to 95% by 2028, enabling faster innovation (Habib et al., 2026).

While the industry has delivered significant social and economic benefits — and financial returns — the production, use and disposal of hazardous chemicals has substantial impacts and risks. Research showed that environmental chemical exposures contribute costs that may exceed 10% of the global domestic product and that current DALY calculations substantially underestimate the economic costs associated with preventable environmental risk factors (Grandjean & Bellanger, 2017). Further, the sector also contributes substantially to greenhouse gas emissions, with the production of chemicals and petrochemicals accounting for 6.3% of the global total in 2023 (Ge et al. 2026). It is also a primary driver of nature loss and adverse human health outcomes (Finance for Biodiversity Foundation, 2026). This report focuses primarily on chemical pollution and its associated financial risks, which remain less understood and addressed by financial institutions than climate-related risks, where more developed policy and regulatory frameworks have helped drive financial sector action.

1 Interviews conducted for this report, October 2026.

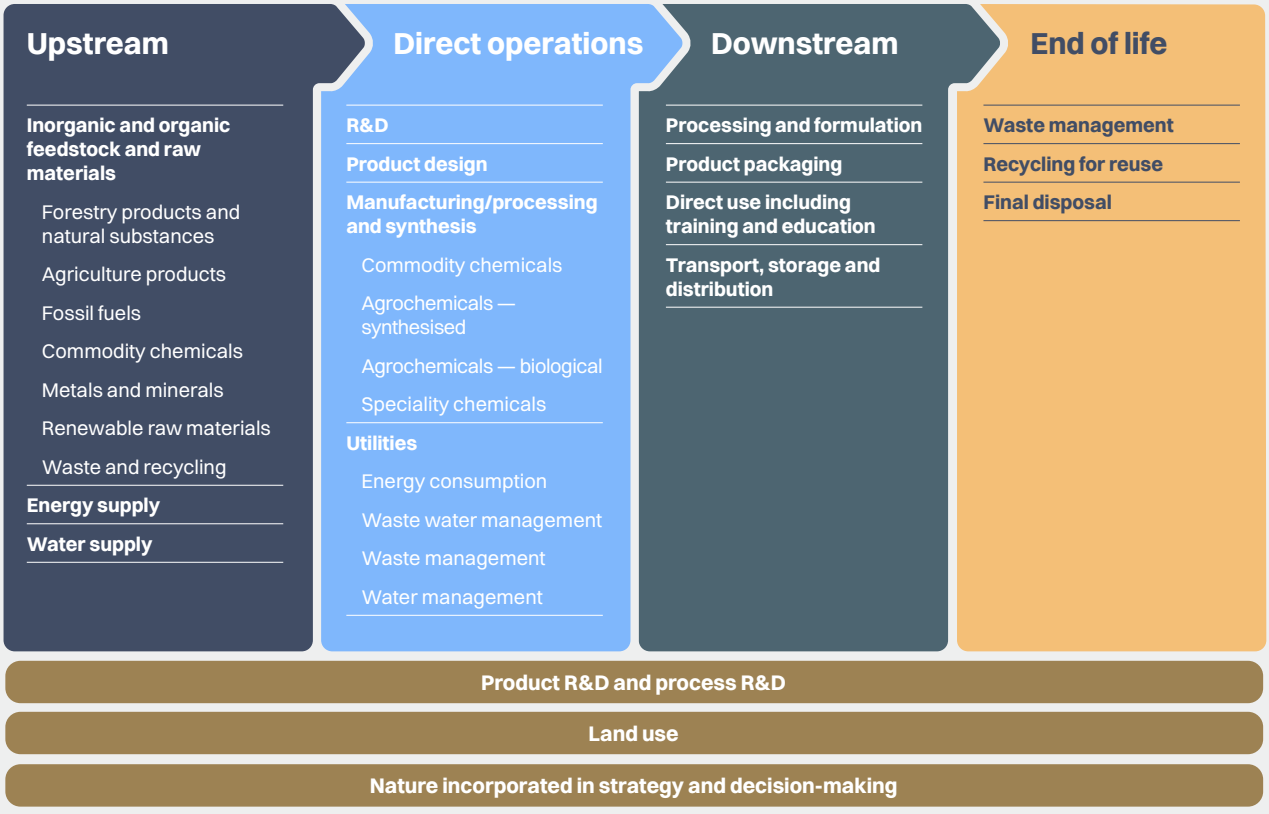
A long and complex value chain

As a large, diversified global sector, providing materials for approximately 95% of all manufactured goods worldwide, the chemical sector's value chain is long and complex, as Figure 1 illustrates. Chemicals are typically grouped into commodity chemicals, speciality chemicals, agricultural chemicals and industrial gases. The sector spans the sourcing of raw materials, energy and water, manufacturing, processing, and distribution, and requires specialist disposal and waste management.

It comprises both publicly and privately owned entities, with financial institutions providing various forms of capital across different stages of the value chain. Understanding this value chain is essential to identifying financing needs, investment opportunities and where financial institutions can drive change. One example currently being explored through the GFC Private Sector Financing and Investment Workstream is the financial flows and needs along the cotton clothing value chain. In addition, the upcoming scoping study of the Benefits of Action for the Sustainable Development of Chemicals developed by UNEP, in collaboration with the OECD and WHO, helps strengthen the economic case for action on chemicals and waste.

Chemicals are categorised and classified in different ways, depending on the context and/or geography. Box 1 explains some of the terms important for financial institutions to understand.

Figure 1: The Chemical Sector Value Chain



Source: TNFD (2024b)

Box 1:

What makes a chemical hazardous and how are they named and labelled?

Hazardous chemicals are a diverse range of substances capable of causing acute or chronic harm to human health, posing severe physical risks such as fires or explosions, and inflicting long-term damage on ecosystems if improperly managed. Managing hazardous chemicals is, above all, an identification and targeting problem: the priority is to identify and act on the substances that carry most of the harm.

A definition not a fixed list: The definition of hazardous chemicals is not static; it is a dynamic designation shaped by evolving scientific evidence, regulatory developments, and international agreements. In regulatory and occupational-health use, the term describes substances whose intrinsic properties can harm human health or the environment. The Global Framework on Chemicals (GFC) adopts a definition-by-reference approach, anchoring the term to established international agreements and systems such as the Basel, Rotterdam and Stockholm (BRS) Conventions (United Nations Institute for Training and Research, n.d.), for waste, trade and persistent pollutants; the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) for hazard classification (United Nations Economic Commission for Europe [UNECE], 2023); and the Food and Agriculture Organization (FAO)/ World Health Organisation (WHO) criteria for Highly Hazardous Pesticides (HHPs) (FAO, n.d.).

Hazard is not the same as risk: Hazard is a property of the substance itself, not of any particular pollution event. Risk is a function of both the intrinsic hazard of a substance and the exposure to it: Risk = f (Hazard, Exposure, Vulnerability) (IPCC, 2012). Hazard refers to the intrinsic properties of a chemical, for example toxicity, persistence, and bioaccumulation, while exposure reflects the extent, concentration, duration, and frequency of contact. Vulnerability captures the differing susceptibility of people and ecosystems to harm from the same level of exposure. A substance with hazardous properties may present limited risk under controlled conditions and significant risk where exposure is widespread, frequent, prolonged, or poorly managed in the presence of vulnerable organisms.

The same hazards carry different labels across jurisdictions: This variability is a real challenge for a financial institution assessing portfolio exposure: a chemical classified as of concern in one region may not be flagged in another. Various terms are used including Substances of Very High Concern (SVHC): a formal legal designation under the EU REACH Regulation (EC No 1907/2006), Chemicals of High Concern (CoHC): used mainly by US state jurisdictions to identify chemicals to which children or vulnerable populations may be exposed; Chemicals or Substances of Concern is a term used in the EU, SAICM and the GFC. Pesticides and specifically Highly Hazardous Pesticides (HHPs) are arguably unique in that they are deliberately introduced into the environment. GFC has a specific Target for HHPs, which have their own hazard classification system.

For further explanation, see the Briefing Note: Hazardous Chemicals — Why they matter to financial institutions.



Policy context

One of the most critical concerns relating to the rapid growth of chemical production is that it has outstripped society's ability to adequately assess, monitor and control it. The Stockholm Resilience Centre monitors this global capacity through the planetary boundary for 'novel entities'[2], specifically the percentage of untested chemicals in use worldwide. This share has grown rapidly in recent decades, a clear warning that humanity is introducing new substances into the environment faster than we can ensure they are safe. An urgent science-based global policy response is therefore needed that addresses the interconnected challenges of regulating chemicals, water, nutrients, minerals and energy and the transition to a circular economy.

Global chemicals governance has grown over many decades, comprising international agreements and standards, including the Basel (Secretariat of the Basel Convention, n.d.), Rotterdam (UNEP & Food and Agriculture Organization of the United Nations, n.d.), and Stockholm (Secretariat of the Stockholm Convention, n.d.) (BRS) Conventions, Minamata Convention on Mercury (UNEP, n.d.), Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (UNECE, 2011), and International Labour Organization (ILO) Conventions 155, 170 and 18 (International Labour Organization, 2025). The GFC serves as the overarching voluntary multi-stakeholder framework, presenting a comprehensive plan to guide countries and stakeholders in jointly addressing the lifecycle of chemicals, including products and waste. It builds on and aims to support the development of new global, regional and national policies that address a wide range of interconnected environmental and social impacts and risks. The Intergovernmental Science-Policy Panel on Chemicals, Waste and Pollution (ISP-CWP) (UNEP, 2026a) established in 2025, has been designed to bridge the gap between science and policymaking, and crucially, will play a critical role in complementing existing science-policy bodies on biodiversity (IPBES) and climate change (IPCC) which together, are recognised as the 'triple planetary crisis' (Qadeer et al., 2026).

International policy increasingly recognises the interconnectedness of planetary boundaries, including water security, nutrient cycles (nitrogen and phosphorus) and resource extraction. For example, the UN Kunming-Montreal Global Biodiversity Framework (Convention on Biological Diversity, 2022a, Convention on Biological Diversity, 2022b) calls for a 50% reduction in risks from pesticides and highly hazardous chemicals by 2030. While no binding international framework specifically addresses nutrient pollution, initiatives such as UNEP's Global Partnership on Nutrient Management (GPNM) (UNEP, 2025) and United Nations Environment Assembly (UNEA) Resolution 4/14 (United Nations Environment Assembly, 2019) promote coordinated action on nitrogen and phosphorus management.

The governance of rare earth metals and critical minerals, however, remains fragmented across voluntary standards.

Financial risks associated with chemical production, use and disposal

Hazardous chemicals are a substantial and growing driver of financial risk. They continue to be released into the air, water and soil from many sources in large quantities, and have well-documented significant negative impacts on human health, ecosystems and economic activity. These impacts arise across the entire life cycle of materials and products. Understanding where along the value chain these hazards emerge is critical for institutional investors in assessing their exposure.

The cost of environmental damage is enormous: chemical pollution degrades the ecosystem services that underpin all economic activity: an estimated US$44 trillion of economic value generation, over half of global GDP, is moderately or highly dependent on nature and its services (World Economic Forum, 2020). For banks specifically, roughly 75% of Euro-area bank loans are extended to firms highly dependent on at least one ecosystem service (European Central Bank, 2023).

2 The planetary boundary for Novel Entities covers a wide range of human-made materials and substances — including synthetic chemicals, heavy metals, plastics, radioactive materials, and even genetically modified organisms.

The estimated cost of continued ecosystem degradation is at least US$479 billion a year (TNFD, 2024). The chemical sector was identified as generating over 6% of the overall impact on biodiversity from companies (Finance for Biodiversity Foundation, 2024). ChemSec has noted that the sector threatens 20% of the world's endangered species; for some, it is the principal factor driving their extinction (ChemSec, 2023b).

Human health impacts are equally significant. WHO estimates that in 2016 around 13.7 million deaths in the world — 24% of all fatalities — were linked to environmental factors, including chemicals, waste and pollution (WHO, 2025). Globally, 2 million lives and 53 million disability-adjusted life years (DALYs) were lost in 2019 due to exposure to selected chemicals (WHO, 2021). Further, hazardous chemicals give rise to several types of environmental injustice through exposure to hazardous chemicals and waste throughout their supply chains and life cycles. Vulnerable and at-risk groups are disproportionately impacted.

Financial institutions exposed to chemical producers may therefore face several types of financial risk generated by these impacts: contaminated sites lose value, polluting companies face cleanup costs and liability claims, and regulatory tightening can strand assets or disrupt operations. Investors in nearly all other economic sectors are not immune, given the ubiquity of chemical use in manufactured and agricultural products. In short, chemical pollution risk can materialise in investment portfolios as physical risks, as well as litigation, regulatory, market and reputational risks — all more fully described in the Briefing Note 'Hazardous Chemicals — Why they matter to financial institutions'. Together, these dynamics can affect companies' creditworthiness, collateral values, insurance losses, operational resilience and long-term portfolio performance.

Under the ESRS double-materiality approach, a sustainability matter is considered material if it is material from either perspective or from both. The Global Reporting Initiative (GRI) standards focus on impact materiality, while the International Sustainability Standards Board (ISSB) Standards focus on sustainability-related risks and opportunities that could reasonably be expected to affect an entity's financial prospects. For certain investors, long-term impacts can be particularly decision-useful. In the context of pollution, this could mean that cumulative impacts over time can be assessed as material, even if in the short term they may not be deemed as such.

By using a 'double materiality lens' investors can deepen their understanding of the cumulative impacts that hazardous chemicals will have on people and ecosystems. Under the European Sustainability Reporting Standards (ESRS), double materiality considers sustainability-related impacts and risks from two complementary perspectives:

i. the actual or potential impacts of the organisation on people and the environment, including over the long-term (impact materiality);

ii. the effects that sustainability-related risks and opportunities may have on, among others, the organisation's financial position, including over the long-term (financial materiality) (EFRAG, 2022).

Table 1 below outlines how chemical-related risks can affect each type of financial institution.

Table 1: How chemical-related risks can affect financial institutions

Risk driver	Investors	Banks	Insurers
Physical risks: acute incidents (fires, explosions, spills)	Losses and disruption at investee companies	Borrower disruption and reduced ability to repay; damaged collateral	Property, business interruption, marine and environmental claims
Physical risks: chronic pollution and ecosystem degradation	Lower productivity and returns in dependent sectors	Weaker borrowers in agriculture, fisheries and other highly dependent sectors; contaminated land as collateral	Agricultural and environmental claims; impacts of pollution-related increased mortality and morbidity on life and health insurers; changing risk profiles
Transition: regulation (restrictions, phase-outs, stricter limits)	Falling valuations; stranded assets	Lower repayment capacity; stranded collateral; refinancing risk	New exclusions needed; changes in insured risks
Transition: market and technology shifts	Loss of market share and value	Weaker borrowers in exposed sectors	Changing demand for cover
Transition: regrettable substitution	Capital spent on transitions that do not reduce risk	Financing transitions that later need refinancing	Risks re-emerging under new substances
Liability: litigation (mass torts, remediation, disclosure)	Share price falls; securities claims	Default; contaminated collateral; possible lender liability	Liability and directors' and officers' claims; reserve increases; coverage disputes
Health and worker impacts	Litigation and reputational risk for investees	Borrower disruption and reputational risk	Employers' liability, workers' compensation, health and life claims
Reputational	Reputational damage from holdings	Reputational damage from lending	Reputational damage from underwriting and investment
Withdrawal of insurance cover	Uninsured liabilities borne by investees	Higher credit risk as borrowers bear uninsured liabilities	Protection gap; reduced business

As these risks are better understood, the investment case for seeking safer and more sustainable chemical alternatives and better waste management solutions builds. The transition towards the sound management of chemicals and waste presents significant opportunities. Innovation in safer alternatives, green and sustainable chemistry, pollution prevention technologies, cleaner production processes, improved waste management systems and circular business models is creating new markets and investment opportunities.

Once a substitution has been decided, it is important to conduct an alternatives assessment, which is the structured process that supports a substitution decision, based on minimum criteria for demonstrating that a candidate is genuinely safer. Several frameworks provide structured methodologies for identifying genuinely safer substitutes and avoiding regrettable substitution, including OECD Guidance on Key Considerations for the Identification and Selection of Safer Chemical Alternatives (OECD, 2021a) and the Interstate Chemicals Clearinghouse (IC2) Alternatives Assessment Guide (IC2, 2025).

UNEP's ten Objectives and Guiding Considerations for Green and Sustainable Chemistry together with the Green and Sustainable Chemistry: Framework Manual give the finance community a common reference for identifying where capital directed toward safer chemistry both lowers downside risk and captures the growth in demand for verified safer products (UNEP, 2021)

For further explanation, see the Briefing Note: 'Safer Alternatives – why they matter to financial institutions'.

How can financial institutions assess chemical impacts and risks?

Financial institutions responses need to be multifaceted and can include:

- identifying sectors and clients where hazardous chemicals present material exposure;
- embedding chemicals criteria in sector policies, due diligence and credit risk assessment;
- engaging with clients or investee companies on substitution strategies, with the greatest leverage at the point a company seeks capital to make a change;
- directing capital toward safer chemistry innovation, commercial scale-up and process substitution, which needs finance at a scale not yet committed;
- working through multi-stakeholder or industry initiatives to harmonise methodologies and improve data availability;
- proactively engaging with regulators, scientific bodies and other stakeholders to anticipate emerging risks and evolving policy expectations, and shape policy.

The Briefing Note: 'Hazardous Chemicals – Why they matter to financial institutions', another resource produced by the Private Sector Financing and Investment Workstream, provides more detailed guidance on each of these actions. In summary, it outlines that financial institutions can take the following steps:

Assess chemicals-related impacts and risks across their lifecycle and exposure pathways: Chemical risk depends not only on which substances an entity uses, but on how they are produced, used, released, and managed, and on who or what is exposed. The widespread and long-lasting impacts of chemicals have resulted from the accumulation of multiple chemicals over time. It is therefore essential that financial institutions consider both the intrinsic hazards of chemicals and their exposure pathways when assessing chemicals-related risks in their portfolios or considering new investments, rather than focusing solely on the risks associated with individual substances and products at a particular point in time.

Keep up with emerging science and understanding: As new substances are synthesised and as understanding of toxicity, environmental impacts, and exposure pathways improves, the boundary of what is considered hazardous continues to expand. Chemicals once considered safe have repeatedly turned out to carry hidden costs, from asbestos to leaded fuel and PFAS, today's most prominent example. What counts as hazardous can shift quickly as evidence accumulates. For financial institutions, this implies that risk extends beyond currently regulated substances to those that may be reclassified or newly identified as harmful over time, thus creating a "known unknowns" problem. Financial institutions' analysis needs to extend beyond those chemicals currently subject to regulation.

Avoid regrettable substitutions: Replacing a restricted chemical with a structurally or functionally similar alternative that later proves to have comparable hazards is known as a regrettable solution. Well-known examples are BPA being replaced by structurally similar BPS and BPF, long-chain PFAS replaced by short-chain variants with similar persistence (Rochester & Bolden, 2015), and parathion replaced by chlorpyrifos, one organophosphate HHP by another (OECD, 2021a).

This underlines the importance for financial institutions of conducting chemical risk assessments on a broader set of substances than those currently on regulatory lists to consider emerging scientific evidence, chemicals under regulatory scrutiny, similar substance groups, value-chain exposure pathways and potential future liabilities. This is particularly important given evidence that the planetary boundary for the introduction of novel entities has already been exceeded — as noted earlier.

Remember that risks can compound and accelerate: Transmission channels often reinforce and accelerate one another. Once a substance becomes a 'hot topic', whether through scientific reclassification, media attention, regulatory review, or heightened consumer concern, a ratcheting dynamic can emerge. Consumer awareness can drive regulatory action; regulation can trigger litigation; litigation and media coverage can further intensify public concern and investor pressure, which in turn can accelerate additional regulatory tightening and market responses. For investors, particularly large institutions that are universal owners, this compounding effect means that pollution and chemical-related risks can materialise more rapidly and systemically than conventional risk assessment frameworks may anticipate.

Hazardous chemicals drive systemic risks: The current business model for producing, using and disposing of chemicals, particularly hazardous chemicals, should be recognised by financial institutions as a key contributor to various systemic risks, including climate change, nature loss and deteriorating human health. Given that systemic risks undermine investors' ability to generate returns for their clients in the long-term, it is important they work to actively shape new business models based on safe and sustainable chemistry, within circular systems.

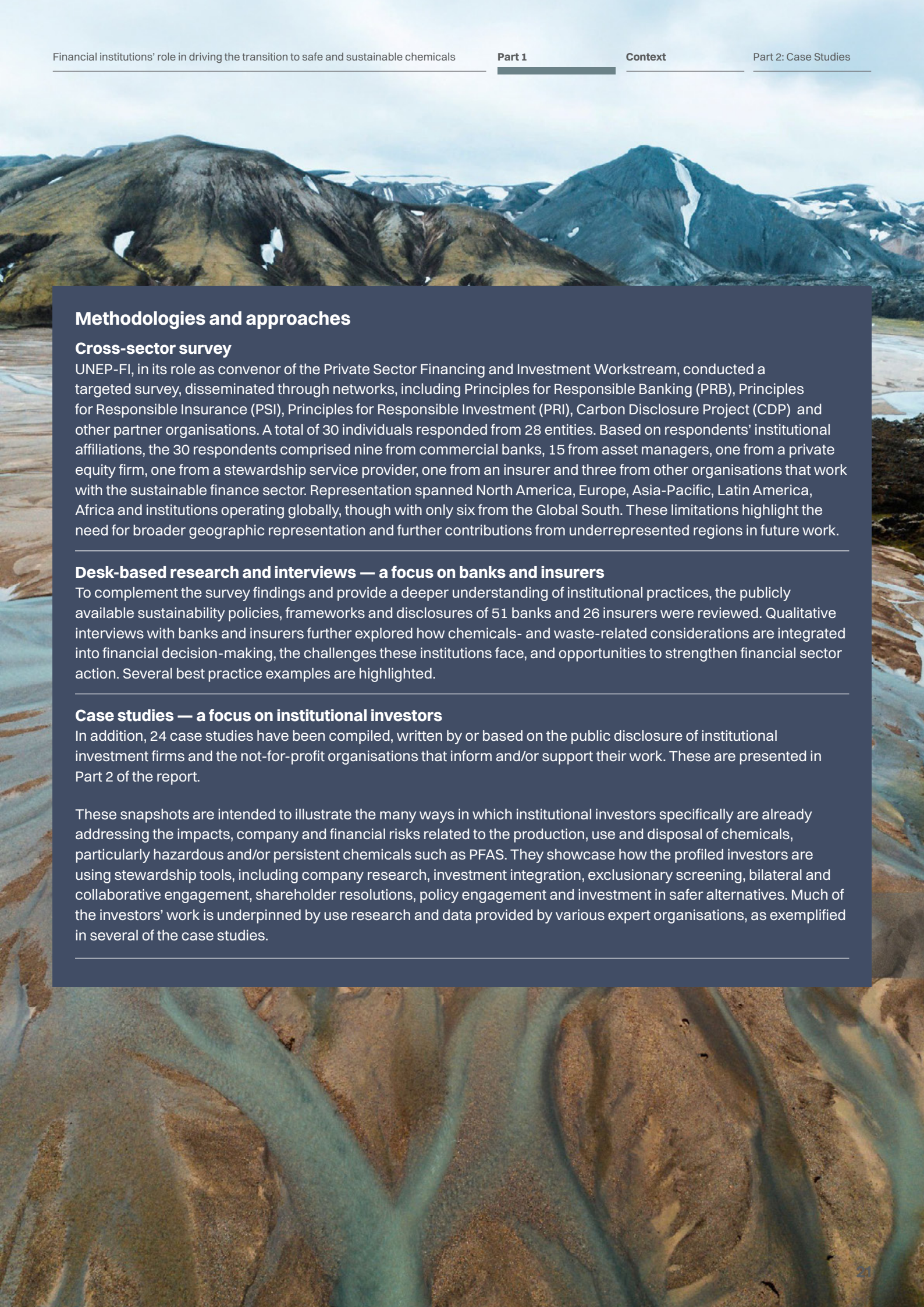
Take advantage of the full range of touchpoints with clients or investees to promote safer and sustainable approaches to chemicals. These touchpoints include engagement via bilateral or collaborative engagement initiatives, due diligence or credit assessment processes, underwriting, renewals and risk advice, among others. Onboarding, renewal, refinancing and requests for new finance or insurance cover are points at which financial institutions can most easily ask for information, set conditions and agree action plans.

Make chemicals an explicit part of ESG policies, due diligence and other relevant policies and requirements. Although relevant to many policy areas, where not made explicit and systematic, chemical risks and impacts can be overlooked compared with more established environmental and social policy areas.

Support and incentivise the transition to safer alternatives. Financial institutions have a key role not only in addressing poor practices but also in promoting the transition to safer alternatives. Sustainability-linked loans, for example, can include targets on hazardous substance phase-out, hazardous waste reduction or wastewater quality, with independent verification and loan terms linked to outcomes. Underwriting and risk engineering can also support the transition, helping clients manage chemicals safely and plan substitutions. Insurers can also play a unique role in directly implementing safer and sustainable alternatives by stipulating their use when repairing or reinstating property.

Financial sector landscape analysis

The GFC Private Sector Financing and Investment Workstream used three approaches to gain an understanding of how the finance sector currently identifies, assesses, governs and manages chemicals-related risks and opportunities, and the remaining challenges and data needs. The three approaches comprised an online survey, desk research and interviews, and the compilation of 24 case studies.



Methodologies and approaches

Cross-sector survey

UNEP-FI, in its role as convenor of the Private Sector Financing and Investment Workstream, conducted a targeted survey, disseminated through networks, including Principles for Responsible Banking (PRB), Principles for Responsible Insurance (PSI), Principles for Responsible Investment (PRI), Carbon Disclosure Project (CDP) and other partner organisations. A total of 30 individuals responded from 28 entities. Based on respondents' institutional affiliations, the 30 respondents comprised nine from commercial banks, 15 from asset managers, one from a private equity firm, one from a stewardship service provider, one from an insurer and three from other organisations that work with the sustainable finance sector. Representation spanned North America, Europe, Asia-Pacific, Latin America, Africa and institutions operating globally, though with only six from the Global South. These limitations highlight the need for broader geographic representation and further contributions from underrepresented regions in future work.

Desk-based research and interviews — a focus on banks and insurers

To complement the survey findings and provide a deeper understanding of institutional practices, the publicly available sustainability policies, frameworks and disclosures of 51 banks and 26 insurers were reviewed. Qualitative interviews with banks and insurers further explored how chemicals- and waste-related considerations are integrated into financial decision-making, the challenges these institutions face, and opportunities to strengthen financial sector action. Several best practice examples are highlighted.

Case studies — a focus on institutional investors

In addition, 24 case studies have been compiled, written by or based on the public disclosure of institutional investment firms and the not-for-profit organisations that inform and/or support their work. These are presented in Part 2 of the report.

These snapshots are intended to illustrate the many ways in which institutional investors specifically are already addressing the impacts, company and financial risks related to the production, use and disposal of chemicals, particularly hazardous and/or persistent chemicals such as PFAS. They showcase how the profiled investors are using stewardship tools, including company research, investment integration, exclusionary screening, bilateral and collaborative engagement, shareholder resolutions, policy engagement and investment in safer alternatives. Much of the investors' work is underpinned by use research and data provided by various expert organisations, as exemplified in several of the case studies.

Findings

Survey: A gap between exposure and response

While the survey is not statistically representative of the global financial sector, it provides a snapshot of practices among institutions already engaged, or beginning to engage, with chemicals-related impacts and risks management. The low number of respondents may further suggest that more needs to be done to raise awareness of, and investor action on, hazardous chemicals. This was particularly the case among Global South respondents, who reported lower awareness and activity than others.

Overall, the results indicate a clear gap between exposure and systematic integration: respondents note substantial exposure to many chemical-intensive sectors, with the majority confirming that many are already considering chemicals through regulatory monitoring, client or investee engagement or broader environmental risk processes. Nevertheless, dedicated chemicals-related assessment remains limited. All banking sector respondents indicated that regulatory tightening had not yet led to any commercial adjustments, nor had they allocated dedicated ownership for chemicals risk in their organisation. Critically, across the cohort, lack of data, standardised metrics or definitions and lack of regulatory requirements were the biggest constraints for non-banking respondents. The lack of supervisory expectations and bankable financing structures were most prominent. The results also indicate potential appetite for financing safer chemistry and materials innovation if appropriate enabling conditions are in place, with only four respondents indicating no interest.

More specifically, in relation to the four broad areas the survey was designed to examine:

1. Institutional awareness and exposure:

- Awareness and engagement with the GFC remain limited, but there is interest in practical support and experimentation. While 19 respondents were familiar with or aware of the GFC and its objectives, 11 reported limited or no awareness. Monitoring of chemicals-related regulatory developments also remains uneven: 14 respondents rely on industry bodies or coalitions and five do not actively monitor developments, while only eight monitor across all or most jurisdictions where they operate.

  At the same time, there is interest in deeper engagement: three respondents were ready to explore a GFC pilot partnership immediately and a further 19 asked to be kept informed, suggesting potential to expand financial-sector participation as practical tools and approaches are developed.

- Exposure to chemicals-related impacts and risks extends well beyond the chemicals sector. Respondents reported material exposure across most industries, illustrating the cross-sectoral relevance of chemicals-related considerations for financial institutions and respondents' awareness.

- However, visibility across chemicals value chains remains limited. Only three respondents reported systematically mapping where clients or investee companies sit within chemicals value chains. Fourteen do so partially for selected high-exposure sectors or transactions, while eleven either do not map value-chain position or indicated that even the question is not familiar to them.

2. Data availability and decision-making

- Data and standardisation represent a particularly significant gap. Twenty-three respondents identified the absence of standardised chemical hazard, use, emission or impact metrics as their most significant data gap. Existing data use is fragmented, with NGO indexes or benchmarks representing the most frequently cited source (19 respondents), ahead of client/issuer self-reported data and third-party ESG data (15 each). Existing disclosure frameworks also appear insufficient: only two respondents (7%) considered them adequate, while 24 reported significant gaps or that current frameworks do not provide useful chemicals-related information.

- The lack of regulatory requirements and enabling environment is another important constraint. The absence of standardised metrics or definitions and the lack of regulatory requirements or supervisory expectations were jointly the most frequently identified internal constraints, with nine responses each. Regulatory fragmentation was also viewed as a meaningful barrier.

3. Chemicals-related impacts and risks management practices.

- Chemicals considerations are entering financial decision-making, but largely through existing processes. Ten respondents reported that chemicals-related impacts and risks are subsumed within general environmental risk rather than separately identified, compared with seven reporting dedicated ownership and systematic integration into risk and ESG processes. Chemicals-specific practices nevertheless exist: eleven respondents apply exclusions for specific chemicals or categories, and ten follow clients' engagement requirements related to chemicals management.

4. Financing opportunities and future engagement

- An emerging appetite exists to finance the chemicals transition, but enabling mechanisms are needed. Five respondents are already investing in, financing or exploring safer chemistry and materials innovation, including three banks, while another 14 indicated that it could be viable with appropriate risk-sharing structures. Respondents identified data, traceability and reporting systems as the largest financing gap, followed by scaling proven safer alternatives from pilot to mainstream.
- Regulatory tightening has prompted engagement but it has not yet translated into widespread changes in financial decision-making: nine respondents reported no action and three indicated that action remains under consideration. Where action has been taken, it has primarily involved client or investee engagement (13 respondents), with few reporting enhanced due diligence or risk-management requirements (3 respondents) or material portfolio adjustments (1 respondent).

Qualitative research and interview findings: Existing approaches and emerging practices

Qualitative research comprising a review of publicly available policies and frameworks, alongside interviews with financial institutions, examined how banks and insurers address chemicals-related considerations in practice. The findings from this research, and the interviews, reinforce the survey results, while providing further insight into existing approaches and emerging practices.

Banks

The review of 51 banks' published policies found that chemicals remain relatively marginal in banks' public frameworks, which are dominated by climate, deforestation, biodiversity and human rights,[3] and many of the largest banks have no chemicals sector policy. Interviews suggest that chemicals typically receive little attention where banks do not see chemical production as material to their portfolios.[4] Banks most often engage with chemical risks through exclusions and due diligence. Exclusions typically apply to chemical lists drawn primarily from one of two sources:

1. International conventions and classifications, including chemicals listed in the Stockholm Convention, Rotterdam Convention, the WHO pesticide hazard classes and the Basel Convention.

2. Development finance institution (DFI) templates, especially the exclusion list of the International Finance Corporation (IFC, 2007).[5] This is particularly common for financial institutions in the Global South which adopt these lists as a condition of DFI financing and frequently extend the list across their portfolio. These lists typically cover PCBs, asbestos, ozone-depleting substances and internationally banned pesticides and pharmaceuticals, but do not usually extend to chemicals of concern that are legal.

3 Desk review of the published policies, exclusion lists and disclosures of 78 financial institutions (51 banks, 26 insurers and reinsurers and one insurance broker) across Europe, North America, Latin America and the Caribbean, Asia, Africa and the Middle East, including all 31 members of the GFC Private Financing and Investment Workstream. Conducted for this report, October 2026. The review covers published policies only and not any unpublished internal approaches or how these might be applied in practice.

4 Interviews conducted for this report, October 2026.

5 IFC Exclusion List. IFC Performance Standard 3 (2012) on resource efficiency and pollution prevention also sets requirements on pesticide use and management for IFC clients.

Rather than outright exclusions, some banks set general expectations and recommendations about how clients manage chemical risks. In some cases, they may encourage but not require chemical manufacturers to phase out chemicals listed under the Stockholm and Rotterdam conventions (CIMB Group, 2025). Others focus on verifying compliance with national requirements concerning hazardous substances, such as requirements around licensing, storage, spill containment, labelling, handling of expired chemicals and protective equipment for workers, among others (Nedbank Group, 2020)

One bank interviewed described how it applies hazardous chemical exclusions by checking that clients hold an operating license from the national environmental regulator, relying on the regulator's own assessment. Another relies on a high-level questionnaire, which is mentioned as a required practice by all banks in its market, that addresses hazardous chemicals mainly in terms of regulatory compliance in handling and disposal. Low scores can raise a client's ESG risk rating and interest rate, leading to engagement on a case-by-case basis rather than rejection.[6]

The effectiveness of such legal approaches depends on the extent to which national law addresses chemicals. While national frameworks may be extensive in some countries, in many others, operating licenses show whether a company is authorized to operate, not which hazardous chemicals it uses, emits or disposes of, nor its exposure along the value chain. In addition, enforcement in many countries is weak, and a license may not guarantee that prohibited practices around chemicals are not happening.

Problems identified during due diligence, especially if a client cannot show that legal requirements are met, can result in a transaction not going ahead. In other cases, gaps or identified issues may lead to a time-bound action plan, a higher risk category and closer monitoring. Where action plans are agreed, banks may follow up with further site visits, and some have withheld disbursement until clients address the issues identified. Because action plans are not always binding, some banks are considering including them in loan covenants in the future.[7]

Beyond their management of chemical storage and waste, and the exclusion of certain chemicals, very few banks address the hazard of the products clients make or sell, or the availability of safer alternatives. In addition, many chemicals policies cover only manufacturers, not the distributors, traders and storage providers through which many risks arise. Rabobank, a Dutch cooperative bank and major agricultural lender, is an example of a proactive approach. The bank does not accept producers of synthetic crop protection products that do not have a plan for moving away from highly hazardous pesticides, as defined by FAO and WHO, towards alternative ingredients, technologies or farming approaches such as integrated pest management. The bank also monitors clients' product stewardship and hazardous waste management (Rabobank, 2026). Its policy is one of very few that makes a transition to safer alternatives a condition of finance. In addition, Rabobank actively supports customers who are farmers and growers in the Netherlands to invest in transitioning towards sustainability through a EUR 3 billion package. Through this initiative, Rabobank provides loans at lower interest rates and attractive terms for initiatives related to sustainable energy, circular production, biodiversity, and reduced emissions. This includes approaches to reduce use of chemicals agents in farming (Rabobank, 2026).

To date, disclosure of chemical risks and impacts among banks is minimal, with only four of 21 European banks assessing pollution as material under ESRS S2 (Pollution) in their first statements under the EU Corporate Sustainability Reporting Directive (CSRD) (Leleux & Tillier, 2025). ESRS E2 includes disclosure requirements relating to pollution of air, water and soil, as well as substances of concern and substances of very high concern (Conselho Monetário Nacional Resolutions, 2021a, 2021b; TNFD, 2024). The GRI standards widely used internationally and currently being updated, also address aspects of chemicals-related pollution for instance through disclosures on water and effluents (GRI303) and waste (GRI306), although they do not provide a dedicated, comprehensive standard for hazardous chemicals.

6 Interviews conducted for this report, October 2026.

7 Interviews conducted for this report, October 2026.

Banks that have signed the Principles for Responsible Banking can address pollution through impact analysis and target setting, supported by UNEP FI's pollution blueprint for banks, which maps GFC targets to categories of bank action, and its 2025 sector guidance on pollution reduction and management (UNEP FI, 2024, 2025a, 2025b).

Trade finance represents an area of bank activity where transactions are typically short-term and environmental and social checks are usually much lighter than for project lending.[8] It is therefore possible that risks around chemical exports, such as pesticides, may be under-examined by banks. Banks' approaches vary by region and country. Development finance institution exclusion lists play an important role in the Global South and parts of Eastern Europe.[9] Where financial regulators or supervisors have issued environmental risk guidance or reporting requirements, such as in Singapore (Monetary Authority of Singapore, 2020), Malaysia (Bank Negara Malaysia, 2021) and Brazil (Banco Central do Brasil, 2021; Conselho Monetário Nacional, 2021a, 2021b), chemicals policies tend to be more developed. In China, compliance with green credit rules affects banks' assessment of chemical risks (China Banking Regulatory Commission, 2012). Agrochemicals are a particular concern in Latin America and PFAS liability is a prominent issue in Europe and North America.[10]

Insurers

The review of 26 insurers and reinsurers found that insurers rarely mention chemicals in sustainability policies but do address them in their core business.[11] PFAS exclusions are becoming standard in liability policies, with model wording for the US (Independent Insurance Agents & Brokers of America, n.d.), London (Lioubimova & Brijpaul, 2025; Lloyd's Market Association, 2023) and Canadian markets (Izenberg, 2025). Exclusions send a powerful market signal, but can also leave uninsured entities, investors and stakeholders exposed. Rather than blanket exclusions, some insurers grade clients' PFAS risk. Zurich Insurance Group, for example, grades PFAS risk to decide which industries and clients need closer review by its risk engineers, applying exclusions only where needed (Zurich Insurance Group, 2022).

The review also found that some insurers offer pollution insurance aimed explicitly at companies that handle toxic substances.[12] For these products to have a positive impact, it is important that thorough due diligence and risk management support are in place. In China for instance, the government has promoted this market through pilot schemes, some of which have been compulsory for high-risk industries (Ministry of Environmental Protection & China Insurance Regulatory Commission, 2013). National law may also make a range of insurance policies compulsory. In Ethiopia, for example, the law requires transporters of hazardous waste to insure consignments against liability for harm to health or the environment from accidental release, and applicants for authorization to store hazardous waste to take out liability insurance before starting operations (Federal Democratic Republic of Ethiopia, 2018).[1]

Similarly to banks, insurers also apply their own due diligence requirements for underwriting. Property cover for chemical plants and warehouses, for example, may require surveys of containment, fire suppression, separation of incompatible chemicals and emergency response, without which reinsurers will not accept the risk. Employers' liability and workers' compensation are typically linked to compliance with occupational safety and toxic exposure standards. Insurers may decline risks, especially where they do not meet regulatory standards. Beyond chemical manufacturing and handling, sectors like tanneries, textiles, agrochemicals and pharmaceuticals were of particular concern, especially in the Global South.[13]

8 The Equator Principles (Equator Principles Association, 2020), for example, apply to project finance and project-related corporate loans, but not to trade finance.

9 Including the IFC Exclusion List (IFC, 2007), IDB Invest's exclusion list (IDB Invest, 2022) and the African Development Bank's exclusion list, and the exclusion list of the Multilateral Investment Guarantee Agency.

10 Desk review conducted for this report, October 2026.

11 Desk review conducted for this report, October 2026.

12 Desk review conducted for this report, October 2026.

13 Interviews conducted for this report, October 2026.

Findings from the case studies

The 24 case studies contributed by institutional investment firms and not-for-profit organisations they work with illustrate how investors are already addressing the impacts and risks related to the production, use and disposal of chemicals, particularly hazardous and persistent chemicals such as PFAS. They also demonstrate how investors use research and data provided by expert organisations to inform investment decisions and stewardship activities.

The case studies highlight a range of approaches and emerging practices:

- **Growing availability of research, data and tools:** Expert organisations are developing company research, chemical hazard assessments, disclosure frameworks, benchmarks and standardised metrics to help investors identify and assess chemicals-related risks, inform investment decisions and support stewardship activities. However, the lack of harmonised definitions, comparable data and corporate disclosure continues to constrain systematic investment analysis.
- **Emerging use of investment integration and exclusionary screening:** Some investment managers are combining external data sources with internal research to assess portfolio exposure to hazardous chemicals and identify financially relevant risks. A small number have also developed exclusionary screening policies, primarily focused on PFAS, often combined with company engagement.
- **Increasing use of bilateral and collaborative investor engagement:** Investors are engaging with chemical producers and downstream users, including companies in the apparel, cosmetics and agricultural sectors, to improve transparency, strengthen chemicals management, establish time-bound phase-out commitments and encourage the development and adoption of safer alternatives. While some engagements have delivered tangible progress, the pace of change remains uneven, and many sectors and value chains remain unaddressed.
- **Use of multiple stewardship approaches:** Investors combine company research, investment integration, bilateral and collaborative engagement, shareholder resolutions and policy engagement to address chemicals-related risks. Shareholder resolutions have also been used to drive change among chemical producers and users.
- **Growing engagement with policymakers:** Investors and supporting organisations are engaging with policymakers and policy processes – like the GFC - to advocate for stronger chemicals regulation, improved corporate disclosure and policy measures that support the transition to safer chemicals. Research platforms are also being used to track corporate and industry association lobbying activities.
- **Emerging investment in safer alternatives:** The case studies illustrate opportunities to invest in safer chemistry solutions, including through venture capital. However, relatively few examples of investment firms specifically focused on safer alternatives were identified.

Taken together, the case studies demonstrate that some institutional investors are using a range of stewardship tools from research and investment integration, to engagement and voting, to address hazardous chemicals and support the transition to safer alternatives. However, these practices are not yet widespread, and limitations in data, disclosure and standardisation continue to constrain broader adoption. The examples illustrate approaches that could inform and support more widespread action across this sector.

Conclusions

The *Global Framework on Chemicals* recognises that the financial sector plays a central role in delivering its vision: a planet free from harm from chemicals and waste – and asks the sector to work with other stakeholders to implement the Framework.

The case studies illustrate exactly this: how leading investors — and the NGOs that support them — are already rising to that challenge and actively helping to deliver several GFC Targets — not limited to those that explicitly mention the finance sector. The cases profiled clearly show that beyond being a source of capital, the sector is increasingly a critical driver of systemic change, helping to spur the transition to a global economy based on safe and sustainable chemicals.

While chemical pollution has already resulted in significant financial losses for individual companies, these have often been treated as company-specific or idiosyncratic risks rather than as indicators of broader portfolio exposure. This may partly explain why, despite growing evidence of chemicals-related financial risks, the survey, qualitative research and interviews indicate that systematic financial-sector responses remain far from mainstream. Long-tail liabilities and the cumulative impacts of chemical pollution can also emerge over extended periods, making them difficult to capture through conventional risk assessment approaches. While the case studies illustrate practical routes to GFC implementation among leading institutional investors, the next phase must be to extend and scale action across the financial sector, to make what is now pioneering practice into standard financial practice.

The research, data and tools provided by expert organisations, including a handful of NGOs, clearly play an important role in supporting this transition. Greater funding for such NGOs and other supporting organisations could help financial actors to do more. Financial institutions could also take inspiration from the case studies and choose to place greater priority on and dedicate more resources to tackling chemical pollution. What is not possible at present — but critical — is for the necessary tools to be created to enable investors to identify which companies make which hazardous chemicals, and how much revenues they generate from them, in order to inform their capital allocation decisions. Currently this is very difficult - if not impossible - to do consistently across portfolios.

In the case of banks and insurers, most of their published frameworks do not go beyond excluding internationally banned substances and due diligence around the storage and disposal of hazardous chemicals. Most banks do not have stand-alone policies on chemical risks and impacts, and many do not make chemicals explicit in wider environmental or social frameworks. Many rely on clients' compliance with national licensing, which provides limited information on the chemicals clients use or release, particularly where enforcement is weak. Nonetheless, banks and insurers benefit from ongoing, contractual relationships with clients and, in the case of insurers, a direct role in supporting clients manage risks. They therefore have great potential to support clients transition to safer and sustainable alternatives.

Five principal insights

1. Mismatch between financial risk and response

One of the largest remaining gaps is that the transition has yet to attract capital at anything approaching the scale required. The environmental and social impacts of the production, use and disposal of hazardous chemicals demonstrably give rise to substantial financial risks for financial institutions. Chemical pollution risks can materialise in investment and financial portfolios as physical risks, as well as litigation, regulatory, market and reputational risks. These risks and costs compound in investors', banks' and insurers' often widely diversified portfolios. Yet, it seems few have recognised the scale of the problem and begun to respond accordingly (at least publicly).

The survey provided a snapshot of how financial institutions are responding. With fewer than 30 respondents, it might suggest more needs to be done to raise awareness of, and to drive, greater financial sector action on hazardous chemicals, particularly in the Global South.

2. Some finance sector players are spearheading action

The institutional investors profiled in this report recognise that hazardous chemicals generate serious, mounting impacts for people and nature, which translate directly into financial risks that threaten their ability to deliver sustainable long-term returns to their clients. To address these risks, they are deploying various stewardship tools:

- One of BNPP AM's case studies (#6) illustrates how an investment manager can translate scientific, regulatory and disclosure signals into **investment-relevant research** on long-term risk and transition dynamics. Similar analysis informs exclusion policies, as illustrated by case study 7 which outlines how three different investors use in-depth research to inform their PFAS **exclusion policies**.
- Two case studies — from EOS at Federated Hermes on its engagement with the fast fashion sector and from Nordea Asset Management (NAM) on its engagement to tackle PFAS — demonstrate how these organisations **engage directly with companies** on selected sectors or types of chemicals. These two entities and many other investors take part in the seven ongoing **collaborative engagement initiatives** profiled, demonstrating how the direct and collaborative approaches can be combined.
- Two case studies on **policy advocacy** — from BNPP AM and ShareAction — illustrate how investors can support both international policy development processes like the GFC or the Global Plastics Treaty currently being negotiated, or engage directly with regional (or national) regulators.
- Two case studies — from Mercy Investment Services Inc and IEHN — provide strong evidence of the history and impact of **shareholder resolutions** in the US on a range of topics to drive change among companies.

In addition, a number of banks and insurers are taking important steps, such as banks requiring transitions away from highly hazardous pesticides or linking loan pricing to hazardous waste, and the approaches of some insurers in grading PFAS risk, as explored earlier in this paper.

3. NGOs play a vital role

Seven of the institutional investor sector case studies outline how not-for-profit organisations can support investor action: Clean Production Action (CPA), ChemFORWARD, ChemSec, the Institutional Investors Group on Climate Change (IIGCC), InfluenceMap, Planet Tracker and ShareAction. All of these organisations provide expert in-depth research and briefings, and most design and support collaborative investor engagement initiatives with either companies or policymakers or both.

Eight case studies illustrate specifically those collaborative engagement initiatives facilitated by NGOs, focused primarily on addressing the climate or pollution impacts and risks associated with chemicals including:

- Investor Initiative on Hazardous Chemicals (IIHC), supported by ChemSec.
- Investor Working Group on Biodiversity & Pesticides, supported by the Investor Environmental Health Network (IEHN) of Clean Production Action (CPA), plus similar working groups on the Retail and Consumer sectors and Sustainable Solar. A new initiative — the Global Investor Initiative on Transition to Safer Chemistry (GIITSC) — is also being launched by IEHN, supported by the consulting firm Chronos Sustainability, that focuses on the use of endocrine disrupting chemicals (EDCs) in consumer-facing sectors.
- FABRIC supported by Finance for Biodiversity.
- Pesticides Working Group and Chemical Sector Decarbonisation Initiative supported by ShareAction.
- Climate Action 100+, the Net Zero Engagement Initiative and other tools supported by IIGCC.

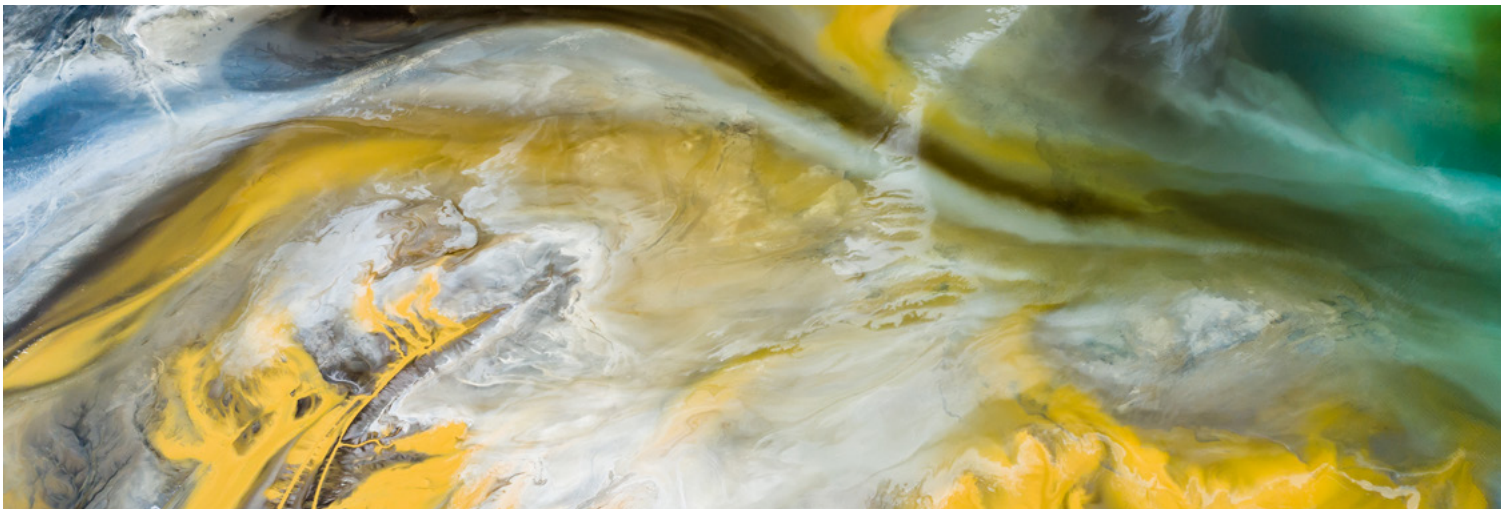
4. Few dedicated investment funds appear to exist for safer alternatives

- There are as yet very few investment firms making this their mission, despite the evident need for a transition to safer and more sustainable chemistry. Safer Made is one notable exception as profiled in case study 24; this appears to indicate that the enabling conditions are not in place to support more such funds, with the result that the flow of capital into these solutions is still vastly inadequate.

- It is also notable that surveyed banks see demand for financing safer alternatives, particularly in Global South supply chains, but they rarely seem to address this in their formal (published) policies. There may, therefore, be a role for blended finance and other incentives and risk-sharing approaches.

5. There are many opportunities – and a clear need – for financial institutions to act

- Very few exclusion policies were identified, even for PFAS. Financial institutions could consider adopting PFAS exclusion policies for all portfolios or for specific funds or clients. The current lack of information about companies' production of other types of hazardous chemicals means it is difficult for financial institutions to extend the scope of these policies. However, when the necessary data is made available, future policies could have a wider scope, covering other types of chemicals.
- Few examples of direct engagement were identified among institutional investors profiled that addressed specific chemical uses or sectors. They and other financial institutions could dedicate more resources to direct engagement with their portfolio companies or clients.
- Many sectors and classes of chemicals are still not covered by existing collaborative initiatives.
- Existing collaborative initiatives could have greater impact if they were supported by more investors.
- Greater use of shareholder resolutions could help drive change. More investors could support the types of shareholder resolutions profiled in the US and potentially file them in other jurisdictions, where appropriate and feasible. However, the US Securities and Exchange Commission's September 2026 proposal to rescind Rule 14a-8 (SEC, 2026) could restrict this avenue for shareholder engagement. Investors could therefore also engage with policymakers to support the continued availability of effective shareholder proposal mechanisms.
- Policy advocacy is a critical but insufficiently used investor stewardship tool. Investors could consider developing greater capability or dedicating more resources to influencing policy and regulatory development in key jurisdictions.
- Banks could do more to integrate chemicals into credit and collateral assessment and to extend policies beyond manufacturers and banned substances.
- Insurers could go beyond exclusions to adopt consistent approaches to chemical risk throughout their underwriting and risk engineering.



What are the enabling conditions for wider action by financial institutions?

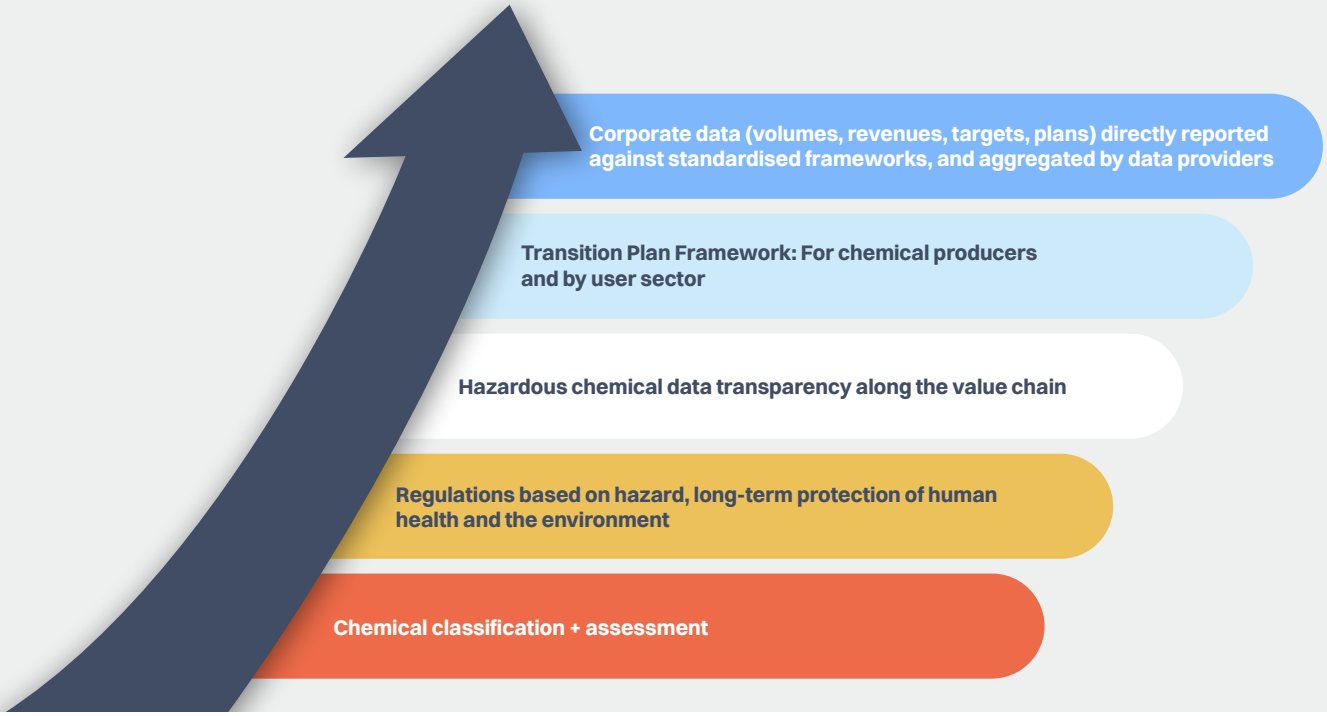
Many institutional investors state that they want to address systemic environmental risks like climate change and nature loss, and the severe impacts on human health. The reasons why they are not already doing more include:

- Inadequate characterisation and assessment of chemical risk.
- Inadequate clear, consistent, long-term-orientated regulation.
- Limited data availability and transparency up and down the value chain, compounded by fragmented information systems and limited comparability and interoperability of existing data.
- Lack of transition planning frameworks for safe and sustainable chemistry.
- Few mandatory corporate disclosure frameworks, and therefore limited corporate reporting of data that can be incorporated into investment decision-making.
- A lack of supervisory expectations for banks.
- A lack of bankable risk-sharing structures for supporting the transition
- Limited understanding of how chemicals relate to institutions' priority sectors beyond chemical production
- Competitive pressure that discourages reflecting chemical risks in loan pricing and conditions

Efforts to improve chemicals-related data availability should build on existing national reporting and information systems, while addressing data comparability, confidentiality, administrative burden and decision-usefulness. Given the complexity of tracking chemicals across companies, production and use activities, and associated revenues, no single database is likely to provide comprehensive coverage. Greater interoperability between existing data sources, complemented by targeted improvements in disclosure and traceability, could therefore help financial institutions better identify and assess chemicals-related exposures.

This suggests that more financial institution (and corporate) action could be spurred by developing several key tools and frameworks, as illustrated in Figure 4.

Figure 4: Enabling conditions for investor action, particularly capital reallocation



Extensive, consistent chemical characterisation and assessment: A major challenge for all financial institutions is that chemical-related risks remain difficult to identify, quantify and monitor consistently across portfolios. In many cases, financial institutions cannot currently adequately assess hazardous chemical exposure, for several reasons:

- While approximately 350,000 chemicals and mixtures are registered for production and use worldwide (Wang et al., 2020) — including tens of thousands whose composition is confidential or only not fully described – only a small proportion have ever been characterised and assessed.
- National inventories under-represent much of South America, Africa, and Asia, primarily due to limited public reporting requirements and because few comprehensive national chemical inventory databases exist.
- There is a gap between what is used in commerce and what is assessed or disclosed.

The work of the GFC thematic workstream on Chemical Footprint Approaches is therefore critical to financial institutions.

Globally aligned chemicals regulation: Despite increasing convergence toward stricter controls on the production, use and disposal of hazardous chemicals, and lifecycle-based approaches to chemical management, regulations across jurisdictions are still inconsistent, with recent developments also illustrating regulatory divergence and, in some cases, the relaxation of existing requirements. Moreover, many are not designed to address the cumulative long-term effects of the use and discharge of thousands of hazardous chemicals into the environment. Regulations affect companies' remediation obligations, compliance costs, asset values, strategic, investment and transition plans and more. These factors all influence financial institutions' views and capital allocation decisions. Conversely, consistent, long-term-oriented regulation incorporating appropriate hazard-based and risk-based approaches could help create more predictable conditions for financing safer chemistry and materials innovation. Related to national regulation, clear expectations, frameworks and requirements from national financial regulators and banking supervisors are key to driving change among financial institutions.

Full data transparency along value chains: Many chemicals are deeply embedded within complex global supply chains with limited traceability. Financial institutions often lack sufficient information to understand where hazardous chemicals are being produced, used, emitted, or accumulated within clients' or issuers' value chains. This type of information remains fragmented and inconsistent — in part due to the challenges outlined above relating to classification and assessment — and is sometimes commercially sensitive. Moreover, traditional environmental and social risk assessment frameworks are often not designed to capture diffuse, long-tail, evolving chemical-related risks across portfolios. The GFC workstream on Transparency, Traceability, and Disclosure along Value Chains should help to overcome this constraint (Inter-Organization Programme for the Sound Management of Chemicals, n.d.)

A Transition Plan Framework for Safe and Sustainable Chemistry: Many companies' progress towards decarbonisation has been greatly facilitated by the development and subsequent adoption of a framework for climate transition planning. (See the work of the Transition Plan Taskforce - Framework for Climate Disclosures, 2023) A large number of companies have published one or more Climate Transition Plans (and put them to regular investor votes). As the transition to safer and sustainable chemicals will be measured in years and decades, a similar framework that companies could use to plan their transition, and measure progress would be invaluable. Such a framework would outline how companies should tackle meeting sustainable chemistry goals in terms of long-term ambitions, short and medium-term commitments and targets, board and executive oversight, allocation of R&D and capital expenditures, integration across business units, supply chain management and policy advocacy. Once companies adopt and publish plans against such a framework, financial institutions will more easily be able to understand risks, dependencies and opportunities, and determine how to direct finance towards specific sectors, product types and companies and drive the commercialization and adoption of safer and more sustainable chemistry. It would also support investor financial institutions' engagement with clients or investee companies, and investors' voting decisions.

Corporate risk assessment and reporting frameworks and directly reported data: Corporate reporting requirements do exist, but vary significantly across jurisdictions; some are mandatory, some are voluntary. The lack of consistent corporate disclosure requirements between countries and regions restricts the data available to investors, whether gathered directly from corporate disclosures or via large ESG data providers like MSCI and Morningstar Sustainalytics. If these providers made available more comparable, material and decision-useful data on companies' production and use of hazardous chemicals, building on existing sustainability disclosure frameworks, financial institutions would be much more likely to act. Worker exposure in the value chain is one area that is increasingly a reporting item in its own right — for example, under ESRS S2 and the relevant industry-specific SASB standards — giving institutions decision-useful information on how clients or investee companies manage the chemicals they produce or use. Relevant frameworks include ESRS E2, which addresses substances of concern and substances of very high concern, and GRI Standards currently being updated, covering relevant pollution, waste and worker health and safety impacts. Greater interoperability between GRI, ESRS and ISSB reporting frameworks could further improve data comparability. These challenges are also being addressed by the thematic GFC workstream noted above as well as a separate GFC workstream on Reporting Standards and Frameworks under the GFC Implementation Programme, where engagement with relevant standard setters, including GRI, could support the development of decision-useful chemicals-related disclosure metrics.

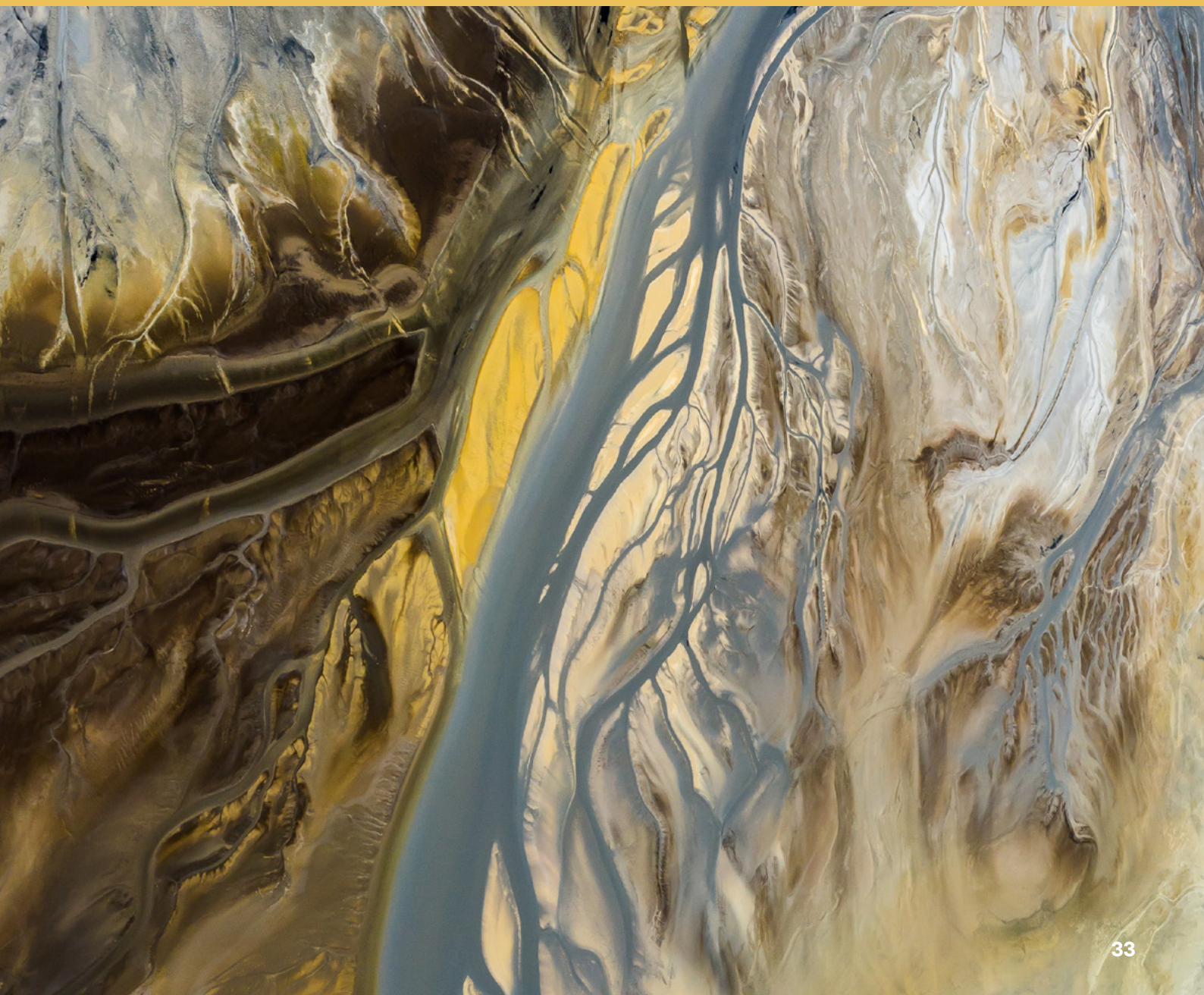
Looking forwards to 2030 and 2035

The GFC establishes expectations for the financial sector over the coming decade, and there is already evidence of financial actors beginning to respond, leading by example. But action remains uneven, fragmented and insufficient relative to the ambition of the Framework and scale of chemical-related financial risks. We hope this report will build awareness across the finance sector of what more they could do to accelerate the transition towards safe and sustainable chemicals, not least to begin to re-allocate capital and/or advocate for the tools needed to do so.

Scaling action will also require greater collaboration and support across the wider ecosystem, including between and among governments, financial institutions, expert organisations, industry and philanthropic funders. Strengthening the availability of research, data, tools and capacity-building support, alongside practical guidance and dialogue frameworks to help financial institutions integrate chemicals-related information into client and investee engagement and financial decision-making, could help extend existing efforts across more industries and value chains, and ultimately enable greater financial-sector participation and impact. Greater financial support from governments and philanthropic funders to support the NGOs profiled here and other supporting organisations would be particularly valuable so that they can extend their work, cover more industries and value chains, and ultimately support greater activity and impact across the financial sector.

Finally, we hope that when we take stock again at future International Conferences of the Global Framework on Chemicals — and in 2035, when GFC targets are due to be realised — many more members of the financial sector are playing their part in the transition to a global economy based on safe and sustainable chemistry.

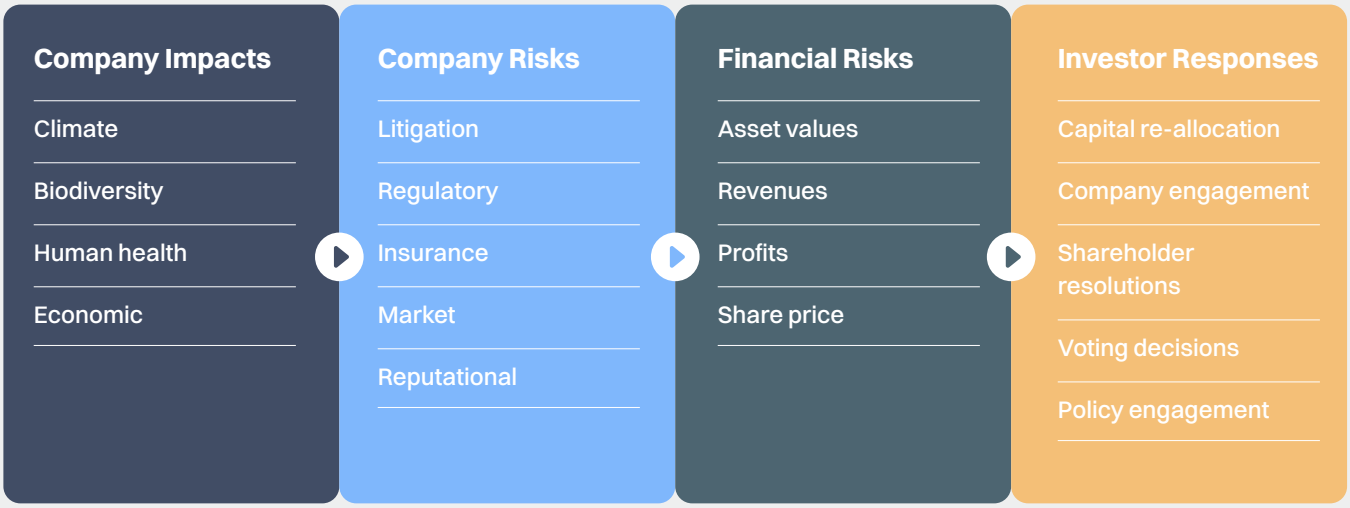
Part 2: Case studies



Case Studies

This section presents 24 case studies written by institutional investment firms and the not-for-profit organisations that inform and/or support their work.[14] They are intended to illustrate the many ways in which these entities are already addressing the impacts and risks related to the production, use and disposal of chemicals, particularly hazardous and/or persistent chemicals like PFAS. Further, they aim to show how institutional investors use research and data provided by various expert organisations to inform their investment decisions and / or their stewardship activities. The case studies largely reflect the perspectives of the contributing organisations, and this report should not be interpreted as independent assessment or endorsement of the organisations or initiatives featured.

Figure 3: How the chemical sector's impacts can drive financial risks and investors' responses



The case studies illustrate how investors are deploying different stewardship tools, including company research, investment integration, exclusionary screening, bilateral and collaborative engagement, shareholder resolutions, engagement with policymakers and policy processes, and investment in safer alternatives. The case studies are categorised by these approaches, many illustrating how these approaches are combined, as shown in Table 1.

14 The exception is case study 5 which is based on published information from the three featured investment firms

Table 2: Categorisation of case studies by stewardship tool

No.	Organisations profiled	Author type	Stewardship tool (potentially) supported or used							
			Company research	Investment integration	Exclusion	Bilateral engagement	Collaborative engagement	Shareholder resolution	Policy engagement	Investment in safer alternatives
1	Planet Tracker	NGO	●	●	●	●	●	●	●	
2	ChemSec	NGO	●	●	●	●	●	●	●	●
3	CDP	NGO	●	●		●	●			
4	IEHN/CPA/CFP	NGO	●	●		●	●	●	●	
5	ChemFORWARD	NGO	●	●	●	●	●			●
6	BNPP AM	IM	●	●						
7	Ostrum, LBP AM, Eurazeo	IM	●	●	●	●	●			
8	EOS at Federated Hermes	SSP	●			●				
9	LBP AM / FABRIC	IM/NGO	●				●			
10	BNPP AM / IIHC	IM/NGO	●				●		●	
11	Aviva Investors / IIHC	IM/NGO	●				●			
12	Mercy / IEHN	IM/NGO	●	●			●	●		●
13	Scottish Widows / ShareAction	AO/NGO	●				●			
14	Nordea AM	IM	●	●		●	●		●	
15	IIHC: Outdoor + Sports	NGO	●				●			
16	IEHN/The GII	NGO	●	●			●	●	●	●
17	Ethos/ShareAction	IM/NGO	●				●		●	
18	IIGCC	NGO	●	●		●	●	●	●	
19	BNPP AM	IM							●	
20	ShareAction/ChemSec/IEHN	NGO							●	
21	InfluenceMap	NGO	●			●	●	●	●	
22	Mercy	IM						●		
23	IEHN	NGO						●		
24	SaferMade	IM								●

Key: NGO (Non-Governmental Organisation); IM (Investment Manager); AO (Asset Owner); SSP (Stewardship Service Provider)

The case studies are presented in the following order:

- **Case studies 1-5** are written by NGOs that provide research and/or data sets for use by investors and other financial actors (as well as other stakeholders).
- **Case study 6** illustrates how one investment manager combines these and other data sets to analyse portfolio exposure to hazardous chemicals – and the limitations faced in conducting such analysis.
- **Case study 7** shows how three different investment managers have developed and apply exclusionary screens for PFAS, using in-depth research, combined with engagement.
- **Case studies 8 and 9** focus on engagement with the apparel and footwear sector; one illustrates direct or bilateral engagement by one stewardship service provider; the other is an example of a collaborative engagement approach.
- **Case studies 10-13** showcase how other collaborative investor engagement initiatives work to address different issues and sectors, with one explaining specifically how such engagement led to a breakthrough with one major chemical producer to end the production of PFAS.
- **Case study 14** illustrates how one investor combines several stewardship approaches to tackling its exposure to hazardous chemicals, particularly PFAS.
- **Case studies 15 and 16** introduce new collaborative investor initiatives being launched in 2026
- **Case studies 17 and 18** focus on investor initiatives to drive decarbonisation among chemical producers.
- **Case studies 19-21** set out examples of investor engagement with policymakers and a research platform that tracks companies' and industry associations' lobbying on climate and nature policy measures.
- **Case studies 22 and 23** provide insights into how investors have used shareholder resolutions to drive change among chemical producers and users.
- **Case study 24** profiles one of very few venture capital firms focusing on investment in safer solutions.

Of course, these will not be the only examples and approaches being used by investors around the world — there will be many others. The case studies featured here simply aim to illustrate what some in the sector are doing.

For ease of navigation the colour coded and numbered case studies can be accessed from the top of each of case study page.

#1

How Planet Tracker supports investors to address risks associated with hazardous chemicals, including PFAS

About Planet Tracker

Planet Tracker is a financial think tank working to align capital markets with planetary boundaries. Through data-driven research, we assess the financial risks of natural capital degradation and the opportunities created by investing in a nature-positive economy.

Our in-depth investor-relevant research

Our Plastics and Toxic Pollution programme focuses on how hazardous chemicals, such as per and polyfluoroalkyl substances (PFAS), plastic additives and other pollutants, create growing material financial liabilities across markets. Through analysis of petrochemical financing, corporate transition strategies and the sector's toxic impacts, we provide investors with research on financial and environmental risks, highlight underperforming companies and their financial backers, and support the shift away from fossil fuel feedstocks towards greater accountability for lifecycle harms.

PFAS are widely used in firefighting foams, textiles, packaging and electronics because of their resistance to water, oil and heat. However, PFAS are extremely persistent. They break down very slowly due to the strength of the carbon-fluorine bond and thus are often called "forever chemicals". They are also bio-accumulative, building up in humans and wildlife over their lifetimes and causing significant health impacts. As a result, PFAS production is increasingly targeted by regulators and litigators.

PFAS litigation has become one of the largest environmental mass torts in US history, with more than 15,000 federal lawsuits as of early 2026 and settlements (Simmons, 2026), such as the 3M agreement reaching around USD 10.3 billion[15]. In Europe, risks are also increasing. In 2025, an Italian court sentenced 11 former executives of the Miteni chemical plant to a combined 141 years in prison and ordered compensation for PFAS contamination affecting roughly 350,000 people (CHEM Trust, 2025). As with asbestos and tobacco, legal claims relating to the health impacts of PFAS can emerge long after products are sold.

Company-specific reports

For example, our report of May 2025, Lessons in Chemistry: Climate Action Giants, benchmarked the climate transition performance of eight of the world's top chemical companies: BASF, Bayer, Dow, Incitec Pivot, Air Liquide, LyondellBasell, SABIC, and Toray Industries. It evaluated emissions performance, value chain engagement, governance and remuneration, capital allocation, and policy advocacy. The report was accompanied by a dashboard and individual corporate profiles.

Another 2025 report focused on how executives are incentivised. The Sustainability Pay Gap: An Analysis of Executive Compensation in the Chemicals, Consumer Goods and Transport Sectors highlighted that although sustainability is often mentioned as a significant risk to corporates in these sectors, addressing this risk is often not incorporated into how executives are incentivised.

Mapping exposure by location

Our Toxic Footprints (US and Europe) projects map toxic emissions from major petrochemical producers, link them to communities and identify the financial institutions

15 EPA (2006) 3M Company Settlement Accessed on [13-02-2026] from https://www.epa.gov/enforcement/3mcompany-settlement

#1

How Planet Tracker supports investors to address risks associated with hazardous chemicals, including PFAS

supporting the highest-impact companies. By the end of 2026, we expect to publish a Toxic Footprints analysis of ten leading petrochemical companies at a global level, providing comparable, health-based toxicity metrics that complement our work.

More recently, in April 2026, Planet Tracker published "PFAS: From non-stick to stuck in court", analysing how the emergence of PFAS-related litigation could generate future multi billion dollar liabilities. To help investors quantify risk, we developed a dashboard estimating facility-level exposure for 1,079 listed companies and 5,248 facilities globally. By ranking facilities using five factors (activity, sector, regulation, population concentration and area pollution), the dashboard identifies where litigation, remediation and compliance risks are greatest.

Our analysis shows that one third of high-risk facilities belong to just 20 chemical companies. However, downstream users can also face contamination claims, remediation costs and community pressure. We presented two case studies: one focused on an upstream producer with legacy PFAS exposure and another on a downstream user of PFAS-containing materials. In the upstream producer case, cumulative PFAS-related claims were equivalent to roughly 17% of enterprise value and about 30% of net debt over the period examined, while in the downstream user case, known PFAS claims amounted to around 7-11% of enterprise value and roughly 40% of one year's net debt, demonstrating clear financial materiality in both contexts good.

Following publication, we presented the dashboard to asset owners and managers in briefings and one to one meetings.

Conclusion

We recommend that investors urge companies to adopt sound PFAS exit strategies by mapping PFAS use and contaminated sites, setting time bound phase-out commitments, aligning executive incentives and capital allocation with risk reduction, and making realistic provisions for litigation and remediation cost. Substitutes for PFAS are already available for many consumer applications and phase out is underway, but adoption remains uneven: costs and complexity are higher in industrial and technical uses, and some applications are likely to remain essential until viable alternatives emerge. Investors can use our dashboard to screen portfolios, incorporate facility level exposure into risk analysis and inform stewardship priorities, investment mandates and disclosures.

#2

ChemSec: Tools and Programmes to support investor and corporate action on hazardous chemicals

About ChemSec

ChemSec (the International Chemical Secretariat) is a Swedish non-profit organisation founded in 2002 that works to speed up the transition to a toxic-free environment. By bridging the gap between science, policy, and business, ChemSec has successfully impacted global chemical legislation, empowered progressive brands and mobilized financial institutions to address the risks associated with hazardous substances.

The challenge of toxic chemicals

Thousands of synthetic chemicals have entered everyday consumer products — ranging from electronics and textiles to packaging — without adequate safety testing.

Hazardous substances like endocrine disruptors, carcinogens, and persistent "forever chemicals" (PFAS) accumulate in ecosystems and human bloodstreams, driving long-term public health crises and massive ecological cleanup costs. For decades, the rate of introduction of new chemicals to the market has outpaced the ability of regulators to evaluate, restrict and control them, leaving supply chains opaque, consumers vulnerable and mounting environmental damage in their wake.

ChemSec's strategic approach

To tackle this complex systemic problem, ChemSec combines political advocacy work with corporate engagements, practical digital tools and media outreach. ChemSec actively collaborates with commercial frontrunners and institutional investors to prove that safer chemistry not only protects people and planet, it also makes sound business sense:

- **Shaping public policy**: ChemSec is an active stakeholder in important international and European forums. The organisation leverages expert scientific data to advocate for strict legislative controls, pushing institutions to implement robust frameworks that reward companies phasing out harmful chemicals.
- **Engaging business networks:** Through initiatives like the ChemSec Business Group, the organisation convenes major global brands — such as Apple, H&M, Adidas, and IKEA — to develop and share best practices for chemical substitution. Furthermore, ChemSec's corporate PFAS movement unites over 120 consumer companies supporting an outright regulatory ban on forever chemicals.
- **Mobilizing financial markets:** Recognizing that toxic chemicals give rise to material financial risks, ChemSec formed the Investor Initiative on Hazardous Chemicals (IIHC) which demands transparency and phase-out plans from chemical producers of hazardous chemicals and commitments to safer alternatives. The 80 financial institutions that are members manage or advise on more than US $23trillion.

Core digital tools and metrics

ChemSec has created several free digital tools utilized by more than 100,000 industry professionals every year:

- **The SIN List (Substitute It Now!):** Launched in 2008, the SIN List identifies Substances of Very High Concern (SVHCs) based on EU REACH criteria. It functions as an international standard for corporate screening and helps manufacturers and downstream users of chemicals to spot hidden toxins before regulators officially list them.

#2

ChemSec: Tools and Programmes to support investor and corporate action on hazardous chemicals

- **ChemScore:** This annual ranking evaluates the world's top listed chemical producers on four criteria: transparency, hazardous portfolio size, phase-out efforts for persistent chemicals, and the development of safer alternatives. It translates environmental hazard into financial risk metrics for investors (see case studies #10 and #11, and in line with GFC target D3).
- **Marketplace:** A free digital platform connecting buyers with verified suppliers offering safer, non-toxic alternative chemicals.

Measurable impact and outcomes

ChemSec's pragmatic interventions have yielded profound structural shifts across multiple sectors:

- **Regulatory momentum:** ChemSec's corporate PFAS movement gives business backing to a broad PFAS restriction in EU. ChemSec coordinates investor statements to chemical companies and legislators (see an example in case study #20).
- **Investor integration:** Investors use ChemSec data in their own decisions. BNPP AM uses ChemScore in its chemical sector risk review (case study #6), and the PFAS exclusion policies of Ostrum AM and LBP AM build on ChemSec's identification of the largest PFAS producers (case study #7).
- **Corporate accountability:** Since ChemScore was first published in 2020, transparency among the world's largest chemical producers has increased steadily, and a growing number now publish clear, time-bound phase-out strategies. ChemScore 2025 found that one-third of the companies state an intention to phase out, reduce or avoid persistent chemicals such as PFAS. Following IIHC engagement, the world's largest chemical company BASF committed to phase out products formulated with PFAS (excluding crop protection) by 2028 (see case study #11). Ecolab will also remove all products with intentionally added PFAS from its portfolio by the end of 2026.

Conclusion

ChemSec shows what it takes to move the world's largest chemical producers without the help of policymakers — independent science, a clear benchmark and the collective weight of investors behind it. The results are real: industry leaders have made PFAS exit commitments, and investors use ChemSec data to steer capital towards a non-toxic future. However, hazardous chemicals still enter products faster than regulators can act, and they keep accumulating in people and nature. Better data is part of the answer, but only action — such as substitution, stronger regulation and capital moving towards safer alternatives — will deliver a toxic-free environment.

#3

Using CDP's Corporate Disclosure to Unlock Decision-Ready Intelligence

About CDP

For 25 years, CDP has turned environmental data into foresight — ensuring disclosure data can be used by a wide range of data users for Earth-positive action. In 2025, Capital Markets Signatories — representing more than a quarter of all institutional assets — requested that thousands of companies disclose their environmental risks and impacts through CDP's data platforms. In total, over 7,000 companies responded to the continued market demand for disclosure data.

CDP's data collection related to chemical impacts and risks

CDP's disclosure questionnaire comprises integrated modules which include cross-cutting topics, such as Governance and Business Strategy, and separate environmental performance modules. Since issuing the first questionnaire in 2002, these modules have evolved to reflect investors', regulators' and companies' growing need for more specific environmental data on a variety of themes, including climate change, forests, water security, biodiversity and plastics.

Currently, questions related to chemicals are included in different environmental performance modules. In the Climate Change module, companies are asked which fuels are used as feedstocks, including where they are derived, as well as their total consumption, emission factors and energy efficiency. Most of CDP's questions relating to chemicals currently fall within the Water Security module.

This module asks companies to disclose:

- The name and classification of potential water pollutants associated with organisational activities, and how the organisation minimises adverse impacts on ecosystems and human health;
- Whether any products contain substances classified as hazardous by a regulatory authority and the revenues generated from them;
- Water-related targets and progress towards them, which includes options on hazardous substances and pollutants;
- Details on nitrates, phosphates, pesticides and other priority substances released into water.

In the Plastics module, we ask organisations to state their plastics-related targets. This includes how they are reducing and eliminating the use of hazardous substances in plastic polymers and packaging, as well as disclosure on primary microplastics and plastic particles — and their release into the environment.

Conclusion

Though we currently ask chemicals-related questions through several environmental performance modules, we are exploring how to transition to a more holistic sector-focused approach. This would allow disclosers and data users to identify the chemicals-related impacts across multiple environmental themes, rather than in isolation – helping them spot linkages and dependencies, understand the bigger picture and develop more effective Earth-positive strategies. CDP would welcome stakeholders' ideas about how it might support implementation of the GFC by broadening the scope and nature of data it collects on chemical production and use.

#4

CPA's Chemical Footprint Project: IEHN levarages CFP reference list and survey to asess known chemical risks across user sectors

About IEHN and CFP

The Investor Environmental Health Network (IEHN) and the Chemical Footprint Project (CFP) are initiatives administered by US-based NGO Clean Production Action (CPA). IEHN convenes institutional investors working to reduce the financial risks of chemical pollution and advance safer chemistry across global value chains. CFP advances chemical footprinting through a regular standardised survey that allows participating companies to benchmark their annual progress towards reducing the use of chemicals known to cause harm to human health and the environment, and by publishing and regularly updating a reference list that companies and investors can use to identify hazardous chemicals in products and supply chains.

Chemical Footprint Project

A growing number of tools and frameworks are helping investors assess corporate exposure to toxicity-related risks. For more than a decade, our investor signatories have encouraged companies to participate in CPA's Chemical Footprint Project Survey, a standardised disclosure framework that evaluates corporate policies, management systems, transparency, and progress toward reducing chemicals of high concern.

CFP provides investors with decision-useful data on how companies manage chemical risk, including governance structures, chemical inventories, safer substitution strategies, supplier requirements and measurable reduction goals. As highlighted in IEHN's Safer Chemical Management Recommendations, these indicators help assess a company's preparedness to manage emerging liabilities and transition to safer alternatives. The resulting data can inform analysis of regulatory risk, litigation exposure, supply-chain disruption, reputational impacts, product reformulation costs and changing consumer preferences.

In recent years CFP has worked with companies including Target, Walmart, Dollar Tree, Dollar General, Whole Foods Market, HP, Reckitt, Hasbro, Becton Dickinson, Disney, and others, to accelerate measurable reductions in hazardous chemicals. Investor engagement programs coordinated through IEHN have helped drive participation in the Survey by communicating investor expectations for greater transparency, stronger chemical management practices and quantifiable progress toward safer alternatives.

The impact is measurable. In the 2024 Chemical Footprint Project report, 2023 Survey participants reported a combined reduction of 132.9 million pounds of chemicals of high concern in products — roughly equivalent to the weight of 140 jumbo jets. These results demonstrate how investor engagement, coupled with standardised measurement and disclosure tools, can support the identification, management, and reduction of known chemical-related risks at scale.

#4

CPA's Chemical Footprint Project: IEHN levarages CFP reference list and survey to asess known chemical risks across user sectors

Chemical footprinting helps transform chemical management from a compliance issue into a comparable performance indicator. Companies that measure their chemical footprint are better positioned to anticipate regulatory changes, identify hidden liabilities, engage suppliers, and transition to safer alternatives before risks materialise.

Recent examples demonstrate what is possible:

- Ecolab disclosed that only 0.35% of annual revenue came from products containing EU Substances of Very High Concern.
- Clorox committed to improving its CFP score by 50% by 2030.
- Walmart embedded measurable chemical footprint reduction metrics into corporate targets.
- Reckitt committed to a 65% chemical footprint reduction by 2030.
- Target uses CPA's GreenScreen® for Safer Chemicals, including the GreenScreen List Translator™, to support its chemicals policy.

Conclusion

These examples demonstrate that chemical risk can be measured, managed and reduced. CFP has been a critical tool for investors to assess a company's readiness to go beyond compliance — through disclosure of timebound targets to phase out hazardous substances, broader restricted substances lists to manage supply chains, and revenue dependency on chemicals identified by authoritative agencies as harmful to human health and the environment. The Safer Chemistry Impact Metrics Framework reinforces this signal by establishing a standard, hazard-based accounting baseline: tracking chemical inventories by chemical of concern, verified safer, and unassessed chemicals. By strengthening access to comparable chemical-risk data, IEHN supports stewardship, disclosure expectations, ratings methodologies, benchmarks, and capital allocation decisions. IEHN offers a practical pathway for implementing GFC Target D3 — integrating sound chemicals management into financial-sector decision-making by 2030 — while advancing broader goals in sustainable finance, pollution prevention, biodiversity protection, and human health. We urge other investors to join IEHN to amplify and broaden our collective impact.[16]

16 The activities and perspectives described in this case study are presented by Clean Production Action and do not necessarily represent the views, policies, investment strategies, or fiduciary decisions of individual IEHN members or participating institutions.

#5

How ChemFORWARD empowers investor action: Standardised metrics to accelerate the transition to safer chemistry

About ChemFORWARD: The data infrastructure for verified safer chemistry

ChemFORWARD is a science-based non-profit dedicated to creating broad access to chemical hazard data and identifying verified safer alternatives. We manage the Chemical Hazard Data Trust, a centralised repository of GHS-based (Globally Harmonized System of Classification and Labelling of Chemicals), chemical hazard assessments created by qualified toxicologists that are subject to both peer and biannual validity reviews.

By centralising this data, ChemFORWARD overcomes historical bottlenecks, generating accessible data on the human and environmental impacts of chemicals (aligning with GFC Target B1) and empowering stakeholders to make reliable information available throughout the value chain (GFC Target B2). Recently, alongside the Safer Chemistry Impact Fund, ChemFORWARD implemented the Safer Chemistry Impact Metrics Framework — a universal, open-architecture standard designed for global cross-sector adoption, to scale verified safer chemistry.

The missing link for investors: Comparable metrics for chemical risks and opportunities

Companies and their investors increasingly recognise chemical hazards as financially material, carrying significant litigation risks, causing supply chain disruptions and regulatory phase-outs of some chemicals in various markets in the near term. However, managing these complex risks requires comparable, outcome-based performance data generated through universally recognised standards. ChemFORWARD provides the tools to bridge this gap.

Tools and processes

ChemFORWARD delivers chemical hazard measurement through its Safer Chemistry Profile. Using the Data Trust, this tool translates corporate chemical inventories into standardised, decision-useful metrics. Key indicators include:

- *Prevalence of Safer Chemistry* (the proportion of verified safer/low-concern chemicals);
- *Inventory Chemicals of Concern* (identifying high-hazard chemicals for potential action), and;
- *Priorities for Characterisation* (isolating high-volume, unassessed chemicals that can pose hidden risk).

Investor Implementation

Investors can use ChemFORWARD's data and the broader SCI Metrics Framework to activate key levers for driving change:

Corporate engagement: Through bilateral dialogues and collaborative initiatives like the Investor Environmental Health Network, profiled in case studies 4 and 16, investors are increasingly asking portfolio companies to use this framework to generate comprehensive chemical hazard inventories. This directly advances GFC Target D6, which explicitly calls for "chemical footprint approaches" to identify priority chemicals of concern along the value chain. Investors can then ask companies to set time-bound goals to phase out the toxic chemicals revealed by this analysis, while also developing an understanding of the percentage of safer/low-concern chemicals in their portfolios.

Research & investment integration: When reporting on chemical footprints becomes mainstream, investors will be able to integrate these standardised metrics to benchmark

#5

How ChemFORWARD empowers investor action: Standardised metrics to accelerate the transition to safer chemistry

corporate performance and assess risk. Until then, these tools are best suited for venture capital and private equity managers to footprint individual companies. Unlike the common approach of requiring suppliers to avoid chemicals on a restricted substance list, these metrics reveal a company's full chemical footprint, including chemicals of concern (beyond those covered by regulations), verified safer chemicals, and quantifying the unknowns (potential hidden risk). This enables investment managers to evaluate the size of the transition risks that individual companies face and identify business opportunities that companies could exploit.

Sector analysis: Sell-side analysts could analyse whole chemical user segments to deepen their insights into chemical risks by sector — as illustrated by the example below on the personal care sector.

Using ChemFORWARD's Safer Chemistry Profile reporting tool therefore directly enables financial actors to meet GFC Target D3 by incorporating sound chemicals management into their business / investment models.

Scaling success: From proof-of-concept to global cross-sector adoption

The application of ChemFORWARD's tools yields highly actionable outcomes for multiple economic sectors. For example, in the Beauty and Personal Care sector's 2025 progress report, we analysed over 48,000 products and demonstrated that the shared data model drove down the cost of closing hazard knowledge gaps for participating companies from US$5 to just US$1 per gap.

Beyond this sector, the framework has been rigorously piloted in Apparel and Footwear, enabling a sector-wide baseline to be established that increases transparency throughout the highly fragmented global supply chain.

In Consumer Electronics, pilot studies mapped thousands of unique chemicals in cleaners, solvents, plastic additives and flame retardants to establish clear substitution roadmaps. These metrics are now being incorporated into the Responsible Business Alliance (RBA) Chemical Platform and Chemical Management Leadership Program (CMLP). The RBA CMLP is a voluntary, continuous improvement initiative to harmonise the electronics sector on supply chain due diligence for chemical management risks, in which the Chemical Platform serves as a chemical usage data collection, analysis, and reporting mechanism.

Work has also been done in the Building Materials sector, and on plastic additives, and packaging. ChemFORWARD is actively seeking partners to work with to replicate these sector-level analyses across many industries.

Conclusion

While these pilots represent a promising early stage in standardising chemical footprinting approaches, the true potential of the Safer Chemistry Impact Metrics Framework and the Safer Chemistry Profiles lies in broad, global, cross-sector adoption. The groundwork has been laid: these pilots prove that the baseline metrics work, chemical hazards are knowable, and systemic change can be executed at scale. Now, investors have an opportunity to accelerate this momentum. By actively encouraging portfolio companies to use this framework to undertake comprehensive chemical hazard inventories, investors can contribute to making standardised corporate chemical reporting the norm. This will also facilitate the allocation of more capital towards sustainable chemistry innovations (GFC Target D1) and prioritise safer alternatives globally (GFC Target D4).

#6

BNPP AM's analysis of investment risks related to hazardous chemicals, including PFAS

About BNPP AM

BNPP AM is a global asset manager that manages €1.7 trillion[17] on behalf of institutional, corporate retail and wealth clients worldwide. We aim to deliver sustainable, resilient outcomes for our clients while contributing positively to the real economy and to society.

Analysing the investment risks associated with the production of hazardous chemicals

Integrating the consideration of a wide range of governance and sustainability issues into our investment processes is central to our aim to deliver long-term value. It both helps us to take into account short-, medium- and long-term risks and to realise the opportunities associated with the transition to more sustainable economies.

Our ESG research team is responsible for producing various types of sustainability research used across the business. This includes ESG scores for all issuers in our investment universe (approximately 15,000 globally); methodologies and datasets on specific sustainability themes (such as climate change, biodiversity or the SDGs more broadly), as well as undertaking sector reviews that identify how sustainability issues translate into risks and opportunities for each sector.

In 2026, our ESG research team conducted a chemical sector review. Their goal was to illustrate to investment teams how the impacts and risks associated with production of hazardous chemicals has implications for both long-term issuer resilience and portfolio risk. We aimed to uncover how portfolio exposure to hazardous chemical producers may translate into financially relevant signals.

Chemical producers face a combination of mounting litigation risks, higher regulatory compliance costs and pressure to demonstrate credible transition pathways, all of which increase pressure on them to invest in redesigning chemicals and products. At the same time, neither definitions of hazardous chemicals nor corporate disclosure requirements are fully harmonised across markets, making comparative analysis of companies difficult. Further, as market prices do not fully reflect the risks, structured sector research can be particularly valuable in identifying risks and anticipating regulations.

To support this analysis, we combined several external data sources with internal investment research.

- **Planet Tracker** provided a useful investor lens on financial materiality, litigation pathways, and the risk that chemical-related liabilities may remain underappreciated by markets. (See Planet Tracker case study #1).
- **CDP** helped us review issuer disclosure on hazardous substances, emissions to water and the share of revenues associated with product classified as hazardous by regulators. (See CDP case study #3).
- **ChemScore** added a more granular perspective on product portfolio exposure, persistent substances, phase-out readiness, transparency practices and the development of safer alternatives. (See IIHC and ChemScore case studies #10 and #12).
- **MSCI's** proprietary ESG research also provided a complementary way to broaden issuer coverage and cross-check selected exposure indicators.

17 As of 30th June 2026, following the acquisition of AXA Investment managers.

#6

BNPP AM's analysis of investment risks related to hazardous chemicals, including PFAS

Used together, these data sets allowed us to build a broader view of risk, helping us to identify where our portfolio exposure is more concentrated and which companies appear to be less well prepared for the emerging transition to safe and sustainable chemicals.

We assessed our portfolio-level exposure to these risks by assessing how many known hazardous chemicals each company produces and multiplied by holdings data. We did a similar exercise for PFAS specifically, and for other groups of chemicals by usage. Our analysis also revealed the likely timing and transmission channels of financial impacts, including revenue pressure, operating costs, tail risk and capital expenditure — all valuable information for investment managers. We also highlighted investment opportunities such as those related to PFAS substitution, testing and remediation, and related infrastructure and equipment provision, as well as bio-based feedstocks.

While we had initially aimed to systematically incorporate data sources on individual companies' revenues from hazardous chemicals or specific chemicals, we found this was not possible due to the limited data available and different definitions and methodologies of data providers, as noted earlier.

Conclusion

This investment research is designed to identify mispriced or insufficiently understood financial risk. It translates scientific, regulatory and disclosure signals driven by sustainability and human health concerns into an investment-relevant view of long-term risk and transition dynamics. However, our ability to undertake this research — indeed, the ability of all investors — is hindered by the lack of harmonised definitions of hazardous chemicals and mandatory disclosure regulations for chemical producers and users across markets that would generate the data we need.

We are working to overcome these barriers by actively participating in initiatives such as the IIHC and in the GFC process to advocate for better corporate disclosure and policy measures that will make consistent data available worldwide. Were that to happen, the finance sector should more easily be able to redirect capital towards companies transitioning to safe and sustainable chemicals.



#7

How Ostrum Asset Management, LBP AM Group and Eurazeo use screening and exclusion to avoid investment in hazardous chemicals[18]

About Ostrum Asset Management

Ostrum Asset Management is a European institutional investment manager with €384 billion in assets under management as at 12/31/2025. In recognition of the significant investment risks associated with PFAS, Ostrum AM has established a policy and process to determine whether to invest in or exclude PFAS manufacturers (Ostrum Asset Management, 2025).

It does this through its Worst Offenders policy.[19] Ostrum AM excludes from the investment scope all companies — both listed and unlisted — that are proven to contravene a range of fundamental responsibility standards (United Nations Global Compact, OECD Guidelines), particularly as regards human rights, labour rights, environmental protection and business ethics.

What is screening?

Screening is one of the oldest tools used by investors to build investment portfolios. The PRI's definition of screening is that it is '*the application of rules based on defined criteria that determine whether investments are permitted in a portfolio. Screening criteria can be based on various investment characteristics, including ESG factors.*' (Principles for Responsible Investment, n.d.)

While initially used by faith-based investors to avoid companies involved in activities seen as incompatible with a set of beliefs or values, from the 1970s onwards the practice became more widespread. Investors started to screen out whole industries or activities — like tobacco or animal testing — seen as detrimental to human health, the environment or wider society (Sparkes, 2002). According to the PRI, screening remains one of the most widely used responsible investment practices today, with around US$3.8 trillion in assets subject to negative / exclusionary screens and US$1.8 trillion subject to norms-based screens tied to international norms and standards, like the Paris Agreement or the UN Global Compact (Principles for Responsible Investment, n.d.)

Applying screens to hazardous chemicals

Few investors yet seem to have screening policies designed to exclude companies that produce or use hazardous chemicals, or that generate over a minimum proportion of revenue from them. Those that do exist focus only on PFAS, rather than a broader range of hazardous and/or persistent chemicals. How three asset managers frame and apply these policies is outlined below.

18 This case study has been written using publicly available information rather than by the three investment management firms profiled

19 This policy applies to the purchase for all of its funds (including segregated client mandates), and also to existing open funds and dedicated funds, with the exception of benchmark management, structured products existing on 01/01/23, and excluding specific constraints related to the contractual documentation of its clients. Exclusion Policy: Worst Offenders

#7

How Ostrum Asset Management, LBP AM Group and Eurazeo use screening and exclusion to avoid investment in hazardous chemicals

Ostrum AM has conducted an analysis of the largest PFAS producers identified by ChemSec. Ostrum identifies 'Worst Offenders' using a methodology that looks at four criteria (proven facts, severity, systemic nature and remediation); this policy includes PFAS producers. A company can be placed on one of four lists:

Worst Offenders Exclusion List (Group 1 (G1): Companies that meet the first three criteria and which have undertaken insufficient remediation actions.

Worst Offenders Watch List (G2): Companies that meet the first three criteria but are taking remediating steps are put on the Watch List in order to monitor the remediation.

Those that tick only one or two of the first three criteria, yet are identified as candidates that require monitoring are placed on list G3; they may be companies held in the firm's portfolios and/or where there is a high risk of meeting the criteria for the Worst Offenders Exclusion List.

Other Controversies List (G4): Companies that do not meet the above criteria and/or companies with a satisfactory remediation).

Analysis of companies is conducted by Ostrum's Worst Offenders Working Group with decisions validated by the Worst Offenders Committee.

Proven facts	Severity	Systemic aspect	Remediation	Categorization and consequences of the analysis
✔	✔	✔	Non-existent / Insufficient	G1: Companies that tick the first 3 criteria and for which remediation measures are insufficient. Worst Offenders Exclusion List
✔	✔	✔	In progress	G2: Companies that tick the first 3 criteria but for which remediation is underway. Worst Offenders Watch List (remediation monitoring)
1 or 2 ✔ + ~ + ✘			Non-existent / Insufficient In progress	G3: Companies that tick only 1 or 2 of the first 3 criteria but for which monitoring is deemed necessary (because it is present in our portfolios and/or there is a high risk of ticking the criteria of the Worst Offenders Exclusion List). Worst Offenders Watch List (general monitoring of the controversy)
3 ✔			Satisfactory	G4: Companies that do not tick the conditions of categories G1, G2 and G3 (do not tick the first 3 criteria and/or satisfactory remediation). Neither the Worst Offenders Exclusion List nor the Watch List
1 or 2 ✔ + ~ ✘			Non-existent / Insufficient In progress Satisfactory	

Source: Ostrum AM, November 2024

#7

How Ostrum Asset Management, LBP AM Group and Eurazeo use screening and exclusion to avoid investment in hazardous chemicals[21]

Stewardship is also central to this approach. Ostrum AM engages with companies where it believes that further remediation actions are possible, where it may have a significant investment and/or where a company's management is open to discussion. Ostrum AM defined an exception for companies that should fall in the Worst Offenders Exclusion List, but where we believe that engagement could have a positive impact. However, for each case, there is a defined escalation strategy, implying the company would be put back on the Exclusion List if the engagement does not lead to the expected results.

LBP AM Group

A pioneer in socially responsible investment (SRI), LBP AM Group is a multi-specialist conviction manager entirely dedicated to sustainable finance with €70 billion in assets under management at the end of 2025.

Its approach to PFAS is based on a coherent framework combining norms-based exclusions, active ownership and a long-term ambition to support systemic change. As part of its norms-based exclusion policy, LBP AM Group conducted a targeted sectoral analysis covering the world's 21 leading PFAS producers. The assessment examined their exposure, risk-management practices and ability to control the associated impacts.

The result was that several companies were excluded from portfolios, while others had their responsible investment ratings downgraded and were placed under heightened monitoring, in some cases accompanied by enhanced engagement (LBP AM Group, 2025b).

LBP AM Group actively uses engagement as a lever for change through its participation in the Investor Initiative on Hazardous Chemicals (IIHC). This engagement aims to improve companies' transparency related to PFAS use and to strengthen their internal risk-management systems. Over the longer term, LBP AM Group's ambition is to contribute to a structural reduction in PFAS exposure across the economy by supporting the development of safer alternatives.

Eurazeo

Eurazeo is a leading global investment group with €40 billion in diversified assets under management as of June 20th, 2026, including €31 billion on behalf of institutional and private clients through its private equity, private debt, real estate and infrastructure strategies. The Group invests in around 650 companies.

The Eurazeo Exclusion Policy sets out the criteria for exclusion of certain sectors or activities with potential negative impacts on the environment, human dignity, health or society, for privately owned businesses. In relation to PFAS and pesticides, its exclusions are framed in the context of contamination of water, soil and air and impact on human health at every stage of their lifecycle — from production to use and disposal of PFAS-containing products.

Eurazeo states that it therefore monitors these issues with great care and refrains from investing in companies whose activities may pose a significant risk of water pollution, particularly when they:

- Heavily use PFAS (as defined by REACH) and discharge them into water bodies without complying with or being regulated by an appropriate legal framework.
- Manufacture products containing substantial quantities of PFAS despite the availability of viable alternative solutions for their industry, failing to transition towards safer substitutes.
- Produce equipment, products or services dedicated to the production or application of harmful chemical pesticides.

#7

How Ostrum Asset Management, LBP AM Group and Eurazeo use screening and exclusion to avoid investment in hazardous chemicals[21]

It pays particular attention to any process that may lead to irreversible pollution, especially when it endangers water resources and their ecosystems.

Specific products and services: Eurazeo *"does not invest in companies that ... enable the manufacture or discharge of PFAS"*. However, it may adopt a case-by-case approach when such products or services contribute to sustainable alternatives to unsustainable water use or PFAS-dependent practices. Consequently, Eurazeo may invest in those companies as long as the company has a formalised plan to diversify away from unsustainable water-related practices, including reliance on high-risk substances such as PFAS.

Conclusion

Despite being a long-used and well understood tool within the investment sector, few institutional investors yet appear to apply screening policies to hazardous chemicals — few others were identified in the desktop research. Those leading the way are Ostrum Asset Management, LBP AM and Eurazeo. Nevertheless, even their policies focus predominantly on PFAS, likely because whereas it is possible to identify PFAS producers (using data from ChemSec and other sources), investors do not have access to comprehensive data on the revenues generated by companies of the sale or use of hazardous chemicals more broadly. There is therefore substantial scope for other investors to adopt PFAS exclusion policies, or wider chemical exclusion policies once data is available to underpin their implementation.



#8

EOS at Federated Hermes: Systematic bilateral engagement in the fast fashion sector

About Federated Hermes

EOS at Federated Hermes Limited is a leading stewardship service provider advising on USD $2.4 trillion of assets (as of 31 December 2025) invested in over 15,000 companies globally. Our engagement activities enable institutional investors to be more active owners of equity and fixed income assets, with the objective of enhancing long-term business performance and maximising shareholder value in our clients' portfolios.

Why engage with the fast fashion sector?

Fast fashion presents a significant systemic risk to long term investors due to its combined impacts on human rights in the supply chain, climate change, biodiversity loss and resource depletion. The sector's linear production model — characterised by intensive water, land, and energy use; hazardous chemical inputs; and complex, opaque supply chains — generates environmental and social externalities that cannot be addressed by company action alone. This exposes companies to commercial risks and opportunities associated with tightening global regulations on waste, emissions, deforestation, and supply-chain due diligence, and as consumer expectations shifts towards more responsibly sourced and durable products.

Our approach to Fast Fashion Engagement

We set out our analysis and approach to fast fashion engagement in 2021 in our report: Fixing Fast Fashion, which laid the foundation for a systems-level initiative (Lange, 2021) a central role, enabling a structured comparison of 15 companies' practices across performance indicators on climate, circularity, supply chain human rights and biodiversity. By identifying leaders and laggards, we aimed to raise minimum standards, accelerate science aligned commitments, and encourage a shift toward circular, nature positive business models.

Focus on hazardous chemicals

We have been raising with the companies their use of hazardous chemicals and the problem of environmental discharge from factories. We have seen some positive developments within textile production processes, particularly in hazardous chemical management and pollution controls among the leading apparel brands. Several companies have advanced their mapping of hazardous chemical use, set clear targets and improved wastewater standards. Pollution control and water stewardship can enhance companies' operational resilience as regulations tighten and protect brand equity, supporting long-term revenue durability.

Adidas has emerged as a leader in this area through its 'adiFormulator' programme, which promotes the adoption of more sustainable chemical formulations among suppliers. By 2023, 67% of chemical formulations used by Adidas Tier 1 suppliers had met the highest Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing Restricted Substance List (MRSL) Level 3 standard, and it was on track to reach 80% by 2025.

#8

EOS at Federated Hermes: Systematic bilateral engagement in the fast fashion sector

Inditex, the parent of Zara, has created its own programme called 'The List' — in collaboration with industry partners — to classify and improve chemical products throughout its supply chain. To support implementation of its zero-tolerance policy for hazardous discharges, Inditex is working with researchers to close data gaps and improve risk assessment.

H&M has set a target for 100% ZDHC MRSL compliance in Tier 1 and Tier 2 factories by 2030, having reached 97% in 2024; it is nearly at full compliance for wastewater discharge standards. The brand's work on regenerative cotton projects with BetterCotton and WWF also addresses upstream chemical use and occupational health.

Conclusion

A number of companies we have engaged with are making progress in eliminating PFAS and have established ambitious wastewater quality targets across their supply chains. However, most textile companies continue to focus primarily on Tier 1 suppliers, i.e., their most immediate suppliers, leaving significant gaps higher in the value chain among Tier 2 suppliers and beyond. We will continue to engage with companies on extending the scope of their targets and implementing frameworks beyond Tier 1 operations.



#9

How LBP AM Group works with FABRIC to drive change in the apparel sector

About LBP AM Group

LBP AM Group is a French asset management company with more than 30 years of experience. As of the end of 2025, we managed €70 billion in assets on behalf of institutional and retail investors, primarily across European markets. The LBP AM Group has four core areas of expertise: European private assets, multi-asset and absolute return strategies, quantitative investment solutions and conviction-based asset management, through its subsidiary LFDE (La Financière de l'Échiquier).

As a pioneer of responsible investing, we have built robust expertise in this area. We continue to strengthen our sustainability ambitions through a roadmap that aims to achieve carbon neutrality across our portfolios. Today, our responsible investment policy is built on the proprietary GREaT analysis methodology, active ownership in support of sustainability, transparent exclusions and holistic thematic policies, all of which underpin our range of responsible investment funds.

Reducing chemical use in the apparel and textile sector through FABRIC

Launched by the Finance for Biodiversity Foundation in autumn 2024, FABRIC (Fostering Action on Biodiversity through Responsible Investment in Clothing) is a collaborative investor engagement programme addressing the textile and apparel sector's impacts and dependencies on nature. It convenes 16 financial institutions that together engage with 16 global companies across luxury, fast fashion, sportswear and retail: Adidas, Birkenstock, Brunello Cucinelli, Fast Retailing, H&M, Hermès, Hugo Boss, Inditex, Kering, LVMH, Moncler, Nike, PVH, Ross Stores, TJX Companies and VF Corporation.

A common set of FABRIC Investor Expectations underpin the programme, which provides a consistent framework for dialogue and escalation if needed. At the time of writing, 14 of the targeted companies have acknowledged the investor expectations sent to them by the participating investors when the programme launched, and calls have taken place with 13. LBP AM participates actively in the initiative and leads three of the company engagements.

Companies are expected to improve practices in reducing their negative impacts on nature across the full product lifecycle; assess nature-related impacts, dependencies, risks and opportunities in line with the TNFD framework; improve raw-material traceability towards farm level, and; undertake holistic product life-cycle assessments. They are also asked to establish science-based, time-bound targets and action plans, strengthen circularity and make clear Board and management oversight arrangements.

Within this framework, hazardous chemicals are addressed as a material source of pollution and a driver biodiversity loss across the value chain. Investor dialogues aim to establish to what extent companies have identified chemical-related impacts in the life-cycle assessment, whether they apply robust Product and Manufacturing Restricted Substances Lists and if these requirements extend beyond regulatory compliance. Companies may also be asked whether they implement the Zero Discharge of Hazardous Chemicals (ZDHC) Roadmap to Zero and how chemical requirements are communicated to and verified among suppliers.

#9

How LBP AM Group works with FABRIC to drive change in the apparel sector

As the FABRIC programme is at an early stage, dialogues have not yet yielded widespread progress, particularly regarding hazardous chemical use in textiles. Initial discussions nevertheless illustrate how the subject is being integrated into broader dialogue on nature loss.

For example, the dialogue with one European luxury group revealed that one of its brands has adhered to the Zero Discharge of Hazardous Chemicals (ZDHC) Roadmap for several years, while chemical controls are supported by testing conducted by an independent laboratory. The company also reported that approximately 90% of its products are already PFAS-free.

In a dialogue with another European luxury group, investors explored how chemical risks are managed across different business divisions and in the supply chain. The company explained that PFAS screening is currently undertaken by two divisions and suppliers must adhere to a restricted substances list (RSL). The company considers its overall exposure to PFAS to be very limited and reported compliance with applicable European regulatory thresholds.

However, neither company has yet established a time-bound, group-wide target for the complete phase-out of PFAS.

Going forward, for companies where chemical use is identified as a material issue, based on their fibre mix and volumes, investors will encourage clearer disclosure, broader supply-chain coverage, safer substitution and credible commitments to phase out hazardous chemicals.

Conclusion

FABRIC is providing its investor members with a valuable opportunity to raise and address the apparel sector's hazardous chemical use and the associated investment risks in the context of nature loss. Though relatively newly launched, over time the initiative is expected to deliver tangible changes as its investor members build constructive relationships with the companies and make a compelling case for improving transparency and reducing hazardous chemical use.



#10

How BNPP AM works with the IIHC to engage with the world's major chemical producers

About BNPP AM

BNPP AM is a global asset manager that manages €1.7 trillion[20] on behalf of institutional, corporate retail and wealth clients worldwide. We aim to deliver sustainable, resilient outcomes for our clients while contributing positively to the real economy and to society. through its subsidiary LFDE (La Financière de l'Échiquier).

How the IIHC drives change among chemical producers

For many years BNPP AM has engaged with companies in its portfolios alongside like-minded investors through collaborative investor engagement initiatives. These initiatives typically agree a set of investor expectations and/or metrics that encompass best practice on a particular topic, which form the basis of investors' engagement. If adopted, they can reduce companies' risks and impacts and investors' exposure to them and provide investors with the disclosure necessary to inform our investment decisions.

BNPP AM has been a member of the Investor Initiative on Hazardous Chemicals (IIHC) since its inception in 2023, which is supported by Swedish NGO ChemSec featured in case study #2. We have been instrumental in shaping this investor-led initiative since launch and continue to be a member of the Steering Committee. IIHC has grown rapidly, now with more than 75 members that manage and/or provide advice on over US$23 trillion of investments (ChemSec, 2023a) indicates that awareness and concern about the impacts of hazardous chemicals are growing across the investment sector.

The rolling programme of annual investor engagement is guided by ChemSec's annual benchmark, ChemScore, published in November each year. In July each year investors write to the CEOs of the companies being rated, highlighting the value investors place on ChemScore and urging them to engage with ChemSec to ensure that their scores fully reflect their commitments and practices.

When the benchmark is released, investors send a second letter to the CEOs of the 40 companies rated, reiterating investors' concerns and the four investor expectations:

1. **Increase transparency:** disclose both the share of revenue and production volume of products that are, or contain, hazardous chemicals.
2. **Phase out persistent chemicals:** Publish a timed action plan on how to eliminate all persistent chemicals, with clear Key Performance Indicators (KPIs) covering revenues and volumes to show progress.
3. **Reduce hazardous product portfolio:** Draw up a strategy to reduce the company's production of hazardous chemicals with clear KPIs covering revenues and volumes to show progress.
4. **Increase share of safer solutions:** Set a 2030 target for the share of revenue generated by safer solutions and publish a strategy to achieve it.

Thereafter, groups of investors hold calls and/or engage via emails to discuss companies' performance against the investor expectations, guided by the ChemScore results.

20 As of 30th June 2026, following the acquisition of AXA Investment managers.

#10

How BNPP AM works with the IIHC to engage with the world's major chemical producers

In November 2025, ChemSec disclosed how many companies were meeting our expectations — as shown in the graphic[21]

Companies fully disclosing global portfolio of hazardous substances:

2025: 6/40 (2024: 6/51)

Companies committed to not developing new SVHC products:

2025: 4/40 (2024: 2/51)

Companies engaged with ChemSec regarding their score:

2025: 28/40 (2024: 36/51)

Companies disclosing revenue from SVHCs:

2025: 15/40 (2024: 11/51)

New data for this year

Companies stating they intend to phase out, reduce or avoid PFAS or other persistent chemicals:

13/40

Companies having a concept for a safer solution that at least excludes substances meeting the SVHC criteria:

11/40

Companies mapping the presence of PFAS throughout their entire product portfolio:

17/40

Companies intend to increase share of sales from safer solutions:

5/40

Companies acknowledging in public statements that PFAS or other persistent chemicals have problematic properties:

9/40

Conclusion

The IIHC is a unique, large global collaborative investor initiative that aims to drive a wholesale transformation of the chemical sector. If IIHC is successful, those companies' future revenues will increasingly be generated by safer chemicals and investors' exposure to the risks associated with hazardous chemicals will fall. While some chemical producers are making progress towards meeting investors' expectations, the pace of change is slow, as illustrated by the results published by ChemSec in November 2025. We urge more investors to join the IIHC to help to accelerate the transition.

21 For ChemScore 2025 (published in Nov 2025), the methodology was updated and universe was changed to better align with the IIHC requests and better capture key aspects of the progress in the chemical industry. For more information, see: https://chemscore.chemsec.org/methodology/

Because the ChemScore methodology was updated in 2025, only certain comparisons with previous years are meaningful. Below are key figures – some comparable with earlier results, others newly introduced this year.

#11

How Aviva Investors and the IIHC contributed to a breakthrough with BASF SE on PFAS

About Aviva Investors

Aviva Investors is an asset manager with £253 billion in assets under management, and is part of Aviva plc, the UK's largest insurance company.

Aviva Investor's engagement with BASF on PFAS

As investors in the chemical sector, our goal is to manage the business risks posed by the adverse impacts of hazardous chemicals and the opportunities in commercialising less harmful alternatives. One way Aviva Investors has done this in recent years is by leading a multi-year collaborative engagement with BASF SE, the world's biggest chemical producer, under the auspices of the Investor Initiative on Hazardous Chemicals (IIHC), which we created and continue to chair. (See IIHC case study #10 which provides further information about the initiative and the progress is has made in driving change across the chemical sector in recent years).

In 2023, headlines focused on 3M's historic US$10.3 billion settlement (3M Company, 2024) with US public water suppliers made as reparation for historic contamination of water supplies – equivalent to a third of its 2023 net revenues. But European companies were also impacted. BASF paid a US$316 million settlement (Mindock, 2024) for PFAS pollution in the US in 2024, highlighting its exposure to the risks of PFAS production.

Aviva has been co-lead of the IIHC investor engagement with BASF since 2023, building on the bilateral engagement with the company on hazardous chemicals we initiated in 2021. Through the IIHC engagement, in line with the investor expectations, we asked the company to phase out its production of persistent chemicals and disclose both the share of revenue and production volume of products that are, or contain, hazardous chemicals, including both Substances of Very High Concern (SVHCs) and Substances of Concern (SoCs).

In June 2025, we were pleased that BASF announced that it would phase out PFAS by 2028, following in 3M's footsteps. It also disclosed for the first time the production tonnages of SVHCs and SoCs. In addition, the company has published a list of substances on the SIN List used only as intermediaries. This was a significant step forwards in the transparency we had been asking for.

While we welcomed such a strong commitment from BASF, we hope that the current exclusion of the Agricultural Solutions Division (i.e., pesticides) from the phase out commitment will be addressed in due course, given the significant impact of these chemicals have on nature. As of February 2026, the company faces over 8,700 pending lawsuits for PFAS contamination (BASF SE, 2026), illustrating the continuing financial materiality of its production of PFAS for all investors.

Conclusion

Aviva Investors' engagement with BASF through the IIHC demonstrates how active, collaborative stewardship can help to address the financial risks associated with hazardous chemicals like PFAS. We strongly value the IIHC and believe that collaborative investor engagement initiatives can be a powerful force for change with BASF and other chemical producers. We urge other investors to join IIHC to lend their weight to securing similar commitments from other companies.

#12

Mercy Investment Services Inc: Reducing the material financial risks through the IEHN Working Group for Pesticide Reduction and Biodiversity

About Mercy Investment Services, Inc.

Mercy Investment Services is the socially responsible asset management program for the Sisters of Mercy of the Americas, a community of Catholic women. As a faith-based investor, we recognise the moral imperative for helping to create a just and sustainable world and embrace socially responsible investing as a means of promoting systemic change to respond to the critical needs of the time. We seek to effect these changes through our investments, impact investing program, and engagement with portfolio companies.

For over a decade, Mercy Investment Services has been a consistent investor voice calling for companies to adopt safer chemical management practices, including ingredient transparency; commit to phase out identified hazardous chemicals; invest in safer alternatives, and; disclose progress. We advocate for these solutions primarily via regular collaborative dialogues with company representatives and use other shareholder tools, such as filing shareholder proposals or sending investor letters to the board of directors, when additional pressure is necessary.

The Materiality of Pesticides and Biodiversity Loss

The financial stakes of inaction on pesticide risk are substantial and systemic. The World Bank estimates that the collapse of various ecosystem services provided by nature, including pollination, could result in a loss to the global economy of US$2.7 trillion by 2030. Additionally, pesticides and related chemicals in the global food system generate an estimated US$2.2 trillion annually in human health costs and a further US$640 billion in environmental costs.

As risks increase, so do opportunities. The Food and Land Use Coalition estimates annual economic gains from regenerative agriculture systems that include input reduction could be US$1.17 trillion by 2030 and US$3.04 trillion by 2050, with a reduction of public health costs of US$850 billion a year by 2030. Consumer demand for organic products has exhibited double-digit growth most years since the 1990s and now accounts for approximately 5.5% of total U.S. food sales.

Driving Change

Since its inception, Mercy Investment Services has collaborated with other faith- and values-based investors to share learnings and to strengthen our efforts in advocating for the care of people and planet. For over 20 years, the Sisters of Mercy of the Americas and then Mercy Investment Services have been involved in the Investor Environmental Health Network (IEHN)[22], an investor collaborative committed to promoting the use of safer chemicals to enhance shareholder value and protect public health and the environment. We have participated in various IEHN working groups to advance corporate chemical management practices and strengthen transparency and helped establish the Working Group for Pesticide Reduction and Biodiversity.

22 The activities and perspectives described in this case study are presented by IEHN and do not necessarily represent the views, policies, investment strategies, or fiduciary decisions of individual IEHN members or participating institutions.

#12

Mercy Investment Services Inc: Reducing the material financial risks through the IEHN Working Group for Pesticide Reduction and Biodiversity

Working with leading experts, investors in this group have developed key performance metrics and engagement expectations to track and assess portfolio vulnerabilities associated with the use of highly hazardous pesticides and biodiversity loss. Investor members' engagement efforts focus on retailers (food, home improvement), food manufacturers and agrichemical producers.

They advocate for:

- Development of a strategy to address the company's impacts and dependencies on biodiversity and ecosystems;Adoption of timebound and measurable targets aligned with the 2030 Global Biodiversity Framework Target 7 and 2035 Global Framework on Chemicals Target A7 relating to highly hazardous pesticides;
- Use of impact metrics to track and measure agrichemical reduction efforts;
- Disclosure of progress.

Engagement Progress

The engagement efforts of both Mercy Investment Services and individual Sisters of Mercy over the years have contributed to:

- Pollinator Protection Policies that encourage the phaseout of highly hazardous pesticides, and the adoption of integrated pest management practices have become the norm amongst U.S. grocery retailers including Costco, Dollar Tree, Kroger, Target, and Walmart.
- Progress from grocery and home improvement retailers, such as Costco, Walmart, and Whole Foods, to phase out the use of organophosphates, neonicotinoids, and other hazardous pesticides from their produce and live plant supply chains.
- Agrichemical producers' increased investment in the development of crop protection products with reduced ecotoxicity. For example, Corteva announced a multimillion-dollar joint venture in 2025 to accelerate the development of such products, inspired by nature, and that meet the company's Sustainable Innovation criteria.

Conclusion

The IEHN Working Group for Pesticide Reduction and Biodiversity provides a valued and effective vehicle through which investors share learnings and best practices to address the impacts and financial risks associated with pesticide use. Not only that, but it has also delivered tangible impacts. Engagement by Working Group members has contributed to major U.S. companies adopting new pollinator protection policies or measures to phase out the use of particular pesticides. Moreover, they are increasingly applying a safer chemical management lens to the production and use of pesticides and other agrichemicals. We hope to see the work of this group — and similar groups — expand to address a wider set of issues related to agricultural inputs and other hazardous chemicals.

#13

How Scottish Widows addresses the financial risks associated with pesticide use through Share Action's Pesticide Working Group

About Scottish Widows

Scottish Widows is a UK pensions, insurance and investment provider, founded in 1815 and now part of Lloyds Banking Group. It offers workplace and individual pensions, annuities, protection, savings and investment products, with c. £280 billion in total assets under administration and more than six million customers.

As a large provider of long-term savings products. Scottish Widows aims to support customers' financial resilience and future security, including by managing financially material environmental, social and governance risks and opportunities across its investments. Its responsible investment approach is anchored in its Responsible Investment Framework, focused on real-world outcomes and supported by its stewardship and exclusions policies, and climate transition plan.

Engagement through ShareAction's Pesticides Working Group (PWG)

Corporate engagement is one of the three pillars of our Stewardship approach, alongside investment manager oversight and industry and policy engagement. In addition to individual dialogue with issuers, we see collective engagement as a powerful tool through which to set shared expectations of companies and work with like-minded investors to influence corporate policies and practices.

Scottish Widows has been a member of the Pesticides Working Group (PWG) since its inception in 2024, helping shape the group's company asks and engagement approaches. The PWG is facilitated by ShareAction, a UK-based responsible investment NGO, whose research into the six largest pesticide companies' approaches to addressing biodiversity loss, alongside ongoing complementary research, underpins the group's collaborative engagement activities.

In the first year of company meetings, we asked for corporate commitments to align with Target 7 of the Global Biodiversity Framework: to reduce the negative impact of pollution on biodiversity by 50% by 2030. Given the current challenges associated with consistently measuring companies' overall biodiversity impacts, we chose to focus on more specific and actionable areas. These include companies' plans to transition away from Highly Hazardous Pesticides (HHPs) towards more sustainable alternatives, alongside policy engagement, recognising the important role of regulation in driving the transition.

The PWG asks that companies disclose the list of highly hazardous pesticides (HHPs) they produce, including volumes and revenues, and begin developing a transition plan for phaseout by 2035. The key milestones are for the company to:

- Demonstrate a clear approach to identifying HHPs within the product portfolio.
- Assess and report on exposure to HHPs across relevant products and markets.
- Increase transparency on HHP-related risks, dependencies and management strategies.
- Develop and implement a credible transition strategy towards lower-hazard alternatives, supported by appropriate governance, resourcing and progress monitoring.

SCOTTISH WIDOWS

#13

How Scottish Widows addresses the financial risks associated with pesticide use through Share Action's Pesticide Working Group

Since 2024, our engagement with pesticide companies including Corteva, FMC, UPL, Bayer and BASF have provided valuable insight into how the sector is responding to biodiversity-related risks, as well as the practical and commercial challenges associated with transitioning away from HHPs.

However, we have yet to see sufficient evidence of concrete progress against the expectations set by the PWG. Companies have often pointed to compliance with existing regulation as the basis for their current approach, but from a long-term investor perspective, this does not fully address the strategic, regulatory and reputational risks associated with continued exposure to hazardous chemistries. As a result, we believe direct dialogue needs to be complemented by broader stewardship activity, including public and private investor letters and engagement on the policy environment needed to support transition. Alongside encouraging greater transparency on HHP exposure and phase-out planning, we also see a need to engage with companies on how they are allocating R&D spending towards lower-hazard and more sustainable solutions. This includes understanding investment in new product development; acquisitions of innovative biological or nature-based crop protection solution, and; companies' plans for scaling these alternatives across key markets. Our aim is to encourage companies to demonstrate more credible approaches to moving away from hazardous chemicals to better mitigate the long-term financial, regulatory and biodiversity-related risks that may arise from a delayed transition.

Conclusion

The first phase of the working group's engagement has strengthened our understanding of how pesticide companies are approaching biodiversity-related risks and where key barriers to progress remain. It has also clarified where investors can most usefully focus future engagement: greater transparency on hazardous pesticide exposure, credible transition planning, stronger governance of product portfolios and increased investment in scalable, sustainable alternatives. Going forward, we will continue to use collaborative engagement, policy dialogue — and escalation where appropriate — to support more robust company responses and contribute to creating an enabling environment for sector-wide transition.



#14

Nordea Asset Management's multi-faceted approach to engaging on hazardous chemicals, with a focus on PFAS

About Nordea Asset Management

Nordea Asset Management (NAM) has a global business model and manages asset classes across the full investment spectrum. Our client base is split between Nordea group-related and external clients. We operate from four investment centres in Bergen, Copenhagen, Helsinki and Stockholm. Nordea is the leading investment manager in the Nordic Region and has developed a large global business servicing clients across Europe, the Americas and Asia. We had €353 billion in assets under management as of the end of June 2026.

Responsible Investment is strongly engrained in NAM's corporate culture and philosophy. We consider it our fiduciary duty to care about all factors that are material to clients' investments, including ESG factors. We are also strongly committed to active ownership, including voting and engagement, and see it as a key tool to drive positive change and enhance long-term financial performance.

Engaging on PFAS and Hazardous Chemicals

NAM began its work on PFAS and hazardous chemicals in 2022. By early 2023, the Responsible Investment Team had established a dedicated engagement programme, reflecting our conviction that engaging companies on PFAS serves a dual purpose: mitigating downside risk for clients while advancing transparency, pollution prevention and the transition to safer alternatives.

Our engagement framework is structured around three company categories, each with the following tailored objectives:

Producers: Understanding PFAS-related business risks, legacy and future liabilities, phase-out plans and contamination potential. We seek to discuss the concept of "essential use" and how it guides business strategy, while encouraging R&D into alternatives and stressing the need for transparency.

Industrial Users: Understanding the industrial use case and business relevance, assessing legacy and current liabilities, and exploring "essential use" considerations. We aim to identify R&D initiatives enabling a transition away from PFAS and encourage transparency on usage and exposure in light of evolving regulation.

Consumer-Facing Companies: Encouraging companies to set time-bound phase-out commitments alongside clear transparency on how companies are identifying functional alternatives. We further believe that for sectors such as cosmetics and apparel, the urgency and feasibility of transitioning away from PFAS is greatest.

Where companies do not fit neatly into one category, engagement is initiated to understand the nature and extent of any PFAS connection to their products or operations.

Key activities to date

- IIHC Leadership: Assumed company lead engagement roles and a Steering Committee position within the Investor Initiative on Hazardous Chemicals (IIHC).
- Investee Dialogues: Conducted, both bilaterally and through collaborative initiatives, engagements with 27 companies across chemicals, cosmetics, waste management and semiconductors.

#14

Nordea Asset Management's multi-faceted approach to engaging on hazardous chemicals, with a focus on PFAS

The key outcomes include:

- **Phase-out commitments:** Four cosmetics companies have provided written confirmation of clear, time-bound PFAS phase-out commitments, supported by evolving regulatory developments
- **Legacy exposure:** Engagements with paper and packaging companies have significantly advanced our understanding of legacy PFAS exposures and the pathways available for substitution in the sector.
- **Internal Awareness:** Presented PFAS-related financial and regulatory risk analysis to our investment teams. Held dedicated teach-in sessions for our investment boutiques on the risks and opportunities associated with tightening PFAS regulation — delivered ahead of broader broker coverage on the topic. These sessions directly informed portfolio decision-making, strengthening their conviction in companies such as waste management and water treatment providers while spurring a more critical assessment of consumer-facing brands and other sectors with material PFAS liabilities.
- **Policy Engagement:** Participated in a European Commission roundtable on chemical regulation, representing the investor perspective on financial impacts and the need for corporate transparency.
- **Industry Forums:** Actively contribute to industry discussions driving the transition toward sustainable chemistry.

Conclusion

Our engagement has already secured concrete progress and phase out commitments from some companies. However, ongoing global PFAS production means the associated pollution risks remain a serious concern for us. We are therefore committed to continuing our engagements and assessments, and advocating for safer alternatives where feasible, both through individual company dialogues and in industry initiatives with other stakeholders.



#15

IIHC: The new Outdoor & Sports Edition, supported by ChemSec

About ChemSec

ChemSec — the International Chemical Secretariat — is an independent non-profit organisation that advocates for the substitution of toxic chemicals with safer alternatives. We do this because these substances represent one of the most serious threats to our health and environment. And because we know that change is possible.

Through independent research, cross-border collaboration and practical tools, we are driving the development of more progressive chemicals legislation and pushing businesses towards the transition to non-toxic alternatives. We make available to investors and other stakeholders a set of tools, including ChemScore, an annual rating of how the world's major chemicals companies are managing the transition to safer, more sustainable chemicals. We also support the Investor Initiative on Hazardous Chemicals (IIHC), a group of more than 70 institutional investors with US$18 trillion in AUM.

The new Outdoor & Sports Edition

In mid-2026, in response to a request from IIHC members, ChemSec launched a new two-year initiative to coordinate engagement with downstream users of hazardous chemicals in the outdoor and sports apparel sectors.[23]

Outdoor and sports brands typically market themselves around nature and wellness. Yet many of their products — from running shoes and yoga pants to winter jackets and tents — have been found to contain chemicals toxic to human health and the environment. They also contribute to significant microplastic pollution.

This exposes the companies to financial risks, including litigation, costly redesigns or fines for non-compliance due to tightening regulations, and falling sales as consumer concern increases. It also creates major obstacles to their efforts to adopt more circular operational models if the materials they use today contain substances that will likely be banned in the near future. Our campaign therefore aims to accelerate the transition of the sports and outdoor sectors away from the most hazardous chemicals and lower their microplastic footprint.

Companies that investors will approach are Adidas, Anta Sports, Asics, Columbia Sportswear, Li Ning, lululemon, Nike, On Holding, Puma, Under Armour, and VF Corporation. Participating investors will request that those companies:

- Publicly state that all PFAS have been phased out from all products.[24]
- Adopt a public strategy to address endocrine-disrupting chemicals as a class.[25]
- Adopt a public, time-bound strategy to significantly reduce microfiber pollution from products across their full lifecycle.

ChemSec's role will be to coordinate the campaign, creating engagement teams and providing analysis of the selected companies. The campaign will comprise two rounds of engagement calls — one during autumn 2026 and one the following autumn. As engagement with three companies — Adidas, Nike and VF Corporation – is already being undertaken by another collaborative investor initiative run by the Finance for Biodiversity Foundation (FfB) called FABRIC (profiled in Case Study #8), it will coordinate engagement with those companies.

Conclusion

We not only hope that this new initiative will drive change in this sector, but also that it will deepen the investor members' understanding of how consumer-facing companies make decisions about hazardous chemicals and thereby improve dialogues in other sectors.

23 Investor Initiative on Hazardous Chemicals (IIHC)

24 We use the OECD definition of PFAS: "fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), i.e. with a few noted exceptions, any chemical with at least a perfluorinated methyl group (-CF3) or a perfluorinated methylene group (-CF2-) is a PFAS." See: https://one.oecd.org/document/ENV/CBC/MONO(2021)25/En/pdf

25 We use the definition stated in the CLP (European Chemicals Agency, n.d.). Examples of EDCs are bisphenols, phthalates, alkylphenols and their ethoxylates.

#16

IIHC: New IEHN Global Investor Initiative Towards Safer Chemistry (The GII)

About the Investor Environmental Health Network (IEHN)

The Investor Environmental Health Network (IEHN), administered by Clean Production Action (CPA), convenes institutional investors committed to advancing safer chemistry and improved chemicals management across global supply chains and consumer markets. Chronos Sustainability is a strategic advisory firm specialising in environmental, social, and governance (ESG) integration for institutional investors. Together, IEHN and Chronos bring expertise in investor engagement, chemical hazard assessment and corporate disclosure to mobilise capital in support of safer chemistry solutions.

Content

Chemical pollution is increasingly recognised as a systemic risk with implications for human health, biodiversity and economic resilience. Investors face growing exposure to liabilities associated with hazardous chemicals, including PFAS, bisphenols, phthalates, and the broader class of endocrine-disrupting chemicals (EDCs). Regulatory actions, litigation and shifting consumer expectations are creating new pressures on companies that rely on these substances in products and supply chains.

To address these risks, IEHN and Chronos Sustainability, in partnership with ChemFORWARD and the Safer Chemistry Impact Fund (SCI Fund), are launching the **Global Investor Initiative Towards Safer Chemistry (The GII) in 2026**. The initiative aims to help investors identify, assess and reduce chemical-related financial risks while supporting corporate transitions to safer chemistry solutions in three ways:

1. **Collaborative engagement** with downstream, consumer-facing brands and retailers where liabilities and evolving regulatory requirements present significant risks to investors;
2. **Developing safer chemistry metrics** for adoption by investor-facing data providers, sustainability ratings, benchmarks and investment indexes, helping embed chemical risk management into mainstream financial analysis and capital allocation decisions;
3. **Advocacy for effective public policy** that accelerates the phase-out of hazardous chemicals and advances safer chemistry solutions that protect human health, reduce environmental impacts and strengthen long-term business value.

The initiative will be launched at the first International Conference of the GFC in November 2026. Initially, the GII will focus on the cosmetics sector, where legally permitted hazardous chemicals, including EDCs, remain widely used in everyday consumer products despite growing scientific evidence of their health impacts and increasing regulatory scrutiny. Designed as a scalable model, it is expected that the initiative will expand to other sectors over time.

Building on IEHN's Safer Chemical Management Recommendations and SCI Fund's Safer Chemistry Impact Metrics Framework, the GII draws on lessons learnt from more than a decade of investor engagements through the IEHN Retail and Consumer Working Group that have demonstrated how proactive chemicals management can reduce business risk, improve regulatory preparedness, strengthen supply-chain resilience and limit future liabilities. For example:

Regulatory preparedness and risk reduction: Investor engagement supported major U.S. retailers, including Walmart, Target, Dollar Tree, and Dollar General, in measuring and reducing chemical footprints through CPA's

#16

INVESTOR ENVIRONMENTAL HEALTH NETWORK

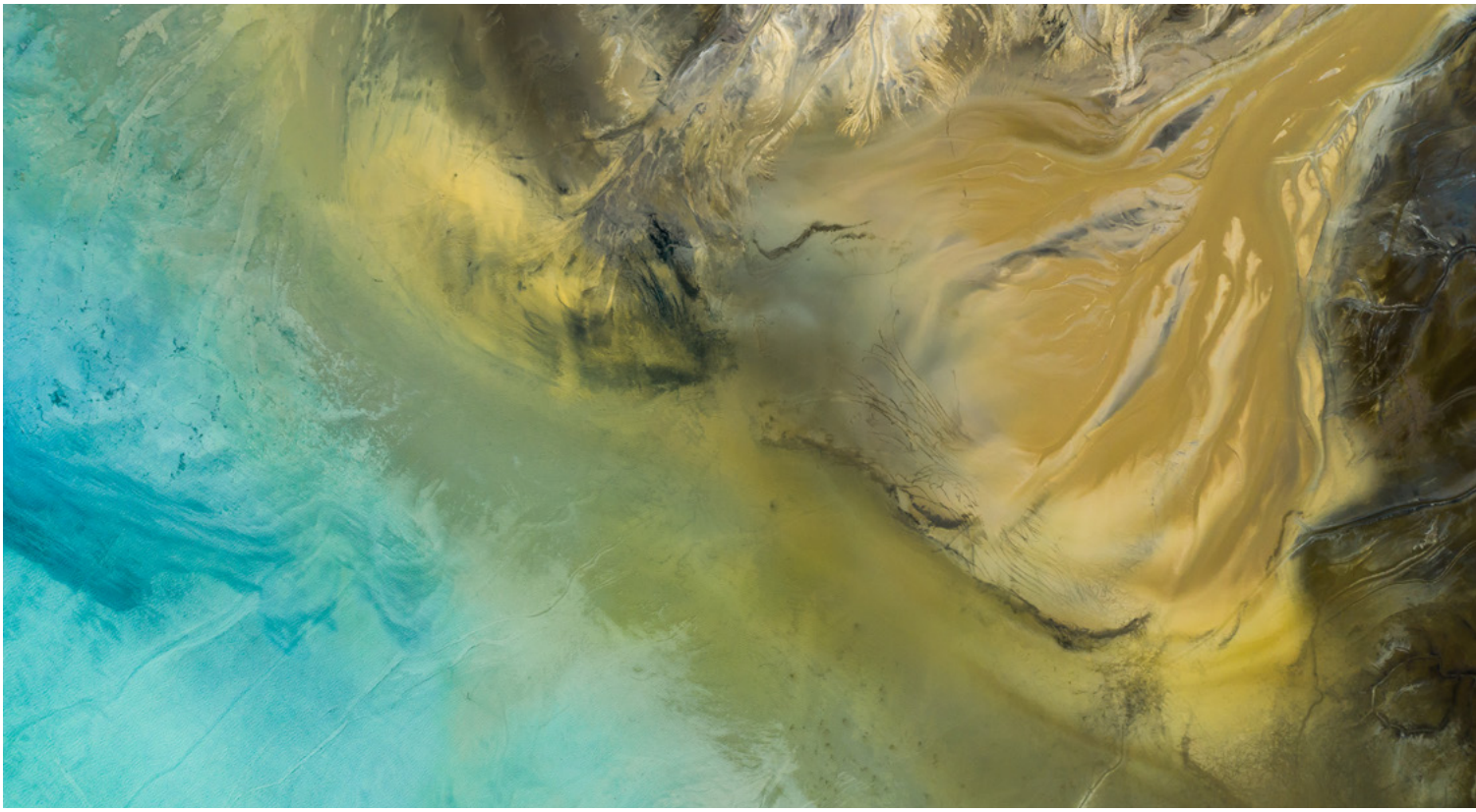
IIHC: New IEHN Global Investor Initiative Towards Safer Chemistry (The GII)

Chemical Footprint Survey and adopting hazard-based tools such as GreenScreen® List Translator. These actions helped companies prepare for emerging regulations while reducing compliance, reformulation and reputational risks.

Reducing information gaps and transition costs: Investor engagement has encouraged retailers and suppliers, including Ulta Beauty, Target, Sephora, and Dow, to participate in the Chemical Hazard Data Trust, a collaborative hazard assessment platform managed by ChemFORWARD. The initiative provides verified comparable chemical hazard data, which lowers the cost of identifying safer alternatives and supports more informed decision-making by companies and investors.

Conclusion

By advancing investor action on chemical risk and improving the availability of decision-useful data, the GII contributes directly to GFC Target D3, which calls for integrating sound chemicals and waste management into financial-sector decision-making by 2030, in addition to supporting GFC Targets D1 & D4 (Innovation & Safer Alternatives) and D6 (Chemical Footprint Strategies), which are fundamental to achieving the overarching objectives of the GFC.[26]



26 The activities and perspectives described in this case study are presented by IEHN and Chronos Sustainability and do not necessarily represent the views, policies, investment strategies, or fiduciary decisions of individual IEHN members or participating institutions

#17

How Ethos drives GHG emissions reductions through the ShareAction Chemical Decarbonisation Investor Coalition

About Ethos

The Ethos Foundation was created by two Swiss pension funds in 1997 with the aim of helping pension funds invest in a sustainable and responsible manner. It is a foundation under Swiss law, whose members must be Swiss pension funds or public benefit foundations. Our Charter defines its two objectives: to promote socially responsible investment and to foster a stable and prosperous socio-economic environment for the benefit of present and future society.

The Ethos Foundation currently comprises 255 members that insure approximately 2,520,000 people and manage total assets of almost US$500 billion. Its members give Ethos considerable negotiating power and influence in advocating ESG best practices among listed companies.

In 2016, Ethos launched a programme alongside six Swiss pensions funds to engage with companies listed outside of Switzerland called the Ethos Engagement Pool International with currently 127 members with AUM of US$ 451 billion.

Share Action's collaborative investor initiative on decarbonisation

For many years engagement on climate strategy and decarbonisation has been a priority for Ethos, leading to many activities including several dialogues with high-emission companies through direct engagement campaigns or collaborative engagements with other investors.

Ethos has been an active member of the Chemical Decarbonisation Investor Coalition since its inception in 2021. It is coordinated by ShareAction, a UK-based responsible investment NGO, and now has 48 investor members with US$10.8 trillion in AUM. The initiative aims to deepen and accelerate the decarbonisation of the European chemical industry in line with the 1.5-degree ceiling defined by the Paris Agreement.

The chemicals sector is responsible for 6.3% of global greenhouse gas emissions (Dhakal et al., 2022) and 5% of total EU emissions (European Energy Agency, 2025). It is also the biggest industrial user of oil and gas, both for energy and feedstock, driving projected fossil fuel demand4. Strategically positioned between industrial and consumer value chains, many parts of the global economy are dependent on the transition of the sector to reach their own climate goals. Engaging with the sector is therefore critically important.

However, it is not currently on track. *The Transition Pathway Initiative* found that only 12 of 136 companies assessed have credible transition plans. The sector could play a key role in the energy transition, with potential to scale production of fuels like renewable ammonia, which would then enable sectors such as shipping and energy storage to reach net zero.

Recognising that corporate engagement on its own is insufficient to drive the transition, the initiative supports a systemic stewardship approach:

- **Corporate engagement:** Over the last few years recent years, investors have focused their engagement on three major industrial gas companies (Air Liquide, Linde and Air Products) plus two systemically important chemical companies (BASF and Yara International). They have asked companies to publish and implement detailed, science-based, credible climate transition plans, that

#17

How Ethos drives GHG emissions reductions through the ShareAction Chemical Decarbonisation Investor Coalition

go beyond piloting transition technologies, and which are supported by sufficient opex and capex to deploy transition technologies at scale. Over time, the investor group has built high-level relationships with these companies, resulting in four meetings with CEOs.

- **Escalation:** In 2024 Ethos co-filed a resolution with ShareAction and three other initiative members at Yara International, Europe's biggest fertiliser company, calling for science-based emissions targets. The resolution received 17% support and 8% abstentions among non-state shareholders.
- **Engagement with policy makers and standard setters:** ShareAction facilitated the investor response to consultations on the SBTi chemical guidance and the EU Delegated Act on Low Carbon Hydrogen.

Engagement with state owners: Investors have also engaged with the Norwegian Government, a majority owner of Yara International, to try to align on decarbonisation priorities.

Outcomes to date

The initiative has made tangible progress: eight companies have set scope 3 targets, three have committed to 100% renewable energy, 13 are exploring alternative feedstocks, and several are advancing key electrification technologies such as e-crackers, industrial heat pumps, renewable batteries and renewable hydrogen production.

Conclusion

The Chemical Decarbonisation Investor Coalition demonstrates how collaborative investor engagement has accelerated decarbonisation across the chemical sector. Coordinated by ShareAction, the investor members have engaged with companies to ask them to adopt credible, science-based transition plans as well as with policymakers, standard setters and state owners. While some progress has been made, significant gaps remain. We urge other investors to join their peers in this coalition to drive more meaningful sector-wide decarbonisation.



#18

IIGCC: Supporting investors to decarbonise the chemical sector

About IIGCC

IIGCC is an investor-led membership organisation. We bring the investment community together to navigate the risks and opportunities of the transition and support progress towards a net zero and climate resilient future. We work with our members to create guidance, tools, frameworks and resources that can help them, in their individual contexts, to manage climate-related financial risk within their individual portfolios.

Our work also supports investors to make the most of opportunities presented by the transition towards a decarbonised global economy and the realities of a changing climate. We have c.400 members across 20+ countries. More information at www.iigcc.org

How IIGCC members support decarbonisation in the chemicals sector

The chemicals sector is crucial to the global economy's transition to net zero, as the third-largest source of industrial greenhouse gas (GHG) emissions. A critical way that chemicals producers can align their operations with the goals of the Paris Agreement is to transition towards emissions — neutral feedstocks and products. As a 'hard to abate' sector, the users of chemicals along the value chain also face challenges decarbonising their upstream Scope 3 emissions.

IIGCC supports investors in their work to reduce the GHG emissions of major global chemical companies in the following four ways:

Climate Action 100+ (CA100+): IIGCC is one of five investor networks around the world that supports and runs CA100+, which is an investor-led initiative to ensure the world's largest corporate greenhouse gas emitters take appropriate action on climate change in order to mitigate financial risk and to maximize the long-term value of assets. It includes eight chemical producers: **BASF**, **Bayer AG**, Dow Inc, Dyno Nobel Ltd., **L'Air Liquide S.A.**, **LyondellBasell Industries N.V.**, Orica Ltd. and Toray Industries, Inc. IIGCC supports investors' engagements with the four European companies shown in bold.[27]

Investors' engagement is guided by the 'Investor Expectations for chemicals companies' transition to net zero' published by IIGCC in 2023. The expectations, developed and supported by IIGCC members, are designed to build on and complement the CA100+ Net Zero Company Benchmark (NZCB). This benchmark tracks companies' progress towards key goals.

Since 2022, investors have driven substantial progress among the four European companies' decarbonisation strategies. A number of companies have improved disclosure of their decarbonisation pathways and associated strategies, as well as their capital allocation, sharing with investors the financial investments that are necessary to fulfil their net zero goals. Some of these companies have also modestly strengthened their medium — and long-term GHG reduction targets.

Net Zero Engagement Initiative (NZEI): IIGCC is also home to NZEI, another investor-led initiative aimed at helping IIGCC members align more of their individual investment portfolios with a net zero pathway through corporate engagement. Currently, 15 chemical producers are included in NZEI's focus list (beyond those covered by CA100+) across Europe and Asia. In 2025 alone, 25% of chemicals companies under

27 The Climate Action 100+ initiative is comprised of five networks globally (Ceres, AIGCC, IGCC, PRI and IIGCC). For companies headquartered outside of Europe, these engagements are supported by other CA100+ networks.

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IIGCC: Supporting investors to decarbonise the chemical sector

NZEI fully or partially addressed investor asks including net zero commitments and disclosure of main decarbonisation actions. This included stronger climate commitments and setting short-, medium- and long-term emissions reduction targets. Through NZEI, investors have also engaged chemical companies on policy engagement and nature-related topics.

Chemical Sector Working Group: IIGCC also convenes a Chemicals Sector Working Group for members undertaking or considering engagements with global companies in the chemicals sector. Activities include peer-to-peer learning, capacity building and research that members can use to support their own individual engagement activities on specific themes or topics. Sectoral Working Groups hold quarterly roundtables to share industry news and engagement updates.

European public policy engagement: An increasingly important component of IIGCC's work to support the decarbonisation of the chemicals sector is engagement on public policy. Recently, IIGCC published an Assessment of the European Commission's recent chemicals sector initiatives from the perspective of institutional investors, reviewing key European Commission outputs on the chemicals sector against investor priorities. To support a broader policy environment more conducive to decarbonising European industries, IIGCC's EU Industrial Policy Working Group also works with the investor community on the EU's Emissions Trading System (ETS) — the cornerstone of the EU's climate policy agenda.

Conclusion

IIGCC plays a leading role in supporting investors to understand the climate impacts and associated financial risks of the chemical sector and to engage with both companies and policy makers to support the transition to net zero. With our support, investors have contributed to notable improvements to companies' transition targets, plans, investment decisions and disclosure. IIGCC would welcome new members and participants in all of our chemical sector programmes.



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How BNPP AM engages with policymakers to drive system-level change

About BNPP AM

BNPP AM is a global asset manager that manages €1.7 trillion[28] on behalf for institutional, corporate retail and wealth clients worldwide. Our aim to deliver sustainable, resilient outcomes for our clients while contributing positively to the real economy and to society.

Policy engagement as a critical stewardship tool

As a long-term investor with a large, broadly diversified global investment portfolio, we believe that stewardship is a core fiduciary duty and instrumental to our goal of delivering sustainable financial returns to our clients.

We take a 'system-level' stewardship approach, i.e., we combine voting, issuer engagement and public policy advocacy to influence companies and governments. We focus particularly on systemic risks – those risks that are so large and pervasive that they threaten the very basis of our financial system, our economies and our societies. We cannot avoid them simply by choosing not to invest in individual companies that have high levels of exposure to those risks or diversifying our investments in other ways. Examples of systemic risks include climate change, nature loss, inequality and anti-microbial resistance.

Addressing systemic risks through engagement with policymakers

We seek to participate in policymaking processes at the global, regional and national level to advance systems-level approaches to sustainability challenges. We often collaborate with other investors and/or work with other stakeholders, such as NGOs, and aim to support the global transition to safe and sustainable chemicals at various levels, as outlined in these three examples:

Global Framework on Chemicals (GFC) - Private Sector Financing and Investment Working Group: As noted in the introduction to this report, having been adopted in 2023, the GFC is now in the implementation phase. Several Implementation Programmes (IPs) have been set up to drive and coordinate action globally. IP2 is entitled 'Strengthening Economic and Industry Sector Engagement and Action for the Sound Management of Chemicals along Value Chains'. Under IP2, several thematic workstreams and industry sector programmes have been established. Early in 2026, we joined the Private Sector Financing and Investment Working Group, and currently co-chair it.

This Working Group is leading work within the GFC process to:

- raise awareness across the financial sector of the investment and financing risks and impacts associated with hazardous chemicals;
- galvanise greater action across the financial sector in tackling these risks;
- develop or support the development of tools and mechanisms through which to do so.

We urge other financial actors to join us in this Working Group.

Investor statements to urge policymakers to act

Another way that investors can signal to policymakers their support for specific instruments and international processes is by signing investor statements. For example, an investor statement prepared by ShareAction ChemSec, IEHN and Planet Tracker, as well as investors, was launched at the GFC meeting in June 2025, addressed to governments represented in the Global Framework on Chemicals (GFC) and in the Global Biodiversity Framework (GBF). The statement urged those governments to act as

28 As of 30th June 2026, following the acquisition of AXA Investment managers

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How BNPP AM engages with policymakers to drive system-level change

reliable partners to the private sector by providing clear and consistent policy signals, thereby enabling the long-term planning and commitments essential for the chemical sector's transition. (See case study #20 that provides further details about this investor statement.)

We have also supported other statements in the past, related to plastics regulation:

- In 2018, we endorsed the New Plastics Economy Global Commitment launched by the Ellen MacArthur Foundation and the UN Environment Programme
- In 2022, we were among more than 80 members of the Business Coalition for a Global Plastics Treaty committed to supporting the development of an ambitious, effective and legally binding UN treaty to end plastic pollution.
- In 2024, as the Global Plastics Treaty was being negotiated, we signed an investor statement drafted by UNEP -FI, PRI, Finance for Biodiversity Foundation, the Business Coalition for a Global Plastics Treaty, Dutch Association of Investors for Sustainable Development (VBDO) and CDP. It was endorsed by 180 financial institutions representing over US$17.2 trillion in combined assets.[29] We urge other investors to join us in supporting similar statements in future.

Engaging directly with policymakers

Regulatory action at the regional and national level is critical to driving progress across this highly regulated and compliance-orientated sector, to spur decarbonisation and the transition to safer chemistry. Harmonising policy, regulation and standards across jurisdictions is also critical, particularly to investors like BNPP AM that invest globally and seek to promote sustainable practices across industries.

Within the EU, we took two opportunities in recent years to present our views to policymakers:

Private letter to the President of the European Commission: In early December 2024, we signed a private investor letter alongside other members of the IIHC to EC President Mrs von der Leyen and other Commissioners to convey our support for the new regulations to restrict PFAS that the European Commission was due imminently to consider. We urged the President to push forwards with the proposed PFAS restriction and phase out the production and use of PFAS, and only temporarily allow uses where no alternatives are available. We emphasised our views that weakening the proposed package would be a mistake because it would increase our exposure to financial risks and that legal predictability is essential to enable major institutional investors to support EU-based chemical producers in developing a path towards long term sustainable value creation. We welcomed the announcement in April 2026 that the EU would not overhaul the REACH regulation as part of the 'simplification' agenda, which would have significantly slowed progress, but rather move ahead with minimal reforms to the current framework.

Participation in a closed European Commission workshop on alternatives to PFAS: In April 2026, we were honoured to participate as the only investor representative in a closed workshop at the EC in Brussels on alternatives to PFAS, including F-gases. Various companies presented their alternatives to PFAS, and we heard from companies in different sectors about how they are substituting PFAS in their products. We explained our view of the systemic nature of chemical-related risks and reiterated our support for robust restriction of PFAS and other persistent and hazardous chemicals, as well as our need for data on chemical production and revenues, to aid our investment analysis and decision-making (as outlined in case study #6).

Conclusion

We believe that investors can play a critical role in shaping future policy, regulations and standards that aim to incentivise and govern investments in the chemical sector and beyond. We align our policy engagement with corporate engagement and voting to try to drive change at the system-level. We hope that other investors will look for opportunities to engage in similar ways with policymakers in all regions to support the adoption of policies, regulations and standards to facilitate the transition towards safe and sustainable chemistry. In so doing, they too can contribute to the delivery of key elements of the GFC.

29 https://www.unepfi.org/wordpress/wp-content/uploads/2024/04/Finance-Statement-to-end-Plastic-Pollution-20241125.pdf

#20

Share Action, ChemSec and IEHN: Investor Statements as a tool to publicly demonstrate investor concerns

About ShareAction

Since 2005, ShareAction has been working with investors, policy makers and companies to build a financial system that serves our planet and its people. As an independent charity and an expert on responsible investment, we campaign for the widespread adoption of responsible investing that has the best interests of both people and the environment at its core. Due to its serious and widespread impacts on climate, nature and people, one of the sectors we focus on is the chemical sector.

Raising investors' concerns about chemicals' impacts on biodiversity

With more than half of the world's GDP highly or moderately dependent on nature and biodiversity (World Economic Forum, 2020b), ecosystem loss poses a systemic risk to companies and their shareholders. The chemicals industry, including agrochemical producers, has a huge impact on biodiversity loss. Pollution, including from chemical production, use and disposal, is one of the major drivers of biodiversity loss and thus an increasingly relevant global risk.

In 2025, ShareAction collaborated with other NGOs working on this agenda — ChemSec, IEHN and Planet Tracker, as well as investors — to draft two aligned investor statements. One was directed towards the chemical industry and one towards the governments represented in the Global Framework on Chemicals (GFC) and the Global Biodiversity Framework (GBF). Both statements were launched in June 2025 at a meeting of the GFC in Uruguay.

The statement addressing chemical companies was supported by investors with US$4 trillion in assets under management. Signatories included Caisse des Dépôts et Consignations, SVVK-ASIR, Achmea Investment Management, BNP Paribas Asset Management, Swedbank Robur and Impax Asset Management.

This statement argued that failing to address chemical pollution exposes companies and investors' clients and beneficiaries to financial risks. Increased public awareness and scientific understanding of the long-term health and environmental consequences of using hazardous chemicals has already led to a rise in litigation and regulation.

It called on chemical companies to align their business strategies and political engagement activities with the GBF and GFC, strengthen their biodiversity-related disclosures and develop a robust biodiversity strategy that will lead to highly hazardous chemicals being phased out and accelerate the transition to safer alternatives for biodiversity and human health.

The statement addressed to governments emphasised the crucial role that regulation plays in enabling the chemical industry's transition to safe and sustainable products. It urged them to act as reliable partners to the private sector by providing clear and consistent policy signals, thereby enabling the long-term planning and commitments essential for the chemical sector's transition. It also outlined specific recommendations for governments around the world to strengthen and harmonise global policy frameworks on chemicals. This statement was supported by 40 investors with over US$3.9 trillion in assets under management.

Conclusion

Investor statements such as these coordinated by NGOs Share Action, ChemSec and IEHN can be an effective way for financial institutions that share a similar view of particular financial risks and/or opportunities to signal to policymakers their support for specific policies, regulatory measures and standards. Used in combination with corporate engagement and other forms of investor stewardship, including direct engagement with policymakers, they can be particularly impactful.

#21

InfluenceMap: Providing the data that investors need to challenge corporate political engagement on chemicals-related policy

About InfluenceMap

InfluenceMap is an innovative think-tank established in 2015 to produce objective content on systemic barriers preventing strong action on climate change and biodiversity loss. We operate two main content platforms: LobbyMap and FinanceMap. We have research and engagement capacity in the UK, the European Union, North America, Japan, Korea, Australia, and Latin America, and operate a collaborative model to drive our content through powerful levers across these regions, including the investment community.

LobbyMap is our unique platform that systematically tracks and assesses corporate climate policy engagement, launched in the run-up to the Paris Agreement in 2015. It provides metrics and near-real-time analysis of how more than 1,000 of the world's largest companies - including chemical producers — align their climate policy engagement with science-based policy pathways to achieve the Paris Agreement's goals. It also covers 350 industry associations globally.

The same methodology is increasingly being rolled out to assess engagement on nature — and biodiversity-related policy, benchmarked against the Global Biodiversity Framework. We currently assess 75 companies and 35 industry associations, including some chemical companies and their industry associations.

How InfluenceMap supports investor engagement

Since 2017, we have worked intensively with investors to support their stewardship on corporate policy engagement across many sectors, including, for example, through Climate Action 100+. Comprehensive information about how we support investors is available on the LobbyMap Investor Hub. In short, investors wishing to engage with chemical companies will find:

- **Company Assessments:** Live ranking table for climate and, in some cases, biodiversity assessments, including full access to profiles detailing the data underlying the assessments.
- **Corporate Disclosure Scorecards:** Analysis and ranking of corporate disclosures, including assessments of the accuracy of disclosures on climate policy engagement and the quality of corporate review processes.
- **Resources for Shareholder Voting at Company AGMs:** Information to inform investors' voting decisions on shareholder and management resolutions (e.g., director re-elections) and/or to draft and file shareholder resolutions. Specifically, InfluenceMap data can be used to support various stages of the process: 1) identifying potential company targets; 2) providing data to advise on specific resolution asks and supporting statements; 3) supporting engagements with detailed investor briefings and weekly advocacy updates; 4) assessing company progress on climate policy engagement after the vote.
- **Reports & Policy Alerts:** Timely, topical content on various themes related to corporate climate and biodiversity policy engagement, focused on specific entities, sectors, regions, and/or issues, including the chemicals sector.

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- **Weekly LobbyMap Updates:** Weekly alerts that capture how companies and industry associations are attempting to influence policy in real-time.
- **Bespoke Guidance:** InfluenceMap welcomes the opportunity to support investor engagements with companies via one-to-one briefing calls and/or detailed investor notes.

We have also produced two briefings in recent years of particular relevance to the chemicals sector:

- Corporate Advocacy on the UN Global Plastics Treaty, November 2024, analysed the plastic value chain's advocacy on the UN Global Plastics Treaty and on regional climate-related circular economy policies.
- The European Chemical Sector's Influence on Biodiversity Policy, April 2026, highlighted advocacy by chemical companies and their industry associations on policies including the EU's Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation, the Sustainable Use of Pesticides Directive (SUD), and proposed PFAS (also known as 'forever chemicals') restrictions.

Conclusion

InfluenceMap plays a unique role in helping investors understand whether and how chemical companies are supporting or challenging policy proposals being made by regulators to implement the Paris Agreement and the GBF. Investors then use our analysis to inform their engagement or voting, with a view to encouraging companies to ensure that their interactions with policymakers — either directly or indirectly via industry associations — supports the development of policies that will underpin the transition to safe and sustainable chemicals.



#22

Mercy Investment Services Inc: Using shareholder rights to drive change

About Mercy Investment Services, Inc.

Mercy Investment Services is the socially responsible asset management program for the Sisters of Mercy of the Americas, a community of Catholic women. As a faith-based investor, we recognise the moral imperative for helping to create a just and sustainable world and embrace socially responsible investing as a means of promoting systemic change to respond to the critical needs of the time. We seek to effect these changes through our investments, impact investing program, and engagement with portfolio companies.

For over a decade, Mercy Investment Services has been a consistent investor voice calling for companies to adopt safer chemical management practices, including ingredient transparency; commit to phase out identified hazardous chemicals; invest in safer alternatives, and; disclose progress. We advocate for these solutions primarily via regular collaborative dialogues with company representatives and use other shareholder tools, such as filing shareholder proposals or sending investor letters to the board of directors, when additional pressure is necessary.

How Shareholder Resolutions Can Drive Change

A particularly important shareholder right is being able to file shareholder resolutions at publicly traded companies' annual general meetings. Investors typically file shareholder resolutions (or shareholder proposals as they are also called), usually when other means of engaging with a corporation have proven unproductive. This case study focuses on the history and effectiveness of shareholder resolutions in the United States, where they are used more extensively than in other markets.

One or more shareholders of a company typically come together to draft and file a resolution. Shareholder resolutions contain a formal 'resolved clause,' which is a specific request, followed by carefully researched rationales supporting the request. Shareholder resolutions usually ask companies to disclose information, to measure and report on the potential impacts of their operations, or to adopt or change policies and practices to mitigate those potential impacts.

While shareholder resolutions are advisory and non-binding even if they receive a majority vote, they are a useful and important tool for gauging the significance of an issue to fellow shareholders and for prompting company action. Additionally, many companies are willing to negotiate in response to a shareholder resolution, and reach mutual agreements where shareholders withdraw the proposal and the company commits to make progress on the topic in question.

According to records of the Interfaith Center on Corporate Responsibility (ICCR), the first shareholder resolution relating to chemicals was filed in the 1976-1977 proxy season and asked Union Carbide Corporation to report on its pesticide exports to developing countries. The proposal received 1.8% of the vote in support, but a similar proposal filed in 1982 was withdrawn for agreement. Since then, ICCR records indicate that its members have filed approximately 147 shareholder proposals on topics ranging from chemicals of concern like lead, PVC, BPA, and

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PFAS, to pesticides, chemicals in plastics, food additives, and chemical pollution impacts. Of these, around 60 were withdrawn for an agreement, indicating the importance of shareholder proposals to help drive change.

Over the years, Mercy Investment Services has filed or co-filed more than 20 such shareholder proposals. Several of these were negotiated and withdrawn for agreement that led to positive progress from companies.

Some recent examples of proposals co-filed by Mercy that went to a vote include:

- 2026 Target proposal on the company's efforts to quantify and curtail pesticide use in its private label brands. The proposal received 17.2% of the vote in support.
- 2025 General Mills proposal requesting disclosure of pesticide reduction achieved through the adoption of regenerative agriculture practices. It received 27.6% of the vote in support.
- 2023 Dow Inc. proposal on the company's efforts to prepare for a growing reduction in the demand for virgin plastic. It received 26.3% of the vote in support.

Conclusion

Investors' ability to file shareholder resolutions is not only an essential shareholder right but has proven to be a tool through which investors can drive substantial change among chemical producers and users over the long term.



#23

INVESTOR ENVIRONMENTAL HEALTH NETWORK

IEHN: Using Shareholder Resolutions to Fight Environmental Injustice

About IEHN

The Investor Environmental Health Network (IEHN), administered by Clean Production Action (CPA), convenes institutional investors committed to advancing safer chemistry and improved chemicals management across global supply chains and consumer markets. Members of IEHN use shareholder engagement and shareholder-resolution filings to press companies to address the social and environmental risks of hazardous chemicals — and to signal to the wider market which of those risks investors consider material.

Shareholder Resolutions as a Market Signal: Chemical Risk and Environmental Justice

IEHN works at the intersection of environmental justice nonprofits and institutional investors, translating the concerns of communities that live with chemical harm into the financial-materiality terms that move markets. Environmental justice (EJ) names this reality directly: at its core, it is about who benefits from economic development and who bears its costs. EJ risks emerge from disproportionate harm to vulnerable populations from exposure to hazardous chemicals used in products and production. The United Nations Development Programme frames EJ as the respect, protection, and fulfilment of environmental rights and the advancement of the environmental rule of law. In practice, that burden concentrates in following places and populations:

- Fenceline communities: those living nearest chemical production, storage, and disposal sites, often where land is cheap, zoned for residential and industrial development where regulatory protections are not adequate. These communities bear the greatest resulting exposure and health burdens from air, water, and soil contamination.
- Workers who handle hazardous substances have elevated daily exposure through their jobs.
- Consumers, especially infants, children, and other biologically vulnerable groups, encounter chemicals of concern in the products they buy and use.

Investors have long raised these concerns by filing shareholder resolutions because EJ risks create business risks that emerge as litigation, fines, larger insurance premiums and or loss of social license to operate. Five resolutions illustrate the story of their impact:

- **Johnson & Johnson (2022)** — Filed by Mercy Investment Services, addressing concerns raised by Black Women for Wellness on consumer safety. It asked the board to commission an independent, third-party audit of the racial impacts of J&J's policies, practices, and products — including the marketing of talc-based baby powder to Black women. The racial-equity resolution won a 62.6% majority in 2022 (up from 34% a year earlier), and J&J discontinued talc-based baby powder — first in North America, then worldwide. In July 2026 it proposed to pay an estimated US$5.5 billion to resolve tens of thousands of lawsuits alleging its baby powder and other talc products cause ovarian cancer, a deal and ensuing legal battle that has dogged the company for many years. It had already paid out millions in other cases alleging that its talc contained asbestos and caused mesothelioma.

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INVESTOR ENVIRONMENTAL HEALTH NETWORK

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- **Dollar General (2022)** — Filed by the Presbyterian Church (U.S.A.), the resolution was withdrawn in 2022 after Dollar General agreed to strengthen its chemical policy and join the Chemical Footprint Project. Because dollar stores disproportionately serve low-income rural communities and communities of colour, cutting chemicals of concern from the products they sell is a direct environmental justice gain for the families who rely on them. EJ leaders with the Campaign for Healthier Solutions raised these concerns with investors after product testing provided evidence of exposure to hazardous chemicals.
- **Becton Dickinson (2024)** — Filed by Parnassus Investments and withdrawn based on an agreement made. The company conducted an EJ assessment and, through its Sustainable Medical Technology Institute, shifted from controlling ethylene-oxide emissions to developing safer sterilisation alternatives. EJ leaders documented cancer clusters in and around BD's sterilisation facilities, and in some cases the facilities had to shut down temporarily to install better emission controls.
- **Target (2026)** — Led by Trillium Asset Management with faith-based co-filers. The resolution on pesticide residues in private-label baby food asked Target to report on their presence across its own brands and its efforts to measure and reduce them because those products are consumed by infants and young children — an especially vulnerable population. It earned 17.2% support, clearing the threshold to refile and keep the issue on the board agenda. Friends of the Earth administered the testing of the products and raised the issue from a social and environmental justice standpoint.
- **Home Depot (2026)** — Filed by Domini Impact Investments and co-filed by Green Century, with Toxic-Free Future. The biodiversity impact-and-dependency resolution — spanning PVC, PFAS, and pesticides — earned 14.3% support, sustaining pressure across successive filings. The proposal asked Home Depot to conduct and disclose a biodiversity impact-and-dependency assessment covering its full value chain and the products it sells; the PVC, PFAS, and pesticides at issue also burden the fenceline communities living nearest their production raised by Toxic Free Future and Coming Clean — groups representing EJ concerns.

Conclusion

The importance of shareholder resolutions as a tool for addressing the social impacts of chemical pollution on vulnerable populations particularly, and the change they can drive, is clearly illustrated by this case study. More investors could consider filing or co-filing them, and supporting those filed by others, as one strand of their strategies to tackle the impacts of hazardous chemicals[30].

30 The activities and perspectives described in this case study are presented by IEHN and do not necessarily represent the views, policies, investment strategies, or fiduciary decisions of individual IEHN members or participating institutions.

#24

Safer Made: A pioneer in Safer Chemistry Innovation and Investment

About Safer Made Ventures

Safer Made is a US-based, early-stage venture capital fund founded in 2017, that exists to accelerate the commercialisation of safer chemicals and products. We invest in companies and technologies that eliminate chemicals of concern in supply chains and consumer products, while helping brands, manufacturers, and retailers meet the growing demand for healthier, more sustainable products.

Safer Chemistry is both a public health necessity and an investment opportunity: people need and want safer products. As regulators are increasingly restricting hazardous materials, companies need practical alternatives that perform at scale. Our work connects chemistry expertise, capital, brand relationships and market insight to help safer technologies move from early commercial validation into mainstream adoption.

The pivotal role of venture capital

Safer Made invests in companies that remove hazardous substances from everyday products and manufacturing processes, with a focus on sectors where chemistry is central to product performance and where safer alternatives can be scaled through existing consumer, brand and retail channels. Our work has centered on packaging, textiles and apparel, and beauty and personal care. We work with leading brands, manufacturers and retailers in safety and sustainability, helping them invest in technologies that address their safer chemistry needs, scout new technologies, co-invest and collaborate to bring safer products to market.

Safer Made's Fund I invested in 12 portfolio companies, including brands that bring safer products directly to consumers and technologies that enable major manufacturers to reformulate away from hazardous chemistry. The portfolio demonstrates that safer chemistry can simultaneously create commercial value and positive social and environmental impact. Fund I companies have addressed plastic reduction, PFAS elimination, DEET alternatives, safer cleaning and disinfection, biobased personal care ingredients, PFAS-free apparel performance, safer pigments and textile takeback and recycling.

Safer Made's portfolio companies have contributed to significant reductions of plastic waste, fiber waste, carbon dioxide emissions and hazardous chemicals.

Several portfolio success stories show how safer chemistry moves from innovation to market adoption:

Ecologic Brands developed fiber-based bottles and paper-based packaging that reduce reliance on rigid plastic. Jabil acquired Ecologic Brands in 2021, adding Ecologic's commercially mature paper bottle and paper packaging capabilities to Jabil Packaging Solutions and positioning the technology for larger-scale consumer packaged goods applications.

Green Theme Technologies has developed PFAS-free, water-free textile finishing chemistry through its EMPEL® platform. The technology is designed to deliver durable water repellence, stain protection, anti-wicking, and other performance finishes without PFAS or wastewater. Adoption by Nike, Hoka, and other leading footwear and apparel brands shows how safer chemistry can meet demanding performance requirements in large global supply chains.

Repurpose commercialised PFAS-free, plant-based and compostable consumer products, including moulded fiber tableware and food service products. Repurpose products

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Safer Made: A pioneer in Safer Chemistry Innovation and Investment

are now sold in more than 20,000 stores, including Target, Walmart, Kroger, and Costco, showing that safer materials compete in high-volume retail categories.

- **P2 Science** develops high-value, bio-based ingredients for formulated products, including its Citropol platform, which replaces chemicals of concern such as phthalates, PFAS, and cyclic silicones while delivering the performance beauty, personal care, fragrance, and home care brands require. P2 ingredients have now been used in over 250 products from major brands.

Other portfolio companies extend this impact across categories:

- **Mimikai** is bringing a safer insect repellent active to market as an alternative to DEET;
- **Force of Nature** replaces conventional disinfectants with a hypochlorous acid cleaning system;
- **Dimpora** is developing PFAS-free breathable waterproof membranes for outdoor apparel;
- **Nature Coatings** replaces petroleum-derived carbon black with wood-based pigments; and
- **Trashie** supports clothing takeback, recycling, and rewards.

Conclusion

Safer Made demonstrates how venture capital can accelerate the transition towards safer chemistry by providing capital, expertise and market connections to early-stage technologies. Its investments show that eliminating chemicals of concern can create both commercial value and measurable environmental and social benefits. Portfolio companies have successfully brought safer alternatives to market across packaging, textiles, beauty, cleaning and consumer products, with several achieving adoption by major global brands and retailers. However, scaling safer chemistry remains challenging, particularly where technologies require further commercial validation, investment and supply-chain adoption. Continued venture capital, industry collaboration and demand from brands and consumers will therefore be essential to move safer chemical solutions from innovation to widespread market adoption.



Glossary

Abbreviations and acronyms

Abbreviation	Full term
AGM	Annual General Meeting
AI	Artificial intelligence
AIGCC	Asia Investor Group on Climate Change
AO	Asset owner
AUM	Assets under management
BNPP AM	BNP Paribas Asset Management
BPA, BPF, BPS	Bisphenol A, bisphenol F, bisphenol S
BRS Conventions	Basel, Rotterdam and Stockholm Conventions
CA100+	Climate Action 100+
CFP	Chemical Footprint Project
CLP	EU Regulation on the Classification, Labelling and Packaging of substances and mixtures (Regulation (EC) No 1272/2008)
CMLP	Chemical Management Leadership Program (Responsible Business Alliance)
CoHC	Chemicals of High Concern
CPA	Clean Production Action
CSRD	Corporate Sustainability Reporting Directive (EU)
DALY	Disability-adjusted life year
DEET	N,N-diethyl-meta-toluamide (a synthetic insect repellent)
DFI	Development finance institution
EC	European Commission
EDC	Endocrine-disrupting chemical
EFRAG	European Financial Reporting Advisory Group
EJ	Environmental justice
ESG	Environmental, social and governance
ESRS	European Sustainability Reporting Standards
ETS	Emissions Trading System (EU)
EU	European Union
FABRIC	Fostering Action on Biodiversity through Responsible Investment in Clothing
FAO	Food and Agriculture Organization of the United Nations
FfB	Finance for Biodiversity Foundation
GBF	Kunming-Montreal Global Biodiversity Framework
GDP	Gross domestic product
GFC	Global Framework on Chemicals – For a planet free of harm from chemicals and waste
GHG	Greenhouse gas

Abbreviation	Full term
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GIITSC	Global Investor Initiative Towards Safer Chemistry
GPNM	Global Partnership on Nutrient Management
GRI	Global Reporting Initiative
HHP	Highly hazardous pesticide
ICCR	Interfaith Center on Corporate Responsibility
IEHN	Investor Environmental Health Network
IFC	International Finance Corporation
IGCC	Investor Group on Climate Change
IIGCC	Institutional Investors Group on Climate Change
IIHC	Investor Initiative on Hazardous Chemicals
ILO	International Labour Organization
IM	Investment manager
IOMC	Inter-Organization Programme for the Sound Management of Chemicals
IP	Implementation Programme (of the GFC)
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
ISO (Verisk)	Insurance Services Office, a US provider of standard insurance policy wordings (part of Verisk)
ISP-CWP	Intergovernmental Science-Policy Panel on Chemicals, Waste and Pollution
ISSB	International Sustainability Standards Board
KPI	Key performance indicator
LBP AM	La Banque Postale Asset Management
LFDE	La Financière de l'Échiquier
LMA	Lloyd's Market Association
MRSL	Manufacturing Restricted Substances List
NAM	Nordea Asset Management
NGO	Non-governmental organisation
NZCB	Net Zero Company Benchmark (Climate Action 100+)
NZEI	Net Zero Engagement Initiative
OECD	Organisation for Economic Co-operation and Development
PCB	Polychlorinated biphenyl
PFAS	Per- and polyfluoroalkyl substances
PRB	Principles for Responsible Banking
PRI	Principles for Responsible Investment

Abbreviation	Full term
PSI	Principles for Sustainable Insurance
PVC	Polyvinyl chloride
PWG	Pesticides Working Group (ShareAction)
R&D	Research and development
RBA	Responsible Business Alliance
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (EU Regulation (EC) No 1907/2006)
RSL	Restricted Substances List
SAICM	Strategic Approach to International Chemicals Management
SASB	Sustainability Accounting Standards Board
SBTi	Science Based Targets initiative
SCI Fund	Safer Chemistry Impact Fund
SDGs	Sustainable Development Goals
SFDR	Sustainable Finance Disclosure Regulation (EU)
SIN List	Substitute It Now! List (ChemSec)
SoC	Substance of Concern
SRI	Socially responsible investment
SSP	Stewardship service provider
SUD	Sustainable Use of Pesticides Directive (EU)
SVHC	Substance of Very High Concern
TNFD	Taskforce on Nature-related Financial Disclosures
UNEA	United Nations Environment Assembly
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNEP FI	United Nations Environment Programme Finance Initiative
UNITAR	United Nations Institute for Training and Research
VBDO	Dutch Association of Investors for Sustainable Development (Vereniging van Beleggers voor Duurzame Ontwikkeling)
VBIAF	Value-based Intermediation Financing and Investment Impact Assessment Framework (Bank Negara Malaysia)
WHO	World Health Organization
ZDHC	Zero Discharge of Hazardous Chemicals

Key terms

Term	Definition
Active ownership	The use by investors of their rights and position as shareholders or bondholders – including voting, engagement and filing resolutions – to influence the activities or behaviour of investee companies. See also stewardship.
Alternatives assessment	A structured process that supports a substitution decision by comparing a chemical of concern with potential replacements against minimum criteria, to demonstrate that a candidate alternative is genuinely safer.
Asset manager	A firm that invests and manages assets on behalf of clients, such as pension funds, insurers or individual investors.
Asset owner	An organisation that owns assets and invests them on behalf of beneficiaries, such as a pension fund, insurer, foundation or sovereign wealth fund.
Bilateral engagement	Dialogue conducted directly between a single investor or lender and a company, as opposed to collaborative engagement.
Bioaccumulation	The build-up of a substance in a living organism over time, because it is absorbed faster than it is broken down or excreted.
Blended finance	The strategic use of public or philanthropic capital to mobilise additional private investment, typically by reducing or sharing risk.
Chemical footprint	A measure of the total mass, number or hazard profile of chemicals of concern in a company's products, supply chain and operations, used to track progress in reducing reliance on hazardous chemicals.
Chemicals (or substances) of concern	Chemicals whose hazardous properties may cause harm to human health or the environment. Definitions and lists vary between jurisdictions and frameworks, including the EU, SAICM and the GFC.
Collaborative engagement	Engagement in which a group of investors (often coordinated by an investor network or NGO) jointly engages a company or policymaker around a shared set of expectations.
Double materiality	An approach to assessing sustainability matters from two perspectives: the impacts of an organisation on people and the environment (impact materiality), and the effects of sustainability-related risks and opportunities on the organisation's financial position (financial materiality).
Downstream user	A company that uses chemicals, or products containing them, in its own manufacturing or products, rather than producing the chemicals itself.
Due diligence	The process by which a financial institution identifies, assesses and manages the environmental, social and governance risks associated with a client, investment or transaction.
Endocrine-disrupting chemicals	Substances that interfere with the hormone (endocrine) system and can cause adverse developmental, reproductive, neurological or immune effects. Examples include certain bisphenols, phthalates, alkylphenols and their ethoxylates.
Escalation	Measures taken by an investor when engagement does not achieve the desired results, such as filing a shareholder resolution, voting against directors, making public statements or divesting.
Exclusion (negative screening)	The exclusion of certain companies, sectors, activities or substances from a portfolio, loan book or insurance cover on the basis of defined criteria.
Exclusion list	A list of activities, products or substances that a financial institution will not finance, invest in or insure, such as the IFC Exclusion List used by many development finance institutions and their partner banks.
Fenceline communities	Communities living closest to chemical production, storage or disposal sites, which often bear a disproportionate share of exposure and health impacts.

Term	Definition
Fiduciary duty	The legal and ethical obligations of those who manage money on behalf of others to act in the best interests of their clients or beneficiaries.
Forever chemicals	A common term for PFAS, reflecting their extreme persistence in the environment and the human body due to the strength of the carbon-fluorine bond.
Hazard	The intrinsic property of a substance that gives it the potential to cause harm, for example toxicity, persistence or bioaccumulation.
Hazardous chemicals	Substances capable of causing acute or chronic harm to human health, posing physical risks such as fire or explosion, or causing long-term damage to ecosystems. The GFC defines the term by reference to established international agreements and classification systems rather than a fixed list.
Highly hazardous pesticides	Pesticides that present particularly high levels of acute or chronic hazard to health or the environment according to internationally accepted classification systems, as defined by FAO and WHO criteria.
Institutional investor	An entity that manages and invests large amounts of funds on behalf of clients or beneficiaries, such as a pension fund, insurer or asset manager.
Known unknowns	Risks arising from chemicals whose hazards are suspected but not yet fully characterised or regulated, and which may be reclassified as harmful as scientific understanding evolves.
Long-tail liability	A liability, such as an insurance claim or litigation, that emerges many years or decades after the original exposure or policy, as with asbestos and PFAS.
Mass tort	A civil legal action involving large numbers of claimants who allege similar harm from the same product or activity.
Materiality (financial)	The degree to which an issue could reasonably affect a company's financial position, performance or enterprise value.
Norms-based screening	Screening of investments against minimum standards of business practice based on international norms, such as the UN Global Compact or the OECD Guidelines for Multinational Enterprises.
Novel entities	The planetary boundary covering new substances and materials introduced by human activity, including synthetic chemicals, plastics, heavy metals and radioactive materials.
Persistence	The ability of a substance to remain in the environment for long periods without breaking down.
Planetary boundaries	A framework defining nine Earth-system processes and the limits within which humanity can safely operate; several, including novel entities, are considered to have been exceeded.
Positive (best-in-class) screening	The deliberate inclusion in a portfolio of companies, activities or products that perform well against defined sustainability criteria relative to peers.
Project finance	Long-term financing of a specific project, such as an industrial plant or infrastructure, where repayment depends primarily on the cash flows generated by the project.
Regrettable substitution	The replacement of a restricted or hazardous chemical with a structurally or functionally similar alternative that later proves to have comparable or different hazards.
Reinsurer	A company that provides insurance to insurance companies, sharing the risk of large or long-tail losses.
Risk	In the chemicals context, a function of the intrinsic hazard of a substance, the exposure to it and the vulnerability of those exposed.
Risk engineering	Technical risk assessment and advisory services provided by insurers to help clients prevent and reduce losses.

Term	Definition
Safe and sustainable chemistry	The design, production and use of chemicals and materials that minimise hazards and adverse impacts on human health and the environment throughout their life cycle, while delivering their intended function. Closely related to green and sustainable chemistry.
Safer alternatives	Chemicals, materials, processes or technologies that can replace hazardous chemicals while reducing hazard and overall risk, as demonstrated through alternatives assessment.
Scope 3 emissions	Indirect greenhouse gas emissions that occur in a company's value chain, both upstream and downstream, outside its direct operations and purchased energy.
Screening	The application of rules based on defined criteria that determine whether investments are permitted in a portfolio (PRI definition).
Shareholder resolution	A formal proposal filed by one or more shareholders for a vote at a company's annual general meeting, typically asking the company to disclose information or change policies or practices. Also known as a shareholder proposal.
Stewardship	The responsible allocation, management and oversight of capital to create long-term sustainable value for clients and beneficiaries (UK Financial Reporting Council definition).
Stewardship service provider	A firm that conducts engagement and/or voting on behalf of institutional investor clients.
Stranded asset	An asset that suffers an unanticipated or premature write-down, devaluation or conversion to a liability, for example as a result of regulatory change or shifts in market demand.
Sustainability-linked loan	A loan whose terms, such as the interest rate, are linked to the borrower's achievement of pre-agreed sustainability performance targets.
System-level stewardship	An approach to stewardship that combines voting, company engagement and public policy advocacy to address systemic risks across markets, rather than focusing only on individual companies.
Systemic risk	A risk that is so large and pervasive that it threatens the stability of the financial system, economies and societies as a whole, and cannot be avoided through diversification. Examples include climate change and nature loss.
Tier 1 / Tier 2 suppliers	Tier 1 suppliers are a company's direct suppliers (for example, garment assembly factories); Tier 2 suppliers supply Tier 1 suppliers (for example, fabric mills, dye houses and finishing facilities).
Trade finance	Short-term financing that facilitates international trade transactions, such as letters of credit and export finance.
Underwriting	The process by which an insurer assesses risk and decides whether, and on what terms, to provide insurance cover.
Universal owner	A large institutional investor whose highly diversified portfolio is effectively exposed to the whole economy, and therefore to systemic risks and externalities.
Value chain	The full range of activities involved in bringing a product from raw material extraction through production, distribution, use and disposal.
Venture capital	Equity financing provided to early-stage companies with high growth potential.

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