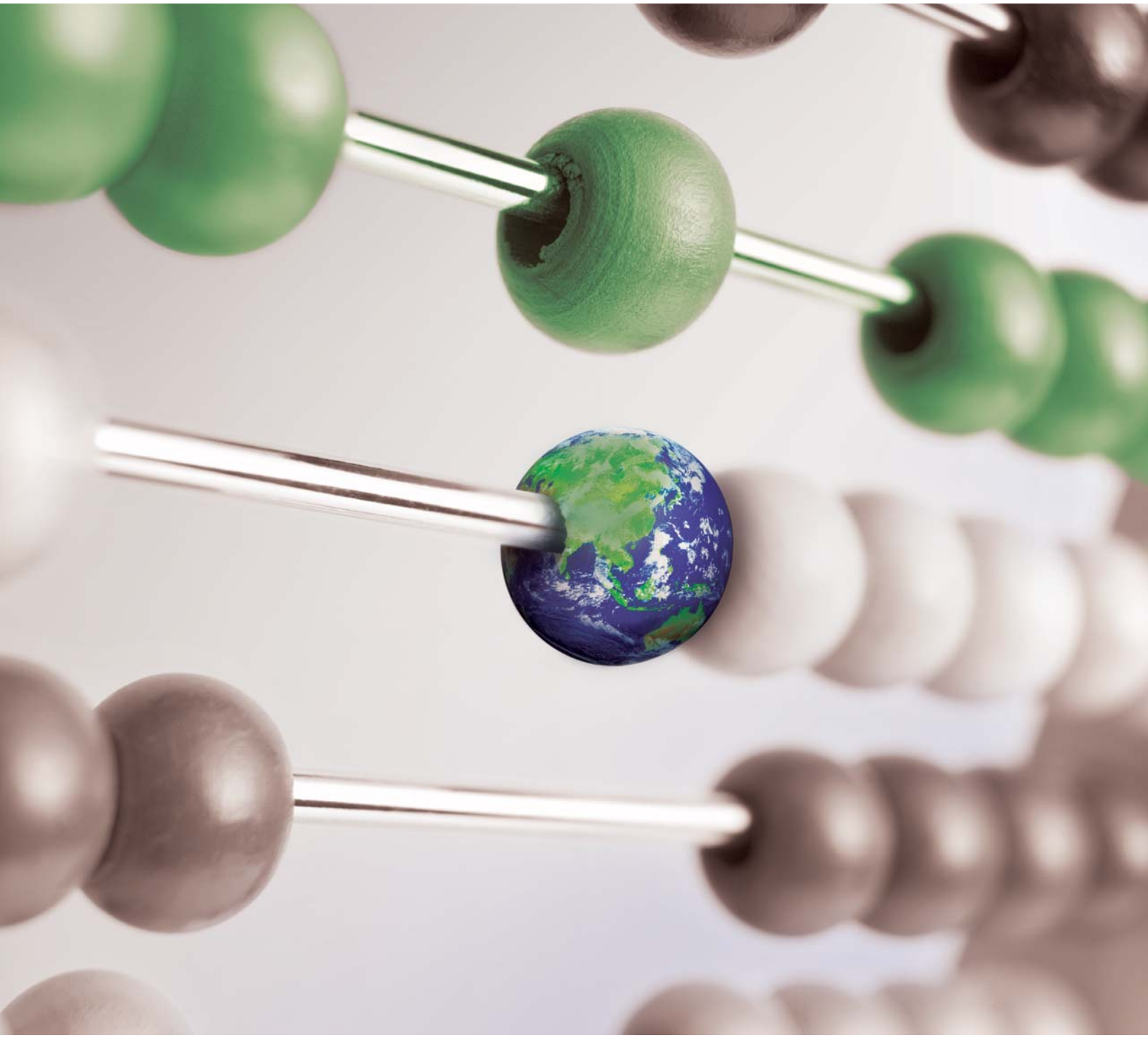
Universal Ownership

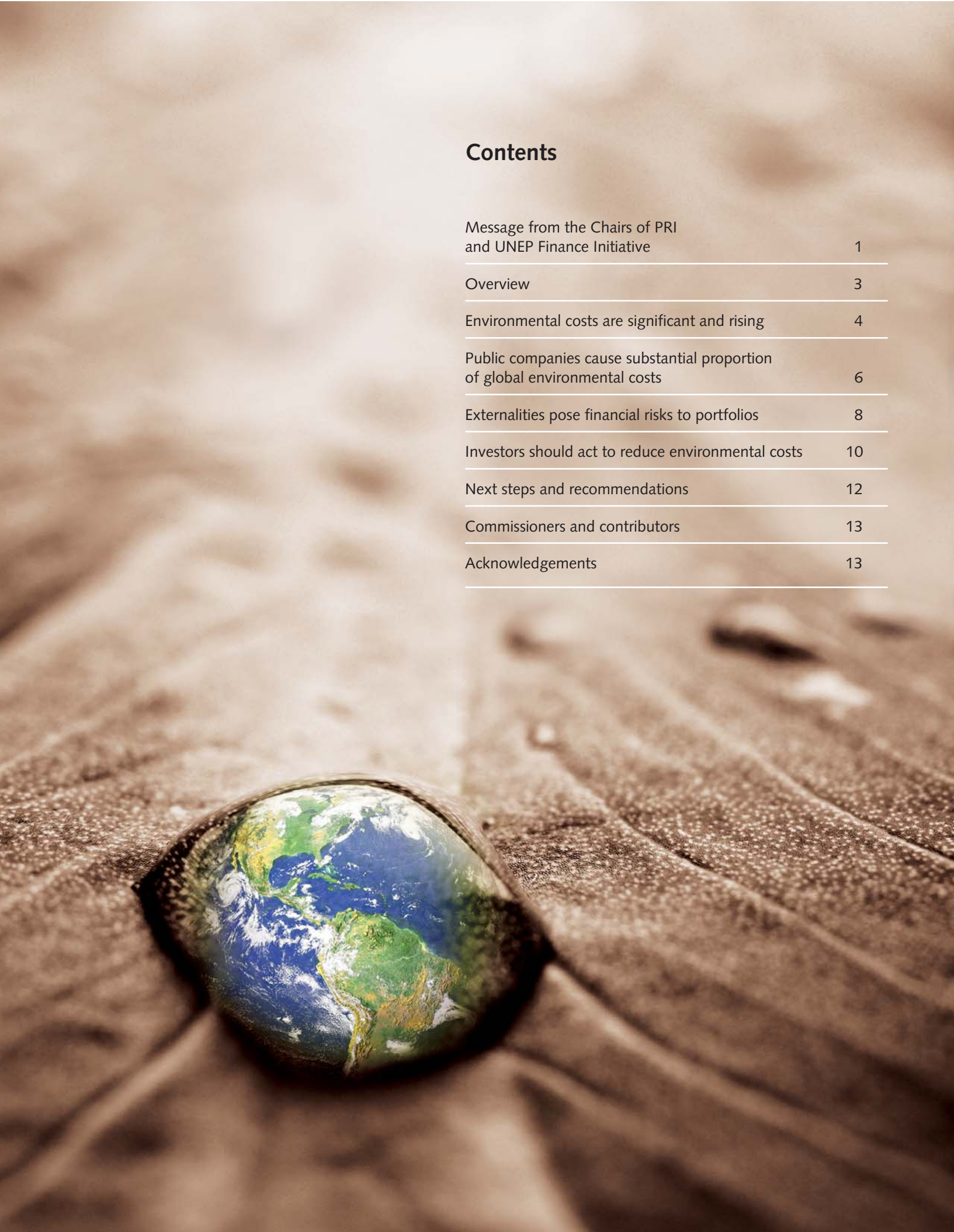
Why environmental externalities matter to institutional investors



UNEP Finance Initiative
Innovative financing for sustainability

PRI

The PRI is an investor initiative in partnership with UNEP Finance Initiative and the UN Global Compact



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Message from the Chairs of PRI and UNEP Finance Initiative

Many indicators regarding the health of the world's environment remain firmly in the red. Trends such as climate change, water scarcity, air pollution, biodiversity loss and ecosystem degradation all continue to threaten our finite stock of natural capital and the ability of our economy to provide sustainable growth and prosperity for all.

A great deal of this environmental damage is caused by the way we do business. If we are to create a truly sustainable global economy, then we must change our economic models so that business can become part of the solution, not part of the problem.

An increasing number of investors have begun to factor environmental, social and governance issues into their decision-making. This report helps investors measure the unaccounted costs of business activities by putting a price on natural resources that power business but rarely show up on corporate balance sheets.

This study provides an important rationale for action by large institutional investors that have a financial interest in the wellbeing of the economy as a whole. By exercising ownership rights and through constructive dialogue with companies and public policy makers, these "Universal Owners" can encourage the protection of natural capital needed to maintain the economy and investment returns over the long term. Many Universal Owners are signatories to the Principles for Responsible Investment (PRI), and we hope they continue to exercise leadership and responsible ownership by acting on the ideas and recommendations in this report.

This research also brings a responsible investor perspective to United Nations Environment Programme's (UNEP's) Green Economy Initiative, particularly en route to the 2012 UN Conference on Sustainable Development – also known as "Rio+20". Indeed this work represents an opportunity to take another step in the transformational process to develop a sustainable global economy.

Our thanks go to the team of authors led by Trucost who have put together this analysis. We hope this report can contribute to making economics part of the solution, for it is our shared responsibility to safeguard our natural assets for the benefit of our generation and future generations.

Yours faithfully

Donald MacDonald
Chair of the Principles for Responsible Investment and Trustee, BT Pension Scheme

Barbara J. Krumsiek
Co-Chair, UNEP Finance Initiative and President, CEO and Chair, Calvert Group, Ltd.
Director and chair, Acacia Life Insurance Co.

Richard Burrett
Co-Chair, UNEP Finance Initiative and Partner, Earth Capital Partners LLP

Large institutional investors are, in effect, "Universal Owners", as they often have highly-diversified and long-term portfolios that are representative of global capital markets. Their portfolios are inevitably exposed to growing and widespread costs from environmental damage caused by companies. They can positively influence the way business is conducted in order to reduce externalities and minimise their overall exposure to these costs. Long-term economic wellbeing and the interests of beneficiaries are at stake. Institutional investors can, and should, act collectively to reduce financial risk from environmental impacts.

US$ 6.6 trillion

The estimated annual environmental costs from global human activity equating to 11% of global GDP in 2008.

US$ 2.15 trillion

The cost of environmental damage caused by the world's 3,000 largest publicly-listed companies in 2008.

>50%

The proportion of company earnings that could be at risk from environmental costs in an equity portfolio weighted according to the MSCI All Country World Index.

Overview

The PRI and UNEP FI commissioned Trucost to calculate the cost of global environmental damage and examine why this is important to the economy, capital markets, companies and institutional investors.

This study assesses the financial implications of unsustainable natural resource use and pollution by business. Trucost calculated the cost of global environmental damage for seven major environmental impacts. As environmental damage can be quantified in monetary terms it can be integrated into financial analysis.

Large diversified institutional investors such as pension funds, mutual funds and insurance companies are "Universal Owners". The holdings of Universal Owners are broadly representative of the structure of capital markets, which in turn represents a slice of the productive capital of the global economy. **Universal Owners have a clear financial interest in the enduring health of capital markets and the economy.**

Universal Owners are the long-term owners of large companies that impose significant environmental costs onto the economy. Companies do not normally pay the full costs of environmental damage caused by their business activities, so these costs are largely 'external' to financial accounts. Without adequate information about these 'externalities', markets have failed to accurately account for the dependence of businesses on ecosystem services such as a stable climate and access to water.

Environmental costs are becoming increasingly financially material. Annual environmental costs from global human activity amounted to US$ 6.6 trillion in 2008, equivalent to 11% of GDP. Assuming a 'business as usual' scenario, global environmental costs are projected to reach US$ 28.6 trillion, equivalent to 18% of GDP in 2050.

The companies that constitute large, diversified equity portfolios cause global externalities that undermine the environment's ability to support the economy. The top 3,000 public companies cause over US$ 2.15 trillion or one-third of global environmental costs. In a hypothetical investor equity portfolio weighted according to the MSCI All Country World Index, externalities could equate to over 50% of the companies' combined earnings.

External costs caused by companies can reduce returns to investors. Externalities can affect shareholder value because they lead to a more uncertain, rapidly-changing economic environment and greater systemic risks. Inefficient allocation of capital to highly-polluting activities can cause a decline in asset values over time. For a diversified investor, environmental costs are unavoidable as they come back into the portfolio as insurance premiums, taxes, inflated input prices and the physical cost associated with disasters. These costs could also reduce future cash flows and dividends. One company's externalities can damage the profitability of other portfolio companies, adversely affecting other investments, and hence overall market return. Ultimately, externalities caused by companies could significantly affect the value of capital markets, or their potential for growth, and with that, the value of diversified portfolios.

Environmental damage costs are generally higher than the cost of preventing or limiting pollution and resource depletion. The costs of addressing environmental damage after it has occurred are usually higher than the costs of preventing pollution or using natural resources in a more sustainable way.[1]

Institutional investors can exercise ownership rights and encourage the protection of natural capital needed to maintain the economy and investment returns over the long term. It is in the financial interest of fund beneficiaries that Universal Owners address the environmental impacts of investments to reduce exposure to externalities. This study recommends Universal Owners engage in dialogue with companies together with other investors and seek policy and regulatory solutions to address externalities *(see page 10)*.

1. Jaffe, A.B., Newell, R.G., Stavins, R.N. (2005) A tale of two market failures: Technology and environmental policy, Ecological Economics, Vol. 54, Issues 2-3, pp. 164-174.

Environmental costs are significant and rising

The value of global environmental externalities is high and increasing. Environmental costs are caused by greenhouse gas emissions, overuse of water, pollution and unsustainable natural resource use.

Global environmental external costs caused by human activity amounted to an estimated US$ 6.6 trillion in 2008. To put this figure into context, annual global environmental externalities are 20% larger than the US$ 5.4 trillion decline in the value of pension funds in developed countries caused by the global financial crisis in 2007/08. US$ 6.6 trillion of environmental damage equates to 11% of the value of the global economy in 2008, *as shown in Table 1*. Measuring costs relative to GDP shows the significance of annual environmental impacts relative to economic output.

The externalities represent the depreciation of natural capital and reflect the global cost of ecosystem maintenance. Ecosystems need to be maintained for price stability and business continuity, and to preserve future generations' ability to sustain current levels of economic activity. However, traditional measures of economic value such as GDP treat resources as current income instead of capital depreciation and do not fully account for the effects of current consumption, emissions and waste sinks on future capital stocks and consumption. The resulting failure to maintain natural capital, if uncorrected, will undermine economic growth over time.

The costs of addressing the accumulating effects of externalities will rise.

The projected value of annual environmental costs could reach US$ 28.6 trillion in 2050, equating to 18% of projected GDP.[2] Levels of projected externalities could be 9% higher under a scenario with more intensive use of fossil

TABLE 1:
Annual environmental costs for the global economy in 2008 and projections for 2050

Environmental impact	*External costs in 2008 (US$ billions)*	*External cost relative to global GDP in 2008*	*Projected external costs in 2050 (US$ billions)*	*Projected external cost relative to global GDP in 2050*
Greenhouse gas (GHG) emissions	4,530	7.54%	20,809	12.93%
Water abstraction	1,226	2.04%	4,702	2.92%
Pollution (SOx, NOx, PM, VOCs, mercury)	546	0.91%	1,926	1.20%
General waste	197	0.33%	635	0.39%
Natural resources				
Fish	54	0.09%	287	0.18%
Timber	42	0.07%	256	0.16%
Other ecosystem services, pollutants and waste	Not available (NA)	NA	NA	NA
Total	**6,596**	**10.97%**	**28,615**	**17.78%**

Source: Trucost Plc

Findings reflect uncertainties and margins of error inherent in estimates of externalities. Actual values are likely to be higher, since this study takes a global view that simplifies many economic and environmental complexities. Due to lack of available global data, the analysis excludes most natural resources used, as well as many environmental impacts including water pollution, most heavy metals, land use change and waste in non-OECD countries. Externalities would also be higher if degradation of environmental services such as watershed protection or climate regulation could be accounted for.

Trucost calculated global environmental costs based on a literature review of academic studies as well as data on the valuation of forest resources from the Valuation Database of the UN Environment Programme initiative on The Economics of Ecosystems and Biodiversity (TEEB). This study uses the total economic value (TEV) as a theoretical framework to monetise ecosystem goods and services based on their use values and other benefits. The value of global annual externalities is based on external costs of marginal changes in resource use, pollution and waste. External costs were applied to data on current and projected greenhouse gas emissions; pollutants – sulphur oxides (SOx), nitrogen oxides (NOx), particulate matter (PM), volatile organic compounds (VOCs) and mercury; waste; water withdrawal and use of timber and fish.

fuels, or 23% lower if clean and resource-efficient technologies are introduced as part of an emphasis on global solutions to economic, environmental and social stability.

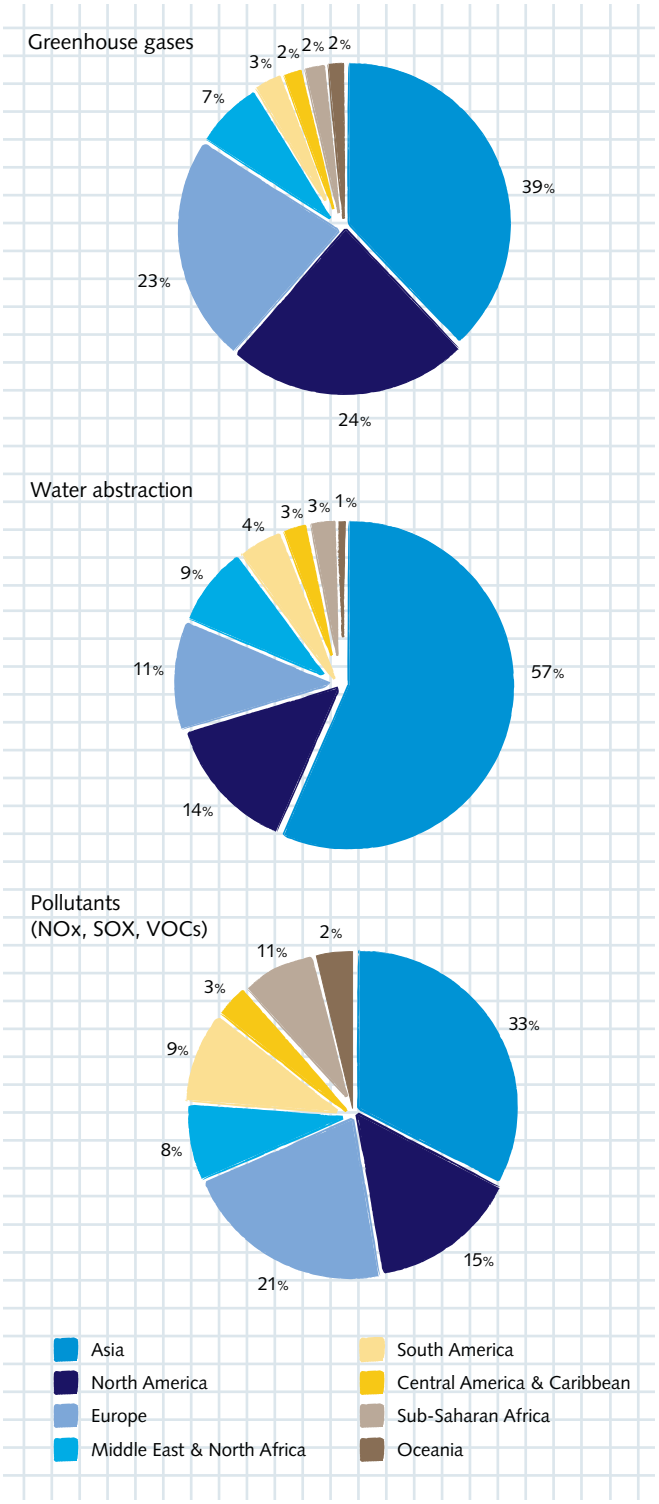
Environmental costs are likely to be incurred earlier than expected. Variables such as population growth contribute to uncertainties inherent in estimates of future externalities. However, projections are likely to be conservative since values do not account for growing ecosystem sensitivity, increased natural capital scarcity and potential breaches of thresholds which could trigger immediate changes such as ecosystem collapse or catastrophic climate change.[3]

Reducing greenhouse gas (GHG) emissions, water use and air pollution would have the greatest effect on reducing environmental costs.

GHG emissions and resulting climate change impacts account for a large and growing share of environmental costs – rising from 69% to 73% of externalities between 2008 and 2050. Trucost applied a carbon price of US$ 85 to each tonne of GHGs emitted in 2008 to calculate global annual external costs as US$ 4.5 trillion. This represents the present day value of future climate change impacts and is based on the social cost of carbon from the Stern Review on the Economics of Climate Change (2006).[4] The future rise in costs for escalating GHG emissions to reflect mounting climate change impacts results in projected external costs of US$ 21 trillion in 2050. Emissions are the main driver of the trajectory of rising externalities year-on-year. Water abstraction and air pollution were the other main contributors to environmental costs, followed by emissions of volatile organic compounds, waste generation, fish and timber use and mercury emissions.

Costs for GHG emissions, water abstraction and pollution are unevenly distributed between countries, *as shown in Chart 1*. Many less-developed countries generate externalities by manufacturing goods for export to developed markets.

CHART 1: Breakdown of carbon, water and air pollution costs by region in 2008



Source: Trucost Plc

2. Trucost applied rising external costs to projected "flows" of resource use, waste and pollutants to estimate the size of future annual externalities if business continues as usual with regionally oriented low per-capita economic growth, rising population levels and slow, fragmented technological development (Intergovernmental Panel on Climate Change Scenario A2).
3. UNEP (2005) Ecosystems and Human Well-being: Opportunities and challenges for Business and Industry.
4. Stern, N. (2006) Stern Review: The Economics of Climate Change. HM Treasury, UK.

Public companies cause substantial proportion of global environmental costs

Medium-to-large sized publicly listed companies cause over one-third (35%) of global externalities annually.

The top 3,000 companies by market capitalisation in Trucost's database generated environmental external costs totalling US$ 2.15 trillion in 2008.

These listed companies represent a large proportion of global equity markets, but external costs from all securities in capital markets would be higher. Other actors in the global economy, such as small and private companies, governments, other organisations and individuals contribute the remaining US$ 4.45 trillion of external costs.

Average external costs identified in the literature review were applied to environmental impacts caused by the operations and supply chains of the top 3,000 companies. Almost half of externalities analysed are from supply chains, indicating exposure to rising input costs as environmental costs are internalised and passed on in higher prices.

Findings reflect uncertainties and margins of error inherent in estimates of externalities. While costs for natural resource use may appear low, they exclude resource scarcity costs that would result from potential high-impact events such as fishery or ecosystem collapse. In addition, this study has only measured the flow or loss in annual income from environmental damages. Over time these losses would accumulate and contribute to a mounting depletion of stocks, undermining sectors that depend on them as resource inputs. Actual externalities are likely to be higher than the US$ 2.15 trillion, since the analysis excludes external costs caused by product use and disposal, as well as companies' use of other natural resources and release of further pollutants through their operations and suppliers.

TABLE 2:
Annual environmental costs in 2008 attributable to the largest 3,000 public companies

Environmental impact	*External costs generated by listed companies in 2008 (US$ million)*	*% of externalities arising from supplied goods and services*	*Average external cost relative to revenue in 2008*
GHG emissions	1,444,864	44%	4.47%
Water abstraction	366,555	66%	1.13%
Pollution (SOx, NOx, PM, VOCs and mercury)	314,001	54%	0.97%
General waste	21,157	40%	0.07%
Natural resources			
Fish	6,099	79%	0.02%
Timber	1,542	68%	0.01%
Other ecosystem services, pollutants and waste	Not available (NA)	NA	NA
Total	**2,154,218**	**49%**	**6.66%**

Source: Trucost Plc

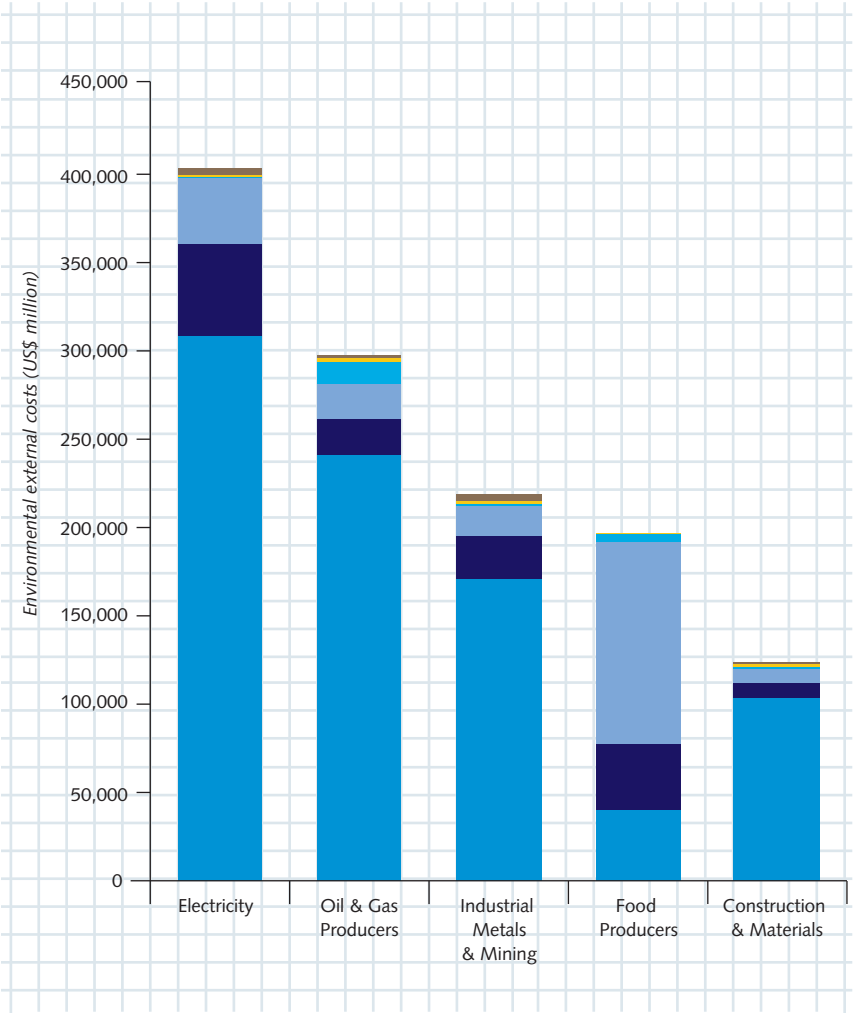
The external costs represent nearly 7% of the combined revenues of the 3,000 companies.

The materiality of externalities varies at a company and sector level. Assuming all environmental costs were internalised for each company, they would equate to between 0.34% and over 100% of revenue. Levels of externalities also vary for companies within the same sector. For example, environmental costs in the "Basic Resources" sector would equate to between 0.90% and 84% of revenues at a company level.

Five sectors account for around 60% of all externalities from the largest 3,000 listed companies.

Reducing GHG emissions in the Electricity, Oil & Gas Producers, Industrial Metals & Mining and Construction & Materials sectors would have the greatest impact on reducing carbon costs. Reducing water use, waste generation and pollutant releases from these sectors could also reduce environmental costs significantly *(see Chart 2)*.

CHART 2:
Environmental costs for top five sectors – 3,000 public companies



Sector	Electricity	Oil & Gas Producers	Industrial Metals & Mining	Food Producers	Construction & Materials
Heavy metals	4,207	1,668	3,954	377	915
General waste	814	2,431	2,043	547	1,917
VOCs	532	12,527	747	4,084	1,308
Water abstraction	36,692	20,081	17,154	114,880	7,399
Air pollution	53,133	24,580	24,440	37,151	8,487
Greenhouse gases	309,188	242,047	170,783	40,113	103,258
Total	**404,566**	**303,334**	**219,121**	**197,152**	**123,285**

Source: Trucost Plc

Externalities from some companies may be double-counted where the direct environmental impacts of their operations are also included as the indirect impacts of companies that they supply. However, including both direct and supply chain externalities helps ensure the study accounts for external costs where these are outsourced to other public and private companies.

Externalities pose financial risks to portfolios

Institutional investors are exposed to rising environmental costs that contribute to economic and market risks. These costs could affect asset values and fund returns. Reducing environmental externalities would reduce net costs in the economy and ultimately benefit Universal Owners.

Funds can be exposed to environmental costs through:

- **Reduced future cash flows for companies held in portfolios and lower future dividends.** Some environmental costs externalised by companies will be incurred by other companies held in large portfolios. They can incur costs through decreases in productivity and increased input costs, including higher taxes, levies and insurance premiums. Falling revenues, unplanned capital investments and increased costs of capital driven by lower risk-weighted projected returns could increase operational costs.
- **More uncertain, rapidly changing conditions in capital markets.** Returns to institutional investors' portfolios are often closely related to capital market returns and value creation across economies, rather than particular companies or sectors. Rising externalities accumulate and can increase volatility in capital markets, which could become more vulnerable to sudden low-probability, high-impact environmental changes. This could undermine economic growth, reduce fund returns and create a diminished, lower-value investment universe.
- **Depleted natural capital and reduced cash flows to the economy.** Allocating capital to environmentally-damaging activities is inefficient in the medium to long term and leads to a decline in the asset base.
- **Increased environmental costs for companies causing damage.** As governments increasingly apply the "polluter pays" principle, companies will have to meet the costs of reducing pollution and waste or pay compensation for the damage they cause. Abatement costs are usually lower than pollution damage costs.[5]

5. Rayment M. et al (2009) The economic benefits of environmental policy, GHK, Sustainable Europe Research Institute (SERI), Transport & Mobility Leuven, VU University Amsterdam, Institute for Environmental Studies (IVM).

> "We see the Universal Ownership concept as an absolutely essential part of our investment philosophy – addressing externalities is crucial. Markets that are not working properly destroy value for participants and have inefficiencies. If a company is constantly externalising costs it is less efficient than its rivals. If the former is outcompeting the latter this is not in the interest of company owners."
>
> Paul Lee, Chief Operating Officer, Hermes Investment Management

Most large equity funds invest in many companies with significant environmental impacts. Findings suggest that reducing environmental costs from listed companies held in diversified equity portfolios could significantly reduce global externalities, boosting economic output overall.

Trucost constructed a hypothetical fund with US$ 10 billion of assets invested in equities in the MSCI All Country World Index (ACWI), comprised of 2,439 listed companies in 2008. The MSCI ACWI is diverse and spans the major national economies of the developed and emerging markets and so it can be used to calculate the approximate equity exposure of Universal Owners. The scale of externalities caused by portfolio companies annually would equate to over 50% of their combined earnings,[6] weighted according to Index constituents.

6. Earnings are measured as EBITDA (earnings before interest, taxation, depreciation and amortisation).

> "The assessment of the external costs generated by their investments enables investors for the first time to properly quantify in financial terms the environmental impacts of their portfolios. Reducing these costs will increasingly become a core part of investment analysis, corporate governance and policy dialogue."

Nick Robins, Head of Climate Change Centre of Excellence, HSBC

For every US$ invested in the MSCI ACWI, equity funds would "own" 5.6%[7] of associated externalities.

External environmental costs for each company in the Index were allocated to the hypothetical equity portfolio in proportion to assumed ownership of stock, applying Index sector weightings. The external costs from each company were summed across the portfolio to give the total environmental external costs related to equity holdings. With US$ 10 billion invested in equities in the Index, an investor would be proportionally responsible for US$ 560 million of the externalities caused by the listed companies annually.

Externalities caused by companies could over time reduce the value of portfolios with broad investments in capital markets.

Through equity holdings in many companies, long-term investors are unavoidably exposed to the financial effects of environmental externalities. Divesting numerous companies exposed to externalities is not an option for diversified institutional investors that need to own a broad cross-section of capital markets to maintain risk-adjusted returns. The size of the portfolios also makes large short-term changes in asset allocation impractical due to high transaction costs.

Cumulative externalities are generally larger at a portfolio level than short-term gains from companies that externalise environmental costs. Polluters are more exposed to regulatory compliance costs and legal action. Their inefficient resource use eventually reduces returns for all. Although the effects on individual portfolios would vary depending on their investments, environmental externalities can cause an overall decline in fund values.

Reducing externalities from portfolio companies is in the interests of beneficiaries.

Workers and retirees invested in pension funds are beneficial owners of companies. Beneficiaries of funds invested in companies exposed to environmental costs could be at risk from lower pension payments in the future. They could also pay for corporate externalities through taxes.

The risk that externalities could harm institutional portfolios provides the financial rationale for fiduciaries to encourage portfolio companies to minimise environmental impacts.[8] Advisors to institutional investors have a "duty to proactively raise" environmental, social and governance (ESG) issues, and responsible investment "should be the default position" for all investment arrangements.[9]

7. This is a total external cost of the Index constituents relative to the total MSCI ACWI market capitalisation in 2008.

8. Hawley J. and Williams A. (2000) The Emergence of Universal Owners, Challenge, Vol. 43, No. 4, pp. 43-61.

9. UNEP Finance Initiative (2009) Fiduciary responsibility – Legal and practical aspects of integrating environmental, social and governance issues into institutional investment.

Investors should act to reduce environmental costs

Investors can collaborate to encourage policy makers and companies to reduce environmental impacts.

Government action and market reform could address structural inefficiencies that contribute to over-exploitation of natural resources and inferior outcomes. Improved policy frameworks are needed to address market failures and enable companies and portfolios to maximise financial gains from reducing externalities. Investors could reduce risk and protect future fund returns by encouraging policy makers to implement measures that maintain natural capital and reduce pollution. In some areas, such as climate change and green energy policy, investors can also work with companies to call for regulatory certainty.

> "Engaging on a company or sector level is often less efficient than trying to get policies changed. Sometimes engaging with the market or the framework within which all the companies operate can be a more efficient way for Universal Owners to address externalities."
>
> David Russell, Co-Head of Responsible Investment, Universities Superannuation Scheme

Universal Owners can use their influence as owners to reduce environmental impacts.

Universal Owners can use shareholder engagement to influence corporate behaviour and address financial risks from externalities. Targeting laggards or the most influential companies within a sector can create significant improvements across an industry. By influencing the largest companies that contribute most to portfolio-wide externalities, and encouraging them to engage with their suppliers, investors can help to raise the bar across a sector and within supply chains. In addition, investors can encourage industry bodies or multi-stakeholder initiatives to raise standards in environmental governance and performance through codes or guidelines.

To leverage resources and reduce collective action problems investors can work together through collaborative forums such as the PRI Engagement Clearinghouse, the Investor Network on Climate Risk (INCR), the Institutional Investors Group on Climate Change (IIGCC) and the Investor Group on Climate Change/Australia and New Zealand (IGCC).

Engagement programmes that are backed by the value of combined assets have more impact. Collaboration tends to increase the efficacy of active ownership and provides a cost-effective way for asset owners and managers to address environment-related risks to returns. For example, recent collaborative engagement through the INCR prompted the US Securities and Exchange Commission (SEC) to issue interpretive guidance on climate risk in February 2010.

Engaging at a variety of levels – from individual commodities and products to broader ecosystem services protection – is valuable given the complex nature of ecosystem goods and services.

In addition to existing collaborative efforts mainly focused on greenhouse emissions, future collaborative engagement programmes could address issues related to air pollution, waste and heavy metals, as well as risks to biodiversity and ecosystem services. Engagement could focus on over-exploitation of declining natural resources – for example water, fish, timber, and other commodities – as well as on larger risks and opportunities from corporations' impacts and dependence on biodiversity and ecosystem services. Initiatives such as Forest Footprint Disclosure, the Natural Value Initiative's Ecosystem Service Benchmark and CDP Water Disclosure are already encouraging companies to disclose policies, strategies, risks and opportunities related to different aspects of ecosystem services. Over time, investors can also call for comparable performance metrics and disclosure of more comprehensive information on ecosystem goods and services.

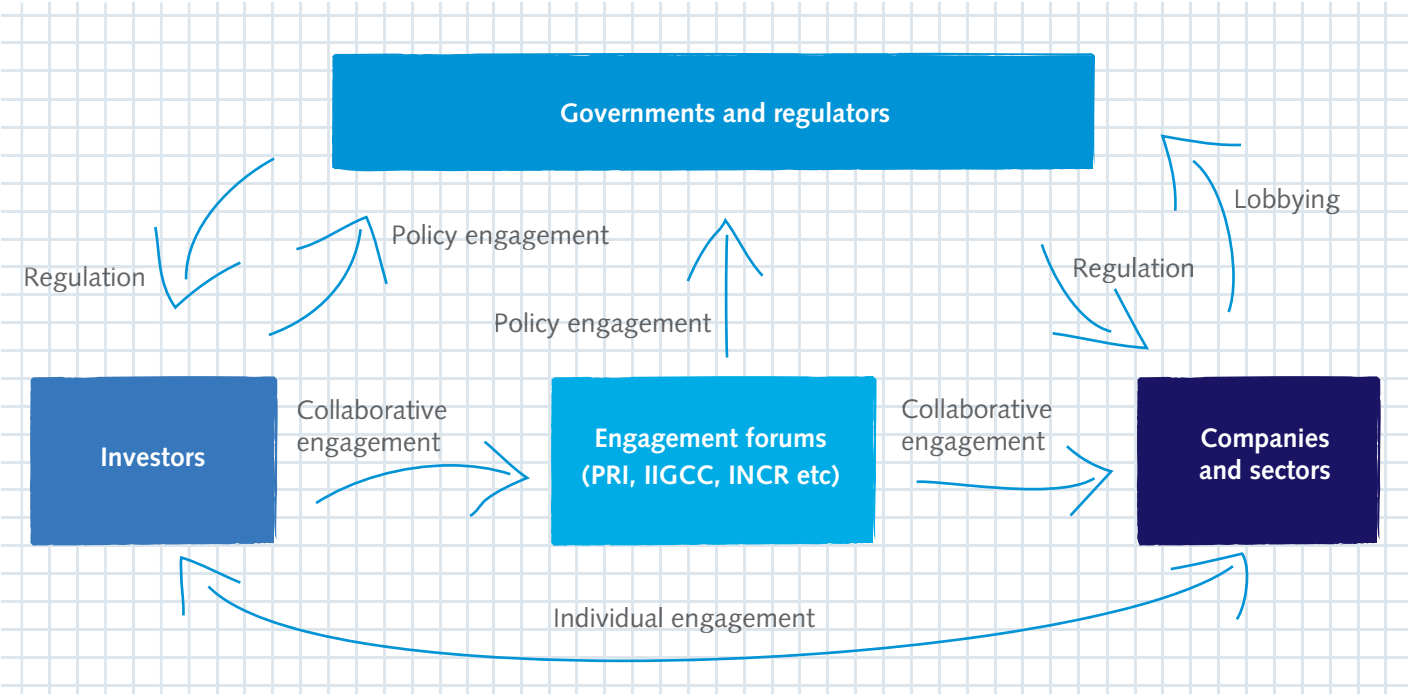
Corporate environmental costs can be analysed alongside financial data to identify the most material externalities for equity portfolios.

Investors could assess risks from externalities using findings from studies on ecosystems and biodiversity such as the TEEB review. This would help reveal financial exposure to environmental costs, where externalities come from and who 'owns' them. It would also allow engagement to focus on the companies and sectors that cause the greatest environmental costs. Investors could establish whether companies that externalise environmental costs are causing the value of other portfolio assets to fall and assess environment-related financial risks to investments in other asset classes including bonds, property, infrastructure and commodities.

Investors could strengthen ESG requirements within investment agreements.

Stronger mandates for asset managers can provide frameworks for effective consideration of environmental externalities within investment processes. For example, including environmental criteria in statements of investment principles, requests for proposals (RFPs), investment management agreements and periodic manager reviews. RFPs and annual performance reviews could require asset managers to have the capability to engage with companies on climate change, pollution, water, biodiversity and impacts on ecosystem services. Asset owners can also consider encouraging their managers to participate in sustained dialogue with policy makers on addressing these long-term challenges.

DIAGRAM:
Possible engagement mechanisms for addressing externalities



Next steps and recommendations

The findings of this report indicate a number of actions that investors, and in particular Universal Owners, can take. These are summarised below.

1. **Evaluate impacts and dependence of investee companies on natural resources.**
2. **Incorporate information on environmental costs and risks into engagement and voting initiatives and seek to reduce environmental impacts of portfolio companies.**
3. **Join other investors and engage collaboratively with companies through platforms such as the PRI Clearinghouse to address key issues.**
4. **Engage individually or collaboratively with public policy makers and regulators, through platforms such as the INCR, IIGCC, IGCC or PRI, to encourage policies that promote the internalisation of costs and establish clear regulatory frameworks.**
5. **Request regular monitoring and reporting from investment managers on how they are addressing fund exposure to risks from environmental costs and how they are engaging with portfolio companies and regulators.**
6. **Encourage rating agencies, sell-side analysts and fund managers to incorporate environmental costs into their analysis.**
7. **Support further research to build capacity and improve understanding of the relationship between corporate externalities, ecosystem goods and services, company financial risk and portfolio returns.**

For further information please see www.unpri.org/uop

Investors can encourage policy makers to:

- Provide long-term certainty on policy direction at national, regional and international levels that can help adjustment to a carbon-constrained and resource-scarce economy.
- Require companies to report systematically on environmental impacts.
- Incorporate valuations of natural capital assets into economic analysis and decision-making.
- Implement incentives or regulation to correct market failures and encourage internalisation of costs.
- Implement science-based precautionary measures that aim to avoid sudden, high-impact changes from the use of ecosystem services.

Investors can encourage portfolio companies to:

- Measure impacts and dependence on natural resources and assess related business risks and opportunities.
- Report on emissions and natural resource use connected with business activities and operations.
- Establish targets to reduce emissions and use natural resources more efficiently. Review these measures on a periodic basis to assess progress.
- Develop mitigation policies and align environmental management systems with international standards.
- Internally price natural resources and pollutants.

Commissioners and contributors

The UN-backed Principles for Responsible Investment (PRI) and UNEP Finance Initiative commissioned Trucost Plc to conduct research for this report.

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United Nations Environment Programme Finance Initiative (UNEP FI)

UNEP FI is a unique global partnership between UNEP and the private financial sector that works closely with approximately 180 financial institutions to develop and promote linkages between sustainability and financial performance. Through regional activities, a comprehensive work programme, training and research, UNEP FI carries out its mission to identify, promote and realize the adoption of best environmental and sustainability practice at all levels of financial institution operations.

More information: www.unepfi.org

The Principles for Responsible Investment (PRI)

The Principles for Responsible Investment, convened by UNEP FI and the UN Global Compact, provide a framework for helping investors build environmental, social and governance considerations into the investment process, thereby achieving better long-term returns and more sustainable investment markets. The six Principles of the PRI Initiative were developed by, and for, institutional asset owners and investment managers. The Initiative has over 800 signatories from 45 countries with roughly US$ 22 trillion of assets under management.

More information: www.unpri.org

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UNEP Finance Initiative
Innovative financing for sustainability

PRI

The PRI is an investor initiative in partnership with UNEP Finance Initiative and the UN Global Compact