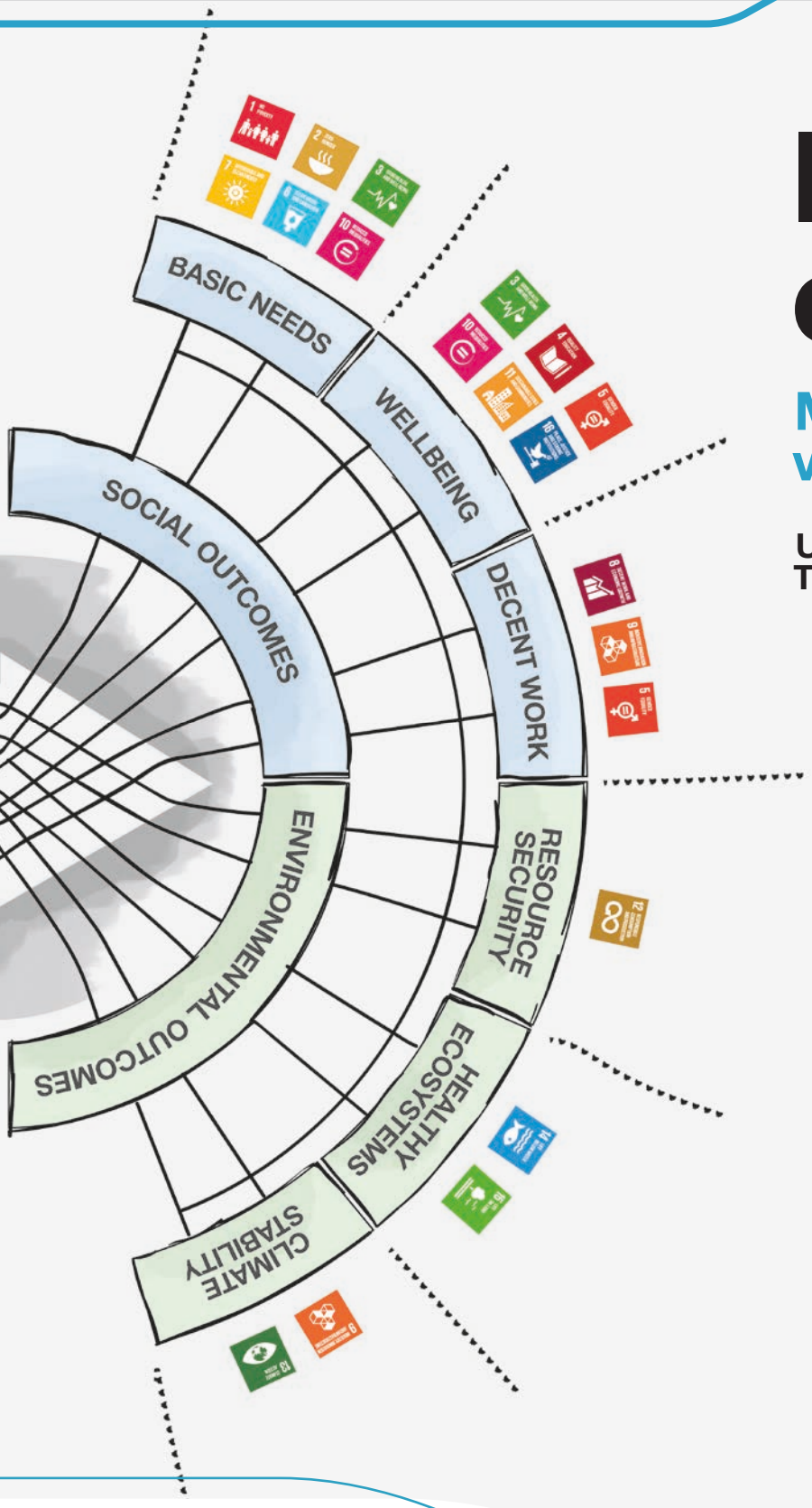
Investment
Leaders Group



In search of impact

Measuring the full value of capital

Update:
The Cambridge Impact Framework

UNIVERSITY OF CAMBRIDGE
INSTITUTE FOR SUSTAINABILITY LEADERSHIP

University of Cambridge Institute for Sustainability Leadership

The University of Cambridge Institute for Sustainability Leadership (CISL) is a globally influential Institute offering solutions for a sustainable economy. Our *Rewiring the Economy* plan shows how the economy can be 'rewired' through collaboration between business, government and finance institutions to deliver positive outcomes for people and environment in pursuit of the UN Sustainable Development Goals (SDGs).

For over three decades we have built individual and organisational leadership capacity and capabilities, and created industry-leading collaborations, to catalyse change and accelerate the path to a sustainable economy. Our *Rewiring Leadership* framework sets out our model for the leadership needed to achieve this. Our interdisciplinary research engagement builds the evidence base for practical action, through a focus on six cross-cutting themes critical to the delivery of the SDGs: sustainable finance, economic innovation, inclusive development, natural capital, future cities and leadership.

Investment Leaders Group

The Investment Leaders Group (ILG) is a global network of pension funds, insurers and asset managers committed to advancing the practice of responsible investment. It is a voluntary initiative, driven by its members, facilitated by the Cambridge Institute for Sustainability Leadership (CISL), and supported by academics in the University of Cambridge.

The ILG´s vision is an investment chain in which economic, social and environmental sustainability are delivered as an outcome of the investment process as investors go about generating robust, long-term returns.

Publication details

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Contact
To obtain more information on the report, please contact Adele Williams:
E: Adele.Williams@cisl.cam.ac.uk
T: +44 (0)1223 768451

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Foreword

A broad range of stakeholders, from pension funds to investment consultants, insurance companies to investment managers and individual savers, all agree that meaningful data on the social and environmental impact of funds could be transformational for the investment industry.

It is not only critical to providing transparency to clients and beneficiaries about the consequences of their investment decisions, but to building an economy that is resilient to the many shocks on the horizon arising through the unsustainability of the current model.

Valid, intellectually robust information on impact offers stakeholders a lens onto the legitimacy of the investment industry in a world facing enormous risks from climate change, land degradation and inequality – and hence a new and compelling means through which investment managers' processes may be judged. We should all acknowledge that the industry's preoccupation with short-term financial metrics has not always served society well; that it is time for a reappraisal of the aims and objectives of investment.

Corporate data disclosure traces its origin to regulatory, investor and customer pressure, driven by underlying social change. We congratulate those companies which produce innovative sustainability data voluntarily – they are the few not the many – and encourage others to follow suit. The Cambridge Impact Framework introduced here provides a clear roadmap for where non-financial disclosure is moving next, and the answer is sustainability impact.

For years companies have shared details of their governance, processes and policies, and their forward intent. The reporting of impact is fundamentally different however, and should not be underestimated. Firstly the impacts investors are concerned with need to be defined, and we are pleased to see the Cambridge Impact Framework take the United Nations Sustainable Development Goals (SDGs) as its inspiration. Secondly robust measures need to be defined which test the alignment of a company – or in aggregate a fund – with those SDGs. They need to be simple to understand, and few in number. Thirdly they need to be resolvable into practical measures for use by investors today, not necessarily the last word, but a step in the right direction.

The Cambridge Impact Framework achieves these three things. We acknowledge that the practical metrics offered in this report are pale shadows of their ideal cousins. If the objective is to calculate the absolute sustainability of a fund they are by no means satisfactory or fit for purpose. For this the report clearly states that companies should be judged by their performance against the ideal metrics introduced in the report. Such an exercise is not possible today due to limitations in current data. As an alternative, the practical (base) metrics offer a courageous 'best effort' to kick-start impact analysis based on easily available data today. We encourage all readers of the report to frame their understanding of its findings with this in mind.

Through our engagement with standard setters, information providers and companies, we hope the publication of the Cambridge Impact Framework will encourage a profound rethink of non-financial reporting. Remember too that not all impact data will be dependent on corporate disclosure. Advances in Earth observation and big data analysis may lead to alternative, robust sources of corporate information in future.

We share a common vision of the future of impact reporting in which all funds will be assessed using a common impact standard such that financial consumers can make informed choices about how and where to invest. This report represents an important step in that direction.

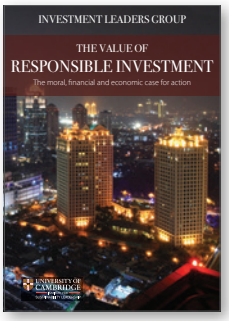
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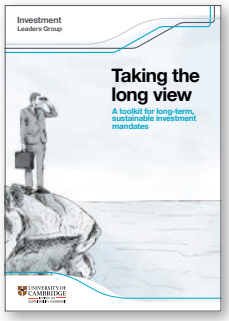
This report is part of a series of related outputs on sustainable investment published by the ILG and CISL:



The moral, financial and economic justification for responsible investment, and the academic evidence underpinning future action



Analysis of the short-term risks stemming from how investors react to climate-related information



Guidence on the characteristics of mandates that encourage long-term, sustainable investment management



Assessment of the impact of carbon-related regulation on asset profitability



Framework to help investors measure and communicate their contribution to sustainable development

Executive summary

All investment has an impact on the real world. To a large extent these impacts – for example job creation or natural resource consumption – are opaque to investors, with limited information available from standard information sources.

To address this, the Investment Leaders Group (ILG), in co-operation with the University of Cambridge Institute for Sustainability Leadership (CISL), set out in 2014 to prepare a framework to measure the social and environmental impacts of capital ownership and investment. The framework, which was originally published in 2016 as *In search of impact: Measuring the full value of capital*, meshed directly with the United Nations (UN) Sustainable Development Goals (SDGs) aiming to assist investors in understanding the alignment of their portfolios with the commitments of 193 countries.

Our 2016 report offered investors a set of six impact metrics, distilled from the 17 SDGs, and tested two of them in practice. The work was well received by investors who are witnessing a growing demand from asset owners, financial regulators and, of course, the investing public for social and environmental issues to be addressed in investment processes. The 2016 report sought to answer the question, "*is my fund doing harm or good?*" with 'good' defined by the ambitions of the SDGs. However, owing to the complexity of this analysis, and the lack of disclosure from the asset base, the report did not offer immediate, practical measurement solutions for investment managers. Our 2018 report seeks to address this gap.

The current report refines our descriptions of the idealised ways in which impact should be measured and goes on to explore how far those measures can be applied to investment funds using currently available data.

Unsurprisingly we find that current data permit only crude estimates to be made of the environmental and social impacts of funds at the present time. Nonetheless, the fact that any estimate is possible should be regarded as an important step towards enabling the industry to understand the impact of the capital it owns, manages and advises.

Ultimately our aim is to help financial consumers – the investing public – choose the services they want based on a fuller understanding of the impact those choices will have. By making available simple, meaningful and transparent information on the social and environmental performance of funds, the industry will be responding to the large number of clients showing increased preference for positive impact.

Clearly, reporting the alignment of a fund with the SDGs is a different proposition to deploying capital at scale to achieve them. To do that, investors will need to become accustomed to raising and deploying capital with broader aims than the majority of investment today, for example through significant direct investment in socially positive assets, particularly in (but not limited to) low-income countries where the needs are greatest.

Introduction

Irrespective of conscious effort, all investment has an impact on the real world; it is just not generally measured. If the impacts of an investment are intentionally positive, one might describe the process as impact investing.

However, the study of impact should not be constrained to the limited – if interesting – world of impact investment. Box 1 highlights a spectrum of investment approaches from conventional to impact investing, all of which have consequences – small or large – on the economy, society and environment. The Cambridge Impact Framework introduced in this report can be applied to all such strategies, allowing investors to measure the social and environmental consequences of their decisions and report them to their clients and beneficiaries.

Box 1: *A spectrum of investment approaches*

Conventional investing	Screening	ESG integration	Thematic investing	Impact investing
Limited or no focus on ESG factors	Negative or exclusionary screening, positive or best-in class screening and norms-based screening	Explicit and systematic inclusion of material ESG issues in investment analysis and investment decisions	Selection of assets that contribute to addressing sustainability challenges such as climate change or water scarcity	Investment made with the intention of generating positive, measurable, social and/or environmental impact alongside financial returns

Adapted from the Principles of Responsible Investment[i] *and Global Impact Investing Network*[ii]

The Cambridge Impact Framework is designed to empower financial consumers to understand, and make informed choices about, the social and environmental performance of their investments. Having access to such information does not replace their use of traditional financial data, but complements it. A common approach to reporting investment impact would improve the credibility of investment managers' impact claims, allow comparability across funds and build trust along the entire investment value chain, benefitting individual savers and investors (the 'investing public') and larger asset owners such as pension funds, insurance companies, family offices and sovereign funds.

We define investment impact as the social and environmental outcomes of investment rather than the intentions or processes behind it.

[i] Principles for Responsible Investment. (2017). *PRI Reporting Framework Main definitions 2018*. London. PRI

[ii] Global Impact Investing Network. (2019). *What you need to know about impact investing?* Retrieved January, 9, 2019 from https://thegiin.org/impact-investing/

The framework is intended to provide a thoughtful contribution to the measurement and reporting of investment impact, and pave the way for future standardisation. There is certainly more public and political concern surrounding the consequences of global capital flows than ever before. In a world seeking to achieve the ambitious United Nations Sustainable Development Goals (SDGs), all funds may be expected in future to explain how they relate to these important priorities.[1]

Clearly, reporting the alignment of a fund with the SDGs is a different proposition to deploying capital at scale achieve them. To do that, investors will need to become accustomed to raising and deploying capital with broader aims than the majority of investment today, for example through significant direct investment in socially positive assets, particularly in (but not limited to) low-income countries where the needs are greatest.

Such strategies are not addressed in this report.

The Cambridge Impact Framework provides investors with a simple dashboard to check their alignment with an otherwise complex web of SDGs. The dashboard comprises six core themes which are themselves derived from CISL's *Rewiring the Economy* plan (see Box 2).[2] They span three social ambitions and three environmental ambitions as shown in Figure 1 (on the following page).

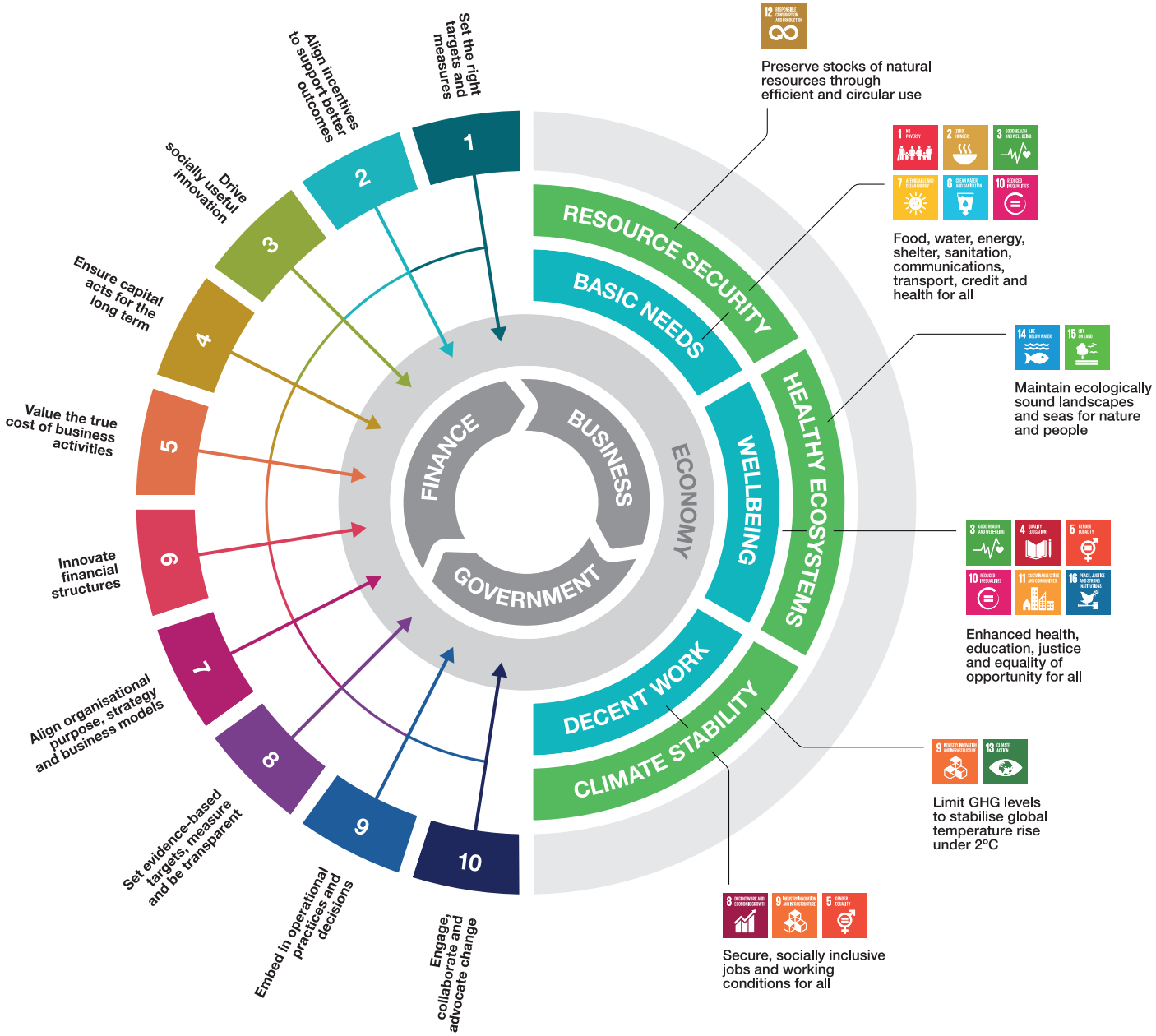
Box 2: *Rewiring the Economy*

Our current economic system produces positive outcomes such as jobs, healthcare and education services, but it also results in negative outcomes such as climate change and waste. We believe the economy can be 'rewired' in such a way that it produces the good outcomes without the bad – and that finance is a big part of the solution.

The United Nations Sustainable Development Goals (SDGs) were launched by world leaders in 2015. The 17 goals are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. We look on them as the closest thing the world has to a strategy.

There is a problem however: the global economic system is not aligned with the delivery of the goals. Until this changes, it will be an uphill task to achieve them. *Rewiring the Economy* is the University of Cambridge Institute for Sustainability Leadership's (CISL's) plan for fixing this. It is a recipe for collaboration between the three key actors in the economy: business, government and finance.

Figure 1: Rewiring the Economy: ten tasks to lay the foundations for a sustainable economy



Our aim is to empower financial consumers by making the social and environmental performance of funds transparent to them in the same way that health and other concerns are apparent to food consumers today.

In order to achieve this aim, the whole investment value chain, from companies and project developers to investment managers, consultants, information providers, asset owners and beneficiaries will need to review – and in many cases rethink – what is required of it in a world committed to the SDGs. Financial policymakers and regulators also stand to benefit from a greater understanding of investment impact in order to ensure financial markets play an effective role in delivering this global vision.

Specifically, the framework is intended to empower financial consumers to understand, and make choices about, the social and environmental impacts of their investments alongside their use of traditional financial data. Impact information can be disclosed in fund factsheets to inform choices about fund selection or can be used by institutional investors to specify their expectations about impact in 'request for proposal' processes, mandates and policy statements.

In order to be usable by consumers, the framework must be straightforward to understand. By concentrating on a small number of impact themes (six in total) we believe that very complex information about the impact of financial flows into the economy can be communicated to this market clearly, and in a meaningful way.

The metrics accompanying each theme are grounded theoretically, shaped by academics and specialist practitioners. In their most ideal form they are not measurable today due to scarcity of relevant data. We recognised this constraint in our 2016 report but were not in a position at that time to develop more practical solutions. In this report we go a step further with practical metrics for each theme that can be applied to funds using data typically available to investors today.

This approach is not without its compromises. The practical metrics we offer (referred to as 'base' metrics) are pale shadows of our more theoretical ideal metrics. Despite their limitations we decided to offer them as a practical means of getting started while improvements in data infrastructure and reporting are made throughout the industry.

The sub-optimal state of impact data today should be a call to action for the whole investment value chain. Given the central economic significance of the issues, the question arises: *How can corporate disclosure and data distribution networks be upgraded to give investors visibility of their real-world impacts?* It was sobering to discover during the preparation of this report that some corporations cannot state with precision how many people they employ, nor how much land their companies occupy, let alone have a handle on the quantity, scarcity and toxicity of the materials flowing into their operations. The reality of environmental and social disclosure today is that we struggle to answer one of the most basic questions that can be asked about an investment: *Is it doing harm or good?*

The framework seeks to change that by enabling investors to explore the impact of their decisions on global challenges such as poverty, wellbeing, job creation, natural resources, ecosystems and climate change – and by encouraging the sharing of this information with the public. It provides measures which are applicable in a standard way to all forms of investment, irrespective of style, asset class or geography.

With interest in investment impact growing rapidly, now is a good time to settle on a common approach to measurement.

Many companies experience 'reporting fatigue' when responding to multiple disclosure requests from varied stakeholders, including investors. With growing interest in sustainable finance, and impact in particular, requests are very likely to continue to arrive separately and in great number. Our framework provides a theoretically grounded indication of what future requests for impact performance may look like. We hope it will inspire information providers to build the necessary datasets to respond to future demand, and governments to insist on improvements to corporate disclosure.

As part of its Financing Sustainable Growth Action Plan[3], the European Commission highlights the importance of standardised corporate reporting to enable comparative analysis by investors. In 2018 the Commission also established a Technical Expert Group with a mandate to create a taxonomy of sustainable finance definitions, first for climate change and later for broader sustainability issues.

Finally, it is important to state what the framework is not. Explicitly it does not set out to determine the materiality of environmental and social impact to financial performance, nor make any assumptions about the correlation between positive impact and financial performance. That said there is growing evidence (and much theory) linking sustainability innovation to cost efficiency, employee motivation and market growth of companies. In its report, *Better Business, Better World*,[4] the Business and Sustainable Development Commission found that companies delivering solutions to the SDGs could gain exposure to US$12 trillion of market opportunities over the period to 2030 in the four economic systems they studied: food and agriculture, cities, energy and materials, and health and wellbeing (60 per cent of the real economy).

Design principles

Our reference point: the SDGs

To avoid the need to take a subjective view on what is 'good' and 'bad' for society, we adopt the SDGs as our reference point since they were agreed by 193 countries in 2015. While they are not perfect no other approach defines the world's chosen destination in 2030 so comprehensively or with so much public ownership.

Our framework distils the breadth of the 17 SDGs into six simple themes without significant loss of integrity or scope. Three of our themes are social in nature (basic needs, wellbeing and decent work), while the other three are environmental (resource security, healthy ecosystems and climate stability). Companies – and the funds which invest in them – generally score quite positively on the social dimensions of sustainability through their role in creating jobs, wealth and basic services. In contrast, while companies vary considerably in their environmental performance, with many beginning to offer important solutions to sustainability challenges, it is near-impossible to achieve a positive impact on the environment in absolute terms owing to the inherent conflict between economic activity and nature.

Ideal vs practical measures

Impact measurement is complex, multi-factor and data-demanding. Two grades of metric are therefore proposed for each of our six themes. The first represents the *ideal* way to measure impact in a world of perfect data (ideal metric), whilst the second is a *practical* measure calculable using data available to investors today (base metric). The latter are crude approximations of more complex phenomena, heavily constrained by the availability of relevant data. However, they do have the advantage of being applicable today.

The ideal metrics are offered as a guide to how impact could be measured in years to come when the investment industry has developed the necessary data infrastructure. The base metrics are designed to help investors start that journey. Both sets of metrics are intended to provide objective, comparable, consistent and reproducible results.

Aggregation and asset classes

Our aim is to help investors measure the aggregate impact of their assets at fund level. We therefore decided not to develop sector-specific metrics in favour of more generalised metrics which transcend sectors, asset classes, investment styles and geographies. While our ideal metrics do just that, our base metrics are most readily applicable to corporate bonds and equities owing to the relative abundance (and consistency) of data compiled on these asset classes at the present time. In principle cash, derivatives, sovereigns and other asset classes could be included in the framework, but require further methodological development.

The metrics are designed to work at both an asset level (ie an individual company or project) and at fund level when aggregated across a portfolio of assets. In general aggregation methods should avoid the practice of 'double counting' which can occur when a variable (eg jobs or greenhouse gas (GHG) emissions) is recorded more than once within a value chain. Whereas the ideal metrics would cope with this level of complexity, our base metrics look purely at operational impacts and hence avoid double counting (e.g. Scope 1 and 2 GHG emissions).

Outcomes vs intentions, processes or policies

Our framework assesses real-world outcomes rather than intentions such as corporate strategies, processes or policies as the latter may be ineffectual or fail to reflect actual practices. Inevitably this means that our assessment of impact is based on reported results rather than forward insight. However, in a complex and emotive area such as social and environmental performance, one could argue that a company should be evaluated on the basis of its proven impact rather than intent.

To assess whether a company will improve its environmental and societal impacts, investors typically use proxies accessible today such as the level of capital expenditure, R&D expenditure dedicated to the provision of sustainability products or services, or the long-term targets announced by companies. Whilst there is clear value in this approach, it is not amenable to aggregation across large numbers of assets and, unfortunately, corporate announcements may not always translate into tangible impact results. We have therefore decided not to include such information in our framework.

Intentionality and additionality

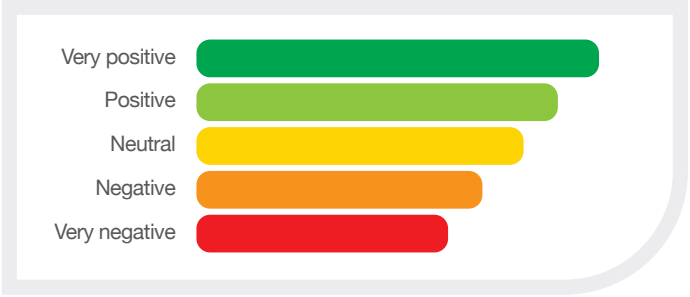
In direct investment, investors can put new capital into assets with desirable characteristics such as financial potential or positive impact. In other words they can implement an intent to achieve certain outcomes from their investments. The same cannot be so easily said of public markets, and secondary trading in particular, where assets may be largely unaffected by buy-hold-sell decisions, and may not even be aware. Similarly, additionality – the claim that a given outcome would not occur without a specific action (in this case investment) – remains challenging to interpret in a secondary market context.

Our framework makes no particular claims about intentionality and additionality one way or the other. It simply provides users with a more thorough and socially relevant way to judge how their investments – direct, primary or secondary – relate to global sustainability aims. Tools such as active ownership, engagement, ESG integration, thematic strategies, divestment and passive tilts are all available to enhance this relationship, enabled by the information generated from this framework.

Categorisation

The metrics can be used to generate quantitative or qualitative data. Quantitative results such as numbers representing job intensity or GHG emissions performance communicate impact in its rawest form. They can also be placed in categories representing different levels of impact such as the five-colour scheme shown in Figure 2. Each of the six impact themes in the framework can be treated in this way, with the colours representing the performance of an asset (or fund) across the range: very negative, negative, neutral, to positive and very positive. Such categories can be arrived at on the basis of *absolute* or *relative* performance.

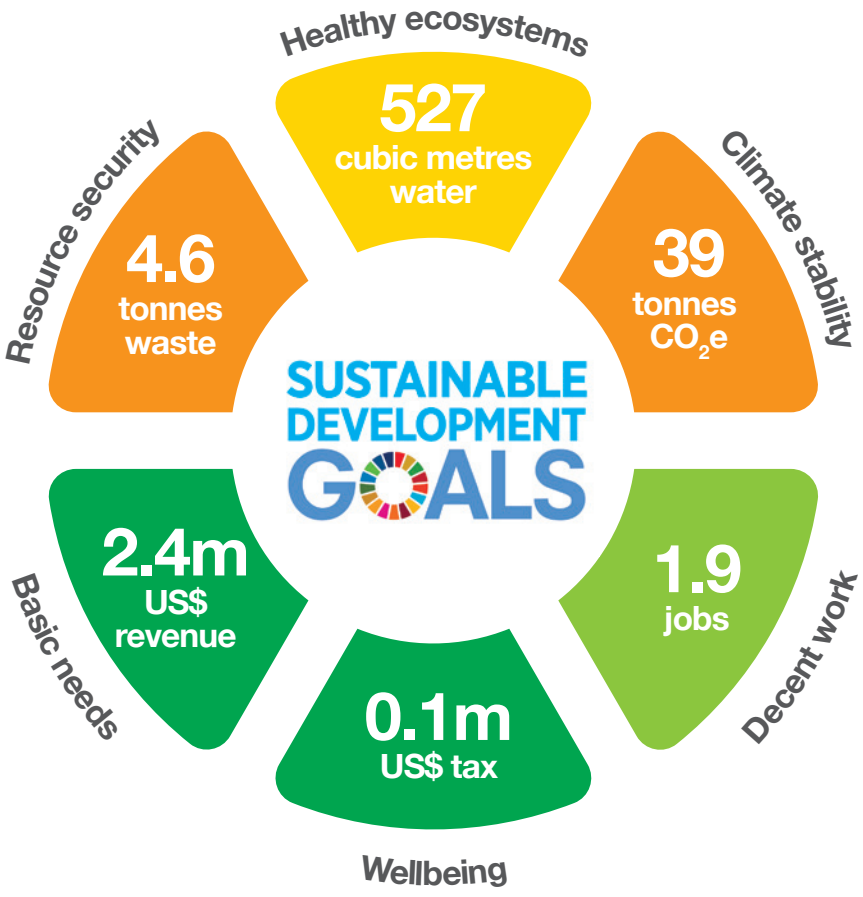
Figure 2: Five-colour categorisation of impact



Our ideal metrics are designed to assess absolute performance with reference to the SDGs. For example, if a fund scores positively on basic needs it would mean that on balance its assets are well aligned with the ambitions to eliminate poverty by 2030. Gauging whether a certain level of impact is consistent with the SDGs is clearly challenging, particularly with social themes such as wellbeing or decent work where it is difficult to say what is 'sufficient' or 'good enough' to contribute fairly to global ambitions. Yet those are precisely the judgements which need to be made in order to assess SDG alignment. Environmental themes are more straightforward to analyse since it is possible to assess whether an asset is sustainable in scientific terms based on its degree of degradation or restoration of land, climate burden, and so on.

For simplicity, our base metrics assess relative performance in comparison to a benchmark such as an investment index. The same five-colour approach (Figure 2) may be used to communicate results by mapping colours to performance quintiles in the benchmark. In our 2016 report we extended this idea into a multi-theme representation of impact suitable for communication in full or part to financial consumers through factsheets and other information. Figure 3 shows a mock-up of this approach using data generated from an example fund analysed later in this report. Note that we have resisted the temptation to combine the six sources of information into a single impact 'score'. Differences in the nature of the six themes mean that netting, offsetting or any form of assumed fungibility would be questionable if not invalid.

Figure 3: Combining information on the six impact themes



Metrics and methodology

Our six impact themes are summarised in the table below alongside their ideal and practical (base) metrics.

Table 1: Ideal and base metrics at a glance

Theme	**What is the ideal measure?** *Absolute performance with respect to SDGs* *Whole value chain focus*	**What can be measured today?** *Relative performance with respect to benchmark* *Operational focus (value chains not appraised)*
Basic needs	Total revenue from products and services addressing the basic needs of low-income groups[5], adjusted by PPP-weighted International Poverty Line[6] Unit: US$	Total revenue from goods and services from clothing, communications, education, energy, finance, food, healthcare, housing, sanitation, transport and water (see Annex A) Unit: US$
Wellbeing	Total tax contribution[7] (comprising taxes on profits, people, production, property and environment but not sales) by country, adjusted by national corruption[8] and spending effectiveness Unit: US$	Total tax contribution Unit: US$
Decent work	Total number of open-ended employment contracts excluding jobs below 60 per cent median wage (living wage) and jobs in poor working conditions (health & safety, discrimination, rights of association), adjusted by national employment rate[9] Unit: number of jobs	Total number of employees based on full time equivalent (FTE) workers[10] Unit: number of FTEs
Resource security	Hard commodities: Virgin material content of end products (adjusted by scarcity) plus waste lost to the environment (adjusted by toxicity) Soft commodities: Non sustainably certified content of end products plus waste not specifically returned to nature Unit: metric tonnes (t)	Total net waste (total waste arising – total waste recycled) Unit: metric tonnes (t)
Healthy ecosystems	Area of land utilised by an asset in degraded form Unit: hectares (ha)	Fresh water use (surface water plus groundwater plus municipal water) Unit: cubic metres (m^3)
Climate stability	Alignment to future warming scenario based on consumption of global carbon budget Unit: degrees Celsius (°C)	Total greenhouse gas (GHG) emissions (Scope 1 and 2) Unit: tonnes (t) carbon dioxide equivalent (CO_2e)

Each impact theme is developed further in the sections that follow, including a detailed description of its ideal and practical (base) metric. Test results are presented for each base metric using an example fund and data available to investors today. Their limitations are spelled out clearly to avoid any misunderstanding about their accuracy given the state of current data. **Indeed the testing process overall should be regarded purely as illustrative of what type of social and environmental impact assessment is achievable using data which are easily accessible to investors**.

About the testing process

The following should be borne in mind when interpreting the test results:

1. All data was sourced data from one leading provider: Bloomberg. The latter was selected purely as an example of what exists in the market today with no endorsement implied.
2. Only raw data items were used to calculate the metrics (not ESG scores) to provide maximum transparency for investors, and ability to replicate results.
3. Data items were only considered if they covered at least 10 per cent of the MSCI World index.
4. The example fund was UBP's Positive Impact Equity, with no endorsement implied (see Table 2, Figures 4 and 5).
5. Where a proportion of assets in the fund did not report the required data, the total impact was extrapolated based on reporting assets.
6. Results were normalised in the form of 'impact per US$ 1m invested' to allow comparison with a benchmark fund – in this case the MSCI Europe index.

Table 2: Characteristics of example fund

Name	Positive Impact Equity
Description	Fund containing assets believed to be making a positive impact on society and/or the environment through their products, services and operations. Typically involves a technology or innovation enabling better use of resources (circular economy) or unique healthcare solutions. Fund aims to address the first 15 of the SDGs.
10 top holdings	Red Electrica; Intertek; Tomra; Genmab; Alk-Abello; Kerry; Orpea; Aquafil; Basic-Fit; Thule; Kingspan
Asset class(es)	100 per cent listed equity
Size	58.3 MUSD invested in 28 assets
Benchmark	MSCI Europe

Figure 4: Geographic coverage of example fund

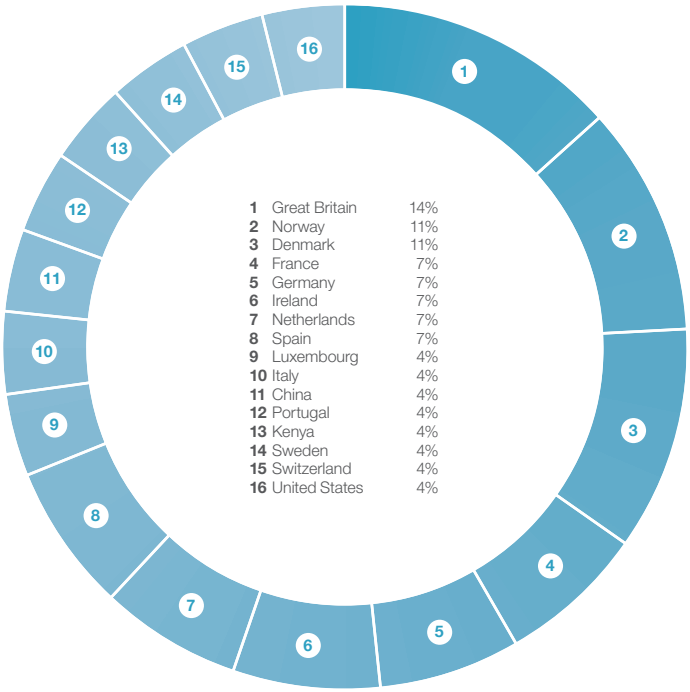


Figure 5: Sectoral coverage of example fund



Calculation of impact

We assume a fund containing a portfolio of N assets which are assumed to be equities or corporate bonds. The impact of a client investing in the fund is the total impact of the fund multiplied by the proportion of it attributed to the client:

$$Impact_{client} = Impact_{fund} \times \frac{Amount\ Invested_{client}}{Size_{fund}}$$

Where:

$Size_{fund}$ = **weighted market capitalisation of fund**

The total impact of a fund comprises the sum of the impacts of its individual assets:

$$Impact_{fund} = \sum_{i=1}^{N} Impact_{asset\ i} \times \frac{Fund\ Weight_{asset\ i}}{Enterprise\ Value_{asset\ i}}$$

Where:

$Fund\ weight_{asset}$ = *value of investment in asset by fund*

$$\frac{Fund\ Weight_{asset}}{Enterprise\ Value_{asset}} = \text{proportion of the asset's impact attributable to the fund}$$

Different denominators may be used to normalise impact results according to the size of the asset, such as market capitalisation, revenue and enterprise value (EV). We use EV as a reasonable reflection of the size of a company's operations and a stable denominator for meaningful comparison over time. In contrast revenue has a higher degree of variability from year to year.

Each of our six base metrics may be calculated in this way. Results can be expressed in terms of the total impact of a fund, a normalised figure such as impact per US$ 1m invested, or the impact attributable to the amount invested by a particular client.

Calculation of relative performance

The example fund was compared to its benchmark (MSCI Europe) using two statistical methods:

- placement of the fund within one of five *performance quintiles* (20 per cent blocks) of the benchmark fund, and its consequent colour coding
- calculation of *percentage difference* in performance between fund and benchmark averages.

Quintile analysis

For each theme, the assets in the benchmark fund (MSCI Europe index) were ordered by impact performance, with the resulting list divided into five equal-numbered, and colour-coded, quintiles. The lowest quintile represented the lowest-performing 20 per cent of the index and so on. Boundaries between the quintiles were determined by straight-line interpolation between the upper bound of one quintile and the lower bound of its neighbour. The range of values observed within a quintile depends on the overall spread across the benchmark. Outlier effects (eg high carbon emissions from a 'pure play' coal company) influence quintile ranges and could in principle be excluded or normalised. However, unless outliers arise from inaccurate data, their effects are legitimate and potentially helpful in guiding positive asset selection.

Difference analysis

For each theme, the total impact of the fund was calculated, as was the total impact of the benchmark fund (MSCI Europe index). These totals were then normalised (divided by fund size) to obtain impact per US$ 1m invested. The percentage performance difference between fund and benchmark is then as follows:

$$\textit{Performance difference} = \left(\frac{\textit{Normalised impact}_{fund}}{\textit{Normalised impact}_{benchmark}} - 1 \right) \times 100$$

Note that in the case of the three social themes (basic needs, wellbeing, decent work) higher impact is favourable since we want more wellbeing and good jobs for example. A *positive* percentage difference indicates the fund is performing better than its benchmark in this regard.

In the case of the three environmental themes (resource security, healthy ecosystems, climate stability) lower impact is favourable since less damage to the environment is better. A *negative* percentage difference indicates the fund is performing better than its benchmark in this regard.

Summary results for the six themes are provided in the sections that follow, while more detailed data tables supporting the analyses are presented in Annex B.

Theme 1 :
Basic needs

This refers to the provision of critical services to low-income people which help them escape poverty. As both a moral and economic imperative, ending extreme poverty lies at the heart of the SDG agenda. According to the most recent estimates from the World Bank, in 2015 10 per cent of the world's population lived on less than US$1.90 a day.[11] This, combined with a rising tide of inequality, acts as a drag on economic development and threatens social cohesion.

What is the ideal measure?

This theme examines an asset's contribution to meeting the basic needs of low-income groups through the provision of essential services.

The 'basic needs' approach to development emerged in the 1970s and is now considered to be the most direct way to achieve welfare outcomes. Over the years, governments and donors have established local and regional institutions to improve health, education, farming and family planning practices, geared towards achieving a minimum level of welfare among the weakest groups in society. In practice, neo-liberal ideas prevail, favouring private sector solutions over public sector management of development. Services such as communications, energy and water have become commoditised, regulated and restricted to paying customers rather than made available to low-income communities as a development solution.

Recognising the critical role of the private sector in meeting the needs of low-income, underserved, or otherwise disadvantaged groups in society, our ideal metric focuses on a bundle of goods and services known to contribute significantly to development, principally clothing, communications, education, energy, finance, food, healthcare, housing, sanitation, transport and water. Our approach is inspired by Maslow's hierarchy of needs, which regards basic needs as the building blocks for human survival, leading to wellness and fulfilment of an individual as the outcome.[12] The question we examine here is how to relate an asset's activities to the provision of those building blocks.

Unsurprisingly, people in the lowest income brackets tend to prioritise spending on basic needs ahead of other goals.[13] They are generally careful about how they spend their money, implying that much if not all of their consumption can be assumed to be meeting basic needs. For this reason our ideal metric simply tests the degree to which an asset does business with the poor, as represented by the total number of people in that demographic accessing a company's services or by the total volume of business to that demographic. While the former is easier to visualise, it risks excluding companies that do not engage directly with consumers (ie business to business (B2B)); we therefore use revenue as our proxy.

Value chain effects are important. Ideally, 'indirect impact' should be included in the metric through analysis of how goods and services do or do not reach low-income groups. For example agricultural or building materials enable communities to improve productivity or construct homes, and an ideal metric would determine what proportion of revenues generated from such products benefit low-income people.

Arguably, while any company meeting the basic needs of low-income people should be recognised for its contribution, ones operating in poor countries with limited access to basic services should be rewarded the most. An easily available measure known as the PPP-adjusted International Poverty Line (where PPP refers to purchasing power parity), prepared by the World Bank, is a reasonable way to discriminate between nations' relative level of wealth.[14] This indicator has several advantages: it is widely used, generally accepted and

frequently updated, while offering an intuitive, simple and reliable comparator across countries. It represents the population (number of people) living with less than US$1.90 PPP-adjusted per day in income or consumption expenditure, with consumption the preferred version in this case. Our ideal metric of revenues generated from low-income people should therefore be weighted by the International Poverty Line to reflect the value of providing goods and services to poor people.

We acknowledge that some companies doing business with the poor, or operating within value chains which do so, may preside over exploitative practices, including price inflation. While data on corporate controversies is available, we note that there is no standardised means of assessing the magnitude of those controversies or the extent of their human impacts. Tracking the number of litigations or lawsuits related to human rights abuses could offer a potential proxy, allowing companies operating in this way to be marked down or excluded from analysis.

We also acknowledge that poverty has multiple causes. Its distribution and form vary considerably from area to area, and may be subject to highly localised present and historical effects. National-level indicators of wealth are clearly too broad to capture this fully. Ultimately, an ideal basic needs metric would test the ability of a company to enable low-income people to escape both the general and localised causes of their poverty. However, this would be extremely complex, and arguably impossible to achieve outside detailed evaluations on an asset-by-asset basis, drawing on multidisciplinary knowledge spanning economics, anthropology and related social sciences.

Ideal metric

Total revenue from goods and services to low-income people, weighted by PPP-adjusted International Poverty Line

Unit: US$ per US$m invested

What can be measured today?

Standardised data on basic needs provision over time in a peer-comparable format across companies does not exist at the current time. If it did then longitudinal data would be available to investors to enable them to understand how goods and services from companies were meeting the basic needs of underserved populations. Such data could also be used to examine the efficiency of non-profit and public schemes to fulfil basic needs and thus provide insight into the relative efficiency of partners across sectors.

Back in the real world, one way to test the contribution of an asset to meeting basic needs is to examine its industry sector. At a crude level, assets operating within the following sectors are more likely to be meeting basic needs: communications, education, energy, finance, utilities, food, healthcare, housing, sanitation, transport and water. Our practical (or 'base') metric counts revenues purely within a sub-set of industry sectors derived from the Global Industry Classification Standard – GICS[15] (see Annex A for the list).

Base metric

Total revenue from goods and services from clothing, communications, education, energy, finance, food, healthcare, housing, sanitation, transport, and water

Unit: US$ per US$m invested

Based on a review of Bloomberg's data dictionary, the items which most closely matched our ideal metric are presented in Table 3 below.

Table 3: Data items relating to basic needs theme

Theme	Data items (unit)	Definition	Coverage in MSCI World Index (%)	Assessment
Basic needs	Revenue (US$) Please note restriction to clothing, communications, education, energy, finance, food, healthcare, housing, sanitation, transport and water (see Annex A for a breakdown of GICS codes)	Amount of sales generated by a company after the deduction of sales returns, allowances, discounts, and sales based taxes	100	Usable

As with our ideal metric, it would be desirable to weight the revenue figures by the wealth of the countries where they are generated. Unfortunately companies do not all break down their revenues by country, while revenue data from global regions (which is more readily available) lacks the granularity to be meaningful. We acknowledge that some data providers – including Bloomberg – are seeking to compile national 'geo-revenue' data.

Limitations

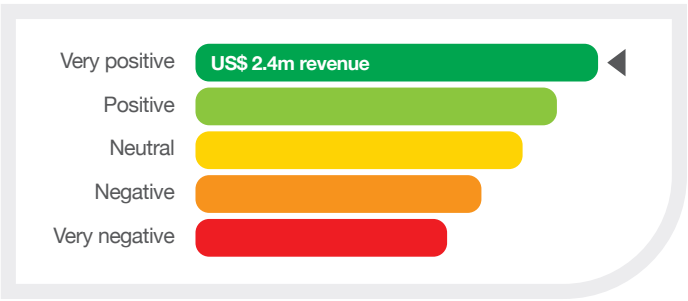
Aggregating revenue from selected industry sectors involves compromises and hard choices. For example, in including revenues from food retail, we are conscious that not all types of food are beneficial from a nutrition standpoint. Similarly, some financial services, such as payday lending, are regarded as exploitative, while companies with a monopoly over certain services (such as water) may not deliver a good service, yet would be favoured by this metric. In addition, our measure does not discriminate between customers in different income brackets such that revenues from wealthier consumers would be included in the results. We are also conscious that industry sectors such as clothing offer a spectrum from basic goods to luxury products, all of which are included in this measure. The use of a finer-grained revenue classification could potentially address these limitations, particularly where the diverse revenue streams flowing into a company can be disaggregated.

Test results: basic needs

Table 4: Results for example fund

Feature	Measure	Results
Asset coverage	Number of assets included in calculation	29%
Total impact of fund	Revenue from target sectors in US$	143,536,942
Impact of fund per US$ 1m invested	Revenue from target sectors in US$ per US$ 1m invested	2,462,040
Relative performance	Quintile in MSCI Europe	Quintile 1 (very positive compared to benchmark)
	Difference relative to MSCI Europe	174% (better)

Figure 6: Results relative to MSCI Europe (impact per US$ 1m invested in fund)



Theme 2 :

Wellbeing

This refers to enhanced health, education, justice and equality of opportunity for all. Nations vary in their ability to provide for the wellbeing of their citizens, with an extreme range present in the United Nations *Human Development Report* each year.[16] When fairly and efficiently spent, tax revenues collected by governments can enable investment in public institutions, services and infrastructure to enhance national wellbeing.

What is the ideal measure?

This theme examines an asset's contribution to enhanced health, education, justice and equality of opportunity for all – the things we expect the state to help us with.

The relationship between a company and the level of national wellbeing in the countries where it operates is both complex and opaque. For example, can a product of a company ever be said to be 'good' for society from every perspective? A medical drug could save lives, but its sale may also be considered exploitative by some stakeholders, and it could be misused, mis-sold, or be subject to illicit practices. Moreover the chemicals within it may enter the environment in unplanned ways creating a long-term public health risk. Similarly cars have untold benefits for mobility, but have caused significant environmental and human tragedies, while road safety worries have impacted children's ability to roam and play.

For this reason we have avoided the temptation to make value judgements on specific goods, services or industries. Is ice-cream bad and yoghurt good? We do not believe this question can or should be answered. Instead our ideal metric rests on the observation that public spending on critical national services (e.g. health, education, justice, crime, welfare, culture, security and environmental protection) is raised in large part from taxation, and companies therefore contribute to national wellbeing ('public good') through the taxes and levies that they pay.

According to the World Bank, the ability of a government to collect and efficiently spend domestic taxes is central to financing for sustainable development, particularly in the case of lower-income countries which may otherwise be dependent on foreign assistance.[17] A specific SDG target on 'domestic resource mobilisation' exists for this purpose (17.1). A number of global companies have recognised their role in achieving this ambition, describing effective taxation as the foundation of a healthy societies.[18] [19]

A company's total tax contribution, comprising taxes on profits, people, production, property and environment[20] (but not sales), offers a proxy for its contribution to national wellbeing. This approach has the advantage of being applicable to all enterprises irrespective of whether they work in areas with obvious relevance to wellbeing such as healthcare and mobility. Sales taxes are excluded from our analysis given that potential for registered businesses to offset VAT payments with related claims.

Clearly the corruption record of a government and its effectiveness at translating policy into practice (and in policy making itself) will influence how much tax revenue is invested in public services, and how smartly these services deliver results. Transparency International's Corruption Perception Index offers a means of ranking governments by their perceived prevalence of corruption, and weighting spend up or down accordingly. Spending effectiveness may be judged on the basis of outcomes generated per unit of public spending. The United Nations Human Development Index (HDI) provides a means of assessing national wellbeing outcomes, while agencies such as the World Health Organization (WHO) and UNESCO report national spending on health and education respectively.[21] [22] [23]

Arguably, the degree of repression exhibited by a country should influence the results of this metric on the basis that repressive regimes may use tax revenues to the detriment of their citizens' wellbeing. The Democracy Index compiled by the Economist Intelligence Unit (EIU) offers one means of ranking countries' record in this respect.[24] Such rankings are inevitably contested and politically fraught and have not been included in our ideal metric at this stage.

Finally, a company's positive contribution to taxation should be offset by its negative 'externalities' (ie costs offloaded onto society) since the public purse is often called upon to address their consequences. For example, coal-fired power stations and particulate (and other) emissions from vehicles have contributed to appalling air quality in many parts of the world, burdening public health services with respiratory and cardiac disease, and cancer. However, at the current time it is by no means clear how to separate the externalities of individual sectors or companies in a form that could be measured, although it is hoped that methods will evolve over time.

Ideal metric

Total tax contribution (comprising taxes on profit, people, production, property and environment but not sales) minus negative externalities, adjusted by national corruption and public spending effectiveness

Unit: US$ per US$m invested

What can be measured today?

Although transparency is improving, corporate tax disclosure is a sensitive, politically charged topic supporting an industry of specialists on both sides seeking to outwit each other. With public spending an essential ingredient of national wellbeing this situation is at once frustrating and tragic. We can expect data availability to improve in the coming years as the Base Erosion and Profit Shifting (BEPS) plan by the Organisation for Economic Co-operation and Development (OECD) and G20 countries requires multinational enterprises to engage in country-by-country reporting, providing annual information about the taxes paid in each jurisdiction.[25]

Although Action 13 of BEPS provides a template for reporting annually and for each tax jurisdiction (the Country-by-Country Report), it is unclear whether the data will be made available to investors. Moreover BEPS is non-binding in nature. Given these constraints our base metric focuses on the total tax contribution of a company across all jurisdictions, with no refinements.

Base metric

Total tax contribution

Unit: US$ per US$m invested

Based on a review of Bloomberg's data dictionary, the items which most closely matched our ideal metric are presented in Table 5 below.

Table 5: Data items relating to wellbeing theme

Theme	Data items (unit)	Definition	Coverage in MSCI World Index (%)	Assessment
Wellbeing	Cash paid for taxes (US$)	Actual cash paid for income taxes, net of any tax refunds. Unless refunds exceed taxes paid, the number will be positive.	>90	Usable
	Taxes paid to governments (US$)	Total amount of taxes paid directly to governments. Includes all taxes, royalties, and duties paid, not just those taxes paid on income. Does not include tax levied on consumption such as value-added taxes, payroll and social security taxes, or social payments.	<5*	Not usable. low coverage.

* coverage in MSCI Europe

Limitations

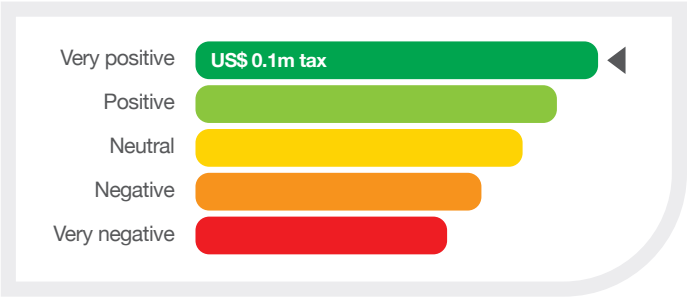
The use of a single (global) tax contribution figure fails to acknowledge which jurisdictions benefit and hence where and how tax revenues are spent. This is important as taxes spent in lower-income countries could, in principle, have a greater impact on wellbeing than in richer economies with more advanced public services. In the absence of country specific tax information, investors can estimate where tax is paid based on the geographic focus of the asset highlighted in corporate reports. In addition, a metric which includes taxes on people (payroll and social payments) would be desirable as these can be significant in scale. Naturally we acknowledge that tax regimes vary from jurisdiction to jurisdictions[26], with corporate taxation playing a lesser role in some places than others.

Test results: wellbeing

Table 6: Results for example fund

Feature	Measure	Results
Asset coverage	Number of assets included in calculation	96%
Total impact of fund	Total tax contribution in US$	6,183,760
Impact of fund per US$ 1m invested	Total tax contribution in US$ per US$ 1m invested	106,068
Relative performance	Quintile in MSCI Europe Difference relative to MSCI Europe	Quintile 1 (very positive compared to benchmark) +355% (better)

Figure 7: Results relative to MSCI Europe (impact per US$ 1m invested in fund)



Theme 3 :
Decent work

This refers to the creation of secure, socially inclusive jobs and working conditions for all. According to the International Labour Organization (ILO), global unemployment is set to fall slightly to 5.5 per cent in 2018.[27] However, the quality of jobs being created remains a major challenge, with the reduction of vulnerable employment stalling since 2012. This means that almost 1.4 billion workers (40 per cent of all workers) were estimated to be in vulnerable employment in 2017, with an additional 35 million expected to join them by 2019.[28] In developing countries, vulnerable employment affects three out of four workers.[28]

What is the ideal measure?

This theme examines an asset's contribution to secure, socially inclusive jobs and working conditions for all.

Decent work has two dimensions: the number of jobs supported by a company and the meaningful characteristics of those jobs (for example pay, job security and working conditions). A company can contribute directly to decent work through formal employment contracts, or indirectly through the use of contractors and in its wider supply chain. All such jobs should be counted (not only full time) in recognition of the value of part-time employment to many people.

The provision of decent work is arguably more important in areas of low employment or vulnerable labour. Hence the amount of work provided by a company may be adjusted by the rate of employment[29] in those labour markets, as compiled by the International Labour Organization (ILO). We acknowledge that this favours companies operating in low-employment regions, but companies offering significant opportunities in higher-employment countries are also rewarded.

Our ideal metric counts jobs only when they can be considered 'good' at some level. While pay is not a perfect proxy for job quality, it is an important contributing factor. We therefore count jobs only when workers earn the equivalent of at least 60 per cent of the country's median wage[30] – a readily available threshold used throughout the OECD as a measure of relative income poverty (living wage).

Formal open-ended contracts are correlated with job stability, identified by the OECD as a key indicator for job quality. According to the OECD, the labour market is divided between those who are well protected with open-ended contracts in large firms and those who are marginally attached with temporary or atypical contracts – the 'duality' in the labour market. Flexible employment contracts have their merits because they facilitate the adjustment of the labour force when necessary, but these are known to increase job insecurity rather than to serve as a stepping stone for temporary workers.[31]

Finally, we have not yet found an objective way to assess working conditions. We acknowledge that many information providers review corporate policies on child labour, health & safety, discrimination and rights of association at work; and that information on infringements and controversies is also available. Companies with ongoing lawsuits or with significant patterns of lawsuits over the last five years should therefore be penalised. However, this risks downplaying problems affecting under-empowered workers (who are less likely to be assertive) or issues arising in less-litigious cultures. More research is needed to identify the correct approach.

Ideal metric

Total number of open-ended employment contracts minus jobs below 60 per cent median wage (living wage) minus jobs in poor working conditions (health & safety, discrimination, rights of association), adjusted by national employment rate

Unit: jobs per US$m invested

What can be measured today?

Currently, few companies report on the total number of jobs they provide by country, meaning it is not possible to adjust those numbers by national employment levels. It is easier to find regional breakdowns of the workforce but these provide little insight at the national level. In addition, companies do not generally reveal the types of contracts they offer to staff (eg open-ended or temporary), nor estimate indirect job creation through the supply chain. Finally, details of compensation levels are generally restricted to top management, meaning that it is difficult to assess how many jobs fall below the threshold of a living wage and, as we have noted above, we currently lack a standard means of assessing outcomes relating to working conditions.

For these reasons it is not possible to apply our ideal metric today. A reasonable, practical alternative is to assess the total direct employment of a company (ie without consideration of supply chain) expressed in full-time equivalent workers (FTEs) which is collected by information providers today. Issues of pay, contract type and working conditions are not considered in this metric.

Base metric

Total number of employees based full time equivalent (FTE) workers

Unit: FTEs per US$m invested

Based on a review of Bloomberg's data dictionary, the items which most closely matched our ideal metric are presented in Table 7 below.

Table 7: Data items relating to decent work theme

Theme	Data items (unit)	Definition	Coverage in MSCI World Index (%)	Assessment
Decent work	Total number of jobs	Number of people employed by the company, based on the number of full time equivalents. If unavailable, then the number of full time employees is used, excluding part time employees.	93.1	Usable
	Policy on child labour	Indicates whether the company has implemented any initiatives to ensure the prevention of child labour in all parts of its business.	91.8	Not usable: framework does not include policies
	Health and safety policy	Indicates whether the company has recognized its health and safety risks and responsibilities and is making any effort to improve the management of employee health and/or employee safety.	91.9	Not usable: framework does not include policies
	Human rights policy	Indicates whether the company has implemented any initiatives to ensure the protection of the rights of all people it works with	91.9	Not usable: framework does not include policies
	Social supply chain management	Indicates whether the company has implemented any initiatives to reduce the social risks in its supply chain. Social risks might include poor working conditions, the use of child or forced labour, lack of a living, fair or minimum wage etc.	91.8	Not usable: framework does not include processes

Limitations

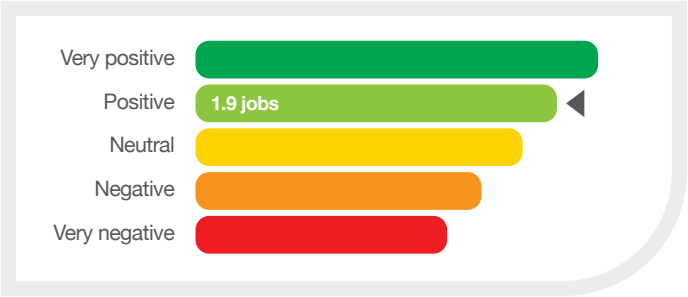
In reducing this theme to number of FTEs many subtleties in corporate labour practices are discounted: the metric more properly tells us about the corporate contribution to work rather than 'decent' work. Similarly, without adjustment by national employment rate the results cannot establish whether work is being created in high-demand areas, which is clearly necessary to fulfil the ambitions of the SDGs. Lastly, in counting FTEs (as opposed to jobs or contracts), the metric estimates the amount of *time* contributed to an organisation rather than the number of individuals who are employed.

Test results: decent work

Table 8: Results for example fund

Feature	Measure	Results
Asset coverage	Number of assets included in calculation	50%
Total impact of fund	Total number of FTEs	112
Impact of fund per US$ 1m invested	Total number of FTEs per US$ 1m invested	1.93
Relative performance	Quintile in MSCI Europe Difference relative to MSCI Europe	Quintile 2 (positive compared to benchmark) 6% (better)

Figure 8: Results relative to MSCI Europe (impact per US$ 1m invested in fund)



Theme 4 :

Resource security

This refers to the preservation of natural resources through efficient and circular use. Current models of production may be described as linear: virgin materials are extracted from the ground (or grown) and used to make products that are consumed. This gives rise to chronically high levels of waste and creates a non-sustainable dependence on inputs of new (and often finite) natural resources. This model cannot work in the long run, and there are signs that it is reaching its limits.[32]

What is the ideal measure?

This theme examines an asset's contribution to securing natural resources for the future through efficient and circular use.

A linear model of production is sometimes described as 'take-make-waste', implying resources are sucked through a production process and jettisoned into the environment after use. In a world of limited stocks of natural resources and rising demands from an expanding and more ambitious population, this is clearly deeply unsustainable. Plastic waste littering our oceans is one visible consequence of linear production. There are countless others.

The alternative – the so-called 'circular' economy – rests on three principles:[33]

1. design out waste and pollution from production processes
2. keep products and materials in use rather than wasted
3. regenerate the natural systems on which continued production depends.

Circular operation seeks to decouple production from sources of unsustainability in the supply chain. In the case of 'hard' commodities (inorganic materials such as metals and minerals extracted from the Earth's crust), any flow of virgin material is unsustainable as the resources in question are finite, and any losses to the environment, notably following the use phase, should be prevented (for example plastic in oceans). In the case of 'soft' commodities (organic materials such as crops, biofuels and timber), virgin materials are in theory renewable but in practice production methods do not achieve this. While losses into the environment are less problematic than hard commodities, effort is required to return their nutrients back to nature (eg through anaerobic digestion).

Circular operations are restorative by design. For manufactured goods, circular processes often involve repair, reuse, refurbishment and material recycling processes. In biological cycles, loops are closed by returning non-toxic materials to the soil and, of course, by sustaining the health of the production environment. The circularity of an asset can be determined by the amount of non-sustainable material it consumes within a value chain and the amount of waste its products lead to in the environment. The smaller these amounts the more circular the operation (zero would imply perfectly circular), and the more resilient the asset will be to material price fluctuations and waste regulation.

Different measures are required for hard and soft commodities. The circularity of hard commodity flows can be measured by the amount of virgin raw material contained within a company's output (its end product) in addition to any losses of material to the environment. When the sum of these two amounts is zero, production is circular.

Similarly, the circularity of soft commodity flows can be measured by the amount of unsustainably produced material in the end product in addition to any waste material lost to the environment. The definition of an 'unsustainably' sourced soft commodity remains somewhat subjective, but a proxy at the present time would be material *not* produced to recognised sustainability standards (eg Forest Stewardship Council timber, organic agriculture, and so on). This approach works well with fibre-based soft commodities such as timber and cotton since they follow similar pathways to hard commodities in that they can be recycled and products can be repaired and, in some cases, remanufactured. Food is quite different however: the generally accepted sustainable route to recover value from surplus (waste) food is anaerobic digestion (AD) which allows nutrients to be returned to nature.

In summary, an ideal metric for resource security reflects a company's progress from linear to circular operation. This requires a deep understanding of its value chain material flows: where inputs are sourced (directly or through supply chains), efficiency of operation, and what happens to materials post-production, including the use phase. This requires data on:

- whether input materials are from virgin, certified sustainable or reused sources
- operational efficiency in terms of different types of direct waste streams
- the durability and repairability of products
- alternative business models (such as 'servicisation', leasing and the broader sharing economy)
- end-of-use phase material flows, including material to landfill, incineration, recycling and/or re-manufacturing.

Finally, not all material flows are equally problematic. Finite materials which are rare or otherwise in short supply are arguably a higher priority for conservation, as are toxic materials whose entry into the environment within products can have damaging social and environmental consequences. These 'carrying capacity' factors attract a more forceful weighting in our ideal metric.

Ideal metric

Hard commodities:
Virgin material content of end products (adjusted by scarcity) plus waste lost to the environment (adjusted by toxicity)

Unit: metric tonnes (t) per US$m invested

Soft commodities:
Non sustainably certified content of end products plus waste not specifically returned to nature

Unit: metric tonnes (t) per US$m invested

What can be measured today?

It remains challenging for companies to derive the data needed for our ideal metric. To provide investors with information on the scarcity and toxicity of materials used, for example, companies would need to disclose detailed information about the composition, form and quantity of the chemicals used across their product range, and the remaining global stocks of (and demand for) each material. Among other challenges, this raises questions of commercial sensitivity. Moreover, outside some specific product categories (for example electronics equipment subject to the European Commission's WEEE Directive) our capacity to track the flows of product into the environment remains limited.

For these reasons it is not possible to apply our ideal metric today. A practical, if far less attractive, alternative is to measure the waste arising from companies' direct operations, which is one of the few relevant sources held by information providers today. Our base metric is therefore the total net waste produced, defined as total waste arising minus total waste recycled.

Based on a review of Bloomberg's data dictionary, the items which most closely matched our ideal metric are presented in Table 9 below.

Base metric
Total net waste (total waste arisings minus total waste recycled)
Unit: metric tonnes (t) per US$m invested

Table 9: Data items relating to resource security theme

Theme	Data items (unit)	Definition	Coverage in MSCI World Index (%)	Assessment
Resource security	Total waste (metric tonnes)	Total amount of waste the company discards, both hazardous and non-hazardous, in thousands of metric tonnes.	42.9	Usable
	Total waste recycled (metric tonnes)	Total amount of waste the company recycles, in thousands of metric tonnes.	31.9	Usable
	Raw material used (metric tonnes)	Total amount of raw materials consumed by the company, in thousands of metric tons.	9.7	Not usable: framework focuses on product content and losses to the environment, not inputs
	Recycled materials (%)	Percentage of raw materials used from recycled sources.	<5	Not usable: low coverage
	Raw materials from sustainable sources (%)	Percentage of raw materials used by the company that have been certified to an environmental or social standard.	<5	Not usable: low coverage

Limitations

Measuring waste from a company's direct operations clearly falls short of testing how a company is transitioning to circular operation. The principal drawback is that it doesn't shed light on the nature of a company's products, nor the fate of those products after they have entered the economy, and as such represents only a limited glimpse into the circularity of the operation as a whole. In short, focusing purely on its operational waste misses the most significant material flows generated by a company (its products), not to mention the scarcity, toxicity and renewability of those materials. Lastly, as it is currently specified the base metric rewards companies with strong recycling rates when we know that recycling is a less elegant solution than designing out material demand, re-use, repair and remanufacturing processes.

Test results: resource security

Table 10: Results for example fund

Feature	Measure	Results
Asset coverage	Number of assets included in calculation	36%
Total impact of fund	Total net waste in tonnes	266
Impact of fund per US$ 1m invested	Total net waste in tonnes per US$ 1m invested	4.6
Relative performance	Quintile in MSCI Europe Difference relative to MSCI Europe	Quintile 4 (negative compared to benchmark) -99% (better)

Figure 9: Results relative to MSCI Europe (impact per US$ 1m invested in fund)



Theme 5 :

Healthy ecosystems

This refers to the maintenance of ecologically sound landscapes and seas for people and nature. For millennia humans have converted land for their own purposes. To begin with the effects were modest, but the pace stepped up during the industrial revolution, and particularly since 1950, when a 'Great Acceleration' in economic output, technology and population occurred, driving nature to its limits.[34] The 'ecosystem services' on which all life depends have shown resilience under pressure, but their ability to supply freshwater, clean air and abundant food is now in jeopardy.

What is the ideal measure?

This theme examines an asset's contribution to the preservation of ecologically sound landscapes and seas.

A turning point came in the 1970s when human demands on nature (our 'ecological footprint') for the first time outstripped the planet's ability to regenerate its 'biocapacity'.[35] Since that point we have been living off the planet's capital rather than its interest. This state of 'ecological deficit' means that we are eroding our ecological life support system on which we and future generations depend.[36]

This is the situation today. Before long, however, we can expect the human population to move closer to 11.2 billion, with a resulting increase in demand for food, water and energy.[37] On current trends, many of these people will be eating more than at present, and differently, including a diet which is richer in dairy, meats and processed foods – in short an energy- and water-intensive diet.

Whilst many large companies have strategies in place to reduce their environmental impacts, few understand how to lessen their dependence on natural systems such as forests, soils, wetlands, atmosphere and oceans in such a way that those resources – which may be collectively described as 'natural capital' – are able to regenerate. Not a single company could be said to be restorative in this respect, presenting a source of long-term systemic risk to business, livelihoods and economy.

The relationship between economic activity and natural capital is complex, dynamic and localised. A metric capable of revealing this relationship in full would be dauntingly sophisticated and most likely dependent on where a value chain operates, and how its product streams interact with natural systems. Although work is underway in academic institutions[38], we do not believe it is suitable yet for mainstream investors. For this reason, as with other ideal metrics in this report, we propose a more amenable proxy which distils complexity into a simpler, more usable measure. This is land degradation.

Land degradation may be defined as a long-term loss of ecosystem function and productivity caused by disturbances from which the land cannot recover unaided.[39] It is estimated to affect one third of global arable land.[40] [41] Natural processes play a part in land degradation but by far the most damage is caused by human activities. Land degradation takes many forms, including the loss of soil, or soil health, in croplands; loss of habitat and hydrological function in urbanising areas; deforestation or over-logging in forests; overgrazing and shrub encroachment in rangelands; and drainage and eutrophication in wetlands.[42] The process of degradation is inextricably linked to loss of biodiversity.

All continents are experiencing land degradation, with particularly high incidences down the west coast of the Americas, across the Mediterranean region of Southern Europe and North Africa, across the Sahel and the Horn of Africa, and throughout Asia. Typical consequences include the reduction of soil quality, biodiversity loss and water resources depletion. Large inland water bodies are under pressure from a combination of reduced inflows and higher nutrient loading from the excessive build-up of nitrogen and phosphorus. Many rivers do not reach their natural end points and wetlands are disappearing.[43]

The international community is working to halt land degradation, and restore degraded ecosystems. A specific SDG indicator exists to assess global progress in this respect. Two UN bodies, the Food and Agricultural Organisation of the United Nations (FAO) and more recently the United Nations Convention to Combat Desertification (UNCCD) jointly monitor land degradation, desertification and drought globally.

Two factors are considered when assessing the extent of land degradation:

1. the current *status* of land (its degree of degradation) in a particular location
2. the *trend* in degradation (or recovery) at that location.

Ideal metric

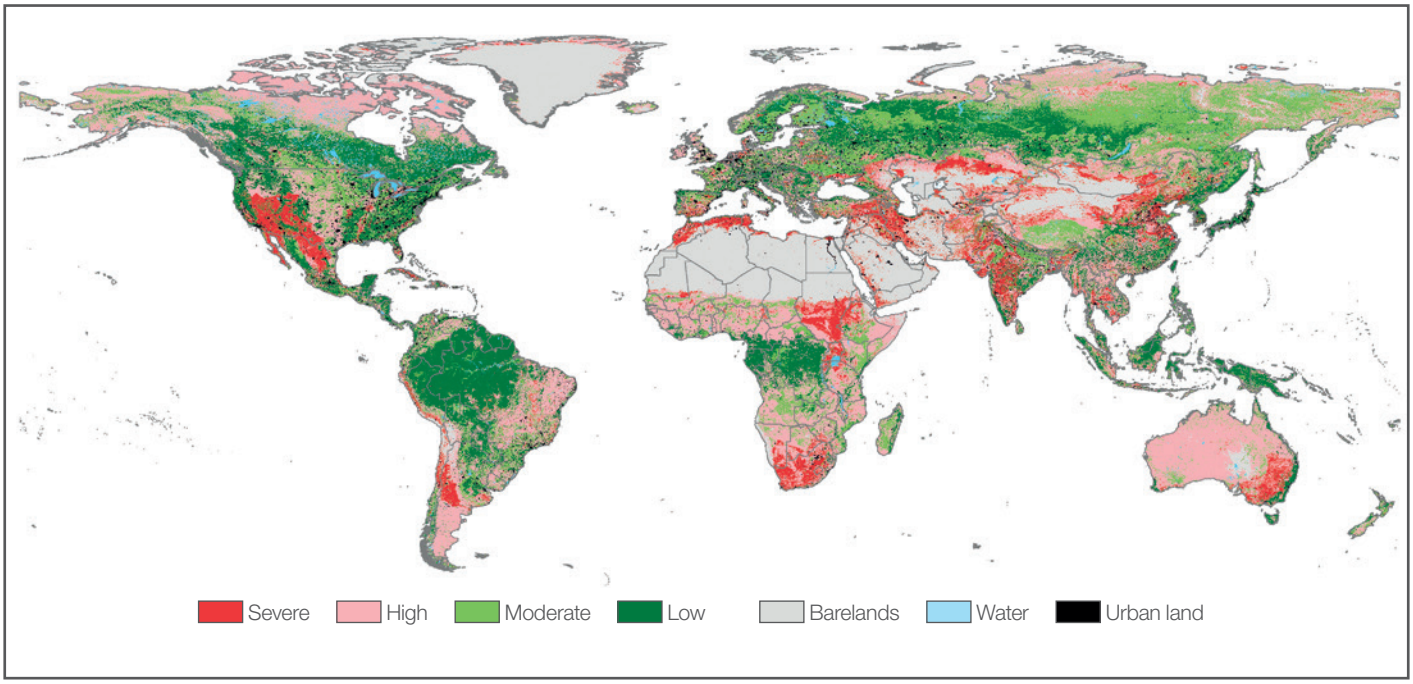
Area of degraded land utilised by an asset

Unit: hectares (ha) per US$m invested

Land degradation status

This is the degree of degradation of land at a particular moment in time, understood as its capacity to provide ecosystem services. Degradation can be subcategorised into several biophysical forms. Figure 10 below shows the results from FAO's 2011 Global Land Degradation Information System assessment, which takes into account the loss of biomass, soil health, water availability and quality and biodiversity over a period of around 20 years.[44]

Figure 10: Land degradation status (based on FAO original)

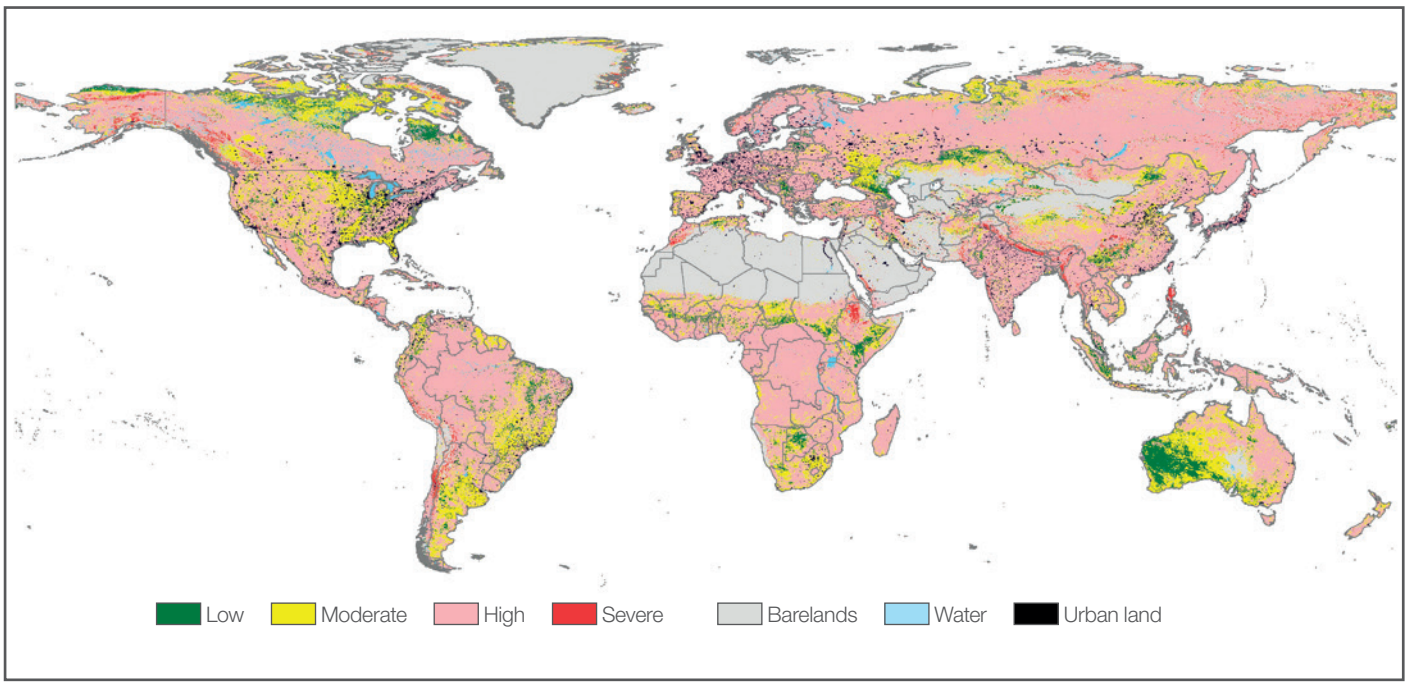


Different parts of the world may be classified by the extent of their land degradation.

Land degradation trend

This is the actual (or potential) change taking place in a given piece of land, revealing the stability (or not) of its current status. Trends can be either negative (degrading) or positive (improving) and are illustrated in Figure 11.

Figure 11: Land degradation trend (based on FAO original)



The colours indicate rates of land degradation.

Our ideal metric applies FAO's degradation estimates (status and trend) to land associated with individual assets, spanning their operational footprint plus areas upon which the assets are reliant for supply or product utilisation. This combined area is weighted according to the degree of degradation present, resulting in a 'hectare equivalent' figure per asset. Land with low degradation which is stable or restoring will yield the lowest figures, whereas degraded land in negative trend will yield the highest. A similar approach could be applied to oceans and seas using data on water quality, food provision, carbon storage and biodiversity.[45]

Overlaying Earth observation data with the geographic location of business activities in this way has the advantage of providing immediate scale. However, in the current case FAO's maps are based on coarse resolution satellite data which is largely insensitive to the mitigating activities of companies, and therefore insufficient to track corporate performance with respect to healthy ecosystems. Higher spatial resolution maps combined with advanced analysis are expected to offer increasing granularity in future.

What can be measured today?

At the present time few mainstream data are available to investors with any significant correlation with land degradation. At face value, corporate water consumption can be said to relate to land degradation in that the presence of water in the natural environment is critical to its maintenance and functioning. Hence companies that use water excessively in water-stressed regions or which pollute water stocks and flows (including rivers, wetlands, seas, groundwater) can be highly damaging to both land and sea.

Companies may withdraw water directly from aquifers, lakes and rivers, via piped (municipal) supply, or collect it directly from precipitation or wastewater sources. They may also obtain it from seawater sources, notably for cooling. The impact of using water is a function of its abundance – or indeed scarcity – in the location where it is obtained, and the condition (quality) in which any water is returned into the environment. Tools such as the World Resources Institute's Aqueduct and WWF's Water Risk filter tool help to pinpoint water scarcity in different regions of the world.[46] [47]

Given our focus on healthy ecosystems, we are primarily concerned with the consumption of fresh water rather than salt water. While the latter must be managed carefully, it is clearly abundant in coastal regions in contrast to fresh water reserves which are under pressure in almost all regions of the world. Fresh water plays an essential role in maintaining ecosystem health; without it life simply cannot exist.

Base metric
Fresh water use (comprising surface water plus groundwater plus municipal water)
Unit: cubic meters (m3) per US$m invested

Based on a review of Bloomberg's data dictionary, the items which most closely matched our ideal metric are presented in Table 11 right.

Table 11: Data items relating to healthy ecosystems theme

Theme	Data items (unit)	Definition	Coverage in MSCI World Index (%)	Assessment
Healthy ecosystems	Surface water withdrawals (thousands of cubic metres)	Amount of water diverted for use by the organisation from all surface freshwater sources, including but not limited to lakes, rivers, and streams, in thousands of cubic metres. Includes cooling water	10.6	Usable
	Municipal water use (thousands of cubic metres)	Amount of water diverted for use by the organisation from municipal water treatment facilities, in thousands of cubic metres. Includes cooling water.	19.8	Usable
	Groundwater withdrawals (thousands of cubic metres)	Amount of water withdrawn by the organization from underground reservoirs, in thousands of cubic metres. Includes cooling water	14.9	Usable
	Total water use (thousands of cubic metres)	Total amount of water used to support a company's operational processes, in thousands of cubic metres. The sum of all water withdraws for process water and cooling water and all water retained by company facilities through recycling.	42.1	Not usable: framework focuses on freshwater, not salt water
	Total water recycled (thousands of cubic metres)	Amount of process water and cooling water used by the company's operations that was derived from internal recycling/reuse processes, in thousands of cubic metres. Includes cooling water.	8.5	Not usable: framework focuses on water demand from the environment, not management of water by an organisation
	Water withdrawal (thousands of cubic metres)	Amount of water diverted for use by the organisation from all sources, including but not limited to surface, ground, saltwater, and municipal, in thousands of cubic metres. Includes cooling water.	27.4	Not usable: framework focuses on freshwater, not salt water
	Water stress (%)	Percentage of fresh water withdrawn in regions with High or Extremely High Baseline Water Stress	<5	Not usable: low coverage

Limitations

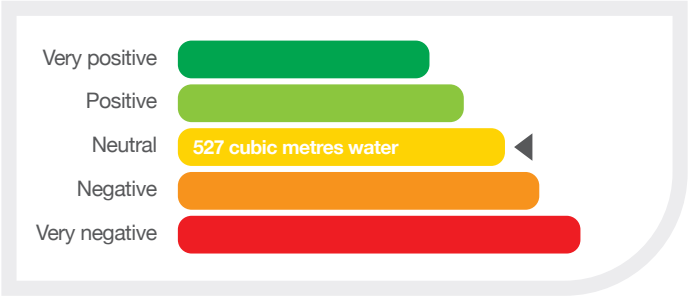
Although water is essential to ecosystem function, there is at best a weak correlation between operational water consumption of a company and the condition of the land it utilises. The integrity of the metric would be improved slightly if local water scarcity was taken into account as this would gauge the potential stress on the landscape created by water demand. To do so the geographic areas in which a company operates (or is dependent) would need to be overlayed with sufficiently granular water stress maps. While this analysis is perfectly feasible it is not easily available to investors at scale at the current time. The effects of a company on water quality are also not considered by this metric. This is potentially a major drawback when considering activities such as agriculture, industrial processes and energy production which can affect water quality or alter its properties in different ways with consequences for the environment (e.g. temperature).

Test results: healthy ecosystems

Table 12: Results for example fund

Feature	Measure	Results
Asset coverage	Number of assets included in calculation	18%
Total impact of fund	Fresh water use in cubic metres	30,732
Impact of fund per US$ 1m invested	Fresh water use in cubic metres per US$ 1m invested	527
Relative performance	Quintile in MSCI Europe Difference relative to MSCI Europe	Quintile 3 (neutral compared to benchmark) -89% (better)

Figure 12: Results relative to MSCI Europe (impact per US$ 1m invested in fund)



Theme 6 :
Climate stability

This refers to the global effort to curb the Earth's temperature rise. A breakthrough agreement was reached between the world's nations in Paris in December 2015 which commits all participating members of the United Nations to hold global temperature rise "well below" 2°C above pre-industrial levels, with an aspiration (regarded by scientists to be a necessity) to limit warming to 1.5°C.

What is the ideal measure?

This theme examines an asset's alignment with the Paris consensus.

Since the first report from the Intergovernmental Panel on Climate Change (IPCC) in 1990, a consensus has been building among scientists, policymakers, business leaders and the general public that the world must transition to a low (most likely zero) carbon economy to address the vast and adverse effects of anthropogenic climate change. Following the Paris Summit in 2015, that consensus is now overwhelming.

Achieving a rapid and successful transition to zero carbon will rely on investing in green infrastructure, large-scale energy efficiency solutions, zero emissions mobility and a radical change in the energy mix so that the upstream and downstream emissions of companies, as well as their operational footprints, are brought onto a steeply downward path. This theme explores how investors should determine whether their funds are aligned with this goal in order to communicate this to an increasingly concerned public.

A large part of the emissions burden of a company occurs indirectly as a consequence of the production of its raw materials and related supplies, and the use of its products and services. For this reason, a methodology that seeks a comprehensive view of a firm's impact on climate stability must go beyond operational carbon footprinting to capture its broader upstream and downstream performance.

Climate change performance is conventionally understood to be a function of a company's greenhouse gas (GHG) emissions. This term includes a basket of gases emitted by companies ranging from carbon dioxide to methane, nitrous oxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride and nitrogen trifluoride. Collectively they are measured in tonnes of carbon dioxide equivalent (tCO_2e). Emissions are broken down into Scope 1 (arising from a company's operations), Scope 2 (emissions from bought energy, including electricity), and Scope 3 (emissions from suppliers and customers).

Whilst GHG reporting offers a snapshot of emissions performance, by itself it does not say whether an asset's emissions path is consistent with the Paris consensus. Ideally we want to know which warming scenario a company is aligned with, for example 1.5°C, 2°C, or whether its behaviour is taking us in a more dangerous direction such as 3°C, 4°C or higher). Conceivably it may have eliminated emissions already ('net zero') and be aligned with no further warming beyond the 1°C rise already witnessed across the planet.

Targets adopted by companies to reduce GHG emissions are considered 'science-based' if they are consistent with the Paris consensus of 2°C warming.[48] Sector transition pathways for meeting a 2°C scenario have been prepared by the International Energy Agency (IEA)[49] but as yet no standard has been agreed. We note that the Task Force on Climate-related Financial Disclosures (TCFD) recommends that financial institutions identify and manage climate risks, which include the use of stress tests against various climate scenarios.[50]

This is a story of much work but little standardisation. In particular there remains no standard method of estimating a company's warming pathway based on its emissions data, nor how responsibilities for emissions reduction should be allocated fairly in the economy (for example should high-performing firms in carbon-intensive sectors be rewarded more than poor-performing firms in low-carbon sectors?).

Given the urgency of emissions reduction, we believe a simpler method of understanding an asset's alignment with global warming is now justified. In brief the problem may have been over-intellectualised. A certain 'budget' is available for GHG emissions beyond which temperature will exceed a predictable amount. For example, the budget available as of 2011 to keep warming lower than 2°C is estimated by the IPCC to be 1,000 $GtCO_2$ with 66 per cent confidence (see amber highlight in Table 13 below).[51] [52] If a company emits a certain amount of GHGs today and emissions at this intensity are seen across the economy, it is possible to estimate how quickly we wi exhaust this budget and reach 2°C. Conversely, it is possible to estimate what level of warming will be seen in 2050 if this particular level of emissions were to be maintained. Despite the accepted uncertainties surrounding the IPCC's modelling, this method allows us to convert today's emissions figures from companies into future warming scenarios with relative ease.

At present (2018), global GHGs are being emitted at just short of 40 GtCO2 per year. At this level the IPCC's global carbon budget of 1,000 $GtCO_2$ would be consumed within 25 years. More troubling is the budget to 1.5°C: at just 400 GtCO2 this will be exhausted in ten years at present levels of emissions (see red highlight in Table 13 below). Given the IPPC's stark warning in October 2018 that temperatures should be stabilised at 1.5°C rather than 2°C, the importance of investor action cannot be overstated.[53]

Table 13: Remaining global carbon budget as of 2011 (based on IPCC)

Cumulative $C0_2$ emissions from 1870 in $GtC0_2$									
Net anthropogenic warming		**<1.5°C**			**<2°C**			**<3°C**	
Fraction of simulations meeting goal	66%	50%	33%	66%	50%	33%	66%	50%	33%
Complex models, RCP scenarios only	2250	2250	2550	2900	3000	3300	4200	4500	4850
Simple model, WGIII scenarios	No data	2300 to 2350	2400 to 2950	2550 to 3150	2900 to 3200	2950 to 3800	n.a.	4150 to 5750	5250 to 6000
Cumulative $C0_2$ emissions from 2011 in $GtC0_2$									
Complex models, RCP scenarios only	400	550	850	1000	1300	1500	2400	2800	3250
Simple model, WGIII scenarios	No data	550 to 600	600 to 1150	750 to 1400	1150 to 1400	1150 to 2050	n.a.	2350 to 4000	3500 to 4250
Total fossil carbon available in 2011: 3670 to 7100 $GtC0_2$ (reserves) and 31300 to 50050 $GtC0_2$ (resources)									

All companies emitting more than their fair share of the global carbon budget can be considered to be out of alignment with the Paris ambition, and hence negatively impacting the planet's future, including its economic prospects. This is why progressive businesses and policymakers, supported by civil society organisations and members of the public, are proposing a simple target to be reached by all companies by 2050: net zero emissions.[54]

Ideal metric

Alignment to future warming scenario based on consumption of global carbon budget

Unit: degrees Celsius (°C) warming trajectory

What can be measured today?

Whilst it is feasible to apply our ideal metric today, information providers are not yet providing this analysis. At the current time, our proposed base metric therefore considers a company's Scope 1 (operational) and Scope 2 (bought energy, including electricity) GHG emissions which are generally well understood and reported today.

Base metric

Total greenhouse gas (GHG) emissions (Scope 1 and 2)

Unit: tonnes (t) carbon dioxide equivalent (CO_2e) per US$m invested

Based on a review of Bloomberg's data dictionary, the items which most closely matched our ideal metric are presented in Table 14 below.

Table 14: Data items relating to climate stability theme

Theme	Data items (unit)	Definition	Coverage in MSCI World index (%)	Assessment
Climate stability	GHG emissions Scope 1 (tonnes carbon dioxide equivalent)	Direct greenhouse gas emissions of the company. GHGs are defined as those gases which contribute to the trapping of heat in the Earth's atmosphere and they include carbon dioxide (CO_2), Methane, and Nitrous Oxide. Scope 1 emissions are those emitted from sources that are owned or controlled by the reporting entity.	42.3	Usable
	GHG emissions Scope 2 (tonnes carbon dioxide equivalent)	Indirect greenhouse gas emissions of the company. Scope 2 emissions are those emitted that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity. The principle source of indirect emissions is emissions from purchased electricity, steam and/or heating/cooling.	41.7	Usable
	GHG emissions Scope 3 (tonnes carbon dioxide equivalent)	All non-Scope 2, indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. transmission and distribution losses) not covered in Scope 2, outsourced activities, waste disposal, etc.	34	Not usable: framework (base metrics) do not cover value chain
	CO_2 reduction targets	Indicates whether the company has implemented any initiatives to reduce its environmental emissions to air.	91.8	Not usable: framework does not include policies

Limitations

Arguably Scope 3 emissions (from supply chains and product use) should be included in the base metric since they are increasingly reported by companies. However, for consistency none of the base metrics presented in this report include value chain impacts.

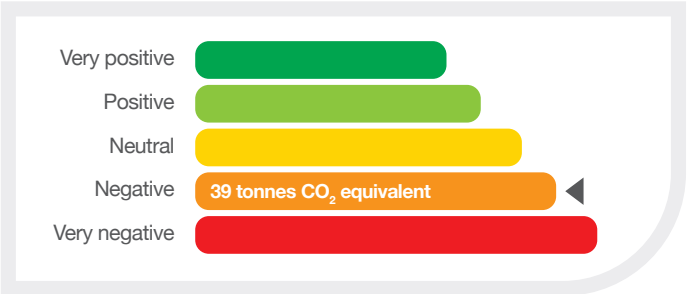
Moreover the wide range of indirect emissions which can be included under Scope 3, together with more complex data collection processes and estimations, has led to a lack of consistency in reporting at the current time.

Test results: climate stability

Table 15: Results for example fund

Feature	Measure	Results
Asset coverage	Number of assets included in calculation	32%
Total impact of fund	Total GHG emissions in tonnes carbon dioxide equivalent	2,264
Impact of fund per US$ 1m invested	Total GHG emissions in tonnes carbon dioxide equivalent per US$ 1m invested	39
Relative performance	Quintile in MSCI Europe Difference relative to MSCI Europe	Quintile 4 (negative compared to benchmark) -72% (better)

Figure 13: Results relative to MSCI Europe (impact per US$ 1m invested in fund)



Conclusions

This report has sought to give investors greater visibility over their contribution to achieving the SDGs. Clarity here is critical if investors are to direct capital towards the solutions to the SDGs, and away from activities which compound social and environmental challenges.

Two distinct perspectives are material here: that of asset owners (and their beneficiaries) and that of investment managers who ultimately make investment decisions.

From an asset owner perspective (ie institutional and retail clients of investment managers) there is increasing demand for reporting social and environmental impact. However, the level of granularity required typically does not extend beyond an overview of the main environmental and social characteristics of a fund, with more in-depth information potentially unnecessary. Hence we took the decision to distil the 17 SDGs into just six impact themes, and to communicate fund performance graphically. Interestingly, it was discovered many decades ago that humans find it difficult to hold more than seven (plus or minus two) concepts in their minds at any one time.[55] This insight is consistent with our experience of enabling business, government and finance leaders to resolve their strategic responses to sustainability.

Investment managers on the other hand need more sophisticated tools to make decisions, based on more granular data. To the extent they see opportunities to apply the metrics in this report, they will want to familiarise themselves with the methodologies and data sources we have used – which is why we have introduced them with replication in mind. Moreover they will wish to establish how the use of the metrics will enhance interest in their funds, or allow more profound insights into future risks and opportunities. While we make no claims in this area, we do observe a rise in demand for SDG-linked fund disclosures indicative of an overall market trend. This is hardly surprising given the high and increasing levels of attention being focused on global sustainability challenges.

Effective disclosure of fund-level impact will require an accommodation of perspectives between asset owners and investment managers and, if policymakers and regulators intend to hold investors to account, it will be necessary for the data infrastructure supporting impact analysis to be considerably enhanced. This is surely achievable: from corporate credit ratings to quarterly reporting of fund performance, there are many examples of complex analyses being distilled into simple information for end users.

There is one major difference between the reporting of financial and sustainability information however: the quality, completeness and standardisation of the underlying data. Financial disclosures have been standardised and audited across geographies for many years, and although initiatives exist in the realm of social and environmental reporting, the results lack rigour and consistency by comparison. While this problem is solvable it will require sustained commitment and collaboration to get right.

Sustainability reporting is voluntary in nearly all markets. Where it is not, it is typically left to the disclosing party to determine which factors are 'material' and which can be omitted. Current disclosure standards are voluntary and the data provided are rarely assured by a third party. Those who aggregate data on behalf of investors face significant problems with quality, completeness and comparability. Mandatory disclosure of impact performance to an internationally agreed standard, appearing in annual reports and accounts, and independently assured, would be a natural way to address this.

As Paul Smith, President and Chief Executive of the CFA Institute recently said in the Financial Times, "The next generation of investors – and a growing number in this generation – will not accept the absence of precise quantitative frameworks as an excuse for inaction. They are demanding that the investment industry responds to their desire to proactively address some of society's most intractable problems." [56]

We hope that the Cambridge Impact Framework will make a subtle but important contribution to this debate. Most investment practitioners would agree that the data available to determine their social and environmental impacts currently lack the robustness – and coverage – commonplace in financial reporting. By setting out what we think investors should measure, we send an open invitation to the industry to gather, clean, share and most of all standardise impact data.

Given their reliance on data from professional information providers, large investors have a golden opportunity to shape future data availability by communicating their requirements clearly to those providers and, in parallel, encouraging companies to disclose. In order to respond, providers either require companies to enhance disclosure, or find other ways to extract relevant information (eg from Earth observation, 'big data' and public datasets). Market-wide collaboration involving governments, companies, financial institutions and regulators will be needed to deliver the required quality of information to investors.

Fortunately this effort has started. From the European Commission's Technical Expert Group on Sustainable Finance which is developing a 'green taxonomy' of definitions, to the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD), investment practitioners, regulators and policymakers are working together to improve reporting processes. Make no mistake, however, the market demand for funds telling a credible story about social and environmental impact is increasing, and will favour early adopters.

What does all this add up to? Not quite a revolution in consumer finance, but an obvious, and imminent direction for the investment industry. To establish impact as a key component of fund information we suggest the following next steps:

- Asset owners, investment managers and advisers to adopt consistent approaches to the measurement and communication of the impact performance of funds.
- Information providers to use consistent and theoretically sound metrics in the design of impact-related products and services.
- Governments to require improved disclosure of environmental and social impacts by companies

Finally there is a big difference between reporting the impact of funds and redesigning them to optimise impact. Only the former objective is considered in this report. The latter will be the subject of intense innovation in coming years as investors recognise their potentially game-changing role in shifting capital to a sustainable economy.

Annex A: Basic needs GICS codes

The following industries were included in the calculation of the basic needs base metric.

Basic need	Industry	GICS code
CLOTHING	Apparel, Accessories & Luxury Goods	25203010
CLOTHING	Apparel Retail	25504010
CLOTHING	Footwear	25203020
CLOTHING	Textiles	25203030
COMMUNICATION	Communications Equipment	45201020
COMMUNICATION	Technology Hardware, Storage & Peripherals	45202030
COMMUNICATION	Integrated Telecommunication Services	50101020
COMMUNICATION	Wireless Telecommunication Services	50102010
EDUCATION	Education Services	25302010
ENERGY	Electric Utilities	55101010
ENERGY	Gas Utilities	55102010
ENERGY	Multi-Utilities	55103010
ENERGY	Independent Power Producers & Energy Traders	55105010
ENERGY	Renewable Electricity	55105020
FINANCE	Consumer Finance	40202010
FINANCE	Life & Health Insurance	40301020
FINANCE	Thrifts & Mortgage Finance	40102010
FINANCE	Multi-line Insurance	40301030
FINANCE	Property & Casualty Insurance	40301040
FOOD	Food Distributors	30101020
FOOD	Food Retail	30101030
FOOD	Hypermarkets & Super Centres	30101040
FOOD	Soft Drinks	30201030
FOOD	Agricultural Products	30202010
FOOD	Packaged Foods & Meats	30202030
HEALTHCARE	Health Care Equipment	35101010
HEALTHCARE	Health Care Supplies	35101020
HEALTHCARE	Health Care Distributors	35102010
HEALTHCARE	Health Care Services	35102015
HEALTHCARE	Health Care Facilities	35102020
HEALTHCARE	Managed Health Care	35102030
HEALTHCARE	Health Care Technology	35103010
HEALTHCARE	Biotechnology	35201010
HEALTHCARE	Pharmaceuticals	35202010
HOUSING	Homebuilding	25201030
HOUSING	Household Appliances	25201040
HOUSING	Housewares & Specialties	25201050
HOUSING	Home Improvement Retail	25504030
HOUSING	Homefurnishing Retail	25504060
HOUSING	Health Care REITs	60101050
HOUSING	Residential REITs	60101060
SANITATION	Household Products	30301010
TRANSPORT	Railroads	20304010
TRANSPORT	Highways & Railtracks	20305020
WATER	Water Utilities	55104010

Annex B: Data tables supporting test results

These tables contain the quantitative data behind the categorisation of relative performance of the example fund across all base metrics. The upper and lower bounds in the tables indicate the edges of the performance quintiles in the MSCI Europe index.

Test results: basic needs

Table 16: Results relative to MSCI Europe

Impact of MSCI Europe per US$ 1m invested (US$ revenue) Lower bound	Upper bound	Impact of fund per US$ 1m invested (US$ revenue)	Category
87,254.45	215,701.49		Very negative
215,702.49	368,282.72		Negative
368,283.72	573,289.88		Neutral
573,290.88	1,547,116.60		Positive
1,547,117.60	24,199,318.18	2,462,040.17	Very positive

Impact of fund in comparison to MSCI Europe per US$ 1m invested	
Impact of fund per US$ 1m invested (US$ revenue)	2,462,040.17
Impact of MSCI Europe per US$ 1m invested (US$ revenue)	897,607.32
Difference	174% (better)

Test results: wellbeing

Table 17: Results relative to MSCI Europe

Impact of MSCI Europe per US$ 1m invested (US$ tax) Lower bound	Upper bound	Impact of fund per US$ 1m invested (US$ tax)	Category
-28,821.47	6,108.22		Very negative
6,109.22	10,029.91		Negative
10,030.91	13,979.61		Neutral
13,980.61	25,214.12		Positive
25,215.12	321,812.77	106,067.93	Very positive

Impact of fund in comparison to MSCI Europe per US$ 1m invested	
Impact of fund per US$ 1m invested (US$ tax)	106,067.93
Impact of MSCI Europe per US$ 1m invested (US$ tax)	23,319.29
Difference	355% (better)

Test results: decent work

Table 18: Results relative to MSCI Europe

Impact of MSCI Europe per US$ 1m invested (FTEs) Lower bound	Upper bound	Impact of fund per US$ 1m invested (FTEs)	Category
0.00	0.50		Very negative
0.50	0.92		Negative
0.92	1.68		Neutral
1.69	3.07	1.93	Positive
3.07	86.14		Very positive

Impact of fund in comparison to MSCI Europe per US$ 1m invested	
Impact of fund per US$ 1m invested (FTEs)	1.93
Impact of MSCI Europe per US$ 1m invested (FTEs)	1.81
Difference	6% (better)

Test results: resource security

Table 19: Results relative to MSCI Europe

Impact of MSCI Europe per US$ 1m invested (tonnes waste) Lower bound	Upper bound	Impact of fund per US$ 1m invested (tonnes waste)	Category
0.00	0.09		Very positive
0.09	0.33		Positive
0.33	1.43		Neutral
1.44	8.89	4.56	Negative
8.89	25,801.62		Very negative

Impact of fund in comparison to MSCI Europe per US$ 1m invested	
Impact of fund per US$ 1m invested (tonnes waste)	4.56
Impact of MSCI Europe per US$ 1m invested (tonnes waste)	407.68
Difference	-99% (better)

Test results: healthy ecosystems

Table 20: Results relative to MSCI Europe

Impact of MSCI Europe per US$ 1m invested (cubic metres water) Lower bound	Upper bound	Impact of fund per US$ 1m invested (cubic metres water)	Category
1.51	51.64		Very positive
51.64	131.96		Positive
132.06	546.14	527.14	Neutral
546.24	53,708.94		Negative
53,709.04	503,175.35		Very negative

Impact of fund in comparison to MSCI Europe per US$ 1m invested	
Impact of fund per US$ 1m invested (cubic metres water)	527.14
Impact of MSCI Europe per US$ 1m invested (cubic metres water)	4,914.72
Difference	-89% (better)

Test results: climate stability

Table 21: Results relative to MSCI Europe

Impact of MSCI Europe per US$ 1m invested (tonnes carbon dioxide equivalent) Lower bound	Upper bound	Impact of fund per US$ 1m invested (tonnes carbon dioxide equivalent)	Category
0.00	2.60		Very positive
2.70	8.15		Positive
8.25	23.35		Neutral
23.45	192.83	38.83	Negative
192.93	4,794.90		Very negative

Impact of fund in comparison to MSCI Europe per US$ 1m invested	
Impact of fund per US$ 1m invested (tonnes carbon dioxide equivalent)	38.83
Impact of MSCI Europe per US$ 1m invested (tonnes carbon dioxide equivalent)	139.24
Difference	-72% (better)

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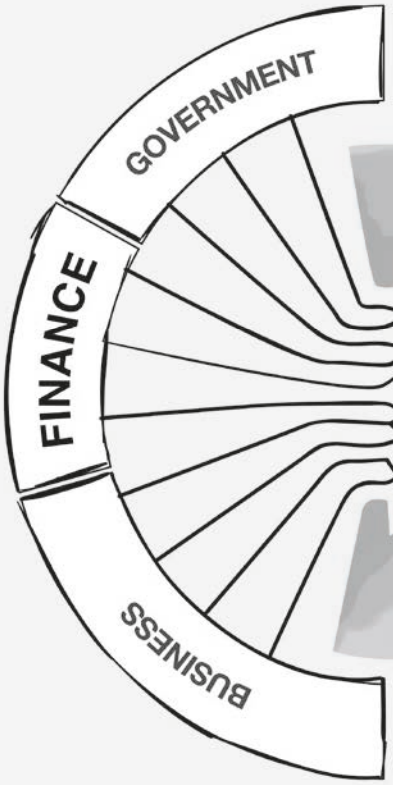
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EU Office
The Periclès Building
Rue de la Science 23
B-1040 Brussels, Belgium
T: +32 (0)2 894 93 19
E: info.eu@cisl.cam.ac.uk

South Africa
PO Box 313
Cape Town 8000
South Africa
E: info.sa@cisl.cam.ac.uk



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