Infrastructure
Investor

Sustainable investing

November 2019 • infrastructureinvestor.com

Tackling the ESG puzzle


Investing
in the future.

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Infrastructure Investor

Sustainable investing

ISSN 1759-9539 • NOVEMBER 2019

Insight

Sustainability stories **The past year has seen more managers focus on renewables as ESG rises up the agenda**

NOV 18 | DEC 18 | JAN 19 | FEB | MAR

Water and waste management top sustainable assets wish list

Institutional investors that responded to a Bright Harbor Advisors survey are most interested in water and wastewater management when seeking exposure to sustainable alternative assets. The New York-based placement agent found 81 percent of LP respondents had already added a sustainability, impact or ESG mandate to their investment strategies. Two-thirds of respondents said that measurement of impact was necessary to make sustainable investments.

IFM tracks infrastructure carbon footprint as investors 'demand' action

IFM Investors published data on the carbon footprint of its infrastructure assets for the first time. Explaining the rationale behind the decision, the Melbourne-based firm's executive director of responsible investment, Chris Newton, told *Infrastructure Investor* that investors were "demanding" that managers take climate-change considerations seriously: "It's not ideological for them – it's purely driven by their view of risk and view of opportunities."

KKR, TPG, Partners Group are first adopters of IFC's impact principles

Investors have more clarity and consistency on what constitutes 'impact investing' after the International Finance Corporation unveiled its Operating Principles for Impact Management. The principles define impact investment and outline the essential features of managing its funds. Nearly 60 impact investors in the private equity industry with about $250 billion of assets, among them KKR, TPG, Actis and Partners Group, have signed up to the principles.

Standardised data the 'holy grail' of ESG investing

Fund managers need like-for-like information across sectors and geographies when judging the impact of ESG investments, according to panellists at a sustainability webinar in May. Mercatus, an alternative asset and investment management platform, took a straw poll of the audience. The survey found that 87 percent of respondents were at least thinking about implementing ESG reporting into due diligence, if they had not done so already.

La Banque Postale garners €365m at first close for 'responsible infra' fund

La Banque Postale Asset Management held a €375 million first close on its new European Responsible Infrastructure debt fund, as it seeks a total of €600 million. The vehicle will see LBPAM apply ESG screening processes to investments. Investments have already been made in the energy transition and digital infrastructure sectors. The fund also plans to invest in energy storage and electric vehicle charging infrastructure.

Three firms launch renewables funds

Three of infrastructure's most recognisable firms began raising funds that will focus exclusively on wind projects and solar farms. BlackRock is believed to have entered the market for its third renewables-only vehicle, while perennial II50 champion Macquarie launched a $1.5 billion fundraise under the banner of the Green Investment Group. Stonepeak Infrastructure Partners is raising a renewables vehicle and is believed to be seeking up to $1.25 billion in commitments.

APR MAY JUN JUL AUG SEP

Aberdeen Standard to manage AIIB's $500m ESG infra bonds portfolio

The Asian Infrastructure Investment Bank selected Aberdeen Standard Investments as the manager for its $500 million AIIB Asia ESG Enhanced Credit Managed Portfolio. The portfolio aims to invest in infrastructure-related bonds and boost ESG investment across the region. The portfolio will mainly focus on dollar-denominated corporate bonds with an average rating of BB+. Thomas Walenta, senior investment officer at AIIB, said the bank would be targeting returns of 5-7 percent.

Refocus on governance in ESG, says S&P

Standard and Poor's launched an ESG evaluation method to sit alongside its credit ratings service. The methodology, which evaluates an entity's profile against ESG risks, gives 30 percent weightings for environmental and social factors, and 40 percent for governance. "We see governance having a bigger impact towards the evaluation than the other two components." Mike Wilkins, head of sustainable finance at S&P, told *Infrastructure Investor.*

Meridiam embraces impact investing with switch to Benefit Corporation

Paris-based infrastructure fund manager Meridiam changed its by-laws to become a Benefit Corporation, confirming its commitment to balancing profit with achieving positive impact. It is one of the first companies to do so in France, a move made possible with the passage of the Pacte Act in May. The firm will be creating a special committee tasked with measuring the impact of its investments.

Editor's letter

The big questions that surround impact

Graeme Kerr
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How do you quantify impact? It's a huge question and one that runs through our biggest-ever *Sustainable Investing* report. To say the issue – and specifically the impact of global warming – has risen up investors' agenda in recent years would be something of an understatement.

David Russell, head of responsible investment at USS Investment Management, the investment arm of the UK's largest pension fund, recalls how 10 years ago it was one of the few investors raising climate issues with fund managers. Now the climate crisis is one of the hottest topics of conversations for LPs. For managers, that raises questions of resilience. How do you adapt assets to cope with global warming? How do you quantify the risk? And who should pay?

> **"There's a growing realisation that resilience adaptations don't have to be prohibitively expensive"**

One answer could be resilience funds. French fund manager Meridiam announced in September that it was partnering with the Rockefeller Foundation to launch a fund dedicated to urban resilience infrastructure. The goal, the foundation says, is "to create an industry standard for resilience infrastructure".

Although others have yet to follow suit, they are considering the issue with respect to their existing portfolios. Benchmarks are emerging and there is a growing realisation that resilience adaptations don't have to be prohibitively expensive. The UN Global Commission on Adaptation has said such investments have the highest payback ratio.

Impact is also the label given to one of the fastest growing investment movements of recent years. Doubts remain about whether impact investment funds can really live up to their hype, but there's no question of the growing interest from infrastructure managers wanting to show they are responding to climate change.

To delve deeper into what exactly impact investment involves I spent two days at the Global Impact Investment Network's annual forum creating an A-Z of Impact Investing with artist Lee Playle based on delegates' suggestions. The fact that the letter M was chosen to denote metrics signifies how the notion of quantifying impact is crucial to the success of this burgeoning sector. Turn to p. 41 to see the results of our endeavours.

Graeme Kerr

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Infrastructure Investor
Published 10 times a year by PEI Media. To find out more about PEI Media visit **thisisPEI.com**

Printed by Stephens & George Ltd
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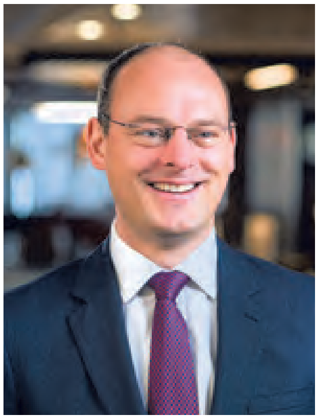
KEYNOTE INTERVIEW

Are ESG comparisons fair?



Investors need to look past tick-box credentials to consider the real ESG impact of their infrastructure projects, says Ian Berry, head of infrastructure equity at Aviva Investors

Q What does sustainability mean in the context of infrastructure and why is it so important?
Most LPs view infrastructure as a long-term and low risk investment. That is what they are looking for from this asset class. But that can only be achieved if there is a long-term approach to the underlying risks.

In its broadest form, sustainability simply means taking a long-term view of the environmental, social and financial context in which your asset is operating. Although owning trophy assets has its attraction for some, investing in infrastructure isn't about owning steel and concrete! Longevity and predictability of outcomes is key and anything that undermines that longevity and predictability should be seen as a material risk.

Take ports, for example. Although it's not an area where we invest, the investment rationale is typically predicated on an expansion in global trade, with local factors overlaid. But how much consideration do LPs give to the fact that ports – especially when including the emissions of the shipping traffic using their facilities – are some of the most polluting assets in the world? How much time is spent considering contingency plans for rising sea levels?

There is a real risk that either these assets are going to be worthless at some point or else you are going to have to pour a whole load more concrete to keep them above sea level. With such examples, long-term sustainability has to be called into question – which then begs broader questions around the level of growth in global trade, potential benefits of limiting the distances goods are transported, and so on.

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Q What systems or processes do you have in place to ensure sustainability is core to your investment decision making?
This is something we have been focused on for a very long time. We were a founder of the UN-supported Principles for Responsible Investment. Now, of course, almost everyone is a signatory, so it isn't something that really stands out. But it has been in our DNA for decades.

Aviva Investors, as a company, has a substantial and high-profile global responsible

Sustainable investment in practice: energy from waste

In 2018, Aviva Investors' managed funds invested in a UK energy-from-waste plant in Cheshire – Hooton Bio Power – which was due to commence construction. But, while the project appeared to be cut and dried from an ESG perspective, reducing both landfill and CO² emissions while creating local jobs, the situation proved not to be so straightforward.

While the environmental case was strong on the surface, debate remains rife on the overall benefits of this technology. We had to evaluate a number of risks, including whether, as renewable technology develops at pace, energy-from-waste would one day be viewed as negative compared to cleaner energy such as wind and solar.

We have invested in other energy-from-waste assets previously and so were aware that scientific studies generally support the ESG criteria of the sector – and we knew that choosing the right provider of technology is not only crucial from a simple risk perspective, but also from an ESG perspective. Our experts demonstrated that, despite emissions from burning waste to generate electricity, the plant would provide the equivalent of 82,000 tonnes of net annual CO² savings compared with the impact of sending the waste to landfill, through preventing the aerobic breakdown of the waste while producing energy.

In addition, England's landfill sites are forecast to overflow by 2022, so there is a clear need for an alternative. The plant should therefore be viewed as a waste treatment facility, rather than purely an energy provider.

We also focused on the source of fuel, preferring locally sourced waste; 240,000 tonnes of refuse-derived fuel each year for this asset alone, so the added emissions of transporting the refuse are minimal – and, given the location of the asset, potentially even lower than the transportation emissions if the refuse was instead transported to landfill.

The social dimension was also an important consideration. Analysis of ESG impact often focuses on positive effects at a national and global level, but ignores potential disruption of local communities, which need to be managed to enable the efficient construction and long-term operations of the facility. This facility is located on an existing industrial site, away from the nearest households, as well as from any area of special scientific interest, limiting any inconvenience such as the vehicle movements required for transporting of waste to the facility.

The facility is designed to meet or exceed all relevant planning and environmental standards – indeed our approach elsewhere has been to upgrade existing assets to ensure our assets are at the forefront on such matters. The plant has also created local jobs and local businesses are being offered a discount on the electricity produced.

And so, while we did identify ESG risks with the Hooton Bio Power investment, our analysis showed that on balance it was net positive. The waste-to-energy project would promote sustainable growth at minimal cost at both a national and local level.

investment team focused on implementing ESG criteria, as well as being active in the market reform arena. Historically, this team has concentrated primarily on liquid markets, be that fixed income or equities.

We have always been a vocal investor on these matters. If we believe a listed company has fallen short of our standards, we will engage with them. If that engagement doesn't achieve what we want it to achieve, we will vote accordingly.

The challenge now is to translate that extremely detailed, market-leading level of engagement into the real asset world. The terminology we use to describe our approach to this is 'responsibility built-in'.

We are always focused on constructing the right outcome for the client. In the past, that would centre on whether that meant yield, or total return, or inflation linkage. In terms of our infrastructure investing activity, we have always focused on assets that benefit wider society. Increasingly, however, LPs and the wider market are more focused on how we incorporate responsible and sustainable criteria as a critical component of the outcome being targeted.

Q And how are investors approaching due diligence around sustainability? What is it that they want to see?

There is a significant desire for LPs to be provided with information around ESG performance. The problem, however, is that investors don't always know the right questions to ask and, by inference, won't always know when they get a good answer.

It is not unusual to see ports and airports scoring better from an ESG perspective than a renewables company. How can that be?

For example, we have made significant investment in schools, health facilities, renewable energy, energy efficiency assets and rural ultrafast fibre network rollouts. Implicitly, these have a social benefit and positive environmental impact.

We need standardisation so that there can be a true and fair comparison.

That is why we became a founder member of GRESB Infrastructure and are one of a small number of GPs that sit on the advisory board, trying to provide some real-life context to what GRESB Infrastructure is aiming to achieve – a holistic, peer-to-peer comparison of the ESG implications of infrastructure investment.

Q So, how can standardisation be achieved?

There is great work being done, but we are still some way off. Even measuring environmental impact – where you might think metrics around carbon emissions, for example, provide some degree of standardisation, there is no fixed methodology across infrastructure assets for how that is calculated.

For example, most investors will report on annual carbon emissions. However, you don't see any sort of 'balance sheet' that shows how much carbon has been sunk into the ground because a whole lot of concrete has been poured. Obviously, this should be a key metric for large assets such as airports, ports, toll roads, etc, but it is also relevant for all infrastructure assets – even renewable energy assets – where steel and concrete have to go into the ground to secure wind turbines in place.

Indeed, and especially true for renewables, upfront carbon impacts of constructing new infrastructure often dwarf the emissions from the lifetime of the asset. It is very rare to see a detailed environmental impact analysis for the whole life of an asset – and even rarer that such analysis pre-dates the current asset owners.

"There is still not enough consistency in the way that ESG performance is measured and communicated"

We are moving in the right direction but there is still a long way to go. It is too easy for the big companies behind major transport infrastructure or utilities, which dedicate significant resources to ensuring they score well from an ESG perspective, to paint an unrealistically rosy picture.

At the other end of the scale, you have the types of assets we invest in, such as solar panels on social housing helping to eliminate fuel poverty and wind farms that contribute to addressing local issues such as the upgrading of neighbourhood facilities to running educational visits for local school children. These companies don't have the machinery to continuously bang the ESG drum. It can be incredibly difficult for investors to distinguish between those two sets of messages.

Q Do you believe financial performance and sustainable investment practice are correlated?

I think it is now broadly accepted that the two are aligned, but that was not always the case. Even quite recently there would be arguments about whether being sustainable would cost money and reduce long-term performance.

The consensus now is that sustainable assets often achieve higher values and are exposed to lower levels of risk.

This is just common sense; an asset built and operated with minimal impact will perform better in a world where sustainability is important to the users of the infrastructure.

And, of course, particularly over the past few years, knowing and delivering for your stakeholders has certainly proved critical. These days, the ability to mobilise public opinion using social media means it is essential to get these things right.

Q How successful has the industry been in terms of improving sustainability and what are the big challenges ahead?

Sustainability is now clearly at the top of the agenda as opposed to not being on the agenda at all. That is undoubtedly a good thing. I would say the big challenge ahead, however, is that infrastructure, as an industry, has not always been very good at engaging with stakeholders – politicians and the end users of the infrastructure, the public.

There are various debates going on around the world right now, and specifically in the UK, about the relative merits of public and private ownership. If it were to come to power, the Labour party has explicitly said it believes government ownership of infrastructure to be the correct approach.

That idea has not been appropriately countered. Various efforts, including those led by the Global Infrastructure Investor Association, have tried hard to engage with governments and other key stakeholders, but the industry has not really been able to make the inroads required to ensure a fair public debate on these matters.

We have a great story to tell in terms of environmental and social outcomes. And, in terms of governance, I think it is absolutely the case that private sector ownership delivers better results.

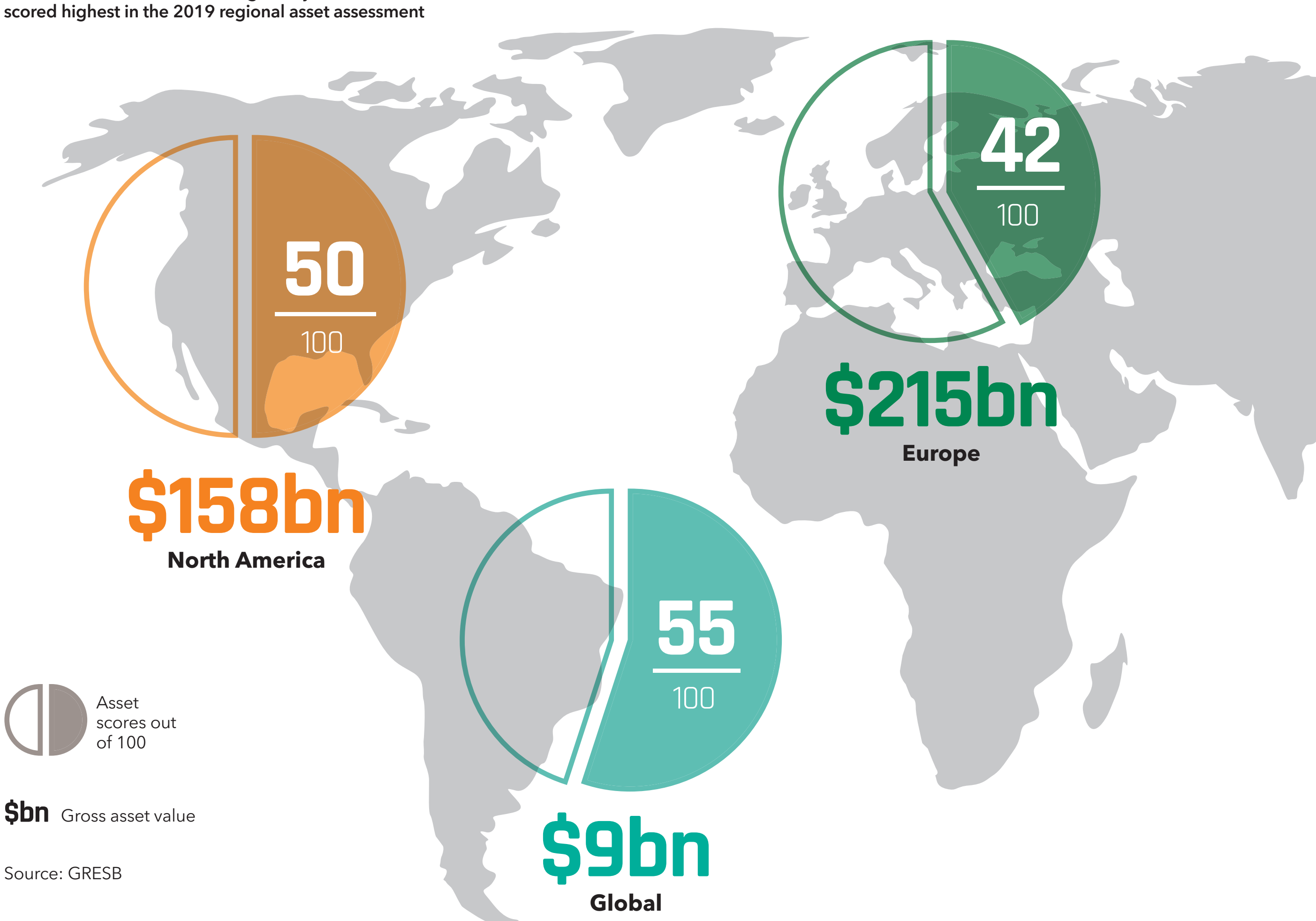
Sustainable assets and a sustainable economy are best supported by private market tensions – a drive to always be better.

That is not always popular, particularly in the current political environment, but it is our job to get those messages out there. ■

GRESB data: The regional view

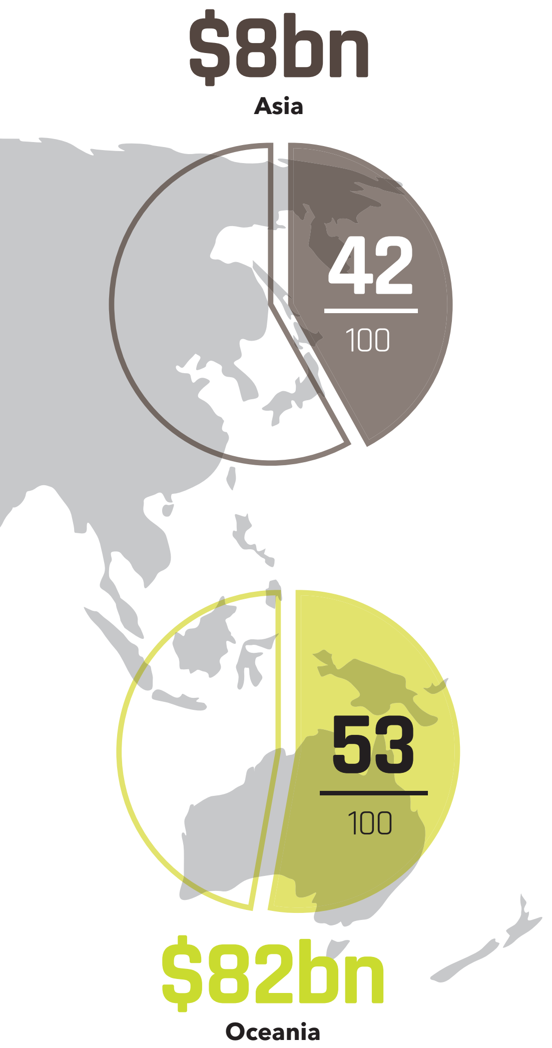
The 2019 survey had record participation rates, signifying the growing emphasis infrastructure funds are placing on ESG

Assets in Oceania and that are globally diversified scored highest in the 2019 regional asset assessment

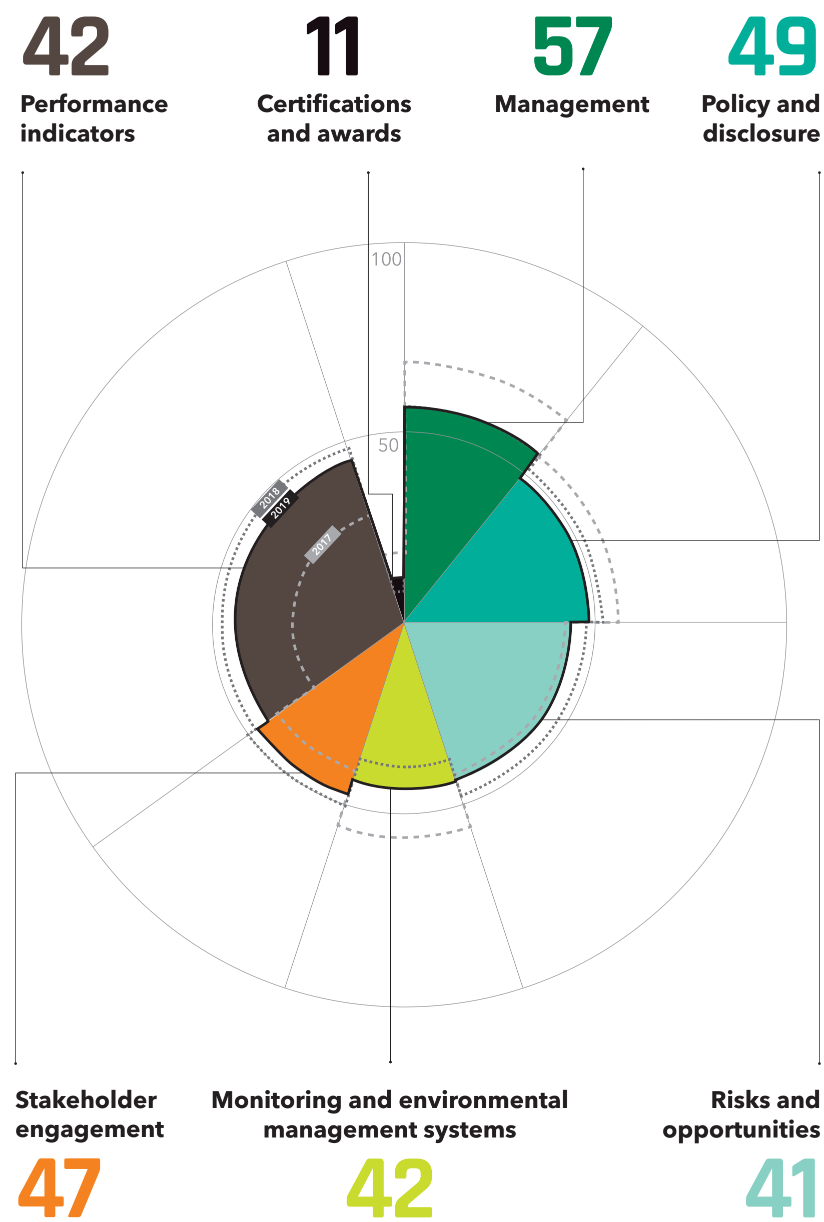


Source: GRESB

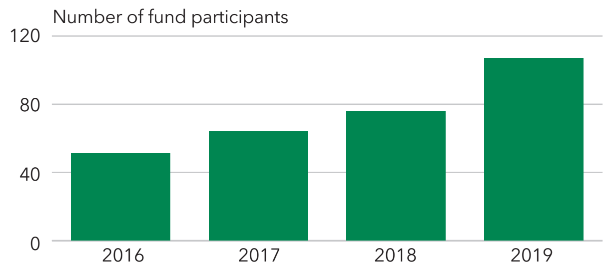
71	**48**	**107**	**393**
Average fund assessment score	Average asset score	Number of funds participating, up from 75 in 2018	Number of asset participants, up from 280 in 2018

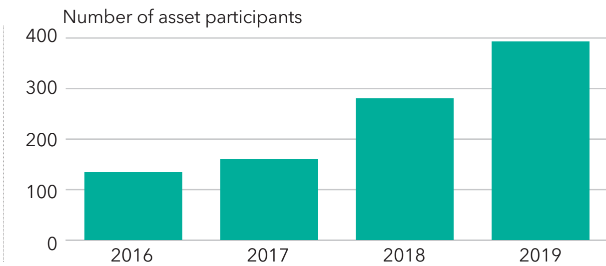


The GRESB Asset Assessment is structured into seven sustainability aspects scored out of 100



Participation rates are growing sharply





EXPERT COMMENTARY

A commitment to preserving resources for future generations is an essential part of any infrastructure investment, believes Sam Lissner of Ridgewood Infrastructure

Creating value through sustainable investments

In recent years, investor focus on sustainability factors has transitioned from exception to the norm. Still, when making investment decisions, many investors continue to wrestle with how to effectively evaluate, implement and measure the sustainability of their investments.

Ridgewood believes investing in line with our values enhances the value we create for our investors. In the near term, sustainable investments create efficiencies that reduce costs, improve service levels and drive greater profitability. Over the longer term, we expect sustainable infrastructure will prove robust to a range of social, environmental and other changes, making our investments ever-more attractive as investors and other stakeholders increasingly focus on the benefits of sustainable investing.

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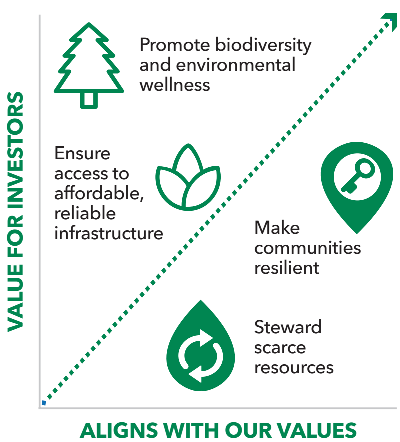


Ridgewood proactively focuses on operationalising sustainability throughout our investment process, from sourcing and diligence, to ownership and asset management. In this endeavour, Ridgewood has defined a set of sustainability goals and developed a proprietary framework for evaluating and managing investments along its axes of value(s).

Our investment in the Vista Ridge Water Supply Project exemplifies Ridgewood's philosophy of investing and emphasis on sustainability.

Vista Ridge stewards sustainable management of natural resources; protects environmental wellbeing; and ensures access to affordable, reliable, and high-quality services that make the community it serves more resilient to a range of potential disruptions.

Ensuring reliable, plentiful and clean water for San Antonio

Vista Ridge is Ridgewood's investment to construct, own and operate a 140-mile (225km) pipeline that will supply approximately 20 percent of San Antonio's fresh water under a 30-year take-or-pay contract with the investment-grade San Antonio Water System.

Founded in 1718, San Antonio, Texas is among the most dynamic cities in America. Over the past several decades, an influx of high-tech and industrial companies has contributed to rapid expansion of San Antonio's metropolitan area, which is today among the fastest growing urban regions in the country. With a population of more than 1.5 million people, San Antonio is currently the seventh largest city in the US. Looking ahead, city officials forecast a near doubling of the city's population – to almost three million people – over the next two decades.

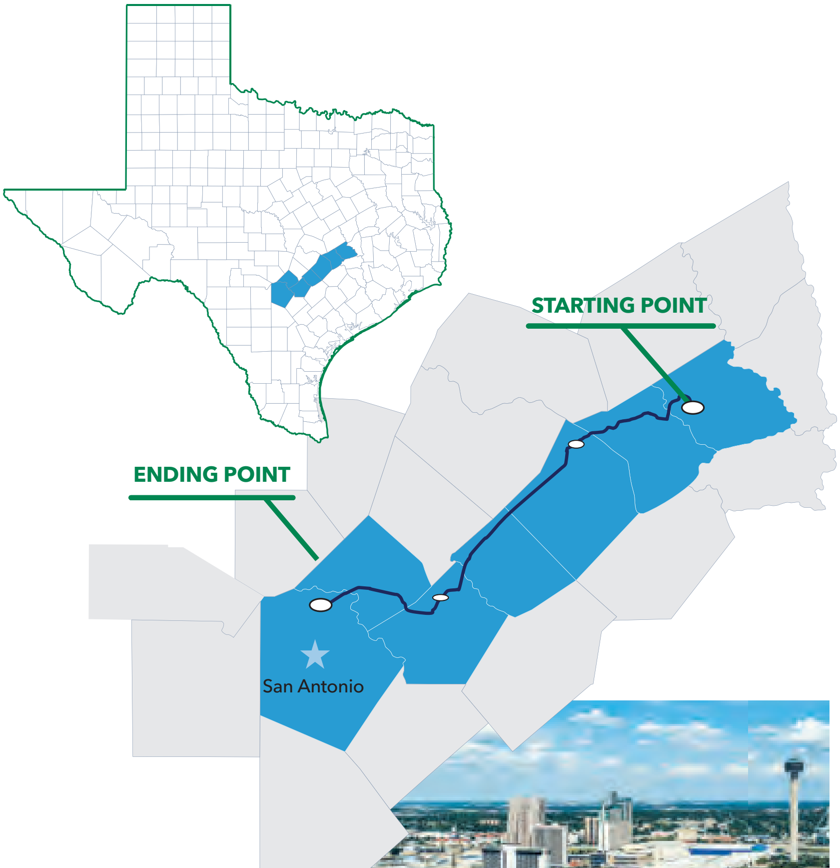
Despite being prone to severe drought conditions, San Antonio has flourished thanks to its proximity to the Edwards aquifer, which is a substantial underground resource from which the city draws most of its fresh water. As the population increased, San Antonio ramped up withdrawals from the aquifer. But, over time, the Edwards has struggled to meet burgeoning demand and sustained significant ecological damage.

Vista Ridge reflects Ridgewood's approach to investing in essential infrastructure that is of strategic, environmental, and social importance to the communities it serves.

The public private partnership creates a new 140-mile link for San Antonio to one of America's most prolific aquifers—the Carrizo Wilcox. Vista Ridge diversifies the city's water supply, it provides meaningful relief to the ecology of the Edwards aquifer, and it ensures the citizens of San Antonio will have access to reliable, plentiful and clean water for generations to come.

Stewarding scarcity

Ridgewood is committed to stewarding scarce resources for the benefit of future generations. In each of our investments, Ridgewood focuses on facilitating sustainable and efficient operations. In our Vista Ridge investment, the community determined that the Carrizo Wilcox aquifer – which spans more than 20 million surface acres – is an appropriate supplemental source of water for San Antonio. The aquifer is considered to be drought resistant and contains over 12 times the amount of water in all Texas lakes combined.



Vista Ridge

Ridgewood is committed to promoting biodiversity and environmental wellness. By helping to reduce San Antonio's overuse and over-reliance on a single aquifer, Vista Ridge can help begin the process of repairing serious ecological damage that has been done to the Edwards.

In the mid-1980s, scientists from the Geological Society of America catalogued more than 40 aquatic and subterranean species living in the Edwards aquifer ecosystem. In the intervening years, increased water usage by San Antonio contributed to the endangering of roughly 20 percent of these species. By creating access to a new source of water for San Antonio, Vista Ridge will de-stress these habitats and encourage ecological healing and rejuvenation.

In addition to these environmental considerations, we are also committed to effecting positive social impact and ethical governance that ensures access to critical resources and services that make communities more resilient.

Ridgewood invested in Vista Ridge at the beginning of construction in 2017, which was after the completion of a multi-year procurement and permitting phase during which project participants progressed through a "public comment" period.

The agreed-upon concession ultimately directs Ridgewood and its partners to build, own and operate Vista Ridge for 30 years, after which ownership of the project transitions to the city. During the concession

A sustainable approach for water

As a signatory to the UN-supported Principles for Responsible Investment and contributor to the GRESB network, Ridgewood takes seriously its responsibility to report on sustainability initiatives and performance.

Drawing from important work by the Sustainability Accounting Standards Board and other institutions focused on ensuring consistent and high-quality reporting across the industry, Ridgewood has developed a proprietary matrix of sustainability metrics, which we report to LPs on a quarterly basis.

Ridgewood's investment in Undine Group is focused on building a mid-sized regulated water utility through the acquisition of independent regulated water and wastewater utility systems in the highly fragmented US lower middle water market.

In executing this strategy, Undine often acquires water utilities from real estate developers and family owners that have under-managed their operations and capital investment. Importantly, Undine standardises and professionalises the management of the water and waste water systems it acquires, investing capital to improve the utilities' operations and customer service levels.

Working with management, Ridgewood developed a set of sustainability-focused KPI metrics to track our collective success in execution. Some illustrative examples include that, to-date, we have delivered more than 300 million gallons of fresh water through upgraded infrastructure. Under Ridgewood's ownership, Undine has fixed nearly 300 leaks, and it has installed more than 15 new state-of-the-art pump houses and storage tanks. Through these efforts, Undine is reducing water line losses and ensuring more sustainable, efficient water resource management practices.

undine
WATER IS OUR ELEMENT

Undine upgrades the management of fresh water and wastewater utilities in the communities it serves

300+ million gallons of clean water provided via upgraded systems

286 leaks repaired

15 more efficient pump houses installed

15 new storage tanks built to improve service

18 new hydro-pneumatic pressure tanks installed

period, the municipal water authority of the city of San Antonio has agreed to the contracted price it will pay Vista Ridge for water. Through this structure, the city was able to amortise the large, upfront cost associated with a project of this scale over a multi-decade period.

Ridgewood is committed to forging partnerships with communities and stakeholders that share its values. In the case of Vista Ridge, Ridgewood's sustainability commitments and unique relationships led to collaborations with leading, like-minded project partners that will steward the asset and resources for generations to come. Through these partnerships, Ridgewood is working to ensure the operations and management of this essential piece of San Antonio's infrastructure will be maintained to a standard of excellence.

To complete the construction phase of the Vista Ridge project, Ridgewood partnered with Garney Construction, which is America's leading water pipeline construction firm.

Garney has deep experience working in and around the city of San Antonio. The company has deep relationships in the community and is sensitive to the needs of various stakeholders. In recognition of its focus on sustainability throughout design and execution, Garney has been ranked as one of the top environmental contractors in America.

Through the ownership phase, Ridgewood remains committed to ensuring its investments achieve sustainability goals and maintain a trajectory of continued excellence and improvement.

In selecting an operator for Vista Ridge, Ridgewood utilised its deep network of relationships throughout the water industry to lead a competitive, targeted process that resulted in the selection of EPCOR Utilities as the utility company responsible for running day-to-day operations and completing ongoing maintenance of the project. EPCOR operates more than 3,000 miles of water transmission line in North America, including a water pipeline serving communities in nearby Austin, Texas.

EPCOR's strong history of sustainability operations was of key importance to Ridgewood. EPCOR has been recognised as a top company promoting sustainability-minded business models that incorporate social and ecological impacts. It has also been recognised by multiple state and regional water associations for safe and sustainable operations.

Collectively, these efforts by Ridgewood will create an essential piece of environmentally and socially beneficial infrastructure, governed by a transparent public private partnership framework. Vista Ridge will diversify the city's supply of water, thereby safeguarding the resources of its existing primary aquifer and supporting the continued development and growth of San Antonio.

Too often, sustainable investing is little more than a marketing buzzword, with minimal integration into managers' investment processes and decision making. We fundamentally believe that investing according to sustainability values will also create significant value for our investors. Far from a forced choice between the two, our framework ensures the environmental and social impact of our investments enhances returns. ■

Ridgewood Infrastructure invests in essential infrastructure in the US lower mid-market. It is part of the affiliated Ridgewood companies, which manage more than $7 billion of capital and commitments focused on investments in infrastructure and energy. As an organisation, we are committed to safeguarding scarce resources, while also promoting social progress and ethical governance


INVESTING
IN AND FOR A
SUSTAINABLE
FUTURE

Why investing in resilience is here to stay

Real assets including infrastructure are particularly exposed to climate change. What can investors do to mitigate the risk? And is there an opportunity to develop funds and platforms dedicated to resilient investing? Daniel Kemp finds out

Of all the risks to keep LPs awake at night, how to adapt to a changing climate is quickly moving up the list.

"Climate resilience is one of the hottest topics of conversation for our LPs," says QIC partner Leisel Moorhead, who is responsible for managing ESG concerns for the Brisbane-headquartered fund manager's infrastructure assets. "I've noticed a rapid increase in focus from them around how prepared our assets are for climate change. In fact, she says, it represents one of the most pressing risks investors and asset owners are grappling with.

That should come as no surprise. After all, global warming continues to dominate the headlines – whether it's Swedish teenager Greta Thunberg's campaigning at the UN or Extinction Rebellion protests bringing central London to a halt. Little wonder, then, that LPs should have the issue at the front of their minds.

Resilient strategy

But quantifying the risk and putting a number on it has proved difficult, with little in the way of benchmarking to assess how resilient assets are in comparison with others.

How big is the challenge? And might it even present an opportunity for investors? One firm that certainly thinks climate change could present opportunities is French infrastructure fund manager Meridiam, which announced in September that it was partnering with the Rockefeller Foundation to launch a new fund dedicated to urban resilience infrastructure.

The vehicle will target €500 million, investing in both developed and emerging markets and across sectors – a broad remit as long as investments meet the criteria of improving urban resilience.

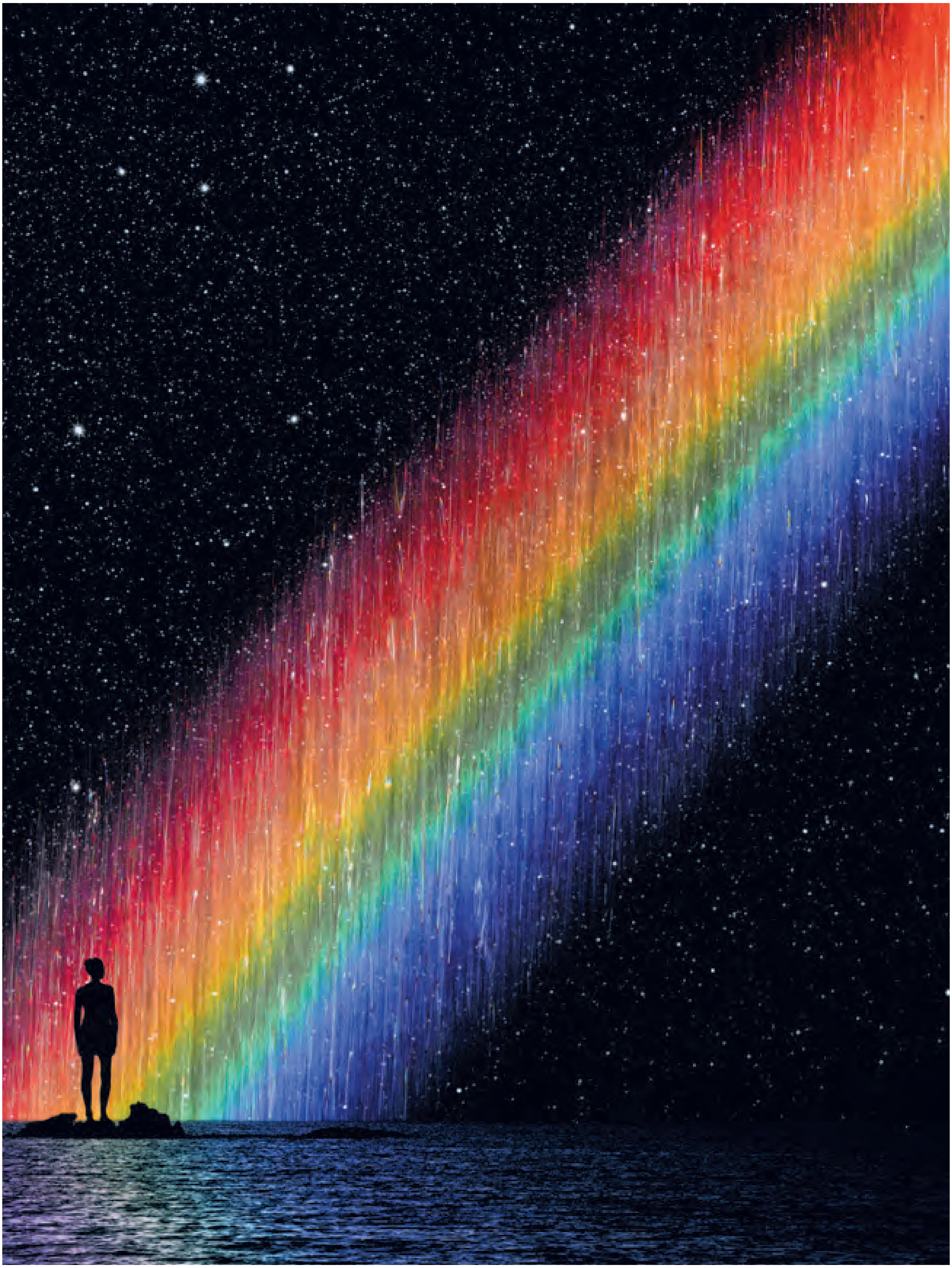
In a blog post, the Rockefeller Foundation said the goal was "to create an industry standard for resilience infrastructure," and specifically in regard to those assets that are "built to improve daily life, ensure survival and support continued growth in the face of increasingly hazardous climate events".

It is an undoubtedly bold move. Although the vehicle will be a niche product for now, it is one of the first instances in which a fund's strategy has revolved solely around the theme of resilience, rather than taking a more generalist approach.

Emma Herd, chief executive of the Investor Group on Climate Change, an organisation bringing together like-minded investors in Australia and New Zealand, has so far seen more focus on the latter approach from her members.

"When we looked at the issue of how to get more capital into climate adaptation, we found that to make it stack up from a financial perspective you needed to have an integrated approach to funding," she says.

"It's very hard to generate a return off



a seawall, for example. But you can protect return through measures you undertake around a port or an airport. It's quite hard to separate out what is a straight adaptation measure, so we're tending to see integrated climate funds that do both – reducing emissions and increasing resilience on the way through, for example.

"That's not to say there isn't a lot of thinking going on about how to create a resilience fund. There are lots of conversations around how to make this work, but the question is: how do you do it and still generate private sector-level returns?"

Chris Leslie, a senior managing director for Macquarie Infrastructure and Real Assets based in New York, says that flood barriers or levees, which he characterises as "resilience as a service", could be a category for investment in future.

"There are fewer of these investment opportunities in existence and they require innovative financing solutions, but they are likely to be increasingly required," he says. "We are evaluating these opportunities as part of our broader investment mandate."

Making trade-offs

At QIC, Moorhead says the need to balance the investment decisions of today with the potential impact that a future climate may have on an asset is the major challenge.

"If you're designing and building something new, it's much easier to take account of adaptation costs in that design process, so it's probably the easiest and most cost-effective way to achieve low vulnerability," she says.

"But on existing assets, you're weighing up the cost of prevention now versus what you expect to be higher reactive adaptation costs in the future. There's always that trade-off: what's the most effective, efficient and equitable way of investing for resilience? Is it the customers today who pay the cost or is it shared among the customers of the future? These are real-life conversations that happen at the moment."

By way of example, Moorhead points to the development of the new parallel runway at Brisbane Airport, in which QIC holds a 25 percent stake on behalf of its clients.

The airport's owners were building a new runway on the site, which is in a low-lying coastal area, one that is already subject to potential storm surges and is exposed to a rise in sea levels in the future. In the end, the decision was made to build the runway approximately 1.8 metres higher than was required by regulation to mitigate the risk.

> *"Climate resilience is one of the hottest topics of conversation for our LPs"*
>
> **LEISEL MOORHEAD**
> **QIC**

"You can do all the climate modelling in the world, but the team still had to take a decision to incur that extra cost to raise the level of the runway," Moorhead says. "That decision, while there's a higher upfront cost, improves longer-term resilience and is more cost effective. When you're building a runway, you don't really get the option to raise its height in 20 years' time. That would be cost prohibitive, so you have to make that trade-off."

An Australian government case study on the project found that the cost of considering the impact of global warming during the preliminary design stage was "negligible". The case study also found that the additional outlay of funds during construction was "outweighed by the confidence that all future climate change impacts have been considered and there will be no need to upgrade the runway for some time".

MIRA's Leslie says that resilience enhancements do not necessarily need to be capital intensive.

"For example, [we can implement] operational changes that use data, forecasting capacity and technology to predict and respond to climate change impacts with improved management protocols" he says. "The UN Global Commission on Adaptation report demonstrated that these investments have the highest payback ratio."

But firmly quantifying the precise numbers is still not easy, despite awareness of the issue, having grown significantly in recent years. Efforts are underway to produce industry benchmarking systems, with Natixis and EDHECinfra recently announcing a research programme into an ESG index that would include climate resilience. Yet the issue remains highly complex.

As IGCC put it in a 2017 report on Australian assets: "To date, no comprehensive estimates seem to exist on the cost of climate change impacts in Australia and the likely level of investment required for adaptation measures.

"This makes cost-benefit analysis of climate change adaptation at an aggregated level impossible to quantify."

Transitional risks

Adding to the complexity is the fact that no two assets are ever the same.

Moorhead says that a major challenge when assessing climate resilience in a portfolio is the fact that infrastructure assets are heterogeneous by their nature.

"Some are new, some are old, they're built with different materials, and some have interdependencies with other networks," he says. "There's definitely no 'one size fits all'."

Michael Cummings, head of AMP Capital's Australia and New Zealand infrastructure funds, echoes this. He says that when it comes to the risk of physical damage to assets, it depends enormously on the type of asset and where in the world it is located, as risks are quite specific to the climate in each region. An electricity distribution network in Australia is susceptible to an increase in bushfires caused by extreme temperatures and drought, for example, while a comparable asset in New Zealand must contend with the threat of extreme storms instead.

But Cummings points out that there is another way to consider climate change risk. This stems from potential reductions in demand for assets if consumer appetite changes, or increased costs if regulation tightens. He calls these transitional risks.

"This could be whether there is an ongoing impact on flights, for example, from consumer choices that deem flying to not be a good climate option, through to electricity, with people sourcing their own through use of solar," he says.

"My point of view on airports, for example, is that I think the airlines and the makers of the airplanes are well on to that, and what you'll see is continuing efficiency driven through new engines," he says, with benefits for consumers and the environment coming as a result of that focus.

The point is that fund managers should be aware of these secondary risks too, and that the risks will differ hugely from asset to asset.

"While we look at it from a portfolio point of view, we are a much more active investor in the assets themselves," says Cummings. "Rather than trying to have an average across a fund manager portfolio, you need to get into the detail of each asset, and in each geography. That's why we take active board positions and ideally majority control [in assets]."

It's also increasingly clear that resilience is an important part of protecting an asset's value when the time comes to sell.

"We recently sold a business that had undergone several resilience upgrades which had improved its sustainability as a business," says Leslie. "This proved to be highly valuable to potential buyers during that sales process."

'Work in progress'

AMP Capital, MIRA and QIC do not have plans to follow Meridiam in producing a specific climate resilience-focused fund. However, it's clear that all of them, along with most other responsible investors, are already considering this issue with respect to their existing fund portfolios and how it could affect returns.

"Overall, I think investors are looking for resilient infrastructure, and resilience around climate change and risk management being integrated into an overall investment, rather than on niche products [like Meridiam and Rockefeller's fund]," Cummings says. "That fund has its place in the market, don't get me wrong – but mainstream infrastructure investors will still be making sure that they're choosing managers that have got robust processes in place from origination through to asset management and exit."

Herd describes efforts to produce specific resilience strategies, and to better quantify the benefits of mitigation and adaptation, as a "work in progress". But progress is being made. "We've done the work on avoiding emissions as a fairly standard benchmark in terms of the environmental benefits," she says. "But on the adaptation side we don't have an equivalent resilience rating or metric that you can use in a standardised way to show that there is benefit to be had in increasing investment in adaptation projects."

In the recent past, she says, there was "nothing" there. But now, with the launch of funds like Meridiam's and Rockefeller's, and the development of benchmarks like Natixis's and EDHECinfra's, the issue is rising up the agenda. ■

The tricky task of benchmarking

"We're seeing benchmarks come through really quickly," says Emma Herd, chief executive of the Investor Group on Climate Change. "When we first looked at this a few years ago, there was nothing, and there was a very strong focus on transition risk.

"Now we're beginning to see portfolio-level approaches emerging, with new service providers looking to take the science and integrate it into financial assessment and build it up into some sort of benchmark that can be used on an ongoing basis."

Natixis and EDHECinfra recently announced new research into developing an ESG index for infrastructure that would include climate resilience. GRESB already publishes an ESG benchmark.

The 2019 edition of GRESB's benchmark saw infrastructure funds participate in resilience reporting for the first time. This was alongside reporting on individual assets, with a 62 percent uptick in the number of assets taking part.

GRESB said this showed an "increasing awareness of the need to respond to investor attention on climate risks and resilience".

The research found that funds and assets scored well on senior employee responsibility, communication with governance bodies and implementing business strategies, with more than 75 percent of respondents in each case responding positively to those metrics. However, the results showed there was still room for improvement in other areas, with less than 10 percent of funds setting specific climate resilience or risk targets and under 50 percent measuring their resilience-related performance and outcomes.

KEYNOTE INTERVIEW

You can't manage what you can't measure

Emma Howell of Hermes Infrastructure discusses the critical importance of transparent ESG reporting

Q What are your views on the correlation between responsible investment practices and long-term stakeholder value?

A responsible investment approach is essential to delivering sustainable, risk-adjusted outperformance over the long term. Our parent institution's ESG heritage dates back to the early 1990s, with a demonstrable record in responsibility and a pioneering engagement service. Since Hermes Infrastructure's establishment in 2011, we have continued to build on these strong foundations.

The public-service nature of infrastructure assets demands the highest standards of ESG are adhered to. The long-term nature of the assets, the wide range of stakeholders involved, including large workforces, as well as the interaction with the natural environment, all mean that a portfolio company's approach to tackling ESG matters will impact the prospects and long-term value of that business. We place a strong emphasis on governance, because we really believe having a robust governance framework better equips a company to positively address its environmental and social responsibilities. As an infrastructure manager, we have a very clear responsibility to our investors, to society and to the businesses we invest in, to ensure that these issues are addressed in a sustainable way.

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Q Is sustainable infrastructure investment primarily about tackling climate change?

Over the past few years, the ESG debate has been somewhat redirected towards the climate change crisis. While this has risked lowering the priority of other aspects of ESG, it has actually led to several concrete, easy-to-implement actions across the industry, with clear and immediate benefits. In our portfolio, this has led to a change in energy mix and consumption patterns and improved waste optimisation strategies, benefiting the environment and cutting costs.

There is, however, still a lot to do on the social aspects of ESG. Issues can be quite localised, making it more challenging to develop a common language around how best to bring these considerations together beyond simple compliance with health and safety or other legal and regulatory requirements. In our portfolio, we have been active in promoting diversity and inclusion and looked to expand the more traditional definitions of health and safety by reviewing mental health processes and practices in each of our investee businesses.

Q Who, or what, is driving infrastructure's increased focus on sustainable investment and ESG in particular?

Over the past decade, we have witnessed a step change in the industry's approach towards ESG. There has been a tectonic shift in societal attitudes and increasing evidence-based recognition of the impacts of climate change have brought responsibility and sustainability very much into the mainstream. With an increasing number of millennials entering the workforce and investor universe, greater importance is also being ascribed to making a positive contribution to society through the workplace. Political and regulatory scrutiny has also reinforced the link between ESG practices and investment performance, while legal changes have also had an impact; for instance, the requirement for public pension scheme trustees to consider financially material environmental, social and governance matters, including climate change, as part of their fiduciary duties. With the increased importance attached to ESG, LP sophistication has grown and we find that LPs are now driving an agenda that was previously more manager-led.

Q How does that manifest itself in terms of how LPs approach due diligence in this area? What questions are they asking?

Investor attitudes towards ESG have definitely evolved, consistent with society's increasing sophistication towards sustainability practices. Investors want to see more evidence of integration in our processes, thought leadership, active engagement leading to improved performance and transparent reporting of outcomes. Investors have now gone way beyond a simple box-ticking exercise, driven by a genuine passion for sustainability considerations. Sustainability now needs to be part of a manager's DNA. In fact, we believe that sustainability will ultimately become as important as financial returns in driving LP allocations.

Q What changes have you seen in terms of ESG reporting?

The tracking of ESG metrics has moved away from a pure monitoring approach to becoming a key feature of strategic and operational company decision making. Over the years, we have observed an increase in the breadth, depth and quality of ESG reporting, as well as increased focus on quantitative, rather than just qualitative, information.

We believe you can't manage what you can't measure, so we have encouraged our portfolio companies to invest in resources to focus more on measurement of ESG metrics, which has enhanced the quality and consistency of reporting. Several of our investee companies are now publishing their own annual sustainability reports.

This evolution has been driven by more active engagement from LPs and asset managers as ESG has risen to the top tier of everyone's priority list as well as increased disclosure requirements and growing importance being placed on ESG benchmarking and validation tools.

Q What tools are available and what level of standardisation is realistically achievable?

There is no shortage of ESG frameworks to choose from. In fact, the problem is more deciding which one to adopt. As well as the United Nations-backed Principles for Responsible Investment, there is the Global Reporting Initiative, the Sustainability Accounting Standards Board and the Global Real Estate Sustainability Benchmark, among others.

Many companies also report against the UN's Sustainable Development Goals, while others report based on industry mandated standards. The irony is that most of these frameworks are trying to address the same need for harmonisation, but the industry has yet to reach an agreement on which one everybody should use.

The push for standardisation is also hindered by the challenges of a highly fragmented asset class. The informativeness of fund-level reporting is somewhat diluted by sector-specific nuances, which mean ESG considerations that are extremely relevant to one asset, are not as relevant to another.

Where there has been success in creating

Highly rated: Barry Solar Farm generates clean energy for portfolio investment Associated British Ports which ranked first out of six global port companies in the 2019 GRESB assessment

"Increasing evidence-based recognition of the impacts of climate change have brought responsibility and sustainability very much into the mainstream"

standardisation is in a common understanding of an ESG value set, with responsibility and sustainability principles now being broadly aligned. The PRI has played an instrumental role in this process. The harmonisation of reporting frameworks is the next step on this journey and is critical to being able to effectively and objectively benchmark performance and driving continuous improvement.

Q What other challenges, beyond standardisation, remain in place regarding the measuring and reporting of ESG performance?

Resourcing can be a challenge. Companies may not have the capacity or the budget to dedicate resources to ESG reporting, which can be quite onerous. In addition, robust ESG data is, in many cases, only available annually, making it challenging to report on progress more frequently.

Culture and context also play a role. There will inevitably be differences in the way companies and investors approach ESG. Some may be country specific; certain jurisdictions seem to place less relevance on ESG factors than others. Company and sector specific factors also add complexity. For example, a regulated company is already required to publicly disclose a range of ESG data. These challenges show that the infrastructure industry is on a journey when it comes to implementing and reporting on ESG practices. As a manager, our role is to continue making meaningful contributions to industry wide initiatives such as GRESB and the PRI, whilst also actively engaging with our portfolio companies.

Q How far has the industry come in terms of improving its ESG or sustainability credentials?

Compared with 10 years ago, ESG is now a two-way conversation, front and centre of our interactions with investors, co-shareholders and portfolio companies. The focus is as much on concrete, measurable, short-term actions as it is on longer term goals.

This has driven a refinement of investment strategies and risk management frameworks, as well as changes to recruitment practice and team composition amongst many managers and companies. The ongoing legitimacy debate around private investment in public infrastructure, and the requirement for a social licence to operate has further reinforced a commitment to ESG considerations and, most importantly, the desire for substantive action.

This is most visible in the quest for ESG measurement and reporting, which initiatives such as the PRI and GRESB have positively contributed to. At portfolio company level, those frameworks are useful for driving change and identifying areas for year-on-year improvement.

Whilst we are pleased at how far the industry has come, there is a long road ahead. We see two short-term priorities. First, investors and fund managers must engage to define a common coding system to standardise reporting, recognising the collective advantage that would drive. Second, we should expand the ESG conversation beyond the realm of holistic risk management systems to grasping more of the opportunities which will inevitably foster financial innovation and new products coming to market. ■

Q How would you characterise your approach to ESG?

At Hermes Infrastructure, we have carefully assembled a team where all members embrace the societal and environmental impact of infrastructure and contribute to a culture where sustainability is front and centre of everything we do. ESG is deeply embedded in our strategy and fully integrated in our processes throughout the investment lifecycle. As part of our reporting toolkit we undertake several important initiatives including UN PRI, GRESB, portfolio company engagement and KPI monitoring. Additionally, this year we will launch our inaugural Responsible Investment report.

"We believe that sustainability will ultimately become as important as financial returns in driving LP allocations"

GRESB data: How the sectors compare

Funds are making more commitments to ESG, but progress in implementing standards is uneven across sectors

GRESB's 2019 infrastructure assessment throws up some interesting results.

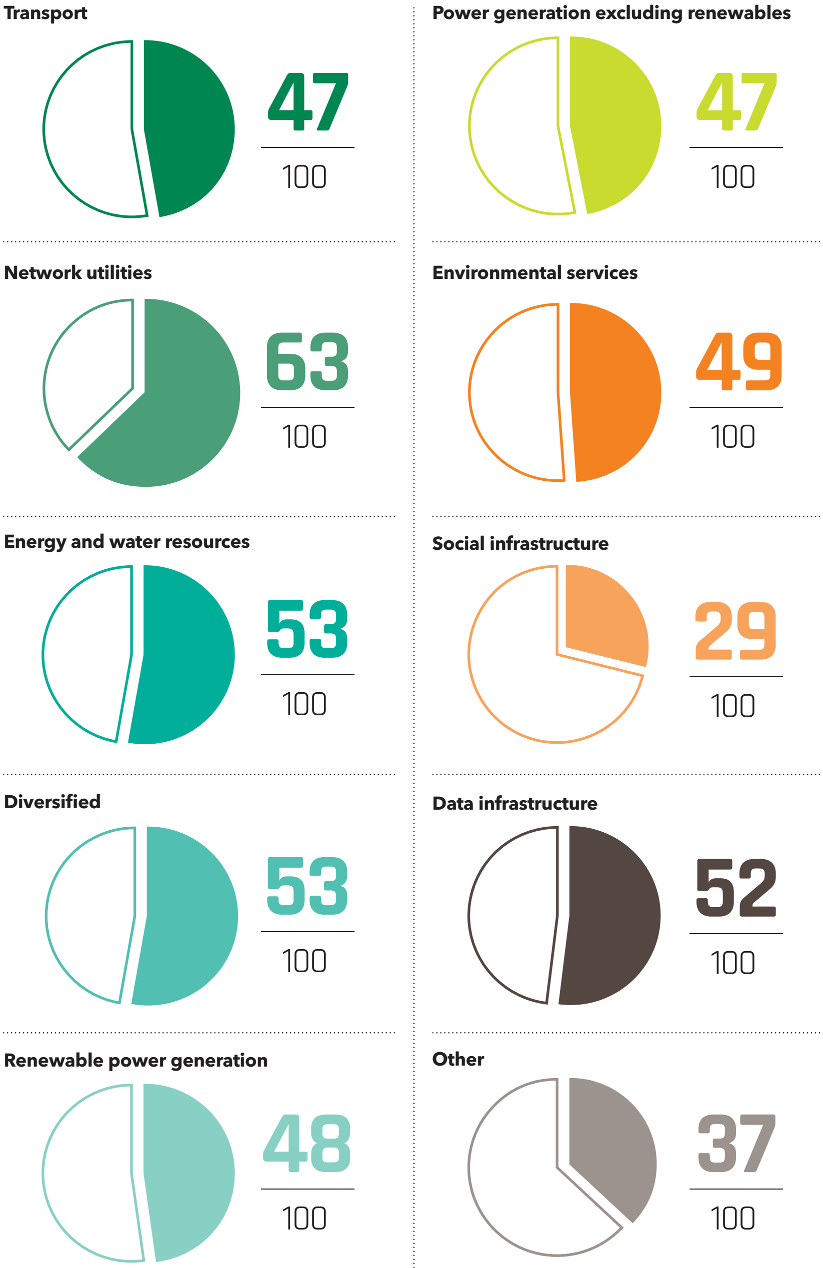
Some 107 funds answered questions on how they integrate environmental, social and governance analysis into their processes. These responses have been used to calculate scores for both funds and assets.

Funds are making solid progress in most areas towards improving their GRESB scores. Almost all now have senior decision-makers accountable for ESG issues, along with policies setting out their approach to ESG.

The data also show that assets vary drastically by sector in how they integrate ESG. Utilities, energy and power generation are performing relatively well, but social infrastructure is languishing far behind, reflecting the need for greater priority to be given to ESG factors.

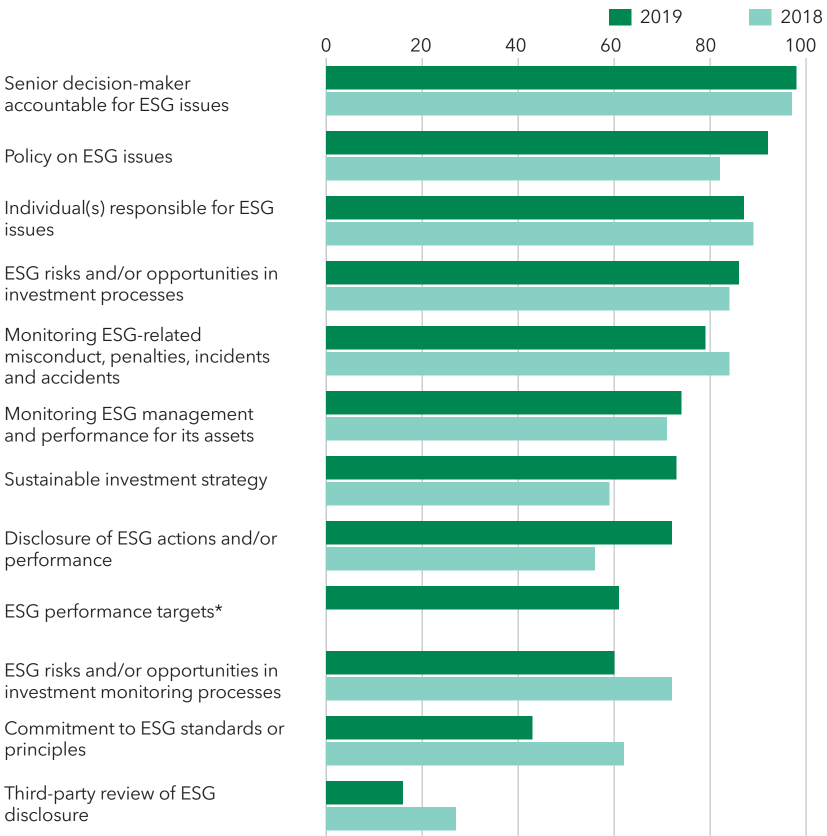
Meanwhile, GRESB has launched a new module measuring resilience. Funds are generally at an early stage of integrating resilience into decision-making. Although almost all have an accountable decision-maker, very few have set specific climate resilience goals. ■

Utilities have the highest average GRESB asset score by sector, while the performance of the energy sector is declining



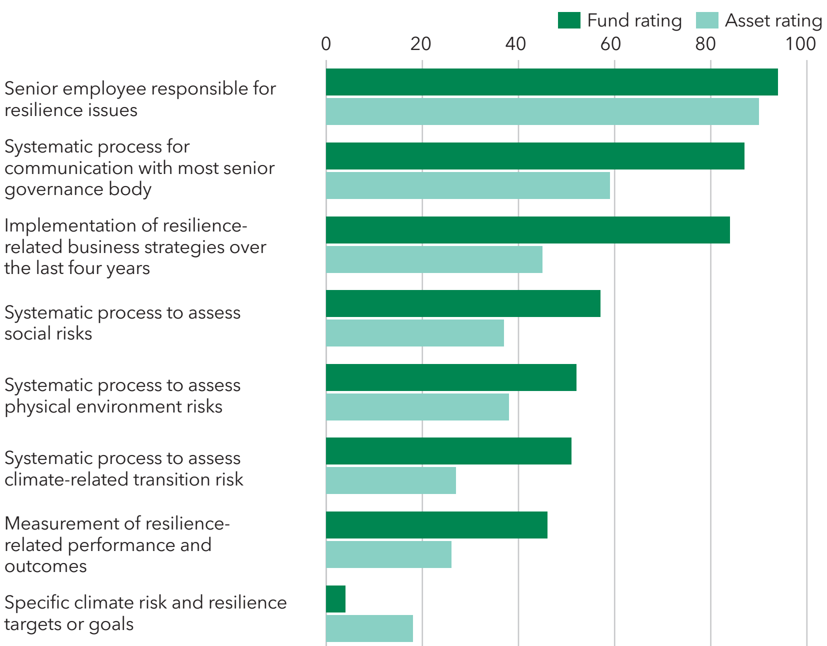

Asset scores out of 100

GRESB's fund assessment shows nearly all funds have a senior manager responsible for ESG issues, but fewer are commissioning third-party reviews of ESG disclosures



* no figure for 2018

Funds are building resilience into risk-management processes, but few have climate risk targets and monitoring of outcomes remains limited



92%

Funds with a policy on ESG issues

79%

Funds committed to becoming a PRI signatory

75%

Funds with ESG screening strategies based on exclusion

22%

Management posts held by women in the infrastructure sector

98%

Funds with a senior decision-maker responsible for ESG

77%

Funds with a sustainable investment strategy

EXPERT COMMENTARY

With its increase in prominence, ESG integration in pension schemes' investment strategies and practices is also facing growing complexity. Are managers doing enough to help, asks Valeria Rosati, a senior partner at Vantage Infrastructure

The partnership at the heart of ESG

Within Europe, there are a multitude of national investment regulations on ESG, climate change, stewardship policies and disclosure, in addition to the EU directives on risk control and shareholder rights. Both the European Commission's action plan on sustainable finance and the UK Government's Green Finance Taskforce are seeking to encourage ESG efforts across the wider financial markets. At the heart of these regulatory and legislative changes lie two beliefs:

- In order to promote a scheme's purpose of growing and protecting members' capital sustainably, ESG factors need to be considered; and
- The investor community and broader financial markets can drive positive societal impacts.

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These beliefs are also shared across the globe by other investors who have voluntarily chosen to adopt responsible investment policies and to integrate ESG considerations into their strategies.

Infrastructure is particularly well placed to help pension funds and insurers achieve these objectives, given its essential nature and social function.

Vantage believes that infrastructure managers should work in partnership with their clients on these issues. As solution-orientated infrastructure specialists, we have considered our clients' own journeys into ESG integration and monitoring and how we can assist through active engagement at each stage.

Looking for tailored solutions

The first stage in an investor's ESG integration is a milestone that many pension schemes have already reached: the set-up phase. The investor establishes an ESG approach through policies and weaves it into its investment strategy through asset allocations. Review of framework documents and staff training may be needed to keep abreast of regulatory developments.

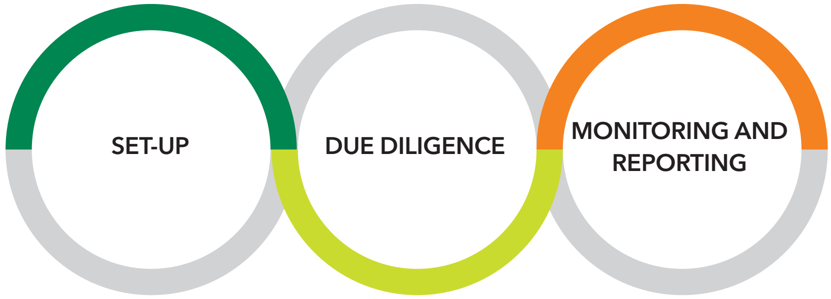
A 2019 survey by Slacker & Partners indicated that a top three obstacle to pension schemes' implementation of ESG policies was the lack of products in the marketplace. Allocating capital to unlisted infrastructure debt or equity can assist. The longevity of infrastructure investments supports resilient financial returns and sustainable goals for society, while also compelling careful consideration and management of long-term ESG risks. On the unlisted equity side, managers can drive responsible actions through direct governance, whereas on the debt side, managers can establish regular dialogue with borrowers to identify emerging risks and encourage best practice through benchmarking.

In this set-up phase, an infrastructure manager should:

- Work closely with the scheme to understand its ESG objectives and how to best integrate these into the investment strategy, and related governance and reporting requirements; and
- Implement the strategy taking account of market developments and the client's evolving ESG requirements.

For instance, pension trustees will need to choose the best format to hold investments, through pooled funds or separate managed accounts, and whether to delegate the stewardship of ESG issues to their managers or third-party providers. If an investor has very specific needs, a segregated account in infrastructure can provide a customised solution with mandate-specific parameters for ESG factors. For example, most of Vantage's clients have a range of sector exclusions reflected in their separate accounts with us and we also pay continued and careful consideration to non-contractual, client-specific risk tolerances, especially to identified reputational, social or environmental factors.

Investor ESG integration



Investor

- Establish and document ESG approach in policy
- Integrate ESG objectives into investment strategy
- Choose between pooled funds or separate accounts

- Perform manager due diligence and scoring
- Select manager
- Agree contractual ESG obligations

- Get involved in investment decisions (if non-discretionary)
- Receive regular ESG reporting
- Evaluate effectiveness

ACTIVE ENGAGEMENT WITH MANAGER

Manager

- Understand client ESG objectives and integrate in manager strategy, governance, reporting
- Implement investment strategy
- Offer customised ESG solutions

- Demonstrate alignment
- Conduct risk vs value due diligence
- Evidence actions
- Benchmark against peers and seek ongoing improvement

- Prepare ESG briefings on or involve client in capital deployment
- Design comprehensive ESG portfolio reporting
- Ensure Task Force on Climate-related Financial Disclosure integration and reporting

Source: Vantage Infrastructure

Favouring substance over form

The second stage of integration for a pension scheme is manager due diligence. A bfinance 2018 asset owner survey showed that 'ESG will pay a major role in future manager selection' for 58 percent of European investors and we believe this trend is likely to strengthen.

In this selection phase, investors are often assisted by asset consultants or other advisors, which provide comprehensive ESG questionnaires, due diligence support and manager scoring frameworks. With ESG labels at risk of being used as buzzwords, it is essential for an investor in its manager selection to 'look under the hood' at substance over form.

We have set out a few ESG considerations for infrastructure:

1. **Alignment.** It is crucial to understand a manager's true aspirations in ESG, whether its ethos aligns with the investor's and its plan to close the gap between aspirations and outcomes. In addition, alignment in values and investment practices does not exclude room for service customisation.
2. **Risk vs value diligence.** Due diligence performed by both investors and managers often focuses on what can go wrong. Particularly for infrastructure equity, a manager selection would benefit from two types of ESG reviews: risk due diligence and value due diligence. A manager should be able to demonstrate how their approach and practices mitigate ESG risk and how potential value opportunities can be systematically captured.
3. **Evidence.** It is easy, especially for large organisations with established brands and large marketing departments, to produce glossy documents celebrating their ESG strategy or integration framework. While those are useful, it is important to focus more closely on the manager's actual processes, actions in the day to day and results at the portfolio and asset levels. How have the manager's asset management programmes in ESG produced impacts and outcomes? For instance, priority should be given to reviewing a manager's ESG report produced for its clients over that posted on its website, particularly as disclosure in the latter will be limited by confidentiality restrictions applying to unlisted investments. Past investment papers, case

studies and periodic asset reviews are also helpful documents of actual practices and results.

4. **Benchmarking.** Nobody ever regrets raising the bar. So, should an investor be wary of managers that do not undergo benchmarking? Evidence should be requested on how a manager's tools, practices, achievements and innovations benchmark against peers. Vantage's participation in PRI and GRESB surveys is not driven by a thirst for third party accolades, but a desire to deliver best in class client outcomes in sustainability.
5. **Continuous improvement.** To turn good intentions into good results, we would expect any infrastructure manager to be able to provide past and future ESG action plans, targets and project trackers. Sustainable improvement is a marathon, not a sprint.

Expecting excellence

The third stage of ESG integration for a pension scheme involves monitoring and reporting.

This is where infrastructure managers can provide investors with a superior and differentiated service in ESG.

In connection with capital deployment, an investor with an infrastructure manager appointed on a discretionary basis should expect as a minimum manager surveys and portfolio review meetings covering:

- Examples of pursued or declined investments whereby ESG considerations have affected the manager's ultimate decision; and
- Examples of manager engagement with issuers on new and existing investments.

On the non-discretionary mandate side, an investor should see the manager's ESG assessment frameworks and tools clearly deployed and incorporated in its own client investment papers.

In connection with portfolio reporting, at Vantage we believe best in class service in ESG should include three components.

1. **Transparent fact-based outputs.** A pension fund should expect its infrastructure manager to report on ESG matters regularly. Action programmes and continuous monitoring should be included in quarterly updates, ranging from reporting internal ESG assessment scores alongside traditional credit ratings for debt investments to highlights and updates for equity investments. On the unlisted equity side, where substantial access to ESG information typically exists, comprehensive and quantitatively focused annual ESG reports should be delivered to clients to share perspectives on investee companies' material ESG risks and opportunities, achievements to date, action plans and, where possible, targets. At Vantage we now prepare an extensive annual ESG report on our managed equity portfolio collecting, analysing and comparing a broad range of quantitative ESG measures asset-by-asset.
2. **Impact quantification.** A comprehensive ESG client report should also cover environmental impacts, such as carbon emissions and abatement and resource management metrics, and social impacts. It can also be useful to classify a portfolio company's ESG contribution mapping results to recognised sustainability frameworks or targets, like the Sustainable Development Goals or the EU Principles for Taxonomy Development.
3. **Value-orientated assessments.** Periodic reports should also incorporate ESG risk assessments for both debt and equity assets. At Vantage, we have also developed an in-house ESG 'risk to value' system, which sits alongside our managed assets' GRESB sector benchmarking reports. While the latter benchmarks investee companies within their peer groups, our tools look at ESG risks to shareholder value, thus providing clients with a different comparative dimension.

There is no denying that the level of reporting activity described above is time- and resource-intensive. However, it is essential to both engage transparently with our investors and set internal and portfolio company ESG strategies and targets. We have found that, in ESG, there is no substitute to rolling up your sleeves.

As active asset managers, our purpose is to use ESG assessment tools and data analysis to drive disciplined actions and make an impact on each investee company.

However, our actions and outcomes also need to be communicated transparently and comprehensively to the investors for their mapping of ESG across asset classes. This is valuable in tackling the lack of standardisation, which can make manager benchmarking challenging in ESG.

Finally, at Vantage we regard the above reporting as necessary but still not sufficient to fulfil an investor's monitoring and reporting needs.

Climate change in its own right is increasingly being recognised by multiple regulators as paramount to investment decisions and the bar for climate-related disclosures from investors continues to rise. Many organisations across the world will be reporting climate related disclosures under the Task Force on Climate-related Financial Disclosures by 2022, with initial evidence for UN PRI signatories needed to be submitted in 2020.

While the TCFD is nascent, a prudent infrastructure manager should already have a plan in place to tackle its incorporation and to report on it incrementally over time.

At Vantage, we have started working on this project, with indicative risk assessments already performed for unlisted equity investments under the TCFD framework.

The next phase involves deeper dives and quantitative analyses driven by materiality.

These assessments will improve an infrastructure manager's ability to exercise stewardship of climate-related investment decisions at the portfolio companies' level. In addition, our own climate assessments have been giving more prominence to risks than opportunities. Going forward, a more balanced look at both has been identified as an action item.

So, are infrastructure managers doing enough to assist investors' own ESG integration? In this rapidly shifting field, many investors are probably still working through their ESG needs. We believe that the right infrastructure manager can certainly assist this journey.

A year ago in this publication, we said our ESG ambition was to elevate Vantage's ESG strategy and practices above market standard.

Our new tools and outputs since then have been client-centric but there is still more we can do to push the frontier. As Zig Ziglar would say: "There are no traffic jams on the extra mile." ■

Vantage Infrastructure is an independent investment firm comprising an experienced team, longstanding institutional relationships and a diverse equity and debt infrastructure investment portfolio with over £2.8 billion invested in infrastructure assets across Europe, North America and Australia on behalf of global clients

Q&A

David Russell, head of responsible investment at USS Investment Management, part of the UK's largest pension scheme, outlines his ESG priorities

Q What are your major concerns regarding a GP's environmental, social and governance practices?

A Our key focus with GPs is how they are integrating ESG issues into their decision-making and management processes. These are the core aspects of ESG management that we assess in our due diligence and monitoring programmes.

One area we expect [to make] more requests of GPs is to provide data so that we can undertake carbon footprinting of our private equity funds. USS has undertaken the carbon footprinting for all our investment portfolios, but faced difficulties in private equity in either getting the data or estimating it.

As LPs are required by the Task Force on Climate-related Financial Disclosures to look at climate change and carbon footprints across total funds, the expectations placed on GPs will grow.

Q What role does ESG play in your fund due diligence?

A The scheme has a long history in responsible investment across all asset classes. Indeed, we developed our first policy and strategy back in 1999 so we were one of the pioneers in this area and strongly believe that ESG issues have the potential to impact companies and other assets (both positively and negatively).

Our view is that companies are better run if they are managing ESG risks and opportunities and as a result we believe that GPs should be encouraging portfolio companies to manage ESG issues.

Therefore, every potential PE manager and investment goes through our responsible investment due diligence process.

Q What form does this process take?

A USS has developed its own questionnaire, which is sent to all potential GPs. This questionnaire focuses on the following four areas: how responsible investment issues are considered at the due diligence stage; how extra financial issues are managed in the overall management of assets; the communications associated with ESG issues; and views on the UN-supported Principles for Responsible Investment and other ESG frameworks.

> *"USS has undertaken the carbon footprinting for all our investment portfolios, but faced difficulties in private equity in either getting the data or estimating it"*

Our work does not stop there. We have a follow-on call or meeting to discuss the findings of the questionnaire in more detail, and carry out a detailed investigation into the track record of the GP to examine its commitment to ESG in its past investments. Additionally, we have a process for monitoring the ESG activities of our direct investments whereby a member of our team will visit each company to discuss how ESG issues are being managed. We also engage with companies in which we hold shares on these issues.

Q Are you surprised that our recent LP survey found that only a minority of LPs put a big emphasis on ESG in due diligence?

A What this means is that the majority will put some emphasis on ESG in fund due diligence and that would seem to be a positive step forward compared with the past. There is obviously still some way to go, but there is a definite growth in the number of LPs assessing ESG risks in their private equity investment – for example, the level of support shown for the PRI Private Equity group, and the growth in the number of conferences devoted to private equity ESG would be a good indicator of how interest continues to grow.

We believe it's critical that the oversight of GPs does not end with due diligence and investment – there has to be monitoring of ESG activities post-investment. This serves two purposes: so that LPs obtain assurance that ESG polices are being implemented, and to continue to signal to GPs that LPs take ESG issues seriously.

KEYNOTE INTERVIEW

Powering the future

Mikael Karlsson, head of energy at Actis, on how access to electricity is the bedrock of sustainable development

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Q How would you describe the scale of demand for sustainable energy investment in emerging markets right now?

One out of nine people, or 840 million around the world, do not yet have access to electricity. Around 95 percent of those people live in emerging markets. Millions more do not have access to reliable sources of electricity. That scarcity of supply, coupled with robust demand and a growing acceptance of private investment in many markets, creates a huge opportunity. At Actis, we have already committed $5 billion to 34 energy investments, with more than 25GW pledged across our platforms, providing access to electricity to 110 million people.

That demand – that opportunity – will only continue to grow as economic development in emerging markets continues, creating the need for more and more power generation. Indeed, we expect $14 trillion to be deployed in non-OECD energy investments by 2040. That equates to $1.7 billion a day.

Q Where do you see the biggest opportunities?

Of the $1.7 billion of anticipated daily investment, about half a billion of that will be in renewables. Renewables are already cost competitive, without subsidies, in our target markets and if anything, we expect demand to increase even further as the renewable energy revolution drives prices lower and lower.

Around 75 percent of our current investments are in renewables. The countries we invest in all have strong renewables resources, with net wind capacity factors of 45-55 percent, compared with 25 percent in Europe and 30 percent in the US. They have world-class solar resources too. There is also an opportunity, particularly in Africa, to offer low-cost baseload power that is not as intermittent as wind or solar. We expect gas, for example, to grow faster than other thermal technologies with 9.3 GW of new capacity in the region between 2016 and 2020.

In terms of geography, around half the capital we have invested so far has been in Latin America, a quarter in Africa and a quarter in Asia. As a region, Latin America is the most compelling because it is the most advanced in terms of privatisation. Africa, for example, is still dominated by state investment, although there is significant evidence that the private sector is more effective.

Q Sustainability is core to your investment philosophy. But what does that actually mean in practice when it comes to your energy investments?

Actis originated as a spin-out from the UK government's development finance institution, CDC, so sustainability has always been a part of who we are. We were set up to promote economic development and we have an A+ PRI rating. There is a very strong correlation between cost effective and sus-

Ostro: Sustainable investment in practice

Actis's head of energy explains how its Indian wind energy platform tackled some significant ESG issues

In August 2014, Actis committed $230 million to establish Ostro Energy; a wholly owned Indian wind energy platform. The firm backed two individuals to lead the business – now Ostro's CEO and COO – and assembled a promising pipeline of projects. Over the next three to four months, it created a fully functioning company with a team of 70 people and approximately 100MW under construction in projects at Tejuva and Rajgarh in Rajasthan.

Ostro faced a range of ESG challenges endemic in India, including a lack of established standards on workers' accommodation, labour conditions, access to safe drinking water and sanitation. To help management address these challenges, Actis created a Labour Accommodation Standards Policy, based on international best practice and ensured that this formed part of any agreement with contractors. Along similar lines, the firm also helped develop a Security/Human Rights Protocol in line with UN voluntary guidelines. Both of these policies mitigated risk whilst elevating standards at Ostro sites, helping to build a higher quality and more valuable company.

The evidence base for value creation was particularly compelling in relation to health and safety. From March 2015 to April 2016, for example, workers undertook 2,120 hours of safety training. During that period, 301 hazards were identified and corrected and not a single hour of lost time was recorded due to injury.

Ostro also directly contributed to the creation of over 1,500 jobs for Indian workers during the construction phase of its projects and addressed the local community's most significant challenge, access to safe drinking water. Rajasthan is India's largest state and also one of the driest. Access to drinking water is a major challenge for many rural villagers. This is compounded by the fact that the groundwater in Rajasthan has naturally occurring high fluoride content. This is causing wide-spread fluoride poisoning across the state, which manifests in dental and skeletal problems, joint immobility and can stunt children's growth.

The ESG sub-committee agreed to direct some of the community investment budget towards safe drinking water. In addition to constructing water tanks, an altogether more modern and innovative solution was formulated: a solar-powered water dispensing ATM. The ATMs run day and night and use reverse osmosis and UV to purify water. The ATM is cloud connected, enabling Ostro's head of ESG to remotely track the volume of water dispensed, the number of families using the machine and pay per use transactions. Families are given a top-up card to access clean water for a small amount of money.

Last year, Actis sold Ostro to Renew Power, one of India's biggest clean energy power producers, backed by blue-chip global institutions including investment banks, pension funds and sovereign wealth funds. At the point of exit, Ostro had a total capacity of more than 1,100 MW, of which 850MW was already commissioned. The transaction remains India's largest-ever renewables deal.

> *"Around half the capital we have invested so far has been in Latin America, a quarter in Africa and a quarter in Asia"*

tainable electricity supply and economic development. Businesses need reliable power in order to operate. That then creates jobs, which creates economic growth.

We routinely recruit an ESG specialist within each energy company that we invest in. At our African clean energy project Lekela, for example, the head of ESG was the second appointment we made after the chief executive.

We also establish an ESG committee at each company, made up of senior management and at least one expert from Actis. We find this helps to set the tone by leading on initiatives including a community investment strategy for each platform.

Q What are the specific challenges associated with sustainable investment practice in the regions where you operate?

Some of the markets we operate in score horribly on the corruption index. But for us it is very straight forward. Because of who we are and where we came from, because our investors include blue chip institutions, we make it very clear that neither we nor any representatives of our investee companies engage in any form of bribery activity and we never have. We simply do not need to.

The other major challenge we come across is contractors who need our support in significantly improving global health and safety standards. Take construction in India, for example. We include non-negotiable terms and conditions around health and safety in the contract and provide internationally accredited training. And we are prepared to stop work at a site, if health and safety procedures are not being properly adhered to.

Q How do you approach monitoring and measuring sustainability?

When we make an investment, we calculate what we call its benchmark impact score. We do that continually over the course of the investment and then, when we exit, we report on what impact that investment actually had.

Take Indian renewables platform Ostro, for example. When we went into that investment in 2014 it had a score of 30. We exited at 160, so that's a multiple of 5.5x. That was driven by the generation of around 1GW of clean energy, equating to around a million Indian homes; around 1.4 million tonnes in CO^2 emissions reduction in an area dominated by coal power generation and the generation of 1.5 litres of clean drinking water for a local community where this was the number one concern. The project created over 1,500 jobs and we provided almost 5,000 hours of safety training, transformed the labour accommodation and created mobile health camps that benefited 5,000 people.

Q What challenges still remain around measuring sustainability?

The problem is that, when people talk about sustainability, or about impact, they are defining it and measuring it in different ways. There is no common standard, which is why our framework is open source. One investor might claim that investing in US health clubs is making the world a better place, for example, but how does that really compare with initiatives we are involved in around the world?

We provided Maasai tribes, living near one of our plants in Kenya, with internationally accredited training so that they can develop construction skills, get certified, and come and work on our power site, or construction sites across the country. At our wind farm in Honduras, meanwhile, we found local farmers only had usage rights, they didn't have land titles. We registered land titles for them so that they can now borrow money, or sell the land, and improve their economic situation. Which has the more meaningful impact? There is no standard to measure which is more important. There have been steps in the right direction but there is still a lot to do. We are pioneering a path here that we hope more people will adopt.

Q How does sustainable investment practice impact returns?

We firmly believe in what we call, value drives value. That means we have never seen a compromise between responsible investment and delivering competitive returns. In fact, in our experience, it is investing responsibly that creates businesses that are more resilient, more innovative and better able to deliver societal benefits. We end up with assets that have excellent health and safety records, zero corruption, great social and environmental practices and strong governance. That gets recognised and those assets are then more valuable on exit. People will pay more money for world class run business activities in emerging markets.

Q What does the future hold for sustainable energy investment in emerging markets?

We will continue to invest in renewables. We will continue to invest in distribution companies and gas. We also expect to see more and more storage opportunities and distributed power. We are exploring storage applications in two of our wind farm projects in Africa – one in Senegal and one in Kenya – and we expect those trends to continue. ■

Q&A

Sixth Swedish National Pension Fund (AP6) sustainability manager Anna Follér highlights the significance of voicing a commitment to ESG and sharing best practice

Q How do you encourage GPs to integrate ESG into the investment process?

A The most important tool we have is our method of evaluating ESG in fund due diligence. We hold semi-structured interviews with the GP aligned with the Principles for Responsible Investment LP due diligence questionnaire. We look at the integration of ESG into the investment process, the ownership phase and reporting. In each of the modules we have sub-categories that we score against our own scorecard to calculate the total ESG score for the GP.

We evaluate the team rather than looking at individual sustainability topics in a portfolio, assessing ESG-related beliefs, policy ambitions and processes. The results are part of the decision material that goes to our investment committee and our board of directors. If the GP lacks commitment or understanding of ESG, that's a risk and is often linked to other governance factors.

If we decide to commit capital, we continue using this evaluation model on an annual basis. It provides a baseline from where we can compare results both for the GP and our portfolio average over time.

Q When you are assessing the investment team, what are you looking for?

A Which issues they focus on, how they evaluate what's material, how they use it in their decision process, what's its impact. We try to keep this discussion concrete, including recent cases where issues came up. During the ownership period, we look at how GPs support portfolio companies, increase knowledge and share best practice, but also if the GP uses standardised guidance or a template or tools. We also examine how they report to investors and a broader set of stakeholders and to the public.

Q Are there particular topic areas that you are more concerned about?

A We do have two focus areas that we always cover both in diligence and monitoring: these are climate change and diversity and inclusion. These span the portfolio and we believe the industry should work systematically to improve in these areas.

> *"We've created a virtuous cycle of feedback and improvement through a dialogue"*

Q As one LP among many in a fund, how do you ensure your ESG needs are taken into account?

A Using our evaluation method, we realised that we had access to lots of really interesting information. We started to feed anonymous data back to our GPs and they were really interested in what other GPs were doing because there was so little information out there. Many LPs send out questionnaires and GPs said they respond but then they don't hear anything more. We've created a virtuous cycle of feedback and improvement through a dialogue. We have managers' attention because we can give something back.

Q So would you describe yourself as an influencer?

A We don't have all the answers but we have some observations and insights. We do set targets – it's not that everything we do is totally qualitative. But we can have most influence through dialogue rather than just asking for information and reporting. For instance, we invited our Nordic GPs to a roundtable in 2016 to discuss where we were in terms of gender diversity, the challenges and what to do about them. Then we had a follow up meeting this November to discuss concrete measures and their impact. Everyone is really interested in this topic and attended, not just with their presence but by sharing their experiences. Being able to facilitate those kind of discussions is a way we have impact. GPs also see the possibility for our practical support. It works both ways. ■

EXPERT COMMENTARY

Infrastructure debt provides secure and sustainable income streams while respecting ESG constraints, writes Céline Tercier, head of private infrastructure debt at Ostrum Asset Management

A secure income and green infrastructure are compatible

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OSTRUM ASSET MANAGEMENT

The world needs $69 trillion of investment in infrastructure between now and 2035 to support growth projections, according to McKinsey.

However, governments have limited resources and banks, historically major players in financing infrastructure, now face regulatory constraints, especially with long-term maturity loans. This creates an opportunity for institutional investors to enter this global, deep and stable market, which *Infrastructure Journal* reports comprises over $200 billion transactions annually.

The renewables sector has expanded nine-fold since 2005 and is likely to grow further as part of the infrastructure universe.

As reported by the International Energy Agency, energy and transport are the biggest contributors to CO^2 emissions – 69 percent of the total CO^2 fuel combustion – so it's likely that renewable energy, green mobility and energy-efficient building will offer opportunities for investors.

The French Greenfin label was launched in the wake of the Paris Climate Agreement and is indicative of current trends. It requires the majority of investments in a portfolio to contribute to financing a greener economy. It also requires measurement of the environmental footprint of the portfolio, encompassing impact assessments on climate change, natural resources, including water, and biodiversity. Investing in oil, gas, coal and nuclear sectors is prohibited. There is an emphasis on energy transition and green transport, buildings, water and telecoms.

Some investors worry that renewables take high risks for the returns they deliver. But investing in renewables doesn't have to be high risk.

One way to invest in infrastructure while aiming to reduce the risk of loss is by investing in the financing of infrastructure. Quite simply, debt is less risky than equity. The protection is strongest for senior secured debt instruments; investors in senior secured loans have first call on the asset if something goes wrong. For pure infrastructure project finance, if the covenants and agreements have been properly structured, the protections are far stronger than for corporate bonds.

Default rates in infrastructure debt are extremely low, averaging just 0.56 percent a year since 2005, suffering no spikes even during the financial crisis. The recovery rate when a loan does default is 76.2 percent on average, according to Moody's. This ensures that overall losses are minimised and risk-adjusted returns increased. The recovery rate of Ostrum AM's infrastructure debt managers is 100 percent over two decades. The reason for this is careful structuring and close monitoring. Our credit documentation asks that the borrower inform us of any problems, propose remedial plans and allow us to work with them. Plans are validated and we monitor progress.

Transparency helps manage ESG risks

Financial risks are a critical consideration when investing in infrastructure debt but there are also ESG risks – primarily that transactions are less green than they first appear.

A strategy based on project finance transactions, rather than on corporate bonds, enables better control of this. Ostrum AM selects transactions where the issuer must stick to the agreed terms. A solar project, for example, must produce green electricity and nothing else. If the asset operator wants to change its business model, it has an obligation to ask the lender. The project finance structure provides useful transparency. In addition, environmental studies are carried out to assess the effectiveness of each project. In France, precise carbon measurements must comply with Greenfin.

Agreed terms: A solar project must produce only green energy and nothing else

Mitigating credit risk

Ostrum AM selects transactions with strong covenants to control and protect investments. If there is a problem, we have a strong security package, especially pledge of the borrower's shares, contracts or bank account, to solve it. Another way to protect capital and income is by investing only in essential assets. Ostrum AM's strategy invests in many forms of transportation infrastructure, including bridges, tunnels, seaports and railways, but excludes non-essential assets, such as parking lots, which are not strategic.

In the renewables sector, Ostrum AM considers all assets essential, including solar farms, wind farms, biomass and energy from waste. All conventional power and natural resource assets are excluded. Healthcare and education facilities are considered essential, while senior housing is not, because of the significant real estate risk. Countries need essential services as part of their sustainable development, so all parties have a strong interest in defending essential assets that encounter problems. This is not always the case with non-essential assets.

The next line of defence against capital loss is to be credit-focused and conservative. In the renewables sector, technology must be commercially proven to protect capital over the life of a transaction. The minimum internal scoring for a transaction to be included in the portfolio is BB and the overall strategy must have an investment-grade internal scoring.

Diversification of risk factors is another important way to avoid sector or asset-type concentration. Diversification is achievable given the depth of assets available in infrastructure. The difficulty lies in transaction selection and being sufficiently stringent in transaction analysis. Ostrum AM, for example, selects only 4 percent of the global pipeline, favouring the most attractive risk-return transactions.

Risk management is more than risk reduction – the key is to manage risk to optimise returns. At Ostrum AM, we divide risks into two buckets: risk reducers and return enhancers.

"Default rates in infrastructure debt are extremely low, averaging just 0.56 percent a year since 2005"

These buckets are used to create a risk profile that targets risk-adjusted returns superior to investment-grade corporate bonds. Assets in core countries such as Germany, France, the US and Canada, are seen as risk reducers. Assets in the periphery, often in southern European countries such as Spain and Italy, are considered return enhancers because of their less certain business and legal environment.

Similarly, core sectors such as solar, roads and hospitals are risk reducers because of the relative lack of complexity involved in building and operating the assets. For instance, it is fairly straightforward to operate a school – the operator is responsible for providing a sturdy building with light and power. On the other hand, offshore wind is a return

"The renewables sector has expanded nine-fold since 2005 and is likely to grow further as part of the infrastructure universe"

Vital resource: Ostrum considers all renewables essential assets

enhancer, because it is typically assembled in the deep sea, where conditions might prohibit easy building and maintenance.

The nature of cashflows is also considered. Schools and hospitals are risk reducers because they normally have long-term agreements, and therefore long-term and stable income streams. Cashflows from broadband networks may depend on shorter-term contracts with operators and ultimately with individuals, so they are less secure and are considered return enhancers.

Construction risks are also distributed across the two buckets. Brownfield assets have already been built, so there is no construction risk involved. The Ostrum AM strategy is focused predominantly on brownfield; however, from-scratch projects can be financed. When well-managed, this can enhance returns. The key is to balance risk reducers with return enhancing projects that justify some extra risks.

Access to deals

Unlike listed assets, infrastructure loan origination requires deep sourcing and structuring capabilities to ensure access to transactions with high relative value. The sourcing network includes industry and financial sponsors and a variety of banking activities operating across regions and sectors. The breadth of the network facilitates access to deals of all sizes, diversifying the portfolio.

Experience is essential to successful sourcing. Ostrum AM's former lending-side bankers each have over 20 years' experience, structuring over 300 transactions with only five defaults and a 100 percent recovery rate.

The strategy suits institutions looking to match long-term liabilities, with a liability profile that allows for illiquidity. Investing in infrastructure debt can also reduce volatility in the overall portfolio. The strategy also appeals to investors that want to allocate to assets that favour energy transition, and therefore a beneficial climate change impact.

While the strategy typically matches durations of around 10 years, it is possible to match even longer duration liabilities. Ostrum AM's active portfolio construction allows it to reinvest repaid loans in order to maintain invested capital at a maximum. This can lead to longer horizon returns, enabling investors – when required – to match liabilities of longer than 10 years.

Reinvestment also allows the strategy to benefit from potential rises in interest rates over time. The strategy allocates to both fixed and floating rate loans favouring 0 floored Euribor to minimise interest rate risk. As a result, the gross target return is above 2 percent in euros and 3.5 percent in dollars.

For European insurers, the strategy may offer favourable treatment under Solvency II, with a SCR spread reduction of at least 30 percent compared to corporate issuers.

Green investments are growing faster than most asset classes, as governments and investors push towards more sustainable practices. With a robust, methodical approach, investors should benefit from the continued expansion, and infrastructure debt is crucial to this.

It inherently delivers stable cashflows and naturally gravitates towards sustainable assets.

Infrastructure debt can appeal to investors requiring both consistent income and ESG-compliant assets. ■


















The A-Z of Impact Investing

So what exactly does impact investing stand for?

Impact investing is not without its critics. The holier-than-thou feeling that impact proponents evoke has a tendency to get under the skin of those among us – especially journalists – who are more used to asking tough questions than claiming to change the world, *writes Graeme Kerr*. That scepticism reached a crescendo this year with the news that William McGlashan, managing partner and founder of TPG's impact vehicle, the Rise Fund, was among the 33 parents charged over their alleged roles in a US college admissions bribery and money-laundering scam uncovered by the FBI.

Following on the heels of the collapse of the Abraaj Group, an emerging markets investor that had puffed up its impact credentials but which collapsed after alleged financial misconduct, the irony was not lost on some of impact's naysayers. As *Time* magazine editor-at-large Anand Giridharadas tweeted at the time: "I know the Bill McGlashans of this world. I reported on them. I argue with them now. They email me. They DM me. And they explain that I don't get it. I'm too negative. They are solving real problems. I'm just writing about things."

Our A-Z of Impact Investing comes at the issue from a different angle. At *Infrastructure Investor* we have watched the emergence of the impact investing movement with interest. There are clear issues: notably, what exactly is the difference between responsible and impact investing, and how exactly can you measure impact?

But we really wanted just to drill down and ask the most basic question of all: what is impact investing? This A-Z is an attempt to do just that. And where better to ask that question than at the Global Impact Investing Network Investing Forum, in the company of artist Lee Playle? We quizzed delegates about what the letters should stand for and Lee produced 26 separate illustrations during the course of the two-day conference.

Arguments raged about what we should feature, but the resulting two-metre by three-metre illustrated wall became one of the talking points of the forum.

Yes, there are remain sceptical voices out there about whether impact can achieve all that its proponents claim. But if you're looking to survey exactly what it is trying to do, our A-Z is a great place to start. I hope you enjoy it as much as we enjoyed producing it. ■







Illustrations: **Lee Playle**

Six trends shaping the impact sector

From agriculture to zero waste, our A-Z demonstrates how impact investing is becoming an essential element of many ESG strategies, writes Amy Carroll

1

A united approach

The term 'impact investment' was coined in 2007 by the Rockefellers, putting a name to investments made with the intention of generating both financial returns and social or environmental good. Interest in impact investing escalated, meanwhile, in the aftermath of a financial crisis that undermined the credibility of the traditional capitalist system.

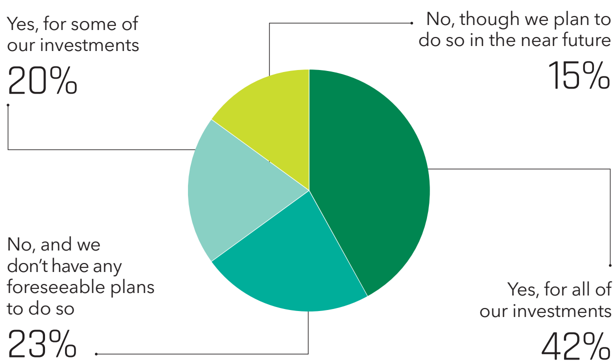
But it wasn't until the UN Sustainable Development Goals came into force in 2015 that this nascent industry was able to unite behind a collective set of ambitions. "The SDGs are incredibly important," says Tania Carnegie, leader of the impact venture practice at KPMG. "They help articulate the contribution being made towards solving the bigger picture challenges that society is facing."

The UN estimates that somewhere between $5 trillion and $7 trillion will be required annually to help achieve its 17 goals and 169 associated targets, by 2030, so the SDGs are clearly a galvanising force.

Almost two-thirds of impact investment managers are using this framework to track their performance, according to the Global Impact Investing Network's 2019 annual survey, up from just over half in the previous 12 months.

Institutional investors, in particular, are keen that managers position their strategies in the context of the SDGs. However, there is a danger that the goals can be more readily incorporated into marketing materials than investment practice.

Do you track performance to the UN SDGs?



Source: GIIN survey of impact investors

2/3
Proportion of impact investors using the UN Sustainable Development Goals to track impact performance

$5trn
Minimum the UN believes is necessary every year to help achieve its 17 Sustainable Development Goals

90%
Proportion of impact investors who say their financial expectations have been met or exceeded

Beyond the environment

Although global warming commands column inches and investment dollars, impact does not exist exclusively in the environmental domain. A plethora of sub-sectors has emerged addressing wider societal challenges. Affordable housing is a prevalent theme – "keeping rents down for existing tenants through energy retrofits, for example", says Rekha Unnithan, portfolio manager for impact investing at Nuveen. "The idea is to provide stability of housing for the working population."

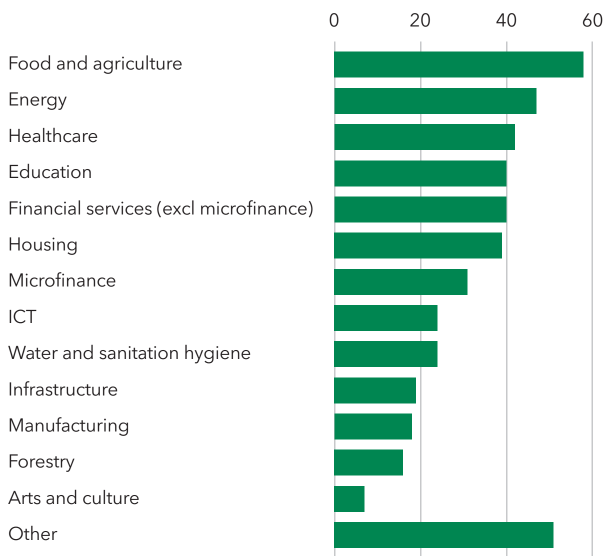
Inclusive financial services that provide credit, savings or insurance products, for instance, to low-income customers also help eradicate poverty and promote individual and community autonomy.

"If people lack access to finance or face high costs of capital, it is very difficult to improve their lives or grow their businesses," says Taylor Jordan of Goldman Sachs Asset Management. "If you can provide appropriately structured financial services to underserved populations at the right price, you open up opportunities and develop local economies."

Health and wellbeing is another critical area for impact investors and correlates to number three of the UN's Sustainable Development Goals. Indeed, according to the GIIN's 2019 survey, healthcare is one of the top-three target areas, behind energy and food and agriculture.

Education, too, is an area of impact investment. According to the UNESCO Institute for Statistics, one in five children around the world are currently out of school, while just 0.5 percent of global spending on education goes to low-income nations.

Sector allocations of impact investors (%)

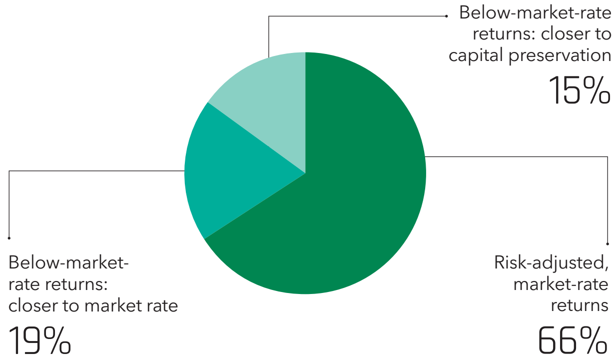


Source: GIIN survey of impact investors

Many happy returns

Of course, by definition, impact investments need to meet financial targets as well as drive environmental or social outcomes. This sector is no longer the preserve of philanthropists. Although expectations vary, GIIN's latest survey suggests that around two-thirds of investors are

Targeted financial returns



Source: GIIN survey of impact investors

now seeking market-rate returns. Still more significantly, over 90 percent of respondents reported that their financial expectations had been met or exceeded, while 98 percent said the same was true of their impact goals.

Another study, by Moneyfacts, looked at the performance of ethical funds compared with their mainstream peers over four timeframes and in five categories. It found that the former outperformed the latter in 13 out of 20 scenarios. Early indications are that impact investment can deliver on its dual objectives. "Impact investment is completely commercially viable in our view," says Shami Nissan, head of responsible investment at Actis. "That view is based on a long track record that spans several decades and a guiding philosophy that value drives value. Some may see an inherent conflict or need to compromise either financial returns or impact, but our view is that the two are mutually supportive."

However, the fledgling impact investment asset class has only really experienced a protracted bull run. It is unproven in a downturn, a challenge it may have to face sooner than it would like. "The industry hasn't experienced a downcycle," says Paul Hastings' counsel Vadim Avdeychik. "It is a relatively recent phenomenon, so it will be interesting to see how impact investments perform when the cycle turns.

"Our clients certainly seem to believe that impact investment should outperform, however, because it offers a truly new way of looking at the world."

4

Millennial momentum

The ability to measure impact may remain a work in progress, but there is a millennial momentum that is building behind the impact movement.

Although successive generations enjoyed ever increasing standards of living throughout the 20th century, that pattern has now gone into reverse. Millennials, on average, have household incomes that are 4 percent lower than members of Generation X. And the incomes of members of Generation X when they were in their early 30s were 30 percent higher than those of the baby boomer generation that came before them.

Meanwhile, millennials – spurred on by role models from their own age group, who appear to have embraced capitalism without compromising their ideals – are increasingly shunning traditional forms of financially focused investment to use their money as a force for positive change.

"The generational shift we see with millennials, coupled with the increasing participation of high-net-worth individuals and women, is driving impact investment," says Nissan of Actis. "These groups really care about how their capital can be used for positive societal and environmental outcomes."

Young workforces are demanding higher standards from their employers. Young entrepreneurs are combining commercial acumen and tech savvy with a deep-rooted desire to address global issues. This generation has also rediscovered a passion for engaging directly with politicians, while the inexorable rise of social media is helping to spread their message far and wide.

Millennials are a relentless driving force behind the explosion we are witnessing in impact investing, as they seek to shift the focus of capitalism from self interest to the wider good. With the ongoing transfer of wealth from older generations expected to reach $24 trillion by 2020, the potential for impact could be huge.

5

A climate for change

Nowhere is the millennial voice louder than in the campaign to combat global warming. "The millennials and younger generations are leading the climate protests and they want to see that impact is fully integrated into investment decisions," says Jordan of GSAM. Jordan co-founded impact investing firm Imprint Capital which was acquired by GSAM in 2015.

And indeed, with the UN Intergovernmental Panel on Climate Change's dire warning last year that we only have 12 years left to contain global warming without putting millions of lives at risk, environmental concerns have come to dominate the impact agenda.

Impact investments tackling climate change can range from solar and wind energy projects or battery storage to energy efficiency plays, sustainable transport, sustainable materials and sustainable agriculture. And, of course, the positive impacts of such investment can be felt far beyond the physical environment itself.

"Climate change has already risen up the agenda," says Clarissa De Franco, managing director of Africa Funds at CDC. "But we will see ever more focus on this because it's so intertwined with other impact objectives – you can't tackle hunger if the land you grow food on is flooded or too dry.

"Climate change is such a huge issue that impacts society and the environment on so many levels, from the economy, human health and the ability to feed people through to water availability and civil unrest," adds Nissan.

"It is the number one issue that we face as a society and a planet."

6

Measuring progress

To maintain standards, it is imperative that we are able to measure impact performance. Investors need to be able to assess and benchmark impact managers' track records of delivering on their laudable aims. "There is a heightened expectation of trust associated with impact investing," says Carnegie. "So, being able to deliver on the promise in your investment thesis, being able to live up to that expectation of trust, is essential. Measuring outcomes is a part of that process."

The ability to measure performance has been hindered, to some extent, by the industry's relative immaturity. The majority of impact funds have long-term investment horizons and it won't be until those come of age that outcomes can accurately be assessed.

Nonetheless, an array of different frameworks have emerged, designed to assist the measurement process. These systems have been developed by individual managers – which have then opened them up in the collaborative spirit for which impact investment has become known – or else by myriad industry associations. But, in many ways, this proliferation has become part of the problem.

"There is a great deal of fragmentation, and that creates challenges around benchmarking and best practice," says Runjhun Kudaisya, counsel at law firm Paul Hastings. "The market is lacking a common language and there is definitely a need for more clarity."

"Investors will ultimately coalesce around one framework or another. That is the way that it always happens," adds Avdeychik of Paul Hastings. "That is what is needed for this industry to move forward." ■

EXPERT COMMENTARY

Infrastructure is central to climate change mitigation and adaptation, writes Gregory Smith, CEO of InstarAGF Asset Management, and can forge a more sustainable path to long-term prosperity

Pathway to the next level

According to the US National Aeronautics and Space Administration, one of the world's leading climate research agencies, 18 of the 19 warmest years on record have all occurred since 2001. While the issue of whether climate change is occurring has largely been settled, the debate around what to do about it continues against the backdrop of the massive storms, heatwaves, drought and record wildfires produced by global warming.

In the past three years alone, the US has experienced 45 separate billion-dollar weather-related disasters, with the total cost of such occurrences reaching $500 billion dollars in the last five years, according to the National Centers for Environmental Information. While this cost is staggering, it is a fraction of the many ways in which climate change causes damage.

It is estimated by the Global Commission on the Economy and Climate that the world's existing stock and use of infrastructure is associated with more than 60 percent of global greenhouse gas emissions, making climate-smart infrastructure investment central to the sustainability imperative – and opportunity – now before us. This imperative is even more pronounced given the current infrastructure deficit and the negative cascading effect of deteriorating infrastructure on a nation's economy and competitiveness.

With emissions at a record high in 2018 and continuing to rise, it is widely agreed that 'innovation' is required to accelerate mitigation and adaptation to changing climate conditions and achieve a cleaner, low-carbon economy. Unfortunately, economic models of climate change still tend to overlook the role of innovation, and how failing to promote and pay for it today will dramatically increase the eventual costs of climate change. Indeed, the biggest economic questions and challenges in our future will relate to just how extreme global warming will be, what parts of the world will be most affected, and whether we are at risk of permanently losing productive capacity within the global economy.

These challenges are further complicated by the profound shifts already underway in geography, demographics, technology and infrastructure, which are interdependent and extremely hard to predict. There is also the phenomenon of path dependency, where history, expectations and vested interests tend to matter greatly in determining eventual outcomes, creating obstacles to innovation in all its forms.

Innovation is often considered synonymous with technological progress, with many believing that high-tech breakthroughs such as carbon dioxide air capture are the best hope to slow global warming. While technology is a key enabler for a greener, more efficient economy, innovation can and should be defined more broadly: it is about turning any idea into a solution that adds value from a stakeholder's perspective. In applying this lens, it seems likely that even the best technologies, many of which have yet to be proven or even invented, will fall far short of the mark in the absence of a shared will and community engagement to change, act and transform.

Fundamentally, a major shift in economic planning is required to promote lower carbon systems and investments. Infrastructure uniquely resides at the nexus of our economic potential and the climate-change imperative, and is the key determinant of our ability to thrive and prosper. A better approach to economic planning necessarily includes a better approach to infrastructure planning: a larger-scale, up-front undertaking that more fully identifies environmental sensitivities, and other systems and values to help avoid, minimise and mitigate impacts while adapting to current and future climate risks.

Whereas poorly conceived or sited infrastructure is a major part of economic and climate management challenges, when executed properly, it can be a major part of the solution. Over the next 15 years, more than $90 trillion in infrastructure investment will be needed worldwide according to the Global Commission on the Economy and Climate, which also estimates that bold climate action in this area could deliver at least $26 trillion in economic benefits through 2030. How we build our infrastructure will clearly be a major determinant of our future economic potential and the very health of our planet.

A tale of two green cities

Toronto and Chicago lead the way in innovative sustainable initiatives

In 2009, Toronto was the first city in North America to adopt a bylaw to require and govern the construction of green roofs for new developments with the goal of enhancing biodiversity and lowering energy costs. Today the city has 1.2 million square feet of new green roof area, which has saved 1.5 million kilowatt hours of energy while offsetting greenhouse gas emissions and diverting 11 million litres of storm water from sewers annually.

In Chicago, urban planners built in climate change resilience by creating permeable, high-albedo pavements to replace 3,500 acres of impermeable paved alleyways in the city to allow stormwater to filter through catch basins to capture water and funnel it into the ground, and to reflect sunlight to reduce the 'heat island' effect. These measures will improve the environment by mitigating flooding and saving the city money over the longer term.

Rising to the green challenge

Innovation in sustainable infrastructure design and delivery should encompass the inclusion of 'natural' infrastructure systems within our built environment.

Natural systems are those that occur organically or are constructed and actively managed by humans to direct and amplify impact. While 'grey' infrastructure can be made more resilient by better incorporating environmental, social and governance considerations into design and delivery, natural 'green' infrastructure is an important complement to our built environment that offers the potential for more flexible, cost-effective solutions with myriad economic and social benefits.

Green infrastructure initiatives can include urban forests and woodlots, bioswales, engineered wetlands and stormwater ponds, wetlands, ravines and riparian zones, green roofs and walls, porous surfaces and reflective pavements, and urban agriculture.

Combining such elements addresses a specific infrastructure need while tangibly enhancing air and water quality, improving biodiversity, elevating the overall appeal of a city's urban architecture and creating new economic opportunities.

Technology also plays an essential role in the greening effort. Plans for New York's Lowline, intended to be an underground park in an historic trolley terminal on the Lower East Side, would make it the first underground park using fibre optics to create remote skylights, effectively bringing sunlight underground.

This project will reclaim unused space in a dense city while creating a green respite and cultural attraction. From an infrastructure perspective, this project may encourage other cities and developers to think more broadly about alternative approaches to enhancing urban biodiversity and how to balance green and grey.

According to the report *Delivering Urban Resilience*, city leaders, planners and infrastructure developers often lack the data and tools needed to understand and quantify the costs and benefits of technologies such as green roofs and porous pavements, resulting in mismanagement, costs and decreased liveability and resilience.

Although there is no overall agreed model yet to address the complexity of this task, efforts are underway to assign economic value to sustainable infrastructure benefits and to instil this awareness into decision-making. More broadly, there are also steps that should be taken by policymakers to create a financing and regulatory environment that entices more private sector capital flows to sustainable infrastructure, including allowing for a wider array of financial instruments and funding models to improve risk-return profiles for private investors.

A vital part of sustainable infrastructure planning includes more fully engaging communities in infrastructure design and grassroots green innovation to meet local and regional needs. Infrastructure development that represents the values, history, culture, commerce and geography of a community is key to supporting a strong economy, vibrant neighbourhoods and a distinct sense of place.

Green infrastructure is often more visible than grey infrastructure, at once improving sustainability while creating the potential for creative design elements, such as fountains fed by rain water or artist-designed stormwater infrastructure, to beautify the urban landscape and educate citizens on environmental protection.

Investing as a force for change

The private sector is a critical partner with governments and stakeholders in addressing climate change and collaborating on environmental issues, including mobilising green investment and finance, and harnessing skills and knowledge for green growth.

"Infrastructure investors in particular have a distinct opportunity to shape and accomplish sustainability goals given the long duration and essential nature of infrastructure assets"

Infrastructure investors in particular have a distinct opportunity to shape and accomplish sustainability goals given the long duration and essential nature of infrastructure assets.

According to Preqin, nearly half of alternative fund managers will consider ESG principles in every investment they make by 2023. In private markets, the UN-backed Principles for Responsible Investment reports that two out of every three limited partners consider responsible investment in their selection of fund managers.

Simply, ensuring that infrastructure investments are sustainable is critical to the future of our planet. This includes identifying, assessing, pricing, managing and monitoring material ESG risks with a best practice mindset. It relates to preserving and enhancing the value of an asset throughout the investment process starting from origination to execution, asset management and divestment. And it relates to making a concerted effort to design and deliver infrastructure that promotes inclusive economic growth, poverty reduction and a better quality of life.

With the global capital allocated to infrastructure expected to more than double by 2023, infrastructure investors can exercise greater influence and foster more transparency on sustainability matters, and accordingly, actively add value to an investment and the surrounding community.

Over the past 15 years, growing awareness of climate change has helped to spur the conversation on sustainability in the infrastructure sector away from a tick-box exercise to a process of influencing tangible change for the better. All infrastructure assets by their nature have a profound ESG footprint with both positive and negative impacts across the environmental and social spectrum, whether the asset is a renewable power facility or an airport or energy infrastructure.

Investing for a more sustainable future means that we must each strive to better manage the panoply of ESG risks and opportunities before us with a best practice mindset and commitment to responsible stewardship that creates value for future generations. Stepping up to a new level of sustainable infrastructure investment demands we focus on the possibilities and remember that the environment is the one asset we all share. ■

Agri-investing

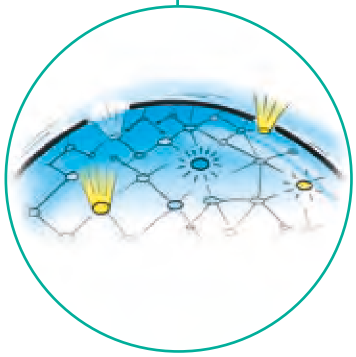
For investors looking to tackle global warming concerns, agriculture is one of the sectors that can have the biggest impact on the environment.

Hot on the heels of the UN Intergovernmental Panel on Climate Change's worrying global land use report, *Climate Change and Land*, Jeremy Coller's Farm Animal Investment Risk & Return initiative published a separate study highlighting the same concerns: food production's impact on the environment.

Both reports featured equally daunting findings, with the IPCC estimating that if pre- and post-production is considered, agriculture, forestry and other land uses account for 21-37 percent of all human-made carbon emissions. The 2019 FAIRR Index found 43 of the 60 largest animal protein producers (globally processing 70 billion animals a year and accounting for 14 percent of all emissions) fail to accurately measure their greenhouse gas emissions.

But with so much work to be done to improve the sustainability of global food production processes, the impact investment opportunity is equally significant. The decades-long focus on fossil fuels has put coal firmly on the road to becoming a stranded asset – the Coller Capital chief investment officer has suggested something similar could happen with the food we eat.

"The Paris agreement is impossible to achieve without tackling factory farm emissions," Coller, a long-time vegan, said at the launch of the 2019 FAIRR Index. "Coal is a stranded asset, and cows are the new coal."



Blockchain

Could blockchain prove to be the missing link in the impact investment chain?

Best known as the decentralised or distributed ledger that underpins cryptocurrencies such as Bitcoin, blockchain technology is being used to create 'impact tokens' that investors can use to fund projects.

At the forefront is Moeda Seeds Bank, a Brazilian micro-finance technology company, which won first place in a UN-sponsored 'hackathon'. Lack of access to banking is a big barrier to small businesses in emerging markets. Moeda uses blockchain technology to connect impact projects directly to investors. The digital ledger also allows investors to keep track of a project's progress and offers accountability, thereby helping to provide investors with proof of impact.

In March, Moeda partnered with private equity impact investor Bamboo Capital Partners and the government of Togo to launch the BLOC fund. Its target is to invest €100 million in blockchain projects that could benefit low- and middle-income populations in emerging markets.

Florian Kemmerich, managing partner of Bamboo Capital Partners, says blockchain is one of the biggest untapped impact investment opportunities and has the potential to transform millions of lives in some of the poorest regions of the world.

The Togo government agrees. Cina Lawson, the country's minister of posts, digital economy and tech innovation, believes the fund will "attract the most innovative international companies developing tech solutions which can improve the living conditions of people in Togo and across Africa. It will also serve to support local tech entrepreneurs to grow their businesses, providing them [with] capital and tech expertise."

Clean technology

"Climate change is such a huge issue that impacts society and the environment on so many levels – from the economy, human health and the ability to feed people, through to water availability and civil unrest," says Shami Nissan, head of responsible investment at Actis.

"It is the number one issue that we face as a society and a planet. As a result, you cannot overstate the impact of clean energy on sustainability."

Indeed, clean energy is one of the largest parts of the clean technology landscape, with the *World Energy Outlook 2018* report from the International Energy Agency estimating that investments in renewable energy supplies will need to reach more than $2 trillion a year to 2040. And we are currently nowhere near this – in 2018, $289 billion was invested globally in renewable power and fuels, according to the *Renewables 2019 Global Status Report* – which suggests that, as the global economy moves towards decarbonisation, there is plenty of scope for investment in renewables.

That does not just mean investing in solar or wind projects. "One of the biggest developments we're seeing is in battery storage for renewable energy," says Adam Heltzer, head of ESG and sustainability at Partners Group.

"That is clearly critical for more widespread adoption of clean power sources. We've invested in a renewables platform in Australia, for example, and that has a highly scalable battery storage component to the business."

Yet there are many other strands to clean technology – from energy efficiency and sustainable transport to sustainable materials and efficient food production and agriculture. "Clean technology cuts across multiple industries," says Taylor Jordan, managing director at Goldman Sachs Asset Management. "There are several themes that we believe benefit from macro tailwinds, but investors need to be careful about capital intensity and adoption curves."

It's a view shared by Heltzer. "Climate change is the 2,000lb gorilla," he says. "You have governments, the private sector and civil society all working towards addressing what has become imperative. From an investment and business perspective, one of the most significant developments is the creation of the Task Force on Climate-related Financial Disclosures because it will force investment managers to think more critically and work tangibly to address the risks and opportunities. That clearly presents increased scope for growth in the clean technology sector."

Although clean technology may have got off to a difficult start, with many early investments in clean energy in particular yielding poor returns for investors, significant reductions in the cost of solar and wind technologies over recent years have made this part of the sector much more competitive. There are also new types of clean technology emerging. "We are increasingly seeing capital-light business models that promote greater resource efficiency," says Jordan.

"Energy efficiency is a key strand here," adds Heltzer. "One of our investments, Techem, for example, is now managing the transition of millions of residents across Europe to meters. Previously their energy and water bills were based on the size of their apartment. But by billing them according to usage, consumption has reduced by 15 percent or more."

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Diversity

Diversity has been in the spotlight in recent years with institutions, particularly large US pensions, keen to see their GPs addressing the issue within both their investment teams and portfolio companies.

The reason is simple: gender and ethnic or cultural diversity can lead to better investment decisions, ultimately resulting in higher returns for investors. According to research by McKinsey, companies placed in the top quartile for gender diversity at the executive level are 21 percent more likely to generate above-average profits than those in the bottom quartile. For ethnic and cultural diversity, top quartile businesses are 33 percent more likely to outperform on EBIT margin.

Yet the private equity industry has a long way to go. Data compiled by Bloomberg found women account for just 8 percent of senior investment roles at the top 10 largest private equity firms. In the US, a study from the Knight Foundation this year found that minority-owned private equity firms accounted for just 3.8 percent of the 2,800-plus firms surveyed.

Not addressing diversity can have financial consequences. A deficit in workplace diversity contributed to Chicago Teachers' Pension Fund passing on a $50 million infrastructure allocation to Blackstone and Brookfield Asset Management last year. Nevertheless, some firms are taking the lead, such as Carlyle Group, which hired a chief diversity officer last year.

"Diversity is inevitable in impact investing, both from the way that we do and practise impact investing, the diversity and range of tools we need to use, but also the range of people we need to reach, based on gender, ability, ethnic background and sexual orientation," says Faye Drouillard, founder of impact foundation The Giving Circle of Ireland. "It's part of our everyday existence."

Education

According to the UNESCO Institute for Statistics, around 263 million children and adolescents are out of school worldwide – equivalent to one in five.

At the same time, of all the money in the world spent on education, only 0.5 percent goes to low-income countries, even though they contain roughly the same number of children as rich ones.

D Capital Partners in its *Impact Investing in Education* paper noted: "Education impact investing could mobilise new funding, enable private sector engagement in both public and private education service delivery, and introduce and scale approaches or tools to improve efficiency of service delivery, promote innovation in teaching and learning methods, and monitor outcomes and systemic effectiveness."

Private capital has already been doing this, all along the value chain. CDC Group and New Enterprise Associates have invested directly in schools, such as Bridge International Academies, a Kenyan provider of affordable K-12 education. In 2015, Omidyar Network invested in South Africa's Siyavula, an educational technology provider. Distance learning providers and groups that help with the transition from education to employment are also potential targets of private capital.

Investing in the sector is not without challenges. Deal sizes are small relative to other impact sectors. Improvements in educational attainment are difficult to measure and often take many years to come to fruition. Patient capital is required to achieve returns and make an impact. It can also be difficult getting buy-in from the state, which sees education as falling within its own purview. Yet by adopting a localised approach, investors are showing that these challenges are surmountable.

EXPERT COMMENTARY

While wind and solar investment are major themes in renewables, hydropower deserves a closer look as well, says Tor Syverud, head of hydropower investment management, Aquila Capital

The special role of hydropower

Renewables are on the rise – not only as an increasingly important source of energy for electricity generation, but also as a capital investment for institutional investors. On the one hand, their further expansion is invaluable in achieving global climate policy goals. On the other hand, they represent investment opportunities with attractive and, more importantly, reliable cashflow returns, which makes them a suitable investment alternative in light of very low interest rates.

The strong expansion of renewable energy capacity in recent years can mainly be attributed to wind and solar energy. The commitment of most institutional investors is also focused on these two types of generation.

Nevertheless, hydropower is one of the oldest, most established and most efficient energy sources used by humans to date. It continues to account for the lion's share of global electricity production from renewable energy sources with a share of more than 70 percent.

Currently, there are hydropower plants in approximately 100 countries around the world. In 2018, hydropower comprised a 16.4 percent share of the world's electricity generation. This share varies significantly from city to city and country to country, and in some cases, hydropower can completely dominate energy sources – in Norway, for example, hydropower makes up 97 percent of the energy mix, and in 31 cities across the world, 100 percent of the electricity is generated from hydropower.

In 2018, hydropower accounted for over two-thirds of the renewable energy generated at 4,311TWh, despite a significant expansion in alternative energy sources including solar and wind. Looking ahead to 2030, hydropower is forecast to hold onto its share in the world's total power generation, amid a rising contribution of power generation expected from solar and wind technologies.

Hydropower also has among the best conversion efficiencies of all energy sources, because the conversion process captures kinetic energy and turns it directly into electric energy, with little or no losses occurring through heat or inefficient processes. The total conversion efficiency of a hydropower plant typically ranges between 90-95 percent. This is in contrast to the approximate 45 percent efficiency of wind and 25 percent of solar.

Institutional investors should give more consideration to hydro

Hydropower is under-represented in the portfolios of institutional investors in relation to its importance in power generation, as hydropower differs significantly in some respects from the more common form of electricity generation using wind energy or solar.

Hydropower, for example, generally requires higher upfront investments per megawatt hour of generation capacity. Plants demand greater adaptation to the natural elements and surroundings of the site than the comparatively standardised solar or wind power plants.

The necessary technical know-how is also much higher and active management more complex, and in most countries, hydropower is not subject to public subsidies or state-guaranteed feed-in tariffs.

The latter is not a disadvantage per se because hydropower plants can be operated economically and with stable returns even without subsidy structures. Depending on the risk appetite of investors and operators, the electricity generated can be sold via long-term purchase agreements with utilities and industrial consumers or directly on the spot market.

Hydropower offers high diversification potential

Most importantly, hydropower offers significant diversification potential compared to wind and solar energy. Hydropower, for example, can handle base loads, meaning that electricity generation is naturally relatively stable and fluctuates minimally over the course of the day or year. The dependence on short-term meteorological developments is also significantly lower.

This is particularly true if the power plant is linked to a storage lake. In times of high production of other forms of generation, the storage capacity enables the excess energy to be stored by filling the reservoirs. In times of high electricity demand, the water is fed through the turbines and the generated electricity is distributed into the power grid. The annual total of up to 5,000 full-load hours is around three times higher than wind energy and six times higher than solar.

The operating lives of hydropower plants tend to be very long; many power plants have been in reliable operation for more than 100 years. In light of this, independent electricity markets are also an opportunity.

Independence from government-imposed remuneration structures that are fixed for a certain period of time allows for flexibility in the electricity prices achieved and thus a certain protection against inflation. The occasionally high price volatility on the spot markets can be effectively hedged by concluding long-term power purchase agreements for at least part of the electricity generated.

As a result, the yield structures of hydropower plants show relatively low correlations to wind energy and solar. Typically, the correlation coefficient is below 0.3 according to a study conducted by the Vienna University of Technology, which showed that diversification across the three types of power generation and across different regions has a stabilising effect on portfolios. This is particularly true if the hydropower portfolio itself is also diversified and decentralised, meaning that temporary failures of individual plants can be compensated.

Overcoming hydropower yield challenges

The residual value of a hydropower plant tends to be higher than solar and wind plants, due to the long service life of the technology and the very long or perpetual operating licence periods. This results in a lower yield for hydropower investments during the run time of the asset.

One method to increase the yield is to add assets from a portfolio where there is no or little residual value of the hydropower plant. Such an asset might be a hydro plant that must be sold or given back to the government for free or at a very low price.

For example, in our Portuguese investment portfolio, which currently comprises 21 operational small-scale hydropower plants located in northern and central Portugal with a total capacity of approximately 100MW, the hydro plants will be given back to the Portuguese government at the end of the concession rights. Therefore, there is no residual value, which increases the yield in

The importance of hydropower to Aquila Capital

Hydropower has secured a pivotal role in achieving the world's carbon reduction targets.

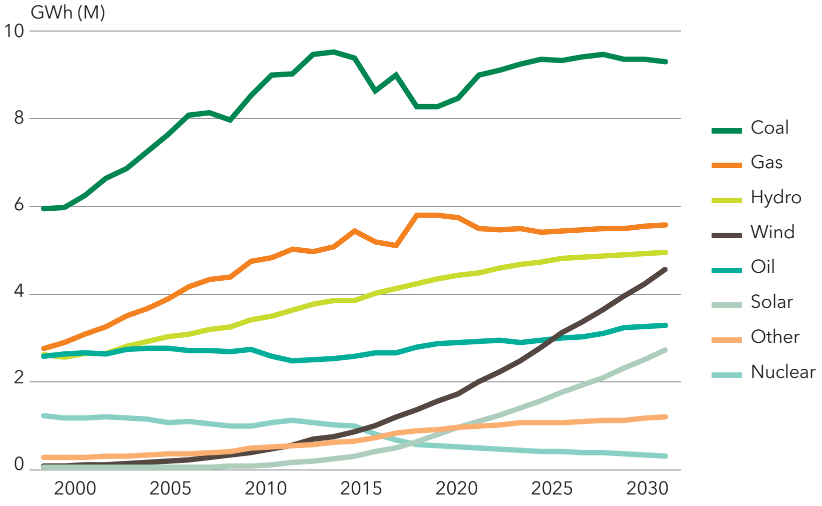
It is not only one of the oldest and most proven energy sources on the planet, it is also reliable, has a large storage capacity and very low operating and maintenance costs. Furthermore, its energy production is less reliant than solar and wind energy on what time of day or season of the year it is.

Aquila Capital's dedicated hydro team has been investing in hydropower assets since 2011. Since then, we have acquired numerous plants across Norway, Portugal and Turkey. Aquila Capital has 143 hydropower plants with a transaction volume of €1.1 billion as of the end of 2018.

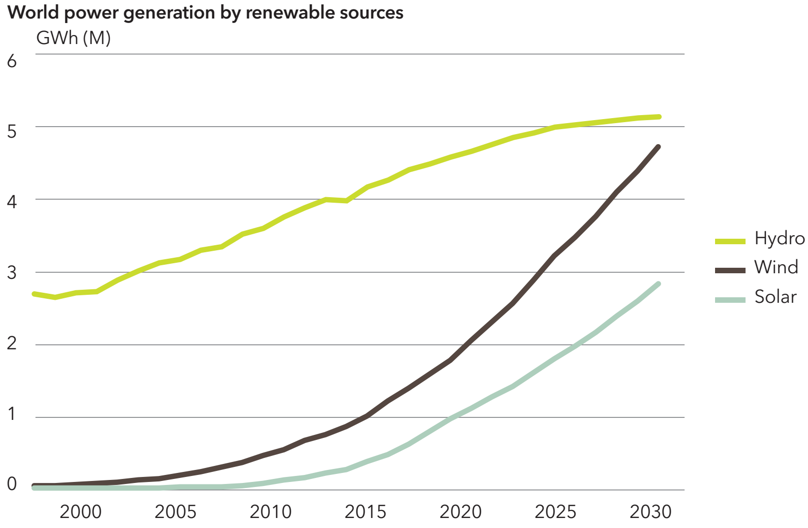
A recent GRESB assessment of Aquila Capital's assets underlined the sustainability performance of hydropower assets and investments. Småkraft, Europe's biggest independent operator of small-scale hydropower plants, was awarded the maximum five-star rating. It was ranked second out of 24 in an analysis of the Northern European renewable power maintenance and operation sector and its score of 73 far outperforms the 45 average of its peers. Aquila Capital's two hydropower funds (European Hydro and Capital European Hydropower Fund) also scored well above the peer average, coming first and third out of 11 in a global comparison.

These results demonstrate that we are driven to act responsibly towards our environment and providing transparency, sustainability and long-term returns for our clients.

Hydropower leads renewable energy generation



World power generation by renewable sources



Source: Bloomberg NEF, IEA, 2018

Diversification effects at the portfolio level

	Hydropower	Wind power	Solar power
Seasonal dependency (highest revenues)	Spring, autumn, winter	Spring, autumn, winter	Spring, summer, autumn
Dependency on the time of day	Very low	Low	Very high
Annual production (full load hours)	4,700-5,200	1,300-1,700	700-1,000
Generation volatility	Moderate	Moderate	Low
Predictability	Moderate	Moderate	High
Operational complexity	Low	Moderate	Low
Regulatability	Moderate to high	Low	Low
Dependence on subsidies	Low	High	Very high

Source: Aquila Capital

this investment by moving the investment returns to the front.

Another option is to issue a bond with a bullet structure on the asset, in order to reduce early debt repayments. In our Norwegian portfolio in 2018, we issued our first green bond through Småkraft, a Norwegian hydropower operator. Proceeds from the €50 million five-year bond were used to finance the company's growth, however, it also had the desired effect of increasing the yield upfront.

Small plants in Norway and northern Iberia offer investment opportunities

The design and size of hydropower plants can vary considerably. On the one hand, there are huge dams with power plants that are among the most powerful in the world. On the other hand, in some countries small hydropower plants (in the form of run-of-river or reservoir power plants) make an important contribution to the decentralised supply of electricity to small towns in remote regions.

Norway is an excellent example of this. The country is rich in water and has high mountain relief. This provides optimal conditions for the operation of hydropower plants. Norway has a long tradition of decentralised energy supply via local run-of-river power plants – split between public and private ownership. This makes it possible for investors there to acquire larger portfolios of run-of-river power plants and operate them efficiently thanks to greater scalability. The high rainfall in the north of Portugal and Spain also offers a very attractive environment for investments in decentralised hydropower plants.

Hydropower plays a key role in the European energy transformation process, not just because of its large production potential. Unlike solar and wind energy, hydropower is generally capable of bearing base loads and the energy from the water can be stored by comparatively simple means.

This is a quality of hydropower that institutional investors can profit from. The mature technology, with its long operational life, high value retention and the greatest possible independence from subsidies, represents an attractive investment opportunity, particularly in the current climate of low interest rates.

Financial return

Once the preserve of philanthropic efforts, deploying capital for impact has moved squarely into the realm of investors seeking financial returns, as well as positive social and environmental outcomes.

In fact, the definition of impact investing set out by the Global Impact Investing Network explicitly includes the objective of financial returns.

Although impact investing covers a range of financial return targets, the proportion of impact investors seeking market-rate returns has been growing steadily and now stands at around two-thirds, GIIN research suggests. In addition, the vast majority of respondents to the organisation's annual survey (91 percent) report financial returns either in line with or exceeding their expectations (even more – 98 percent – said their impact expectations had been met or exceeded). Far from being uncomfortable bedfellows – as some sceptics might believe – these figures suggest that impact objectives and financial returns can easily go hand in hand.

"There is a place in impact investing for a broad spectrum of financial objectives, from concessionary to market rate and everything in between," says Adam Heltzer, head of ESG and sustainability at Partners Group. "However, if you are to mobilise significant capital and create catalytic change, investors need to generate a financial return."

There is scope for investors with different objectives to join forces to achieve greater impact as well as improve financial returns. "There is a lot to be gained from impact investors from all parts of the spectrum working together," adds Heltzer. "In the past there was some scepticism among the more concessionary investors targeting the parts of the world with the greatest need for capital about the motives of financial return investors. But we're now seeing a sharing of ideas that improves practice across the board. Those focused exclusively on impact objectives are now more able to see how to create more sustainable businesses, and investors with financial and impact objectives have a greater understanding of what can genuinely create impact."

The GIIN's ambition is for social and environmental factors to be "integrated into investment decisions simply by default, as the 'normal' way of doing things". We may be a little way off this yet, but there are already some experienced hands that can demonstrate the commercial imperative of impact investing.

"If you manage social and environmental issues effectively," says Shami Nissan, head of responsible investment at Actis, "you are not only de-risking the business and ensuring business continuity, but you're also more able to identify positive actions you take. If you then layer community projects on top of that, you are earning a licence to operate in what can be sensitive environments. We may not take the shortest route from A to B, but by addressing these issues, we're creating significant value in the companies we back."

Global vision

Impact investing may have originated from small investments targeted at improving the lives of local communities, but the growth of the industry and the increased urgency of finding solutions to issues such as global warming have led to much greater ambitions.

Some say the creation of the UN's Sustainable Development Goals in 2015 has been a game-changer in this respect, in particular as all countries agreed to adopt them.

"We live in a very big, messy world," says Adam Heltzer, head of ESG and sustainability at Partners Group. "You need enormous will and resources to address the complex issues it faces – that requires a global vision.

"The SDGs have been a huge success story because of their wide adoption. They are the closest thing we have to a global strategy for improving people's lives and managing the environment and our resources sustainably. They create a framework through which all actors can focus their efforts and build coalitions and collaboration across countries, governments, businesses and people."

Healthcare

The third Sustainable Development Goal, good health and wellbeing, fits squarely within one of the key sectors for impact investors.

Indeed, in the Global Impact Investing Network's 2019 survey of impact investors, healthcare sits in the top three target areas, behind energy and food and agriculture.

Yet while healthcare may seem obvious as an impact sector, there can be significant risk, and investors need to look carefully at the type of sub-sector they support.

"In theory, all healthcare investments can have a positive impact," says Taylor Jordan, managing director at Goldman Sachs Asset Management.

"But the risk of unintended consequences can be high – look at the opioid crisis. We therefore focus on healthcare solutions that materially reduce cost and improve care in areas such as services and technology."

Inclusive finance

The sector aims to establish start-ups, help people out of poverty and assist them with gaining more control over their lives.

It can cover a range of issues, from providing financial services such as credit, pensions, insurance and savings products through to offering education on household budgets and business management.

"If people lack access to finance or face high cost of capital, it is very difficult to improve their lives or grow their businesses," says Taylor Jordan, managing director at Goldman Sachs Asset Management. "If you can provide appropriately structured financial services to underserved populations at the right price, you open up opportunities and develop local economies."

The financial services landscape in emerging markets has been transformed, but inclusive finance is also relevant in developed markets. "In the US, for example, you have millions of people living in poverty without a strong social safety net," adds Jordan. "Many rely on payday lenders to cover financial shortfalls which can lead to a vicious cycle of debt. We see a growing set of investments that leverage technology and market innovations to bring down costs and effectively serve underserved populations."

Job creation

Job creation has long been one of the metrics through which the private equity industry has sought to convince the wider world that it has a positive impact on the communities its investment touches.

This does not make private equity automatically an impact investment. The job creation figures publicised by individual firms and industry associations are, by and large, incidental, and employment creation has historically been a by-product of investing to expand a business.

Yet for some investors, there is a clear intention to create jobs as a means to develop economies and improve people's lives. CDC, the UK's development finance institution, is one example of this. "Job creation is our primary mission because we believe it leads to economic empowerment and there is a strong alignment with financial returns," says Clarisa De Franco, managing director, funds and capital partnerships at CDC.

Job creation is particularly powerful as an objective because it has the potential to help economies meet a number of the UN Sustainable Development Goals, including no poverty, zero hunger, gender equality, decent work, economic growth and reducing inequality.

However, this is far from a simple addition game. "It's not enough just to look at the absolute numbers of added employees in a business or the wider community," says De Franco. "You really have to assess whether you are creating high-quality jobs. Better and higher-skilled jobs improve company prospects and do more to help lift people out of poverty. With higher wages, you're also boosting local economies more broadly."

Taylor Jordan, managing director at Goldman Sachs Asset Management, agrees. "One of our main focuses is on financial inclusion to create jobs in underserved communities," he explains. "But if private equity firms are intentionally targeting job creation as an impact goal, there needs to be a focus on job quality, with income levels and benefits that genuinely make a difference in employees' lives."

For CDC, there is also a multiplier effect, given that it focuses on investing in areas where capital is needed most. "Many of the firms we've backed over the years can now attract more capital from LPs," says De Franco. "That means they can now also target larger businesses. That has a trickle-down effect on employment quality as, with capital, these companies can invest in training. That allows better-paid employees to improve housing and spend on education and healthcare for their families."

KEYNOTE INTERVIEW

ESG and SDGs: More than just an afterthought

Meridiam's Matthieu Muzumdar and Ginette Borduas on integrating sustainability throughout the investment process

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Q How do you ensure that sustainable investment principles are embedded in all your investment decision-making?

Matthieu Muzumdar: We see ESG and the United Nations Sustainable Development Goals as a core element of our investment strategy. It is not an afterthought. It is integral to our investment process. But it goes beyond as our sustainable investment philosophy is now enshrined in our bylaws. And our purpose, which is to deliver sustainable infrastructure that improves the quality of people's lives, is even aligned with the SDGs. And because, at Meridiam, we actually develop infrastructure projects, that investment process can last for between 18 and 24 months. By the time we start deploying capital, we have already been shaping these projects for a long time, including the ESG and SDGs aspects. The investment committee meets four or five times over that period, to review progress. At each stage there is specific focus on sustainability, which of course becomes more nuanced as time goes by.

Q To what extent do you focus on screening negative factors, versus creating positive impact? And how do the two interact?

Ginette Borduas: For us, ESG risk management and positive impact are the two sides of the same coin. New infrastructure is, by definition, complex, large and will be in use for decades, so there is bound to be some negative impact. We need to look at these risks and make sure they can be justified and managed properly, so that the social and environmental benefits that are generated will counterbalance the negative impact and produce an overall positive outcome.

Q What do you consider to be best practice in terms of your internal resourcing in this area?

MM: Because sustainability has always been integral to our investment process, the investment directors leading projects have historically taken responsibility for environmental, social and governance issues. We felt it important that ESG wasn't viewed as an external add-on but was fully integrated into the way we all work. Back in 2015, we decided that the United Nations

Senegal solar: bringing significant power capacity at affordable prices

Integrating sustainable investment practice

Sustainable investment practice is integral to Meridiam's investment philosophy

"In a nutshell, what we have done is build, and now operate, solar plants which are bringing significant power capacity to the country at affordable prices for the utility and therefore for local users, at the same time creating significant secondary benefits for the local community," says the firm's Matthieu Muzumdar. When developing a hydro-powered plant in Gabon, meanwhile, Meridiam took the unusual decision to downsize the project by almost half when the extent of potential biodiversity challenges were uncovered in the development phase.

"We decided to downsize to reduce the impact on the natural environment," says Ginette Borduas. "We take the same approach evaluating impact on communities as well. This is the advantage that we have in developing projects from the outset. We can take our time to investigate everything thoroughly to the point where we are comfortable that the positive will outweigh the negative. This is our business model. We won't ever do it any other way. All of our projects have to go through this rigorous process in order to become a reality."

Sustainable Development Goals had to be at the heart of all our projects alongside social and environmental impacts. It coincided with the adoption by all United Nations member states of the 2030 Agenda for Sustainable Development. We also took the view that we needed to have someone with full-time responsibility for sustainable investment practices, which is when Ginette joined the firm.

Ginette was able to bring added depth and breadth of expertise and the ability to implement and monitor delivery of our sustainability principles in a consistent way. It gave us an additional layer of oversight and control. I think having that combination is important. To be effective, ESG has to be front of mind for those people actually negotiating construction contracts and discussing technical designs, but at the same time there is a real value in having a dedicated resource.

"To be effective, ESG has to be front of mind for those people actually negotiating construction contracts and discussing technical designs"

MATTHIEU MUZUMDAR

Q Do environmental concerns dominate or are social concerns an equal priority?

GB: For us, because of the nature of the projects we invest in, they have always been equally important. The infrastructure we build is, first and foremost, meant for the community. Sometimes there will be a strong environmental component, but the justification is always linked to community benefit and social acceptability.

We take great care to use a participatory approach on every project, engaging early with all stakeholders, including representatives from the population. Our strategy is to develop the project alongside them. That's how you really ensure social acceptability. It isn't something you can add on at the end of the process. It is something you build.

MM: Every project we work on will have specific initiatives around job creation, apprenticeships and the participation of small, local businesses, for example. For us it has never only been around environmental concerns.

Q How important is measuring and reporting on sustainability? And what are the challenges?

GB: We have developed our own, tailor-made methodology based on the UN SDG framework. We have adapted that framework, to bring it in line with the Meridiam business model and the types of project that we are undertaking. The reason we have created a bespoke framework is that it can be challenging to find a methodology that allows you to monitor and report on different types of assets in different geographies. There is normally a checklist, or set of KPIs, but those can't necessarily be adapted to specific circumstances and it can be difficult to tell the right story.

We also believe it is very important to benchmark, however, which we do using the PRI, for example. This helps us to see how we compare to a stringent framework and it is something we take very seriously. We compare favourably, but we will work very hard to improve every year. We work hard to improve the way we manage sustainability issues and the performance of our assets and ultimately, we work hard to improve our business model over time.

Q Are LP attitudes towards sustainable practices changing?

MM: Globally speaking, we have certainly seen an increased focus and interest from LPs on the sustainability of assets, and I see that as a very positive shift. But many of our investors some of which have been supporting us for almost 15 years now were already opened and pioneers about this issue.

GB: Investors aren't only interested in the financial outcome, certainly. They want to know what these assets will do for the community. They want to know what the positive impacts are. That is why it is so important to have the right framework, so that we can monitor and communicate the performance of each asset as it evolves.

Q What do you see as the correlation between sustainable investment practice and returns in infrastructure? And how does the investor community view this issue?

MM: We believe that there is no trade-off between being more sustainable and generating better returns. We believe that by excelling in ESG, we actually reduce the volatility of our investments. It is one of the best risk mitigants that you can have. I know there is debate about this in the investor community, but over the years I think investors have increasingly embraced this view. I also think our track record goes some way towards proving it.

> *"The infrastructure we build is, first and foremost, meant for the community"*
>
> GINETTE BORDUAS

GB: We are very long-term investors, so taking into account ESG risk also means looking at climate change, and carbon transition. These things are incredibly important to us because no-one wants to get caught with a stranded asset. That's why we select our projects very carefully, we make sure they are well justified and that in the long term they will be sustainable. Of course, resilience is also about adaptation. We will look for ways to adapt an asset if we need to. But a lot of the work we do is about trying to anticipate everything that could happen over time and then pick projects that will still make sense in the long term. That is what will bring value to the asset.

MM: You have to think about the investment profile that our LPs are looking for, as well. They are not looking to make huge returns but at huge risk. They are pension funds and insurance companies. They are looking for sustainable returns over the long-term. That is consistent with having a sustainable investment practice.

Q What are the biggest challenges for the infrastructure industry in terms of achieving sustainability?

GB: One of the biggest challenges we face now is actually agreeing on what needs to be done. Everyone says they see ESG and SDGs as important. But just how far do you go with that and what does it actually mean to deliver positive impact? How should you incorporate sustainability into everyday business? Do we need standardisation or do tailor-made approaches make more sense? These questions are really important, but it is difficult to get everyone on the same page. Another challenge is driving sufficient investor appetite for smaller, more complex projects. Big projects always attract a lot of attention, but if you look at the critical infrastructure being built in Africa and other emerging markets – waste management projects, potable water projects – these can be challenging and are often quite small. We need to find ways of bundling these together, because it is these projects that have the potential to deliver the greatest positive impact.

Then there is the question of what you do with stranded assets. Are they transformable? We are always conscious of these challenges because of the nature of the projects we are investing in. But a lot of infrastructure won't have a long-term plan in place. This infrastructure will need to be transitioned or replaced and the question of how that will be financed is something that is still being discussed. I know it sounds as if I am presenting more problems than solutions, but that is why Meridiam is always looking to the future and trying to anticipate what challenges, but just importantly opportunities, will come next.

MM: Finding solutions to these problems is what we are all about, after all. We have developed a number of clean energy projects across Africa for example, in the solar and geothermal space, meeting the demand for power there in a sustainable way. We also have a fund dedicated to energy transition, where investments include Allego which is developing charging infrastructure for the further deployment of electric vehicles throughout Europe. The pension funds and insurance companies that make up our investor base are committed to improving the sustainability of infrastructure and these are just some of the ways we are working with them to do that. ■

Senergy solar plant, Senegal, 2019

Kids and the future generation

Helping children to adapt in our rapidly changing world begins at birth and continues through early childhood and education for impact strategies.

A good example of what can be achieved can be seen in the Open Society Foundations, a network of foundations, partners and projects in more than 120 countries created by philanthropist George Soros.

One of the foundation's main objectives is education for all – promoting child-centred high-quality schooling and teacher training, while seeking to strengthen good governance and accountability across educational institutions and systems. From providing a better future for Syrian refugee children to training early childhood educators in Islamabad and providing legal advice to Roma parents, the foundation takes a broad developmental approach in all its initiatives.

A noteworthy project is Sesame Workshop, an educational programme specifically created to address challenges and the needs of Syrian children now living in Jordan. The programme combines the television show *Sesame Street*'s expertise in mass media and educational content with the International Rescue Committee's expertise in conflict and displacement. Now in its third year, Sesame Workshop is expanding to reach children and families through television, mobile phones and direct services in homes and preschools, giving them the skills to succeed in life. Its goal is to reach 9 million children in Iraq, Syria, Lebanon and Jordan over the next five years.

Low-cost housing

In the UK, the lack of readily available affordable housing remains a problem as private rents continue to rise and sharp declines in affordability are causing homelessness.

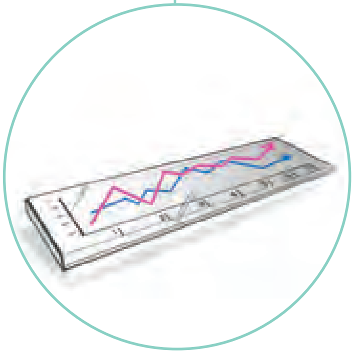
London- and New York-based sustainable and impact investor Bridges Fund Management is one manager that aims to invest around the underserved parts of the UK. The firm's investments in housing fall under one of its four key investment themes: stronger communities.

Capital from its property funds, which had raised more than £500 million ($629 million; €570 million) as of September, has been invested in developing close to 1,500 homes in Greater London, of which around 40 percent are classed as affordable housing. "What we have been able to do over time is work out ways to structure deals and work with local authorities and reduce costs on the build process so that we can increase the amount of affordable housing within the overall mix," says James Taylor, Bridges' head of communications.

One of the firm's recent investments is helping to regenerate the centre of Croydon in south London with 251 lower-cost residential units, 262 affordable housing units and 13,000 sq ft of commercial ground floorspace at Taberner House.

Bridges also puts environmental sustainability at the centre of its property investments. One of the residential buildings it has developed in Hayes, located in the outskirts of west London, was constructed using cross-laminated timber, which reduces build time and material wastage.

Through Bridges Evergreen Holdings, its long-term capital vehicle, Bridges has also created the Ethical Housing Company, with a goal to acquire a portfolio of between 80 and 100 lower-cost homes in Teesside to rent to people on lower incomes.



Metrics

The ability to measure impact is hugely important because it creates accountability, says Tania Carnegie, leader of KPMG's Impact Venture practice.

"Investors need to have confidence in a manager's ability to generate financial returns and its ability to create social and environmental benefit," she says. "Measuring both sets of outcomes is critical to achieving that."

"Effective measurement and assessment is vital to improving outcomes in impact investing," adds Maryanne Hancock of Y Analytics, a company that helps capital allocators understand, value and manage social and environmental impact.

"Solutions and methodologies need to stretch across products, industries and markets, account for magnitude of impact and ultimately increase confidence and better inform capital allocators and decision makers. Done correctly, effective assessment can help unlock the scaled capital needed to reach the sustainable development goals."

The impact investment community has certainly made substantial progress over the past decade in building the frameworks required to measure outcomes. These include the social return on investment, or SROI, framework, as well as work carried out by the Global Impact Investing Network and Impact Management Project. Social impact consultancy Bridgespan and investor TPG Rise, meanwhile, have developed and implemented what they call the Impact Multiple of Money.

"We are now at the point where viable and practical means of measuring impact are in the public domain," says Stephanie Krater of Bridgespan. "The existence of tools should no longer be cited as a barrier to measuring impact."

Challenges undoubtedly remain. Despite a proliferation of frameworks for measuring impact, there is still no single common language. Although tools now exist, arguably we have too many. "We haven't yet got to the point where we have a widely accepted framework such as GAAP in the accounting world," says Carnegie.

"Investors will eventually coalesce around one framework or another," adds Vadim Avdeychik of law firm Paul Hastings. "That is what always happens, and it is what is needed for the industry to move forward."

Meanwhile, some social impacts are simply harder to measure than others – for example, the impact of changing gender norms or the impact of driving civic engagement. And, of course, predictions of impact will always be estimates, just like predictions of financial performance.

"But while there are robust systems for measuring financial performance – standards and actual money to see along the way and at the end – tracking outcomes for people and the planet is complex and expensive," explains Krater, "Causality is hard to know, and the benefits can take years to materialise."

The impact industry is still in its nascent stages. Long-term investment horizons mean both financial, and impact, track records are limited. Nonetheless, developing the ability to measure performance will prove critical to the growth of this burgeoning asset class. "Measuring impact is important for the same reason that measuring anything is important – it can prompt action," says Krater. "In this case, the actions we hope to prompt include allocating capital to higher impact uses and engaging with companies to strengthen the impact they have."

KEYNOTE INTERVIEW

Building a sustainable future

Genuine sustainable impact is best achieved through new asset creation, says David Scaysbrook, founder and managing partner of Quinbrook Infrastructure Partners

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Q What is driving the industry's move towards sustainable investment practices?

Supported by the UN's Principles for Responsible Investment and, in particular, the Sustainable Development Goals, there is a growing appreciation among institutional investors of the non-financial aspects of the investment of their capital. Meanwhile, the carbon divestment movement has highlighted reputational risk for investors and sustainability track record and credentials are increasingly important in their choice of strategy and relevant managers.

It is only in the past three years that we have seen ESG screening factored into manager selection criteria. That is a very significant development. There is real momentum building behind the need for sustainable investment practices and I don't think that is going to change.

Q How are LPs approaching due diligence in this area and is it changing?

We are seeing more questioning around ESG credentials from both a policy and investment management perspective, although this is often still rather superficial. Three years ago, I would be able to count the number of due diligence questionnaires that specifically referenced sustainability/ESG on one hand. Now it is becoming the norm. However, relatively few investors probe much deeper than that. Having a PRI ESG rating offers additional comfort for many LPs, because it provides a third-party validation of a GP's ESG credentials. These things are definitely starting to be factored into investment decision making and GP selection, but we are still at the beginning of the journey.

Q What about LP attitudes towards impact investing? And how does the concept of impact fit with sustainability?

For us, the two go hand in hand. We define impact investment as the ability to measure incremental benefits and value creation from the deployment of institutional investor capital. It can be measured in many ways

Sustainable asset creation in practice

In June 2019, Quinbrook Infrastructure Partners signed a 25-year Power Purchase Agreement with NV Energy for the AC Gemini Solar + Battery Storage Project.

Located in Nevada, Gemini is believed to be the largest solar-powered battery storage system in the world to date, featuring a 690 MW photovoltaic array, coupled with a 380MW AC battery storage system capable of storing over 1,400 megawatt hours of low-cost, renewable power each day. Gemini will be a major new construction undertaking for Quinbrook, at an estimated cost of $1 billion and extended over an 18-month period. The project is expected to use more than 2.5 million solar modules, support over 2,500 jobs and bring over $450 million of financial stimulus to the Nevada economy.

"Gemini is a significant power infrastructure project that sets new benchmarks for the teaming of solar PV and battery storage at large scale in order to deliver low priced, renewable power to benefit the citizens and the economy of Nevada," says David Scaysbrook.

"Gemini has the potential to be a game-changer for the deployment of cost-effective renewable power at a time when sustainable investment to reduce emissions from power generation has never been more critical. The long-term commitment that NV Energy has made to ensure that Gemini can be built shows their commitment to harnessing the abundant and low-cost solar resource available in Nevada and matching that with the recent advancements in battery storage pricing and capability.

"The advantageous location of Gemini and the significant scale of the project means that based solely on cost factors, renewable power from Gemini is expected to be cost competitive with traditional sources of power generation for at least the next 25 years," adds Scaysbrook. "Gemini offers very positive and tangible ESG impacts due to the deployment of our investors' capital in new energy infrastructure, allowing us to both create and deliver material financial, environmental and economic benefits on their behalf."

The addition of battery storage at the Gemini site, especially during periods of high electricity demand from Nevada power consumers, is expected to help reduce carbon emissions from existing power generation sources by over 1.5 million tons per year. At 690MW of solar PV capacity, Gemini currently ranks as the second largest solar project in US history and together with the 380MW AC of battery storage capacity, offers the ability to power over 400,000 homes in Nevada both throughout the day and into the early evening hours.

such as job preservation, for example, or in quantification of carbon emissions reductions or improvements to health and safety through lower incident rates. But it needs to be tangible and it needs to be objective.

Investors want to know that, yes, you have constructed a project on time and on budget, but also that you have adhered to industry best practices around all of these other areas in the conduct of your business deploying their capital. And, if you can't measure it, you can't manage it. So, for us, impact is about being able to directly attribute and measure those especially non-financial benefits and incremental value creation to the real time deployment of our investors' capital.

Q You focus on new asset creation in the clean energy space. What implications does that greenfield strategy have for sustainability, and for impact?

We bring new assets into existence. We are not just buying assets that are already operational and improving them. That is critical because the positive and incremental impact of new build is so much greater, and so much more tangible.

Q How do you ensure that sustainability is embedded in all your investment and asset management decision-making? What do you consider to be best practice?

Anyone who says they've cracked that nut is probably exaggerating. It's still very much a work in progress for us as it is with most GPs. But, for us, it starts with identification of meaningful sustainability indicators followed by measurement. Over the past few years, we have been focused on practical approaches to measuring non-financial benefits and broader value creation resulting from our investment process. Increasingly, we are spending more time on sustainability aspects of day-to-day decision-making in operational asset management post-investment.

But there is no industry standard in energy infrastructure as yet. We ask ourselves questions like "how far do you go in your enquiries with manufacturers of equipment to interrogate their business and operational practices in supply chain management" for instance? Is a set of initial questions enough? Or do you need to dig deeper? Is that practical in the cut and thrust of managing a fast-paced investment timetable?

To give you an example, there are two main types of battery technology within the lithium landscape that we evaluate. One is eminently more recyclable than the other but is currently more expensive upfront. Do we put a value today on the likely future cost of recycling to make the two comparable? If so, how do we price that today, if the materials are not going to be recycled for another 25 years? These are the sorts of things we are wrestling with. Just how far do you go? What are investors' expectations? There really isn't a benchmark for best practice assessment right now. The concept of sustainable investment is still quite nascent.

Q What are the biggest obstacles to being able to measure and benchmark sustainability? What would help you when you are wrestling with these issues?

I think it's definitional. Having a consensus among institutional investors about what their expectations are on criteria and measurement is where we need to start. We are only custodians of their capital after all. The UN SDGs have been helpful in this regard. They have at least created a charter that people can sign up to and say, yes, we will subscribe to these principles when we invest. I think developing a greater consensus on what is most important to our stakeholders is essential for sustainable investing to continue to evolve.

Q How successful has the industry been, overall, in improving sustainability? How much of a differentiator is it?

I think an honest assessment is that we are still very much at the beginning of what can be achieved, and it won't be until investors start voting en masse for sustainable investing by allocating their dollars that we will see meaningful change. We are however, genuinely moving on from the 'window dressing' phase.

Everyone has an ESG policy because, from a business perspective, you would be crazy not to. But the next stage is demonstrating that policy in action with practical examples and proof of improved investment outcomes. Ultimately, we will get to the point where institutional investors will withhold their investment unless their sustainability criteria are met.

For example, a state pension plan in the US recently deselected two, very well-known GPs, because they didn't have sufficient diversity within their investment team. That was a big statement for the LP to make and it really made people sit up and take notice. Normally these things happen in a nuanced way, behind closed doors, but to actually stand up and say this in public was a real wake-up call.

Q What do you see as the correlation between sustainable investment practices and returns in infrastructure? And how do your underlying investors view this issue?

For us it comes back to the asset creation story. Not long ago, investors were reluctant to allocate to strategies where GPs were taking development and construction risk despite the potential for higher returns. They were very risk averse and they wanted assets de-risked and operating before they were interested in investing. But now there is a growing realisation that if you are not prepared to take those risks, then how can you bring new and more sustainable, assets into existence and have the true impact that you are seeking? Admittedly the potential return premium has made these risks easier for LPs to accept when there is return deterioration across the board in most asset classes.

"Ultimately, we will get to the point where institutional investors will withhold their investment unless their sustainability criteria are met"

There has historically been a misconception (in our view at least) that the development and construction risk offsets the impact benefit. But investors are acknowledging now that by taking on development and construction risk, it is possible to both generate better returns and deliver impact without a financial penalty.

They are more prepared now to allocate a portion of their portfolio to new asset creation because they want that impact attribution. They want to be able to say their capital is driving more sustainable outcomes. And, if they don't want a return penalty as a result, they need to make sure the GP they have chosen is managing construction and development risk well and has a good track record of success.

Q How much further does infrastructure have to go, as an industry, to be truly sustainable? What do you believe can and will realistically be achieved?

The next 10 years are going to be critical from a variety of perspectives. Some of the macro trends we are experiencing have been incredibly helpful – low inflation, low interest rates and a dearth of returns in equities and fixed income, in particular – have all helped drive more capital into infrastructure asset classes.

Meanwhile, new asset creation is taking an ever-bigger share of the overall allocations pie and I believe that over the next decade, new asset creation in more sustainable infrastructure will reach three or four times the capital flows that we see today. At the same time, we are seeing the emergence of new sub-classes of assets within the sustainability thematic.

Renewables dominate today, but we will also see more opportunities in areas such as waste management, recycling, water efficiency and new agricultural practices.

Nutrition

Food insecurity is a critical issue, and not just in the developing world. In the US, there are supply-side investments aimed at bolstering the production of milk and proteins where there are shortages, as well as improving storage and preservation time for fresh foods.

There are also companies on the demand side – for example, a business that helps Americans receiving Supplemental Nutrition Assistance Program benefits access their balances immediately.

Start-ups, meanwhile, are busy focusing on developing new sources of nutrition. Private investor Fabrice d'Erm is working with a company that believes protein-rich algae are the answer. "If you don't have the right nutrition, you can't get the right education," says d'Erm.

"Hopefully, using algae, we can solve a lot of the problems we have with nutrition around the world, while also reducing the CO^2 emissions associated with other types of food production."

Oceans and clean water

The impact opportunity around oceans and clean water is extensive. It ranges from sustainable fisheries and aquaculture, to water purification technologies, water-reducing production processes, and products and services that reduce the use of plastic, and which therefore reduce the quantity of plastic ending up in the sea.

"One great example is Sky Ocean Ventures, set up by the Sky Group to invest in impact-driven organisations that have innovative solutions, new science and technologies that can create scalable solutions to address the global ocean plastic crisis," says Chris Parsons of specialist impact investment bank ClearlySo.

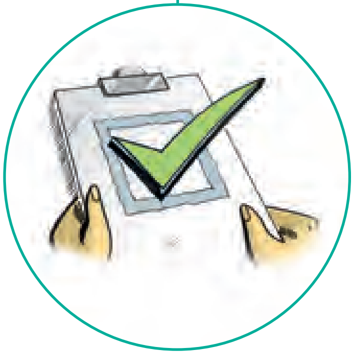
However, Stephanie Krater of social impact consultancy the Bridgespan Group says the key challenge is that so many businesses have negative externalities that relate to clean water and clean oceans, and there has not always been a way to quantify or measure these. However, there is now work being done by Trucost, for example, which estimates the cost of using or polluting water that is supporting activity in this area.

PPP

Development finance institutions show how public-private partnerships can generate impact and returns – through direct investment in commercial enterprises and investment via private funds.

"DFIs have a strong role to play in building capacity and helping mobilise commercial investor capital towards areas that need investment most and that have the potential to create significant impact," says Clarisa De Franco, managing director, funds and capital partnerships at CDC. "Many commercial investors may not feel comfortable yet with investing in the markets we target, but if we can address the challenges these economies face and create sustainable industries, other investors will come – it just takes time."

And, as with any partnership, there are benefits on both sides. "There is much that other investors can learn from the experience of DFIs, and we can also learn from commercial investors," says CDC deputy CIO of catalyst strategies, Yasemin Saltuk Lamy. She points to MedAccess, established to lower the cost and increase the availability of medical supplies in under-served markets, and Gridworks, a development and investment platform that targets transmission, distribution and off-grid electricity in Africa. Both have received around $200 million from CDC.



Quality outcomes

To be considered successful, an impact investment must achieve both its financial and impact objectives.

"Impact investing is about generating measurable, social or environmental impact alongside financial returns," says Chris Parsons of specialist impact investment bank ClearlySo. "We have seen clients that started off raising seed capital subsequently secure investments from larger, mainstream institutions at substantially higher valuations as their business and revenues grew, showing that they can deliver higher commercial value as well as measurable impact to investors."

Parsons cites the example of Bulb Energy, which raised early capital from institutions and individuals in 2017, before raising further capital at higher valuation multiples last year. "It is now seen as one of the potential unicorns of the impact investment market," he says.

The extent to which achieving these parallel financial and impact outcomes is the norm is unclear, however, primarily because the industry is still so young. "There have yet to be a lot of big exits in the impact investing space, and even fewer of these exits have been accompanied by rigorous, retrospective studies on their impact, so in some ways the jury is still out," says Stephanie Krater of impact consultancy Bridgespan Group.

"That said, we have reason to be particularly optimistic when impact investment is directed to businesses in which profit and impact are inherently in lockstep. For example, off-grid solar companies will only be financially successful if they can reach new customers, and if they can reach new customers, they will very likely have positive impact." Indeed, early returns research produced by the Global Impact Investing Network has found that impact investments can perform just as well as their conventional counterparts, according to Sapna Shah, managing director of GIIN. "It really just comes down to manager selection, as it does for any investment," she says.

But with a limited track record to draw on, there are a number of questions that investors should be asking of impact managers before committing their capital. Chief among them is how impact is measured. Investors need to understand what frameworks are used and if results are independently verified by auditors. They also need to scrutinise how impact is resourced within a firm and whether managers are genuinely investing in order to further sustainable development goals or are 'greenwashing' their existing strategy with an SDG overlay, says Vadim Avdeychik of law firm Paul Hastings.

Avdeychik adds that investors should bear in mind that the impact industry hasn't experienced a downturn and, with the prospect of a change in the economic environment on the cards, it remains to be seen how impact will fare.

"It is a relatively recent phenomenon, so it will be interesting to see how impact investments perform when the cycle turns," he says. "Our clients certainly seem to believe that impact investment should outperform and, if it does, that will lead to even bigger inflows of capital as a result."

EXPERT COMMENTARY

The asset class has many unique attributes, and none more so than its centrality to the wellbeing of our planet and the concept of sustainable investing, writes Mark McComiskey of AVAIO

Infrastructure's most important role

The construction and operation of infrastructure account for roughly 60 percent of all carbon emissions. The technological lock-in and inertia of long-lived infrastructure mean that what we build now will determine our climate future. The flip side of infrastructure's outsized impact on climate change, often under-appreciated, is its unique vulnerability to the consequences of climate change. Long-lived, high-cost, spatially fixed assets are highly vulnerable to the physical, social and regulatory impacts of climate change.

All investors in infrastructure, particularly those, like AVAIO, specialising in the creation of new core infrastructure assets, must focus on the sustainability of the infrastructure in which they invest.

As with many areas of ESG, precise conversations about 'sustainable infrastructure' are hampered by the lack of a commonly accepted definition. Definitions matter, as they set the terms of the discussion and lay the foundation for translating concepts into actions. Overly broad definitions are challenging to operationalise, while unduly narrow definitions can lack materiality.

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Definitions of 'sustainable infrastructure' run the full gamut, from the narrow, more literal 'green infrastructure', for example, natural areas that provide water runoff control, to the expansive "an approach to infrastructure based on global and domestic sustainable development goals and durability that accounts for social, financial, political, institutional and public health issues as well as economic and environmental concerns".

Curiously, many definitions of sustainable infrastructure focus on the impact infrastructure has on the environment while failing to account for the impact the evolving environment will have on the infrastructure. This is a significant oversight: given its role in providing essential services to society, infrastructure must be designed physically and structured economically to be resilient to the effects of climate change. Otherwise it is not, in any sense of the word that matters, sustainable.

For this discussion, our definition focuses on environmental considerations. Infrastructure is 'sustainable' if, throughout its lifecycle, it supports the sustainable and efficient use of natural resources, minimises impact on the natural environment, limits all types of pollution with best feasible technology and practices, is resilient to the reasonably forecastable impacts of climate change, contributes to a low-carbon society, and provides an economic return sufficient to attract capital to build and maintain the asset throughout its lifecycle.

This definition is not intended to disregard the importance of social, institutional, political and health issues in the development of new infrastructure. There is sometimes a temptation to dismiss these areas as 'softer' or more qualitative. This is a mistake. At a societal level, a failure to systematically address these factors will undermine the social consensus needed to create new infrastructure and to make it sustainable.

Criticality of sustainability

So why is a focus on sustainable infrastructure critical? At AVAIO, our answer to this question is informed by our status as global citizens and as investment managers. But before explanations, some facts.

- The reality of anthropomorphic climate change is a fact. On this there is firm scientific consensus.
- The quantity of greenhouse gases already introduced into the atmosphere, even if we were to cease all such emissions today, has a warming inertia that means significant physical impacts from climate change are unavoidable. Even if the world manages its carbon budget to the 2-degree scenario, which we are not on track to do, the impacts of climate change will be still more significant. On this there is firm scientific consensus.
- While precisely forecasting the specific nature, locale and timing of the impacts is beyond current capabilities, it is clear that the environmental, economic and social impacts of climate change will be in the aggregate negative, material and widespread, and will manifest both in greater short-term event volatility (hurricanes, for example) and in longer-term structural changes (such as rising sea levels and decreased agricultural productivity in some regions). Again, on this there is firm scientific consensus.

The motivation to focus on sustainable infrastructure is therefore two-fold. First, the ethical. As citizens of the world, armed with an understanding of, and, importantly, sufficient options to address climate change, it is incumbent on all of us to do everything we can to mitigate this crisis. Moreover, those of us fortunate enough to be able to direct the flows of infrastructure capital are in a unique position to be impactful. With projections of as much as $90 trillion in spending on new infrastructure in just the next 15 years, and with infrastructure construction and operation accounting for as much as 60 percent of global carbon emissions, for the world to have any chance of meeting the 2-degree targets, the vast majority of this infrastructure will need to be 'sustainable'. As agents in the industry responsible for the majority of global greenhouse gas emissions, we have the responsibility and the capacity to act through a focus on sustainable infrastructure.

This obligation to act is frequently challenged in some venues. Many in the US remain rooted in the belief that the only fiduciary duty of investment managers – and corporate management and boards – is to maximise the economic return on their assets. This is a false dichotomy, especially for those investing in long-lived infrastructure. Leaving aside for a moment the false

Rising sea levels

The consequences of climate change can be seen clearly today

Since 1900, the rate of sea-level rise has increased from 1.5mm a year to 3.4mm a year. As a consequence, the National Oceanic and Atmospheric Administration predicts that disruptive coastal flooding in the US north-east and areas around the Gulf coast will increase in frequency from three to six days a year today to 80-180 days a year by 2040. This on some of the most intensively developed real estate in the world: Miami, Houston and New York. Moreover, this is a global phenomenon – Ecuador has already lost 11 percent of its land mass to rising sea levels.

$14.1bn

Reduction of home values on the US east coast due to rising sea levels

paradigm of the "inherent" environment/return trade off, it is worth noting that outside of the US much of the developed world is moving to a new understanding of fiduciary duty, one that requires an active consideration of ESG factors. Canada, the UK and Germany are moving to codify this. In Sweden, the national pension funds are required to become 'exemplary' in the field of sustainable investment. The Dutch pension fund ABP is fully integrating ESG across all asset classes. There is an increasing consensus that those who can act, must act.

Investors are forward looking

The second motivation is practical. As investment managers, even the narrowest conception of our duty is to try to earn the best risk-adjusted returns possible for our clients. In this context, we must all be cognisant that the consequences of climate change, while uncertain as to precise timing and extent, are certain to occur and to be material. As the impacts become more frequent, severe and widespread, there will be an inevitable societal response, with shifts in people, capital, industry, and increasingly intense regulatory responses intended to decarbonise society. There will be real, significant impacts on infrastructure, both from the physical effects of climate change and from the changes in societal behaviours and regulation. These climate risks must be considered at least as carefully as more traditional risks, such as commodity prices, volumes, interest rates and taxes.

As these trends become more pronounced, they will be increasingly factored into capital flows and valuations. This is not a theoretical observation. A recent study has shown that sea-level rise has cost $14.1 billion through the reduction of home values on the east coast of the United States just since 2005. A recent NBER working paper found that private real estate lenders are increasingly shifting mortgages on properties in areas vulnerable to climate change to Fannie Mae and Freddie Mac, government sponsored enterprises. The Bank of England now requires financial institutions to run climate-impact scenarios in their stress tests.

Public market investors and commercial lenders often have much shorter time horizons and the ability to quickly shift capital in response to emerging risks. Infrastructure investors are the converse: their investments are often in illiquid assets that are inherently long-lived, static and high cost. As such, infrastructure investors are more exposed to the potential return impacts of climate change and so need to be on the leading edge of incorporating a clear-eyed view of the risks and opportunities into their underwriting and asset management programs. A focus on the sustainability of infrastructure is thus inherent to an attempt to achieve the best risk-adjusted returns for clients.

Operationalising sustainability

How to operationalise a focus on sustainability in an infrastructure investment organisation is beyond the scope of a brief article. Properly done, it requires an integration of environmental considerations and risks into all stages of the investment life-cycle: investment selection, underwriting analysis, asset development and construction, and asset management.

At a high level, many organisations have focused on investment selection, adopting a variety of approaches: exclusionary screening (avoiding industries deemed objectionable or business/countries that violate a set of norms); positive screening (selecting businesses/assets with a focus on sustainability); and sustainability-themed investing (focusing on renewables, clean water, energy efficiency, etc.)

> *"Those of us fortunate enough to be able to direct the flows of infrastructure capital are in a unique position to be impactful"*

Less common is the integration of sustainability risks into the underwriting process in a quantitative manner. This is vital, especially for those focused on the creation of new core infrastructure.

There is no single, standardised approach to this. When underwriting a new project, we engage experts to perform a physical risk analysis of the asset under various climate scenarios for time periods ranging from five to 20 years forward. In the case of a coastal desalination plant, this might forecast items such as air temperatures, water temperatures and acidity, sea-levels and severe-weather frequency. As with all forecasts (GDP, interest rate, traffic volume), there are uncertainties, but when well-informed they provide a basis for quantitative analysis.

These forecasts are used in multiple ways. They are considered in the design of the infrastructure, to ensure it is sufficiently resilient to operate effectively in a wide range of climate scenarios. They are considered in the negotiation of offtake contracts, where we seek to pass through increases in operating costs that may arise as a result of climate change. And they are integrated into our underwriting, where we run scenarios that reflect the impacts on the economic performance and exit valuations that may arise from climate change. Assets with higher negative climate impacts show lower risk-adjusted returns, and so must have higher unrisked returns to meet our hurdle rates.

Factoring this kind of analysis into underwriting does not imply lower returns; on the contrary it is a key to achieving better returns.

Infrastructure is unavoidably exposed to the impacts of climate change. Many investors in the sector have long investment horizons and hold illiquid positions. As climate change impacts increase in frequency and severity, and as the investment community begins to extrapolate these trends and factor them into valuations, infrastructure investors will face real consequences in their portfolios. Prudent infrastructure investors need to act now to factor sustainability analysis and management into all stages of their investment cycle, or risk both disappointing returns and a badly compromised planet. ■

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Renovation

Retrofitting – or renovation – is a core component of many real estate impact strategies. Nuveen, for example, is an investor in dynamic glass company View, which improves the energy footprint of buildings.

Glass needs to be replaced around every 30 years, and View's products are often retrofitted into existing spaces. In fact, Nuveen's own New York offices are currently being fitted with the automatically tinting glass.

Renovation and retrofits are also important components of Nuveen's residential strategy. One of the firm's three pillars of impact is affordable housing and the firm is continually acquiring multi-family housing stock, not only to improve its environmental sustainability, but also to keep rents affordable.

"It could be something as simple as changing all the lightbulbs in a property to LED," says Nuveen's portfolio manager, impact investing, Rekha Unnithan. "We also do audits of water and energy consumption and constantly strive to make housing as efficient as possible, even if it was built 20 years ago. There are always things you can do at the margin to improve real estate from an impact perspective. Frankly, those things also contribute to our bottom line."

Scale

The Global Impact Investing Network recently estimated that impact investment assets under management total $502 billion, up from $114 billion in 2016. The scale of global awareness is also rising rapidly.

GIIN has found that one in four dollars of professionally managed assets, equating to around $13 trillion, now considers sustainability principles. That means there is real potential for investors, who have already aligned their capital with their values, to more intentionally drive progress through impact investment.

"In addition to these quantitative measures, I think there are quite a few qualitative indicators of scale, including the emergence of an advisory ecosystem," says GIIN managing director Sapna Shah. "For example, we now have auditors verifying social and environmental performance and law firms working on structures, terms and covenants pertinent to impact.

"A lot of progress has been made in the past decade. That said, the $502 billion is nowhere near enough to meet the climate, social and health needs the world is facing. There is quite a bit further to go."

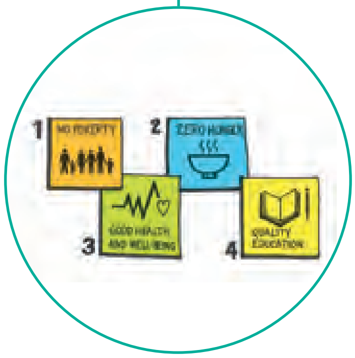
Ticking clock

Last year, the UN Intergovernmental Panel on Climate Change published a landmark report that claimed we only have 12 years left for global warming to be kept at a maximum of 1.5 degrees, beyond which even half a degree will significantly worsen risks of drought, floods, extreme heat and poverty for hundreds of millions of people.

The time we have to tackle a whole host of global challenges is running out.

Indeed, the most recent *Goalkeepers* report from the Gates Foundation indicates that while progress is being made towards the Sustainable Development Goals, it is not being made fast enough to meet all the goals by 2030.

"The good news," says Stephanie Krater, partner at social impact consultancy the Bridgespan Group, "is that there is still a tremendous amount of private capital – more than enough to get the job done – that could be shifted towards impact investment in the near future. Private capital can be mobilised faster than any other type of capital and our hope is that the impact industry can continue to advance fast enough to meet these goals."



UN SDGs

The United Nations estimates that some $5 trillion to $7 trillion is required annually to reach its 17 Sustainable Development Goals and 169 associated targets by 2030.

That level of support can only be reached through the joint efforts of governments, regulators, academia, philanthropists and the corporate world. But it is becoming increasingly clear that private sector financing, and in particular the burgeoning impact industry, has a critical role to play.

Indeed, the UN SDGs have created a unifying force around impact, helping to provide a common motivation for the nascent impact community. “The SDGs have provided an important framework and focus for enterprises and investors in the impact investing world,” says Chris Parsons, head of investment banking at specialist impact investment bank ClearlySo. “They have highlighted the key social and environmental issues facing the world.”

“The SDGs are incredibly important,” adds Tania Carnegie, leader and chief catalyst of the Impact Ventures practice at KPMG. “They are commonly featured as part of the impact frameworks that our clients are developing. It helps them articulate what contribution they are making to solving the bigger picture challenges that society is facing.”

According to the Global Impact Investing Network’s 2018 *Annual Impact Investor Survey*, more than half of investors are currently tracking some, or all, of their impact performance against the UN goals. However, given the scale of capital required, the GIIN believes it is vital that more investors go beyond alignment and instead, raise and direct new capital towards progress against the SDGs.

According to Rekha Unnithan, portfolio manager, impact investing, at Nuveen, there is a risk the SDGs are being incorporated into marketing materials more readily than into investment strategies themselves. “Obviously the SDGs have really taken off. You can’t go into a European airport lounge these days without seeing the SDGs on someone’s laptop as part of their marketing deck,” Unnithan says. “That is great in terms of being able to articulate what we do in the context of larger global goals. But we are at an inflexion point with regards scaling with integrity and I think agreeing and maintaining standards is key.”

Vadim Avdeychik, a lawyer in the investment management practice at law firm Paul Hastings, adds that while the SDGs have been important in terms of helping managers identify and allocate resources consistent with those goals, the SDGs themselves have provided insufficient guidance for private investors. Avdeychik therefore welcomes the standards being unveiled alongside the SDGs around strategic intent, measurement, transparency and accountability. “Those standards have been created at the request of the investment community, to help them make sure they are deploying capital in a way that specifically contributes to those SDGs. It is all about creating a common language,” he says.

EXPERT COMMENTARY

Action-oriented engagement and a flexible approach are the key to an effective sustainability strategy, say Angela Roshier, partner and head of asset management at DIF Capital Partners, and Alastair Scott, partner at ERM

The path that leads to ESG

How do you develop an effective environmental, social and governance action plan for your assets? That was the question we at DIF Capital Partners, a €5.6 billion infrastructure fund manager, sought to answer when we embarked on a project with ESG consultant ERM to better understand the sustainability impact of our investments. The resulting programme has created a flexible and focused approach that contributes positively to the local community while delivering returns for investors. It proves that action-oriented engagement and flexibility are the key to an effective sustainability strategy.

At the core of our business, and fundamental to DIF's culture, is an appreciation of the connection between our assets and their "users". Indeed, our early funds focused primarily on social and transportation infrastructure and renewable energy projects, some of which may be viewed as inherently sustainable.

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DIF CAPITAL PARTNERS AND ERM

However, our industry has changed greatly since our founding in 2005 and although sustainability has always been part of what we do, we understood that more formally incorporating an environmental, social and governance framework into our investment decision-making process was critical to address the expectations of our investors and other stakeholders.

Acknowledging that we had significant room for growth with respect to our ESG programme, we set a target to achieve an A+ score from the UN-supported Principles for Responsible Investment by 2020 and developed a plan to achieve that target. This involved defining an ESG policy, assessing our current investments, and developing an ESG framework that could govern our approach moving forward. To put this approach into practice, we engaged the consultancy ERM, who demonstrated a commercial understanding of DIF's business as well as the principles of sustainable investing.

Moreover, being an active member of key sustainability and industry associations, such as the PRI, the World Business Council for Sustainable Development and a consultant to the Task Force of Climate-related Financial Disclosures, ERM is well placed to keep DIF informed on ESG trends and on industry best practices.

Forming policy priorities

Traditionally, our industry has focused on the environmental aspect of ESG but we felt that an environmental focus was too one-dimensional and neglected a core issue for our investments: safety. We therefore developed a multi-dimensional ESG policy that has five priorities: environment, people and communities, governance, safety and climate resilience (the latter added in 2018).

The overall objective of this approach is to contribute to the well-being of local communities, to provide safe working environments for our employees and contractors, and to address local and global environmental challenges. Achieving these objectives provides benefits in itself but we also believe that the result is a portfolio of assets that deliver sustainable returns to our investors.

Establishing a baseline

We believe that delivering value to our investors and communities requires a real understanding of the sustainability impacts of our assets. However, we also wanted to avoid collecting data for the sake of data. As such, DIF and ERM developed a focused survey for our assets that concentrated on identifying actions on material issues with reference to existing sustainability frameworks, guidelines and standards.

As illustrated, the first survey in 2017 set the baseline and defined goals for progress, while the second survey in 2018 revealed some interesting developments triggered by our engagement with assets.

Within governance, the proportion of our assets with a dedicated ESG resource grew from 56 percent to 84 percent between 2017 and 2018. On safety, the proportion of assets with specific health and safety policies increased from 89 percent to 94 percent, while the proportion of assets providing health and safety training has increased from 85 percent to 91 percent.

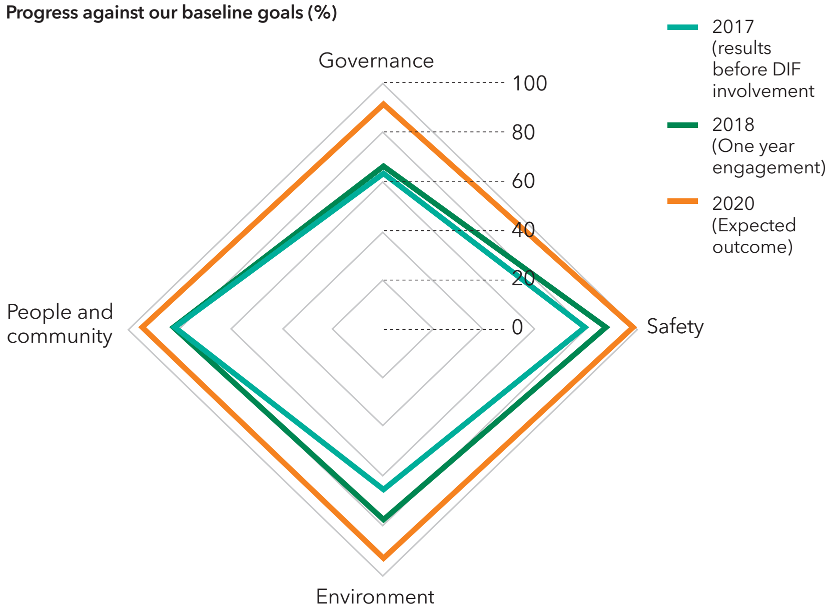
With ERM's input we added climate resilience to the survey in 2018, and found that 42 percent of our assets have plans in place to deal with the impact of extreme weather and 50 percent consider the impact of climate change on their long-term business plans. These survey results have been used to develop mutually-agreed objectives and action plans for each individual asset, which we call the ESG Path.

Driving progress

Each asset's ESG Path includes:

- A framework for action including specific goals, the activities that need to be

Progress against our baseline goals (%)



Source: ERM/DIF

ESG performance of initial 26 assets surveyed in 2017
Note that this diagram does not include the 'climate resilience' focus area as this was only added in 2018

On the road to wildlife recovery in Germany

The A6 West highway in Germany – a 50km stretch of federal highway connecting Rauenberg and Weinsberg – now sources all of its electricity from renewable sources.

Most of the milled asphalt of the old carriageway has been recycled and reused in the asphalt base layer under the new tarmac. Sheep graze the lawn around rain retention basins and there are artificial lakes to help manage stormwater runoff and prevent flooding. As part of upgrades to the highway, we are creating a 40,000 sq m wildlife sanctuary a few kilometres from the motorway near Offenau that will provide a new habitat for insects, birds, amphibians and other creatures. Many of these practices have been shared with DIF's other road assets around the world.

implemented and related timeframes (defined by the asset)
- Suggestions for best practices implemented by other assets where appropriate
- A flexible and focused approach, with priorities and the level of engagement requested varying based on the maturity of the asset and the sector.

The benefit of this approach is that it is measurable, repeatable and evidence-based, while remaining flexible enough to apply to different geographies and sectors. For example, assets in North America and Australia require attention to the rights of indigenous populations that often are not relevant for European-based investments.

Ongoing engagement with our assets also helped us to identify areas of best practice. In early 2019 we organised, and ERM facilitated, a conference where we brought many of our asset managers together to discuss ESG initiatives, with a specific focus on sharing best practices among our road assets.

An ESG-smart deal team

Making genuine progress on ESG issues, however, requires us to go beyond supporting our existing assets to make improvements. As such ERM and DIF also worked together to develop an ESG screening tool for new investments, while ERM developed a series of interactive training modules to support DIF staff in using this and other ESG tools. These tools and training have helped our deal team to quickly identify potential environmental, social or governance elements that might require focus throughout the due diligence process and to guide investment committee members to ensure all new investments are aligned with DIF's ESG policy and objectives.

The final piece of our framework for progress involves going beyond our day-to-day business to make a contribution to the communities where we live and work. This has taken on a number of forms and includes time spent volunteering with an endowment fund with a mission to develop renewable energy solutions for economic, social and environmental humanitarian projects in the developing world or mentoring students from underprivileged areas.

Taken together, our new investment screening tool, our asset-level engagement and our internal capacity building ensures that we are continuously improving our approach to sustainable investment.

> *"Within governance, the proportion of our assets with a dedicated ESG resource grew from 56 percent to 84 percent between 2017 and 2018"*
>
> **ANGELA ROSHIER**
> **DIF Capital Partners**

Looking forward

We can take heart from the progress we have made on our ESG Path, and from the positive difference our work makes to people's lives.

In 2018 over 2 million patients were treated by the hospitals and healthcare assets we fund and over 64,000 students have benefited from our education assets. This progress has been recognised as our PRI score has increased from a C in 2017 to an A overall in 2019, including an A+ score in the infrastructure module. This puts us ahead of schedule in achieving our stated goal of an A+ score in 2020.

There are still, however, a number of challenges that we must address to continue delivering value through our approach to ESG. These challenges include:

- Avoiding survey fatigue to ensure that managers are focused on tracking and improving performance on ESG items rather than continuously filling out paperwork
- Continuing the process of scaling-up initiatives that have been successful on one, or a small number, of our assets while addressing the differences between geographies and asset sectors, especially as DIF continues to expand into new geographies like Latin America
- Recognising the continued expectations of investors for improved disclosure.

On the latter point, investors have become a significant voice in calling for climate change risk disclosure. In this context, frameworks like the TCFD are quickly bringing shape to a once amorphous discussion. This is one area where DIF and ERM expect to work together to identify further opportunities to drive a sustainability-focused agenda.

In the coming year DIF will also continue to work with ERM to develop opportunities for investments that support the Sustainable Development Goals, the blueprint for sustainability adopted by all United Nation member states in 2015. As illustrated above, DIF has now a good understanding of where it stands on ESG and has established a framework and process to continue its responsible investment journey.

With ERM's support, we are considering sector best practices and sustainability guidelines, maintaining a scalable, pragmatic and adaptable approach, and focusing on tangible and effective actions to address key ESG issues.

Overall, we believe we have developed a tailored ESG programme that will deliver value to investors as the programme evolves with the environmental, social and governance needs of our stakeholders. Our most recent ESG developments are presented in our 2019 ESG report: *Digging Deeper on Sustainability*. ■

ERM is the largest global pure-play provider of ESG, sustainability, environment, health, safety, social and process risk and asset integrity consulting services across the investment life cycle. Its experience of working with 100-plus general partners and limited partners was crucial in assisting DIF meet its objective of developing a market leading ESG programme. For DIF's ESG programme, ERM assembled a global project team with a mix of experience of working strategically and tactically with infrastructure funds, sector and technical expertise, knowledge of local regulations and asset-specific sensitivities

DIF Capital Partners is a fund manager that invests in a wide range of international, high-quality infrastructure projects that generate stable, long-term cashflows. It currently manages around €5.6 billion of assets across seven investment funds and has invested in over 200 infrastructure and renewable energy projects since its establishment in 2005

Vulnerable communities

Improving people's livelihoods is a core impact initiative and that requires working with those on low incomes in the most vulnerable situations. Metrics for vulnerable communities include developing a lower-cost product or a superior product at a lower cost, and providing access to products and services to them.

For emerging markets investor LeapFrog Investments, the vulnerable include people living with HIV. Leapfrog's first-ever investment was in AllLife, a South African company that has built a profitable operation by offering affordable life cover to those with HIV, who were automatically excluded from life insurance cover because the virus can lead to AIDS. AllLife also contacts their clients every month to ensure they are taking their medication and staying healthy.

The health improvements in clients are impressive – an average 15 percent improvement in their CD4 count (a measure of the strength of the immune system) within six months of being insured. Through AllLife, people with HIV can take out loan finance, build their lives and participate in the community.

Meanwhile, Atlantic Philanthropies' investment in Vital Healthcare Capital, a community development financial institution, helped it to sustainably finance healthcare providers that could help the vulnerable in the US access primary healthcare. V-Cap grew from a small organisation to one with $30 million in three years, and closed four investments in community health providers that serve low-income communities.

Women's empowerment

Women's empowerment can mean everything from investing in female-led businesses to improving their health, providing access to education and ensuring they are represented on company boards.

According to the Overseas Private Investment Corporation, women face a $320 billion shortfall in access to credit worldwide, and investing in women pays dividends because they spend 90 percent of their incomes on food, healthcare and education in their households.

Several agencies have women-specific programmes. In September, Aspen Network for Development Entrepreneurs, as part of a partnership with the US Agency for International Development and the Visa Foundation, set up a new Advancing Women's Empowerment Fund that will distribute more than $1 million over two years to organisations working to close the financing gap for women-led businesses.

One of OPIC's big initiatives is the 2X Women's Initiative, which expands investments in women-led businesses and funds around the world.

Last year OPIC committed a $12.5 million loan to WaterHealth India to help installation of nearly 900 decentralised plants to purify water onsite and sell it for three or four times cheaper than bottled water alternatives. Apart from providing clean water, the project is expected to create more than 1,300 jobs for women under the company's Women Operated Water systems programme.

One of the most dangerous activities for women, according to the Global Impact Investing Network, is collecting fuel for cooking, particularly in refugee and conflict areas or remote rural locations. Impact certification organisation The Gold Standard Foundation has led a project to install 24,000 efficient cook stoves in Kenya that improved indoor air by nearly 98 percent and benefited more than 130,000 people.

X-ray vision

Complete transparency is imperative for the continued evolution of the impact investment industry. The impact investors themselves need X-ray vision to effectively create and manage positive impact with information-based decision making, says Sapna Shah of the Global Impact Investing Network.

"Transparency between investor and investee is also critical," Shah adds. "Impact reporting provides enormous food for thought. It opens up dialogue between asset managers and their investors, about goals and values and how those can better be achieved."

Maya Chorengel of private equity impact investor The Rise Fund, meanwhile, adds that impact investors need to both measure and report impact performance to their partners regularly and share their assessment methodology more widely.

"This commitment to transparency, which is a core part of our belief system at Rise, allows people to understand why an investment delivers on impact and financial returns and can provide useful tools to others entering the market, ultimately helping expand the pool of capital dedicated to fostering change and actually achieving the positive outcomes we seek," she says.

Young blood

The younger generations are playing an essential role in driving the growth of impact investment. One of the key reasons that businesses started to pay attention to their impact on society in the first place was that a new generation of employees demanded it.

Meanwhile, young entrepreneurs are combining commercial experience and a strong understanding of technology with a passion and focus to address global social and environmental issues, says Chris Parsons of specialist impact investment bank ClearlySo.

"In terms of public awareness and politics, the younger generation are also raising the profile of these issues with policymakers, creating a move to fairer and more sustainable behaviour," Parsons says.

The widespread use of social media, meanwhile, is making it easier for young people to call out "bad actors", adds Sapna Shah of the Global Impact Investing Network.

Finally, the ongoing transfer of wealth from older generations to millennials, which is expected to reach $24 trillion by 2020, is likely to drive demand for more sustainable investment strategies and products.

Zero waste

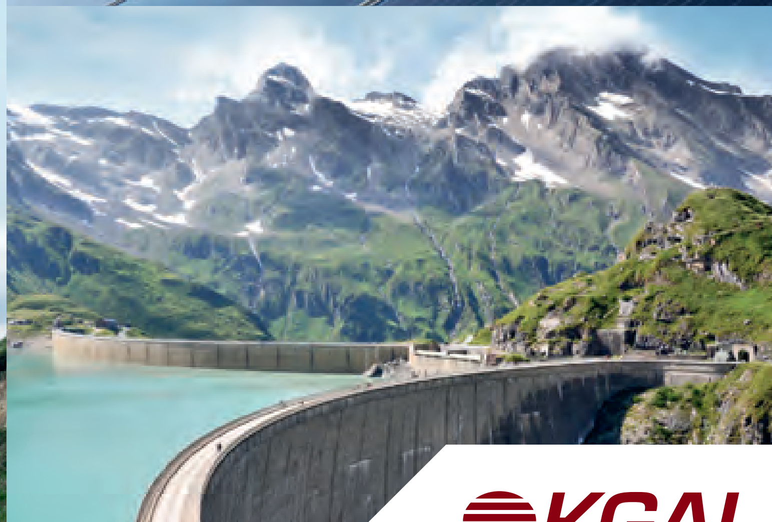
From plastic in our oceans and toxic electrical goods sitting in landfill to food mountains and unworn fast fashion clothing items, waste of resources – and the pollution this causes – is a major issue for the planet.

As little as 9 percent of plastics are recycled globally, and evidence is mounting that developed economies, unable to recycle the waste they are creating, are shipping plastics to emerging markets, where they are entering water systems or being burned, creating toxic fumes. Small wonder, then, that there is a growing movement towards creating a zero-waste society.

While this is, according to Taylor Jordan, managing director at Goldman Sachs Asset Management, "an aspiration – we have a long way to go", there are a range of investment opportunities that can help tackle this through the creation of a circular economy.

As Ben Constable Maxwell, head of sustainable and impact investing at M&G Investments, explains: "Zero waste is an approach that focuses on redesigning industrial and production processes to cut waste – we need to reduce, reuse, repair, recycle. This has been thrown into relief by the plastic crisis and China's decision to stop accepting other countries' waste. We have to get to the problem before it is created – we can't just rely on recycling."





ESG points of view

"The impact-investing brand is definitely appealing right now. And it is tempting for fund managers to do a pretty paint job on it"

Amit Bouri, CEO of the Global Impact Investing Network, warns of the dangers of 'greenwashing' impact strategies

"We place more emphasis on understanding the way our managers engage with their investee companies about their social and environmental impacts"

Wendy Norris of Future Fund on responding to scrutiny of responsible investing

"Incorporating a focus on resiliency – physical, locational or environmental – is a key component of investing with a sustainability lens"

Dara Friedman of BentallGreenOak calls for a holistic approach to ESG investing

"There is still variability among investors but, for most, ESG has now progressed beyond a box-ticking exercise"

Martin Stanley of Macquarie Infrastructure and Real Assets on how ESG has become critical for infrastructure fund managers

"If impact was properly measured, then investors could exclude certain assets and resume their focus on risk and returns"

Frédéric Blanc-Brude of EDHECinfra on the need for better ESG metrics

"It doesn't have to be altruistic. We do it because it makes good business sense and because it mitigates risk"

James Hall-Smith of InfraRed on how sustainability has become critical for infrastructure investors