The Future of Investment:

Green Infrastructure

June 2012

UK Sustainable Investment and Finance • Holywell Centre, 1 Phipp Street London EC2A 4PS
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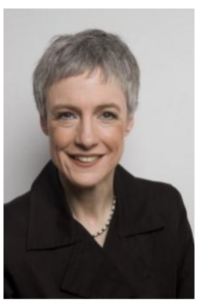
Introduction

Penny Shepherd MBE
Chief Executive, UK Sustainable Investment and Finance Association

As a member of the Advisory Group for the UK Green Investment Bank over the last year, I am particularly delighted to introduce **"Green Infrastructure"** as the third report in UKSIF's **"Future of Investment"** series.

This report brings together infrastructure investment specialists to comment on this increasingly significant area. Their dialogue demonstrates:



- Opportunities include renewable power generation, waste and water infrastructure and social infrastructure (eg. social housing, education)
- Investors can achieve exposure to green infrastructure via real assets or companies
- Both regulation and underlying supply/demand can drive the opportunity, with UK water regulation showing how effective regulatory practice can drive significant investment
- There is increasing recognition among sophisticated investors that "financial returns and sustainability are not opposing claims on an asset but rather mutually necessary considerations to ensure long-term economic viability of an asset".

UKSIF's **"Future of Investment"** report series seeks to highlight the exciting investment approaches that are emerging to create and protect value for both investors and wider society. As the world faces the very real challenges of environmental limits and social change, these options may play a key role in restoring trust and confidence in investment and finance.

Our reports give insights from those driving these developments in successful long-term investment. As the UK's hub for sustainable and responsible investment, we are privileged to have many of these leading-edge investment practitioners among our members.

We hope that these reports will be of value to significant institutional and private investors and their advisers. While nothing in them should be regarded as investment advice or product recommendations, they should give insight into the growing sophistication of sustainable investment and the breadth and depth of opportunities becoming available.

We welcome your feedback on "*The Future of Investment: Green Infrastructure*", including themes you would like to see covered in future reports. Contact us at info@uksif.org.

The Panel

James Stacey Head of Sustainable Finance, Earth Capital Partners
James is responsible for Earth Capital Partner's (ECP) sustainable finance strategy and integration of ESG issues into investment analysis, portfolio management and reporting. Prior to ECP, James was Head of Sustainable Business at Standard Chartered plc and Head of KPMG's sustainability consulting practice.

Hugh Crossley, **Chief Investment Officer, Equitix**
Hugh is a founding Director and the Chief Investment Officer of Equitix Group, a U.K PPP developer and infrastructure fund manager. Hugh is responsible for fund raising at Equitix and the majority of Equitix's secondary acquisitions. He chairs the Investment Committee and overseas the portfolio management functions. Hugh has sixteen years infrastructure experience, working on a broad range of projects in the UK, Europe and Americas. He joined Equitix from John Laing and before that spent eight years with Bechtel. He is a Chartered Management Accountant and holds a degree in Engineering.

Steve Falci, CFA, Head of Strategy Development Sustainable Investment, Kleinwort Benson Investors
Steven Falci oversees the development of Kleinwort Benson Investors sustainable investment products and strategic priorities. He is a senior investment professional with over 25 years of broad experience overseeing investment teams and managing assets at a large pension fund, an institutional asset manager and a mutual fund company. Prior to joining the firm, Steve was CIO, Equities with the Calvert Group, where he oversaw the equity and asset allocation portfolios for the largest family of socially responsible mutual funds in the US.
Steve has a BS and MBA from the Stern School of Business at New York University, an MA from Pittsburgh Theological Seminary and is a Chartered Financial Analyst.

Ian Simm, Chief Executive, Impax
Ian joined Impax in 1996 and has been a board director since 1997. Initially working as a corporate finance adviser in the waste and power sectors, Ian established Impax Asset Management in 1998. Prior to Impax, Ian was a project manager at McKinsey & Company in the Netherlands where he led teams to provide advice to clients in a range of environmentally sensitive industries. Ian has a first class honours degree in Physics from Cambridge University and a Master's degree in Public Administration from Harvard University.

1. **What are the green infrastructure investment opportunities you are focusing on? Are they built around specific themes or markets?**

Steven Falci: The fact that the world's population will grow by 2 billion plus by mid-century will put more stress on our already constrained natural resources. Urbanisation, increasing standards of living and economic growth will only strengthen this trend. Demand for energy, food and water will continue to rise at a higher pace than population growth, while supply is naturally restricted. Ageing infrastructure in some parts of the world and the lack of infrastructure to provide, store and transport those resources in other parts of the world will lead to an acceleration of investment.

Kleinwort Benson Investors is a specialist manager focused on investment in public equities of companies providing infrastructure and technology to meet the needs for the vital resources of energy, food and water. In my comments I'd like to focus on water, an area we have been investing in for 12 years. In 2000 we were one of the first firms globally to launch a fund exclusively focused on companies providing water solutions. The strategy has delivered strong, consistent returns relative to the broader market over the last 10 years, outperforming the MSCI World Index by more than 4% per annum and outperforming in 8 of 10 individual calendar years.

Massive investment in water infrastructure is needed to assure its adequate provision globally. New infrastructure is needed to meet the water needs of the growing population in the developing world and rehabilitation and replacement of aged water infrastructure in the developed world. Both are providing strong opportunities for investment in companies in Europe, the US and in emerging markets.

Ian Simm: Currently we are focusing on renewable power generation investment, although we do have some exposure to the waste infrastructure sector. Within renewable power generation we are focused on Europe and North America, in particular off-shore wind and solar. Within the waste sector we are looking at the European solid-waste market. In the listed part of our business we are investing in stock market quoted companies, giving us global exposure. This includes water infrastructure in Latin America, waste and water infrastructure throughout Asia, particularly China but also in Japan, Taiwan, Thailand, India etc.

Hugh Crossley: Equitix investments are traditionally in UK Government Social Infrastructure Projects Public Private Partnerships (PPP) spread across a number of sectors. The sectors that Equitix is currently focusing on include: health, social housing, education, leisure, student, government accommodation and others.

Equitix operates as an integrated business with two complimentary platforms: a primary bidding and development team that sources bids and develops PPP projects; and an investment business that acquires and manages PPP assets. Through this unique structure the Equitix bidding and development arm offers the investment business and investors a steady flow of government backed PPP assets which the asset management team then manage for the length of the concession. Equitix is positioned to integrate successful investments in communities whilst also delivering returns to investors.

Where Equitix makes their investments, they always look to incorporate factors and use designs to reduce the environmental impact wherever possible. Equitix have to meet certain criteria to be compliant with environmental standards set by the client. This could mean that for a housing project, we would have to reach level 4 of the code for sustainable homes which includes the requirement that the houses would have to produce a certain amount of renewable energy. Or for schools we must meet the government standard BRE Environmental Assessment Method (BREEAM), which sets the standard for best practice in sustainable design and has become the de facto measure used to describe a building's environmental performance.

James Stacey: Appropriately selected green infrastructure, such as renewable energy offers investors exposure to an asset class which features the attributes of healthy, steady returns, non-correlation to conventional asset classes and inflation-linked real asset characteristics.

These return characteristics are particularly relevant to the current market context; increased volatility, over a decade of low equity returns and increasing risk associated with fixed income investments, are leading investors to search for alternative investments that offer to match their assets to longer term liabilities.

Earth Capital Partners (ECP) has analysed the green infrastructure opportunity set, and identified several sectors, geographic and investment themes, which offer investors these timely and attractive return characteristics.

In renewable energy, ECP is seeking to provide equity in developed and construction ready projects that are applying proven, bankable technologies. The technology groups that ECP is focusing upon include biomass-to-energy (combustion and anaerobic digestion), solar (photovoltaic and concentrating) and wind. The geographic focus comprises large economies that have made strong commitments to increasing the proportion of renewable energy in their overall energy mix and have stable and attractive support regimes in place to achieve this, such as Germany, France, Italy, Spain, the UK and others.

2. **Can you explain your approach to green infrastructure investment and the factors you take into consideration when investing?**

Hugh Crossley: Equitix considers Environmental, Social and Governance (ESG) factors at each stage of its investment process. Equitix will incorporate ESG policy and request socially responsible analysis and reporting within the corporate governance of portfolio projects.

The duty of Equitix must always be to promote the interest of its beneficiaries by seeking a good return on their investments. We believe this can be entirely consistent with a socially responsible approach to investment.

Prior to making infrastructure investments Equitix takes into consideration the following factors:

- **Environmental:** the team includes a section on ESG policy in the Investment Paper for each project, outlining the asset's potential effects on the environment.
- **Social:** the involvement of the Equitix team throughout the process allows development of partnerships with a diverse set of local contractors, and therefore the opportunity to recycle capital back into the community. Equitix also encourages the use of local apprenticeships and traineeships; we want to see successful investments in social infrastructure and therefore sustainable communities.
- **Governance:** Equitix incorporate ESG policy into the investment appraisal and decision making process and the consideration of ESG issues is conducted in partnership with the relevant local authority associated with each project. It is an essential component to discussions for all projects. We also conduct periodic reporting, development and review of socially responsible investing policies to align with the interests of our investors.

James Stacey: The approach varies according to the specific investment strategy, and each combination requires a tailored approach to the risks and opportunities relevant to the type of investments being made. There is no one-size-fits all answer when it comes to investment in green infrastructure.

For example, for renewable energy, ECP's focus is identifying and securing projects that are well advanced (in development) and have been structured soundly by the project developer in order to efficiently raise bank finance. Key elements of this are (i) to secure land rights, relevant permits and environmental approvals as well as (ii) to put in place comprehensive and sound commercial contracts (turn-key construction contracts, supply and off-take agreements, O&M contracts, etc).

Steve Falci: On a planet that is covered with water, less than 1% of the world's water is available for use and this limited supply is increasingly threatened by pollution, particularly in emerging market countries as they grow and industrialise. Historically, water demand has grown at twice the rate of population growth and is expected to grow by 41% by 2030. An estimated $22 trillion investment will be required to meet the need for water through 2030, which is forecast to be the largest component of global infrastructure spending in the next 20 years – greater than spending on road, rail and power infrastructure combined!

As a specialist manager, we are focused on understanding how this capital will be deployed and which companies will provide the dominant solutions to assure the demand for this vital resource is met. We segment companies providing solutions to water scarcity into three sectors:

- **Water Infrastructure** companies that provide pipes, pumps, seals and valves as well as design, engineering and construction services.
- **Water and Waste Water Utilities** who commission and maintain water infrastructure
- **Water Technology** companies providing filtration, disinfection, testing and metering products that assist in the productive use of water infrastructure.

We focus on identifying superior companies, with superior technologies and strong exposure to growth themes and growing markets and then buying these companies at a discount to fair value.

Ian Simm: Factors we take into account concern the projects themselves, particularly the robustness of the regulation that underpins the investments; the economics of investments and the degree to which those – the revenues, the costs, and the capital requirements – are predictable or not. Furthermore, we look at the local debt markets and the health of the debt markets globally, the ability to raise capital, the legal, environmental and property rights around the infrastructure itself and finally, if we can get an exit from the investment, health of the stock markets and all the secondary markets for infrastructure.

3. Where are you seeing demand for green infrastructure investment coming from? Are there specific groups that are particularly interested?

Ian Simm: In the UK there is a huge built-out programme in the power sector which is anticipating electricity market reform plus the requirements of the renewable energy directive and the Climate Change Act. Power generation is expected to be a very attractive area for green investment in the future. I think in the waste sector there is some work to be done around clarifying how waste projects are going to be structured and made bankable if the Private Finance Initiative (PFI) regime is not going to continue in its historical form.

There is obviously a great opportunity in energy efficiency which is being handled by the Green Deal, but there is still a lot of confusion about how the regulations are going to be implemented, so I think, some investors are sitting on the side line.

I think there is a lot of demand from a wide range of investors for infrastructure investment. At the moment it tends to be seen as relatively low risk due to the inflation-linked positive cash flows, so there is a lot of support for investor managers, or sponsors who come forward with projects, provided that the regulations are such that the economics and the risks are attractive.

Hugh Crossley: Our client is the UK Government and their demand is on making sure that social infrastructure meets certain standards for reduced environmental impact and there are obligations to use a certain amount of renewable energy. The measures that we use to achieve these standards for our infrastructure assets include: ground source heat pumps, double glazing, solar panels, bio mass boilers and wind power.

James Stacey: Demand is highest from relatively large sophisticated investors which are alert to:

- The portfolio risks associated with increased volatility, recent (10+ years) relative stagnation in public equity returns and the increased risk in fixed income investments.
- The medium term value of increasing their exposure to real 'sustainable' assets with steady returns for example, renewable energy infrastructure assets are considered attractive because they are underpinned by long-term government incentives that are considered stable and offer attractive risk adjusted returns. Furthermore, as these incentives are often inflation linked, renewable assets offer long term inflation protection.

Some investors are also motivated by the broader societal and sustainable economic development benefits of green infrastructure, particularly where these align to attractive risk adjusted returns. ECP's proprietary impact measurement tool, the Earth Dividend™ is of particular interest to this group.

The Earth Dividend™, reviewed by KPMG, provides investors with an annual measure of the impact of the investments on 30 different environment, social and governance indicators. Improvement in the indicator performance is focused towards those improvements which will also enhance the commercial performance of the asset.

Steve Falci: The strong returns that our water strategy has delivered historically combined with the drivers of water infrastructure investment going forward have attracted interest from a myriad of investors ranging from traditional sustainable investors, to public pension funds, family offices, and endowments/charities. What is interesting is that across these investors, given the various characteristics embedded in water equities, they have considered an investment in water for a variety of roles within their individual portfolios:

- A new source of alpha to their global equity allocation, as portfolio holdings have minimal weighting in the MSCI World Index.
- A liquid component (pun intended!) of an allocation to real assets or infrastructure. Investors are able to generate alpha in a concentrated specialist investment fund, but they are not subject to the lock-ups and high fees that often prove unpalatable.
- As a diversifying component of a natural resources allocation. Water is indeed a natural resource, and has a different return profile from commodity funds and energy funds and can serve as a great diversifier within this asset class.

- As an investment that can generate both strong return but also have social impact in significant scale, providing needed infrastructure to assure the availability of water in the developing world.

4. **Why is green infrastructure an increasingly attractive investment opportunity? What factors do you think are driving its growth?**

Hugh Crossley: There are a number of EU and UK driven policies which play an important role in driving the growth of green infrastructure. In early 2008, the UK committed to a legally binding EU wide scheme to generate 20% of all energy through renewable sources by early 2020. The target implies that in order to fulfil its share of the EU target, the UK will be required to generate over 20% of its electricity from renewable sources by 2020. In order for the UK to achieve this, an estimated £15 billion worth of investment in transmission infrastructure will be required over the next 8-9 years which gives investors confidence that there should be an ongoing pipeline of opportunities.

James Stacey: On the supply side, the underlying drivers for expansion of green infrastructure vary according to the specific sub-classes of infrastructure considered. For example, in green infrastructure, such as renewable energy and timberland offer investors exposure to a financially attractive asset class while simultaneously recognising that long-term sustainability outcomes are achievable in parallel to the core consideration of risk adjusted returns.

Being aligned to the societal and economic drivers for sustainable development means these assets will remain relevant and attractive to investment as the wider economy continues to decarbonise and shift onto a trajectory of sustainable land and resource consumption.
The adoption of these combined criteria by sophisticated investors is a function of the wider understanding that financial returns and sustainability are not opposing claims on an asset but rather mutually necessary considerations to ensure long-term economic viability of an asset. As fundamentally driven investment evolves to incorporate sustainability considerations, investors' interest in these sectors is and will continue to grow substantially.

Steve Falci: With water supply essentially fixed and demand growing to support population growth, changing diets, industrialisation, and urbanisation, localised water supply-demand imbalances are getting worse globally. Countries and regions still have a way to go to align sustainable supply with demand through a mixture of solutions including long distance transfer, desalination, water re-use, and conservation.

In the developed world, the massive under spending on water infrastructure rehabilitation and replacement means more pent-up demand for water infrastructure going forward. In emerging markets, the need for new infrastructure is substantial. In the first five years of the millennium, the combined spending on water infrastructure by China and India was only one-third of the spending in the US. The projected spend in the current 5-Year plans for the two countries have grown nearly 10-fold and will be more than twice the spending in the US. Over the last decade, the number of companies in these high growth geographies has also grown, as has the emerging market exposure of global industrials based in the developed world.

Ian Simm: Infrastructure investment is increasingly attractive to investors because it presents a low-risk, long-term investment opportunity with inflation-linked positive cash flows. As the world population exceeds seven billion and rises in affluence, concerns about resource scarcity, energy security and climate change are escalating. Within this context environmental markets offer investors a compelling opportunity to tap into superior growth over the next decade and beyond.

5. **What do you perceive as the main challenges to the future growth of green infrastructure investment?**

James Stacey: The financial crisis and uncertainty about economic growth has led to generalised investment caution, and in many instances it is making institutional investors very hesitant to deploy capital in new opportunities, even if they offer sustainable and attractive financial returns and portfolio compatible risk/ return characteristics.

Risk, both perceived and actual (as in all types of investment), presents a challenge to both investment managers and owners. Green infrastructure investment is no different. Key risks of the moment include questions over how the current austerity drive will impact upon affordability of renewable energy infrastructure and how isolated retroactive changes to subsidy regimes impact upon investor perception of policy risk. Asset managers with an understanding of these issues and how they impact the investment pipeline and asset performance will be best placed to manage the related risks, and thereby continue to generate attractive investment opportunities for their clients.

None of these risks are new and the trend of capital flows into this asset class continues globally to grow year on year, indicating that an increasing proportion of asset owners consider the risk adjusted returns attractive.

Steve Falci: Water infrastructure investment is dependent on availability of credit and public expenditures. As recent history has demonstrated, during periods of economic crisis, water investing can be challenging due to funding uncertainty.

Although they are certainly not immune from economic recessions and the negative effects of credit crises, there is little doubt that companies active in water infrastructure will outgrow the broader economy for the foreseeable future. We believe investors can currently benefit from this as this higher growth is not already reflected in share prices. As a result of these very strong, secular drivers, we believe that the water strategy should command a premium to the broader market due to the more stable and visible outlook for the earnings of companies and their significant secular growth potential.

Ian Simm: Over the long term the scarcity of resources required in the manufacture of green infrastructure (i.e. silver in solar PV) and the current inefficiency of their use reduces the appeal of green infrastructure as an investment choice for the future.

Low growth in the UK creates at least two key barriers: it reduces access to capital, so project sponsors experience increased pressure and also it reduces the value of investments due to the correlation between the inflation of infrastructure investments and GDP.

Inconsistent regulation, such as in the case of the solar feed-in tariffs, sends the wrong signals to investors, whilst major new pieces of legislation such as the Green Deal and Electricity Market Reform create uncertainty.

Hugh Crossley: Current investment projects in green infrastructure are delivering returns to investors and there is trust in this asset class but there needs to be a live and active pipeline to retain existing investors and attract new ones. One of the main challenges for this industry is the lack of clear government policy which inhibits the development and pace of investment.

6. **What is needed to stimulate investment in green infrastructure in the UK?**

Ian Simm: First of all there is a need to fix the issues mentioned in my previous answer.

People developing green infrastructure products have to be assured that the market will be accessible and the economics and risks associated with projects will be worth the investment given the return. For the project to go through, the two parts of the triangle should be satisfied. Meaning that the investors and the government have to be happy with the return they get for the risk they take.

The Green Investment Bank (GIB) should focus on actively sponsoring challenging areas of green infrastructure investment such as offshore wind and building efficiency. It needs to do more than simply patch-up existing shortcomings. The GIB should play a positive role in reducing and perhaps even removing regulatory risk from the perspective of the financial markets.

Steve Falci: The current regulatory regime has been instrumental in driving investment in water infrastructure in the UK and we anticipate it to remain so over the coming years.

Ofwat, the regulatory body for the UK water utilities, sets the allowed return for the sector every 5 years, and currently this has been set to April 2015. The return granted to the sector is based on the value of the company’s assets and the cost of maintaining and upgrading those assets in the future. In addition, allowance is made for inflation each year.

The regulator is motivated to ensure that the rate of return allowed is attractive enough to encourage the utilities to invest, while also ensuring that customers pay a fair price for services. It's fair to say that to date, this balance has been achieved. Since privatisation in 1989, the water utilities have invested over £50bn in water infrastructure, achieving huge efficiencies and extensive modernisation of infrastructure, essentially transforming water service in the UK.

James Stacey: The UK government seems committed to a green agenda and has done a lot to stimulate growth in green investments. The challenge is to strike the right balance between workable, affordable incentives to meet these targets versus offering adequate and fair returns to capital providers.

Stability of regimes, long term certainty and consistency on policy formulation and implementation are key requirements to build investor confidence to allow the necessary mobilisation of the large sums of capital required. The GIB will be an important conduit to mobilise capital into the green economy, particularly at times when both lending banks and equity investors are more cautious.

Hugh Crossley: Clear government policy that incentivises the development and pace of investment in green infrastructure.

About the participating institutions

Earth Capital Partners
ECP is an investment management business offering a platform of sustainable investment products. Each ECP product is launched with a specific focus on a sustainable asset investment theme, geography and investment style.
www.earthcp.com

Equitix
Equitix is an investment company designed to deliver and manage infrastructure projects from bidding and closing through to construction and service provision. Our reputation is built upon strong relationships with our clients and partners, as well as a committed approach to every project with which we are involved.
www.equitix.co.uk

Impax Asset Management
Founded in 1998, Impax Asset Management is a specialist investment manager dedicated to exploiting the investment opportunities created by demand for the more efficient use and delivery of resources, through listed and private equity strategies. Investment is focused on the alternative energy, energy efficiency, water, waste and related markets. Impax manages approximately US$3 billion (£2 billion) for institutional and private client investors globally.
www.impaxam.com

Kleinwort Benson Investors
Kleinwort Benson Investors Limited is an independent institutional investment management firm founded in 1980, providing specialist active equity products to an international client base. A pioneer in environmental investing, KBI has managed environmental equity strategies since 2000 with a focus on companies providing solutions to the sustainability challenges related to the provision of the vital resources of water, food and energy.
www.kleinwortbensoninvestors.com