Climate finance for developing and emerging countries:
Five recommendations to catalyse institutional investment
September 2015
About the IIGCC

The Institutional Investors Group on Climate Change (IIGCC) represents more than 110 pension funds, insurance companies and fund managers, who collectively have €11 trillion of assets under management. IIGCC’s mission is to provide investors with a collaborative platform to encourage public policies, investment practices, and corporate behaviour that address long-term risks and opportunities associated with climate change.

IIGCC pursues its mission through two strategic objectives:
1. Changing market signals by encouraging the adoption of strong and credible public policy solutions that ensure an orderly and efficient move to a low carbon economy, as well as measures for adaptation.
2. Informing investment practices to preserve and enhance long-term investment values.

Acknowledgments

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Executive Summary

Private sector investment is critical to tackling climate change – whether in developed, developing or emerging countries. In 2013, over 90% of international investment inflows in developing and emerging countries originated from private sector sources. When governments meet in Paris to decide on a new climate agreement, climate finance will be crucial to delivering that agreement.

Bringing long-term institutional capital – the majority of which resides in OECD countries – into developing and emerging countries is essential for climate-resilient development, as most climate-mitigation investment will be capital intensive, long-term infrastructure investments. This will require action by all countries, and institutional investors. This paper is intended to serve as a guide to governments and international financial institutions (IFIs) on how to increase the potential availability of institutional capital to implement the intended nationally determined contributions (INDCs) that will form the backbone of the Paris agreement.

Infrastructure for adaptation and mitigation is amongst the lower-risk investment opportunities in developed countries, where IIGCC members have made substantial investments. IIGCC members have less exposure to developing and emerging countries, but implementing the five recommendations contained in this paper would contribute significantly to scaling up investment:

1. **Blend public and private finance to improve risk-return:** Government buy-in for projects that will last for decades is essential. In addition, the unique risks in emerging and developing countries require reduction. Subordination of government investments (or government guarantees), securitization of real assets, insurance products, currency swaps and government seed capital for new funds can all help bring more investment into the countries concerned.

2. **Provide predictability and transparency on future public climate finance flows:** In order to signal the size of low-carbon infrastructure markets in emerging and developing countries, developed country governments should provide predictability and transparency on future climate finance flows.

3. **Aggregate infrastructure assets:** To tap into the market for large investments, infrastructure in emerging and developing countries needs to be aggregated, for example through blended funds and warehousing models.

4. **Put in place a powerful national infrastructure development plan to implement the INDCs:** The INDCs need to guide the design of national infrastructure development plans, which should be fully aligned with the need to reduce emissions.

5. **Make sure key transaction enablers are in place:** A robust project pipeline (supported by enhanced technical assistance and project preparation facilities), efficient capital markets, good bank intermediation and a favourable macro-economic environment with political stability are essential.

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1 World Bank: Financing for Development Post-2015
Institutional investors and infrastructure investment

Average current and target allocations to infrastructure over time, 2011-2014

- Average current allocation
- Average target allocation

Primary institutional investors held USD 92.6 trn of assets in 2013 globally.²

65% of fund managers intend to deploy more capital in infrastructure in 2015 than in 2014.

A considerable 27% are planning to deploy significantly more capital.

In the long term, more than 67% of infrastructure investors intend to allocate more capital to infrastructure. This trend applies globally.³

Five recommendations

1 Blend public and private finance to improve risk-return

Key actors: Development banks and development finance institutions, host governments, developed country governments, institutional investors, and intermediaries such as banks

Infrastructure investment with its steady long-term yield, substantial upfront investment cost and long-term capital commitments is an attractive proposition for long-term investors including the IIGCC membership. However, infrastructure investment in emerging economies presents different risks to mature markets.

Reducing risks will reduce the premium we require above developed market investments, will lower the cost of capital, making projects more viable and reducing costs to consumers. For low-carbon investment projects, more than 70% of total cost are from capital cost, including cost of capital.

² OECD: Annual Survey of Large Pension Funds and Public Pension Reserve Funds – Report on Pension Funds’ Long-Term Investments.
³ Prequin: 2015 Global Infrastructure Report
<table>
<thead>
<tr>
<th>Risk category</th>
<th>Risk</th>
<th>Description</th>
<th>Key risk mitigants</th>
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</table>
| **Market risks** | **Developer risk** | Lack of track-record of asset developer, or lack of guarantee from a larger parent or sponsor to backstop development risk (note involvement of institutional investors in early stage assets limited in general) | Subordination and investment guarantees  
Project pipeline and deal flow  
Turnkey construction contracts  
Due diligence, feasibility studies |
|               | PPA counterparty credit risk | Lack of high-quality off taker of energy (SOE or investor-owned utility) | Loan or performance guarantees from mature economies  
Improve cash flows to regulated utilities |
|               | Currency and rate risks | Inability to hedge currency risk; fluctuations in interest rates | Currency swaps, make other hedging instruments available |
|               | Concentration risk | Lack of investor depth requires significant hold position on investor’s balance sheet | Aggregation and pooling of investments  
Issuance of project based debt  
SPVs |
|               | Liquidity risk | Concern over ability to exit from investment (note this might not be an issue for most IIGCC members who invest long-term and hold the asset over its entire lifetime) | Project pipeline and deal flow crucial  
Create liquid financial markets in developing and emerging countries  
Strengthen links with financial markets in mature economies |
|               | Market risk | Fossil fuel price volatility | Long-term contracts locking in certain price  
Liquid energy markets with strong forward curve  
Removal of fossil fuel subsidies |
| **Political risks** | Retroactive policy change risk | Change in regulatory or legislative support for green investments, changes in taxation regimes, limits in interest deductibility, limited enforceability of contracts | Loan or performance guarantees from mature economies  
Buy-in from developing and emerging countries or regional development banks through subordination of investments  
Creation of independent bodies in charge of recommending climate and energy policies (like the Climate Change Committee in the UK)  
Local institutional investor partners |
|               | Sovereign risk | Directly by guaranteeing feed-in premium level or indirectly through creditworthiness of SOEs | |
|               | Communication risk | Suboptimal cooperation between investors and government authorities in host country | |
| **Technology risks** | Aversion to new platforms | Bias towards established technologies | Project pipeline and deal flow crucial  
Export agencies to support demonstration projects |
|               | Scale concerns | Missing deal-flow to support building up low-carbon investment expertise | |

*First three columns adapted from Bank of America Merrill Lynch, BNDES and World Bank in OECD: Mapping Channels to Mobilise Institutional Investment in Sustainable Energy; last column by authors*
Two reasons why government buy-in is essential

1. Most infrastructure investment is enabled by some sort of government support, for example through loan or revenue guarantees (tariffs).
2. Even if an investment occurs without government support, the assets are subject to market and regulatory risks. Governments or international financial institutions (IFIs)/national development banks can make projects viable through the life cycle by utilising the financial instruments described below.

Developed countries should take on more risk in emerging and developing country investment. Even when backed by a sovereign with an attractive credit rating, infrastructure projects in developing and emerging countries need to be more attractive than simply buying a government bond from the sovereign backing the investment.

Financing instruments can be floated in any financial market, for investment in developing and emerging countries. The correct allocation and transfer of risks between public and private actors depends on individual projects, country circumstances and investor risk appetite. The following instruments are available to governments:  

**Subordination**

*First loss protection mechanisms* can enhance debt and equity risk profiles. Developed or developing country governments or an IFI/national development bank can take a subordinate equity stake or collateralize debt. This means they take on higher risk but also receive potentially higher returns than the institutional investors. First loss protection mechanisms can be highly effective to incentivise investment into new assets and free up bank financing for operational projects with demonstrated revenue streams.

*Junior debt* performs a similar function. Governments or an IFI/national development bank take on debt that will only be serviced once the senior debt has been repaid (in the case of default). This makes it easier for banks to provide financing to riskier projects.

*Mezzanine finance* is a hybrid of debt and equity – such as unsecured and/or subordinated debt or preferred stock. It is usually aggressively priced.

**Securitization**

*Special purpose vehicles (SPVs)* can securitize project debt by issuing asset-backed securities, such as project bonds. These recourse to the real assets owned by the special purpose vehicle once they are operational. This is generally well-suited to institutional investor needs, but will only mitigate risk if the SPV owns several projects that aggregate assets and thus reduce overall risk. This latter point is dealt with more extensively in the section on aggregation (Section 3). A crucial advantage of securitization is that it makes it possible for institutional investors to invest in operational projects, freeing up bank financing and investment from other institutions for the development of new infrastructure assets. However, whereas securitization has been making some headway in developed countries, it remains underutilised in developing and emerging countries.

**Loan or performance guarantees**

*Investment guarantees* issued by mature economy governments and IFIs/national development banks to encourage overseas investment usually cover political risk. Mature economy governments issue an insurance-like guarantee for a certain cash flow against issues such as retroactive changes, renationalisation or political violence. However, current legislation frequently excludes the riskiest countries from the remit of these investment guarantee agencies. The risk reduction potential of investment guarantees depends on the claims pay history as well.

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5 Adapted from OECD: Mapping Channels to Mobilise Institutional Investment in Sustainable Energy
Case Study 1: The Africa Agriculture and Trade Investment Fund (AATIF)

The Africa Agriculture and Trade Investment Fund is managed by Deutsche Asset and Wealth Management and provides senior debt and mezzanine instruments to allow on-lending by local financial institutions or select intermediary agribusinesses. Equity and debt investments can also be made directly to cooperatives, out-grower schemes, commercial farms or processing companies along the entire agricultural value chain. The fund supports climate adaptation by supporting the development of Africa’s agricultural production, manufacturing, services and trade to benefit the poor. AATIF is structured to allow investors to come in at three different levels, each offering a unique risk/return profile with dividends being paid following a waterfall principle. C-Shares bear the highest risk (first loss protection) and offer a lower return which facilitates investors into the more senior A-share or B-share categories. The fund was initiated by KfW on behalf of the German Federal Ministry for Economic Corporation and Development (BMZ). BMZ is invested into the C-Shares while Deutsche Bank and KfW have B-share investments and various private investors have made C-share investments. The Common Fund for Commodities provides Technical Assistance. The fund has USD141m of commitments with USD110m disbursed into four direct investments and three investments into local financial institutions. AATIF is advised by ILO and UNEP to ensure compliance with social and environmental guidelines. The structure of the fund has strong potential for replication to facilitate low carbon technology investments.

Insurance products

Similar to investment guarantees, insurance products reduce risk by backing up a specific cash flow. However, these insurance products are typically issued by private sector providers and cover different risks. Political risk insurance is available, but usually does not cover regulatory risk.

Currency swaps

Foreign exchange derivatives in which two institutions swap the principal and/or interest payments of a loan can help mitigate currency risk, but are not available for all countries. They are useful complements to futures markets, which may only be available for an even more limited number of developing and emerging countries.

Seed capital for funds

Governments or development banks can also incentivise the establishment of specialist infrastructure funds by providing an initial investment. This facilitates the capital raising process, especially if the government investment takes the fund beyond a minimum threshold required for a first close.

Case Study 2: The Danish Climate Investment Funds

The Danish Climate Investment Funds provide risk capital in the form of equity or mezzanine financing for climate projects in developing and emerging countries, particularly growth markets in Asia, Africa, Latin America and parts of Europe. The fund provides share capital for the establishment of companies, or it can co-invest in major climate projects. The Danish government and IFU, the Danish Investment Fund for Developing and emerging countries, have contributed DKK 525mn (EUR 70 mn) – private funds of a total of DKK 774mn (EUR 104 mn) have been contributed from PensionDanmark, PKA and PBU, as well as a private investment fund and Aage V. Jensen Charity Foundation. Further private sector capital from international and local investors is being leveraged at the company or project level. The fund has already approved six investments.
2 Provide predictability and transparency on future public climate finance flows

**Key actors:** Developed and developing country governments

Greater predictability and transparency on future climate finance flows from developed countries to the rest of the world are important to enable more institutional investment. We strongly encourage donor countries to provide further information on future climate finance flows.

Likewise, recipient countries should intensify efforts to improve the enabling environment in their countries (Section 5).

3 Aggregate infrastructure assets

**Key actors:** Development banks, institutional investors

Individual small-scale infrastructure investments often have too high transaction costs. Projects can be aggregated in the following ways:

- Warehousing models mature the assets through the planning and construction stage. When assets are sufficiently mature and therefore have a lower risk profile, bonds are issued. These type of bonds are typically more attractive to investors than the original equity structures.
- Blended funds pool investments from the public sector and institutional investors at the fund rather than project level, allowing aggregation and diversification of risks across types of infrastructure and potentially geographies. Whilst we are increasingly investing directly into real infrastructure assets, pooled structures might be useful as a bridge until further experience has been gained.

4 Put in place a powerful national infrastructure development plan to implement the INDCs

**Key actors:** National governments (climate and energy ministries, ministries of finance, planning and economic affairs), international financial institutions

Long term goals are best achieved with long-term plans. Infrastructure which is to remain economically viable and productive long-term (i.e. sustainable) must be resource efficient, resilient and form part of a holistic development plan. Efficient infrastructure, and comprehensive designs, although cheaper from a life-cycle perspective often have higher up-front costs, which make their deployment more difficult. This creates an investment gap between what needs to be built and what is currently being built, which the World Bank estimates is equal to around $1 trillion a year.⁶

Changes to policies are a major source of investment risk, so it is important to give investors, companies and society long-term clarity and transparency as to the direction of energy and infrastructure policies. Countries which have put in place such legislative frameworks are viewed as being more attractive to invest. IFIs should align their own support to developing and emerging countries with the INDCs.

This can be achieved through a top-down policy approach in three steps.

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At a high level, adopt a *long-term decarbonisation goal* through an ambitious Intended Nationally Determined Contribution (INDC). This should be as close to the scientific consensus as possible, as anything short of this standard can be expected to change, negating the ultimate aim of providing political stability.

Gather broad political support across all government departments (especially key departments like finance, economic affairs and planning) and translate this goal into national legislation.

Design a *national transition plan*, which would cover the main areas of infrastructure investment and major emission sources. At this stage *specific policies* can be developed such as emissions trading scheme or removing fossil fuel subsidies, which would support targets for direct infrastructure investment.

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**Long-term infrastructure investment needs the right forward-looking planning**

Building infrastructure is, by its very nature a long term enterprise, not only because the assets have a long life-span, also because ancillary infrastructure and services are built around these assets. This “locks-in” a given infrastructure solution along with all its externalities (e.g. inefficiencies, pollution, carbon emissions, energy demand). Once this infrastructure is built, it is very expensive to re-design.

It is important to incorporate estimates of future availability of resources into its design. For example, when urban areas in the USA were being built it was implicitly assumed that both oil prices and people’s time would remain cheap, which prompted the design of living neighbourhoods far from jobs and cultural centres. As oil prices and labour productivity rose by over 500% since the 1940s the requirement to commute over long distances and for long periods of time has had a negative impact on the economic efficiency of US urban areas as well as the quality of life of people who live there. Developing and emerging countries should take advantage of best available design and technology solutions.

**Atlanta and Barcelona have similar populations and wealth levels but very different carbon productivities**

<table>
<thead>
<tr>
<th></th>
<th>Atlanta’s built-up area</th>
<th>Barcelona’s built-up area</th>
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<tbody>
<tr>
<td>Population</td>
<td>5.15 million</td>
<td>5.33 million</td>
</tr>
<tr>
<td>Urban area</td>
<td>4,280 km²</td>
<td>162 km²</td>
</tr>
<tr>
<td>Transport Carbon emissions: Tons CO₂ per person (public &amp; private transport)</td>
<td>7.5</td>
<td>0.7</td>
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</table>

Source: Bertraud and Richardson, 2016
Off-grid and distributed energy

The transmission and distribution grid which supports power generation based on distributed generators requires a different design than one based on a centralised power production model. As more consumers produce their own energy, the cost of maintaining the transmission network per electron sent across the grid inevitably increases. This is an opportunity for developing countries to leapfrog the old grid model and adopt a decentralised, micro-grid approach which is integrated with the IT network, allowing smart-management of electricity across the network.

Investment in such a network does pose financing difficulties, as it requires performing due diligence analysis on a large number of small installations, and the small scale of these investments requires even more ambitious aggregation. However developing country governments can help overcome this barrier and take advantage of the new grid design, by laying out clear interconnection procedures and standardising documentation and application processes e.g. through a pro-forma Power Purchasing Agreement.

Most of our investments in this space will be indirect, through specialist companies that – for example – operate subscription-based payment models. Investments in specialised funds with first loss protection mechanisms, is also a potential investment vehicle. One example are off-grid solar energy projects combined with basic storage units that bring electricity to households that do not have access to electricity yet. These households can then use electricity for mobile phone charging and evening lighting, making it unnecessary to rely on kerosene lamps or external charging providers.

5 Make sure key transaction enablers are in place

Key actors: National governments in all countries, institutional investors, intermediaries such as banks, project developers, infrastructure companies

A broader set of ‘transaction enablers’ needs to be in place (the “enabling environment”). Four key transaction enablers are outlined here.

Ensure a robust project pipeline

Without enough well designed investment grade projects, investments will not take place. Besides providing a financially sound investment case in the traditional sense, these projects must also meet rigorous social and environmental standards. In addition, domestic and foreign due diligence teams that can evaluate projects need to be present.

There is still a shortage of bankable projects in many emerging and developing countries, in part because project development markets in those countries are still quite nascent. To ensure that there is adequate demand for new public-private investment flows, public financing institutions should increase their focus on project and programme development through a range of initiatives.

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7 Energy Information Administration
8 Bureau of Labor Statistics
Case Study 3: The Climate Development and Finance Facility

The Netherlands Development Finance Company’s (FMO) Climate Development and Financing Facility (CDFF, Case Study 2) actively works with developers during the very early stages of project development to make projects bankable. This is the most risky and time consuming phase of project development. Once the project has been made bankable, it will be financed (equity and/or debt) by the Financing Facility. When the project is up and running and has a proven track record it could be refinanced by private capital. This combination is unique. As institutional investors we are following this initiative with interest.

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<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
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<tbody>
<tr>
<td>Development fund</td>
<td>Construction fund</td>
<td>Refinancing fund</td>
</tr>
<tr>
<td>50% development loan, technical assistance</td>
<td>75% construction finance, can start directly, no delays</td>
<td>After start of operations, provide 40% refinance</td>
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**Sources of New Finance**

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<th>Source</th>
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<tr>
<td>Donor capital</td>
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<tr>
<td>Project developers / PE funds</td>
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<tr>
<td>Institutional investors</td>
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**Financing Stages**

<table>
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<th>Source</th>
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<tr>
<td>$50m</td>
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<td>$500m</td>
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**Complementing Existing Sources**

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<th>Source</th>
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<tbody>
<tr>
<td>50% development costs</td>
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<tr>
<td>25% + sponsors equity / debt</td>
</tr>
<tr>
<td>5% + sponsors equity</td>
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<tr>
<td>90% + 40% refinancing in the market</td>
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<tr>
<td>Project developers / PE funds</td>
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**New Sources of Private Capital**

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<td>DFIs</td>
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Ensure capital markets are working efficiently

Well-functioning capital markets, the markets for buying and selling equity and debt instruments, are essential for macro-economic development and stability in general. Ensuring efficient capital markets is both a public and a private responsibility. On the public side, ensuring that strong institutions are in place to effectively manage the markets are a prerequisite to optimising the functioning of these markets and maximising their benefits for society.

Ensure bank intermediation is working

Bank intermediation is essential to ensure that capital is allocated efficiently. This means that those projects that generate the most attractive returns in lieu of their risk profile are selected by banks for financing. Banks play a critical role in project selection and providing the debt financing required.

Create a favourable macro-environment and political stability

A favourable macro-environment is essential, which can be strengthened through political stability – political stability is crucial for investments that will last for decades. In particular, the rule of law, enforceability of contracts and the protection of land titles are essential. Transparency, longevity and certainty (“TLC”) of policy frameworks is critical to their success.

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9 The Global Innovation Lab for Climate Finance: The Climate Development and Finance Facility
Climate Change Investment Solutions: A Guide for Asset Owners outlines a range of strategies and solutions investors can use to address climate change, including low carbon investment, as investors around the world work to scale up their efforts to invest in clean energy and shift to lower carbon assets. The first section of the practical guide outlines how pension funds can undertake a strategic review on climate change, setting a policy and even targets that can be communicated to asset managers and beneficiaries.

Conclusion

This paper has provided five recommendations that – if implemented – could further increase our ability to invest in climate-related infrastructure for adaptation and mitigation in developing and emerging countries. As institutional investors, we are committed to climate action. Already, we are contributing significantly to the roll-out and upgrading of infrastructure globally.

One of the fundamental roles of finance has always been to bridge the time gap between future benefits and present costs. How well this role is executed depends, to a large extent on the risk / return profile of the investment, which in turn shortens or extends the time horizon across which benefits can be incorporated into the pricing and assessment of a project.

Scaling up climate finance is a shared responsibility between developed and developing and emerging countries as well as the private sector. We are ready to work with governments and international organisations to deliver the further investment necessary to address this critical challenge.