

## Leveraging private investment: the role of public sector climate finance

By Jessica Brown and Michael Jacobs

**T**he costs of creating a low-carbon global economy are high. To avoid the dangerous impacts of climate change, global mean temperature must be limited to an increase of 2°C above pre-industrial levels. To achieve this goal, the International Energy Agency estimates that the required additional capital investments for developing and emerging (non-OECD) economies – above and beyond the underlying investments needed by various sectors regardless of climate considerations – will amount to \$197 billion in 2020 (IEA, 2009). This is nearly twice the amount that developed countries agreed to provide in the UN Framework Convention on Climate Change (UNFCCC) Cancún Agreements. With developed country government debt-to-GDP ratios expected to rise to 110% by 2015 (IMF, 2010), there is a growing understanding that public revenue transfers from north to south will only play a small (albeit vital) part in the overall finance needed by developing countries to create a low carbon future. Moreover, most energy investment around the world comes from private (or para-statal) finance, and public climate finance will, at most, fund only the incremental cost.

Even if public finance is delivered at scale, private investment will continue to have the most important role to play in shaping the configuration of future energy supplies. Over-reliance on a future carbon market is a dangerous expectation given the lack of certainty around international negotiations and the current low carbon price. In such circumstances, and with an immediate need to finance low-carbon energy technologies in developing and emerging economies, the role of private sector capital is critical. This issue has been recognised and highlighted in the recent report by the UN Secretary-General's Advisory Group on Climate Financing (AGF, 2010).

### Box 1: The concept of leveraging

In this Background Note leveraging refers to the process by which private sector capital is mobilised as a consequence of the use of public sector finance and financial instruments. Its importance was emphasised by the 2010 AGF report, which showed how public finance could 'crowd in' private capital by compensating private investors for what would otherwise be lower than their required risk-adjusted rates of return (AGF, 2010). There is no uniform methodology to calculate leverage ratios of public to private finance, and different financial institutions report this ratio in different ways. Sometimes leverage ratios are expressed as the ratio of total funding to public funding; the ratio of private funding to public funding; or the ratio of specific public climate finance to broader public and private finance flows.

This Background Note focuses on how public finance and risk mitigation instruments can remove the barriers to private sector investment and thereby leverage significant amounts of private capital for climate change mitigation. It discusses available options and makes some further proposals on how public sector financial institutions can further engage with this critical issue.<sup>1</sup>

### The role of strong policies

The primary requirement to attract private sector capital into low carbon investments is an appropriate policy framework. Almost all such investment is policy-dependent, having higher costs than carbon intensive options. National and sub-national governments, therefore, have a crucial role to play in creating the policy and institutional environment that will incentivise private sector investments in low carbon projects and programmes. The term 'investment

---

The Overseas Development Institute is the UK's leading independent think tank on international development and humanitarian issues. ODI Background Notes provide a summary or snapshot of an issue or of an area of ODI work in progress. This and other Background Notes are available at [www.odi.org.uk](http://www.odi.org.uk).

grade' is increasingly used to define policy regimes with the clarity, stability, predictability and long-term visibility that will attract finance, particularly from overseas (Hamilton, 2009).

At the individual project level, investors will be most motivated by the profitability of the potential investment, which is determined by whether the investment (either debt or equity) offers the right risk-reward ratios. Taking a broader perspective, the private sector will be most motivated by the underlying national and international policies that can shift the value and the balance of a company's assets and liabilities. For example, a fuel-intensive company's revenue structure will drop as a result of fossil fuel subsidy phase-out. The introduction of a carbon tax can increase the liabilities associated with dirty energy production and electricity market reform incentives, like a feed-in tariff for renewable energy, can affect the assets of a solar company by making earnings more predictable. Therefore, any focus on leveraging private sector finance needs to pay attention to the balance of the private sector's assets and liabilities, and the underlying policies and regulations by which they are determined.

One role for public finance in leveraging private sector finance is, therefore, simply to contribute directly to the incremental cost of low carbon policies. It has been proposed, for example, that developed countries' climate finance could be directed to fund feed-in tariffs for renewable energy technologies in developing countries (Deutsche Bank Group, 2010). This would help pay for the policy costs and thereby help create the incentives that would attract private sector investment into low carbon energy options.

## Risk reduction and mitigation

But this simple form of leveraging through public finance may not, on its own, be sufficient to attract private capital to many low carbon projects. In general, private investors and lenders are still cautious of investing in low carbon technologies in developing and emerging economies. It is now widely accepted within the low carbon energy field that there is a 'finance problem' over and above the problem of the underlying profitability of investments – that is, there is a lack of capital (both debt and equity, in different cases) available at low enough cost (Ward, 2010). A series of both real and perceived risks attach to low carbon projects, particularly in developing countries, which can raise the cost of capital to prohibitive levels.

Different names have been given to these different types of risk, but they fall essentially into six categories:

1. General political risk – reflecting concern about political stability and the security of property rights in the country; along with the generally higher cost

of working within unfamiliar legal systems

2. Currency risk – reflecting concern about the loss of value of local currencies (and their lower utility to an overseas investor)
3. Regulatory and policy risk – reflecting concern about the stability and certainty of the regulatory and policy environment, including the longevity of incentives available for low carbon investment and the reliability of power purchase agreements
4. Execution risk – reflecting concern that the local project developer/firm may lack the capacity and/or experience to execute the project efficiently; along with the general difficulty of operating in a distant and unfamiliar country
5. Technology risk – reflecting concern that a new and relatively untried technology or system may not work as expected
6. Unfamiliarity risk – reflecting the amount of time and effort it takes to understand a project of a kind that has not been undertaken by the investor before.

These risks are listed in a broad ascending order of specificity to low carbon investments: while general political and currency risks apply to many kinds of investments in particular countries, there are specific technology and unfamiliarity risks attached to different kinds of low carbon projects.

A key task of public climate finance is, therefore, to reduce or mitigate the risks attached to low carbon and climate resilient projects and technologies to leverage the private finance needed for investment. Over time, as policy becomes more certain, technologies are proven and investors become more familiar with the field, some of these risks should be reduced, so reducing the need for financing.

## Existing tools and mechanisms to overcome risk

A key role for public sector climate finance is to buy down or mitigate the risks attached to low carbon projects and programmes. There are several practical financial tools available to public finance institutions that can be used to leverage private investment in these ways. Building on the excellent work of Caperton (2010), this section explores specific examples of tools that leverage debt and equity, either through direct public financing (where finance is used to buy down risk and therefore leverage private sector investors) or through public guarantees (which covers risks through insurance-like tools). The list of tools that follows is not exhaustive.

### Tools to leverage debt:

- **Loan guarantees.** Loan guarantees allow governments and other public finance institutions to

underwrite loans to projects to protect the private investor against defaults. In countries with high political risks, where contracts have low legal standing, and where energy markets are dysfunctional, it is unlikely that investment risks will be reduced through conventional policy or financial tools. In such cases, loan guarantees provided by international public financial institutions can be useful to reduce the risk to private lenders. Loan guarantees ensure that the loan will be repaid if the borrower cannot make the payments.

This tool transfers part or all of the risk from the lender onto the loan guarantor. The intended impact is that the lender is then better positioned to charge a lower interest rate on the loan, thereby lowering its cost of capital and increasing its profitability.

- **Policy insurance.** As most projects depend on one or more specific policies to be profitable, public finance can be used to insure investors against the risk of policy uncertainty. This can be done through conventional insurance bought by the public finance institution to cover the risk of policy change. For example, if the policy is a feed-in tariff to support renewable electricity projects, the public finance institution could buy an insurance policy against the feed-in tariff being abandoned or reduced. The long-term sustainability of the policy can then ensure the profitability of renewable electricity projects, providing a clear signal to private investors to invest. Consequently, the public finance has been spent to cover the cost of the policy itself (which could be viewed as the incremental cost of the investment), but has enabled the financing for the entire project.

This type of tool is most likely to succeed in countries with strong regulatory systems and institutions, and where certain policies are already in place or under development.

- **Foreign exchange liquidity facility.** Some projects will need to repay loans on borrowed debt in foreign currency, but will receive project revenues in a local currency. In many developing countries, currency fluctuations can cause significant risks to the loan repayment. A foreign exchange liquidity facility can help reduce the risks associated with borrowing money in a different currency by creating a line of credit that can be drawn on when the project needs money and repaid when the project has a financial surplus. If a local currency is devalued and the project developer cannot afford the debt repayments, the developer can draw down funds in the liquidity facility and repay either when the exchange rate improves or the project can increase revenues. The cost of such a foreign exchange liquidity facility is expected to be cheaper than either a loan guarantee or policy insurance.

The foreign exchange liquidity facility is a general investment risk mitigation tool, meaning that it will reduce investment risks in all sectors, not just for low carbon investments. Therefore, unless specified as applying only to clean investments, this type of tool may encourage high carbon investments.

#### Tools to leverage equity

- **Pledge fund.** Some projects are too small for equity investors to consider, or simply cannot access sufficient equity, despite having a strong internal rate of return (IRR). If provision of equity is the primary limiting factor, an equity capital ‘pledge’ fund may be appropriate. In this model, public finance sponsors (which could be developed country governments or international financial institutions) provide a small amount of equity to anchor and encourage much larger pledges from private investors, such as sovereign wealth funds, large private equity firms and pension funds. The fund can then invest equity in low carbon projects and companies.

Because private equity investors will tend to be risk-averse and focused primarily on long-term profitability, all projects would need to meet the fiduciary requirements of the investors. This is roughly the model of the Climate Public-Private Partnership (CP3), discussed below.

- **Subordinated equity fund.** An alternative use of public finance is through the provision of subordinated equity, meaning that the repayment on the equity is of lower priority than the repayment of other equity investors. The subordinated equity would aim to leverage other equity investors by ensuring that the latter have first claim on the distribution of profit, thereby increasing their risk-adjusted returns. The fund would have claim on profits only after rewards to other equity investors were distributed.

These different tools have different applications to different types of investors, projects and country contexts. On the investor side, for example, pledge funds or subordinated equity funds are likely to be designed to attract equity investors such as sovereign wealth funds and pension funds, while debt-specific instruments such as loan guarantees and foreign exchange liquidity facilities will be more applicable to banks. Several different kinds of instrument may be required together to bring together the range of investors required to provide the full financing of a project or programme.

A number of these tools are now being used or developed to support private sector investment in low carbon projects. The Multilateral Development Banks (MDBs), including the International Finance Corporation (IFC), are the most significant players in

**Table 1: Summary of financial leveraging tools**

Mechanism	Direct public financing or guarantees	Debt or equity?	Risk level	Mitigates many risks or few?	Estimated leverage ratio	When tool most useful /in what contexts?
Loan guarantees	Guarantee	Debt	High	Many	6x-10x	Countries with high political risk, dysfunctional energy markets, lack of policy incentives for investment
Policy insurance	Guarantee	Debt	Medium	Adaptable to many, but ultimately one	10x & above	Countries with strong regulatory systems and policies in place, but where specific policies are at risk of destabilising
Forex liquidity facility	Direct financing	Debt	Low	One	?	Countries with currency fluctuations
Equity 'pledge' fund	Direct financing	Equity	Low	Many	10x	Projects with strong IRR, but where equity cannot be accessed. Projects need to be proven technology, established companies
Subordinated equity fund	Direct financing	Equity	High	Many	2x-5x	Risky projects, with new or proven technologies, new or established companies

Source: adapted from Caperton (2010). Includes references to Justice (2009).

this field. The involvement of MDBs in low carbon programmes and projects is widely seen as in itself reducing political and policy risks to private sector investors, over and above the investments and guarantees they provide. MDBs also bring considerable technical expertise.

All MDBs, to different degrees, are now seeking proactively to develop low carbon energy programmes and projects in developing countries, using both the Climate Investment Funds (CIFs) – in particular the Clean Technology Fund – and their own investment portfolio. Among the regional development banks, for example, the Asian Development Bank has a very proactive programme of pipeline development for potentially transformative energy generation systems. Its Clean Energy Financing Partnership Facility and Clean Energy Fund are currently investing over \$80 million, leveraging total investments of \$1.1 billion.

Overall, it is estimated that MDBs have the capacity to translate \$1 of MDB lending to generate \$3 of private capital co-investment, of which approximately 50% is mobilised from international sources. Since, as banks, MDBs can invest more than the call-in capital invested in them by their country donors, they can play a particularly important role in leveraging private sector capital (AGF, 2010).

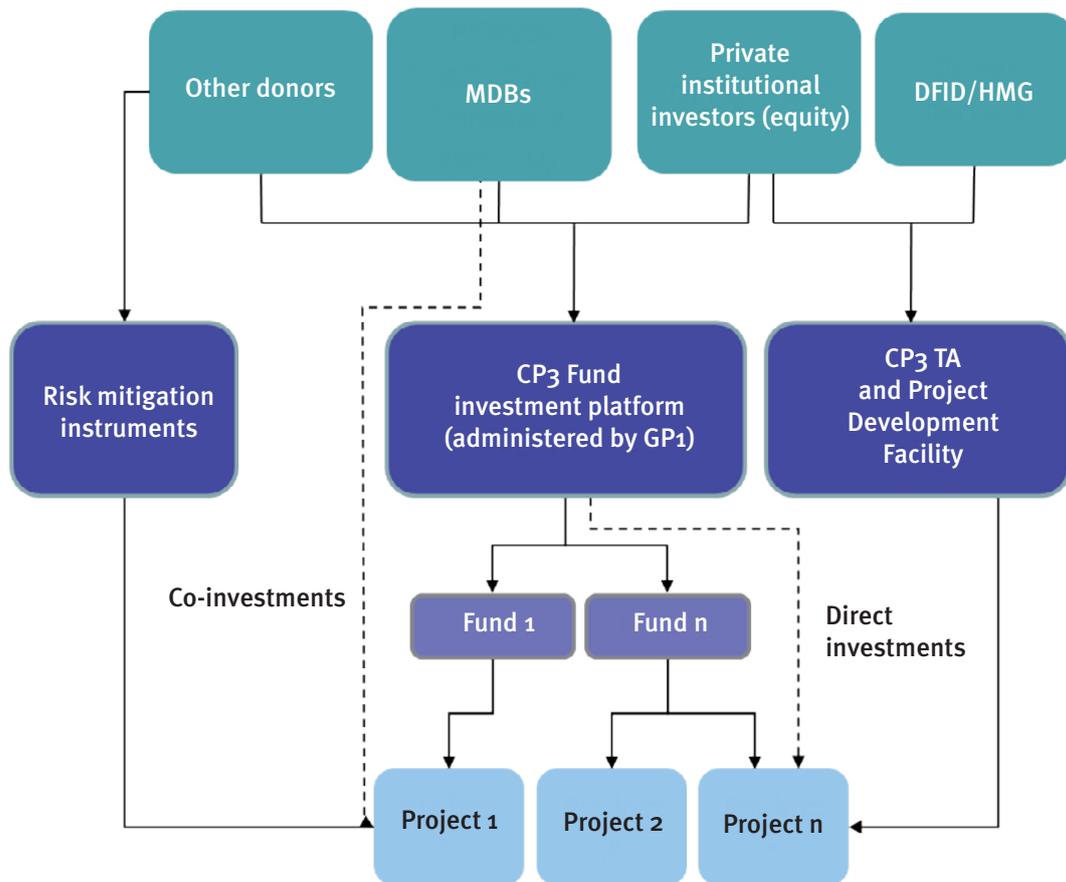
Outside the MDBs, other initiatives specifically to leverage low carbon energy investment include the Global Climate Partnership Fund, a joint initiative of the German Government and the KfW state development bank, which aims to raise \$500 million from an

initial public capitalisation of around \$100 million, to provide debt finance to low carbon energy projects in 13 emerging and middle-income countries in partnership with local financial institutions. A recent initiative of the Overseas Private Investment Corporation of the US Government will provide at least \$300 million in financing for new private equity investment funds to leverage the investment of more than \$1 billion in renewable resource projects in emerging markets.

### CP3: Providing equity to unlock investments

One particularly interesting example of a risk mitigation instrument is the CP3 (Climate Public Private Partnership) Fund. The CP3 Fund is a proposed public-private fund to catalyse low carbon investments in developing countries. The original idea was born out of discussions convened by HRH the Prince of Wales and the P8 Group –12 of the world's largest sovereign wealth funds and pension funds that have come together to develop actions relating to climate change. The P8 Group represents over \$3 trillion of investment capital.

The UK Department for International Development (DFID) is leading the development of CP3, together with the Asian Development Bank (ADB) and the IFC. CP3 aims to unlock several market failures that currently prevent private sector investment in low carbon infrastructure in developing countries. It aims to address the lack of capital by providing early stage equity and

**Figure 1: Model of CP3 Fund**

\* All investments are subject to internal approvals of the respective institutions.

Source: adapted from WEF (2011).

the lack of viable low carbon projects through management support, technical assistance and capacity building. It aims to address the high risk perception of the sector through a strong partnership with MDBs to provide risk-mitigation instruments and to capitalise on their local knowledge. The above package would also help bring in debt providers and, therefore, result in a high leverage of public- private Funds.

The key rationale behind the CP3 initiative capitalises on the fact that multilateral financial institutions are 'strategic' investors, and can play a catalytic role given their development mandate. They are often able to take higher risks and lend for longer tenors than commercial investors, primarily because they benefit from a strong capital base from highly rated sovereigns, resulting in a AAA risk rating. Private investors, such as sovereign wealth funds and pension funds have strict fiduciary obligations to their beneficiaries, and investments are made accordingly.

CP3 brings together these two types of investors by showing that they can invest in climate friendly projects and still generate financial returns, as long

as the finance is structured correctly. CP3 proposes to use a limited amount of public investment to mobilise a large amount of private equity finance. CP3 will try and do this without distorting the market by providing subsidies and will try to make the public investment on commercial terms, to the extent possible. It aims to demonstrate that climate investments can be financially profitable and has, therefore, clear commercial and financial objectives.

The CP3 proposed structure is as follows (WEF, 2011):

- Public and private investors would provide equity for the CP3 Fund. The public equity (provided by governments and the MDBs) would make up only a small share of the total finance, with the aim to leverage in private equity.
- CP3 is essentially a 'fund of intermediaries' or can be seen as a fund investment platform that would have an independent management and investment team (known in the private equity world as the 'General Partner' or GP1). The CP3 investment platform would then invest in existing climate-focused

private equity (or in some cases infrastructure) Funds and also incubate new Funds in the climate space, to create capacity for finance to flow in the future. It would also invest directly in projects and companies alongside its investee Funds. These investee Funds would each have their own Fund Manager (referred to as ‘General Partner’ or GP2) and have their own investment scope defined by country and sector.

- The investee Funds would raise additional private equity, providing further leverage on the public capital in CP3. They would invest in low carbon infrastructure and services projects or companies.
- CP3 would also include a Technical Assistance (TA) and project development facility, to help build the capacity on the ground and to create a pipeline of investable projects.
- MDBs will also play a significant role in the CP3 governance structure, but the structure of engagement is not yet finalised.

The intricacies and strengths of the CP3 model come out at the project level. While the upfront equity on offer is necessary to get part of the financing in

place, most of the investment at the project level will require a debt to equity ratio of 4:1 (requiring 80% in debt and 20% in equity) or lower, i.e. more equity. Affordable debt therefore also needs to be raised, but market failures can often create roadblocks to accessing this debt.

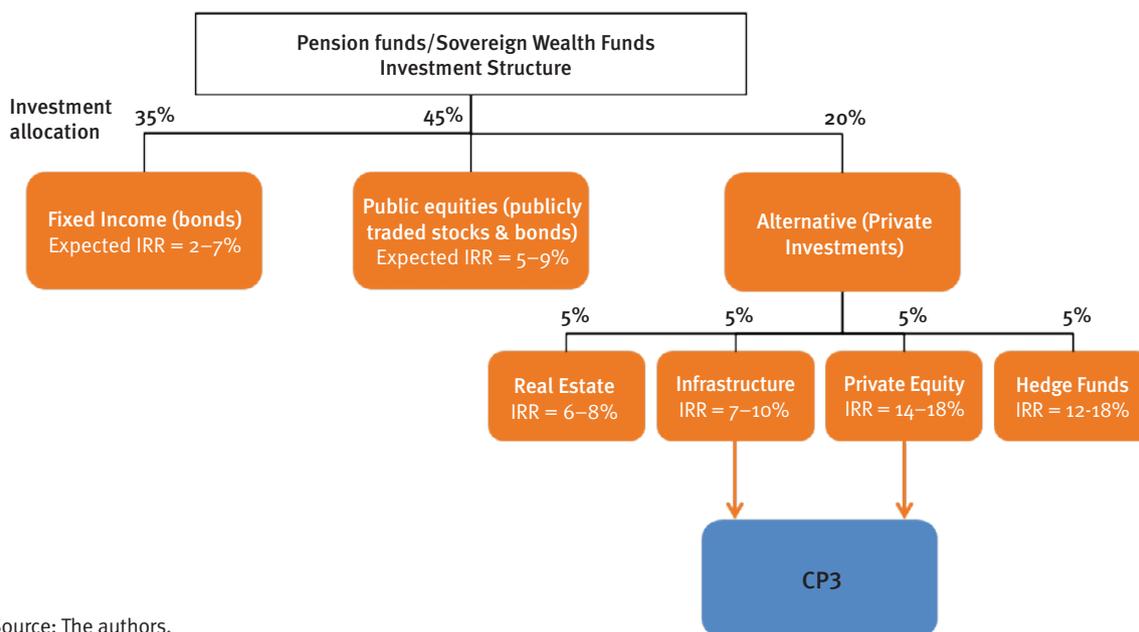
Taking a project-specific example, a \$100 million solar project in a country with a strong renewable energy feed-in tariff regime might be able to easily access debt up to \$80 million, because the policy and regulatory environment is relatively risk-free. The required IRR would be roughly around 11%. However, in emerging markets with political and currency risks, and an unstable policy environment, banks are willing to lend a lesser amount for the same project, requiring a higher proportion of equity. Higher equity would lower the prospective investor returns, making it difficult to attract equity investors. So the project sponsors need to find a way to maintain the debt-to-equity ratio at close to 4:1.

At this stage, CP3 can facilitate financing from other public finance institutions, such as MDBs and international financial institutions (IFIs), to provide debt finance and loan guarantees. While this debt may still

**Figure 2: How the institutional investors invest**

The following diagram presents a generic institutional investor to illustrate how institutional investors invest into a structure such as CP3. Sovereign wealth funds and pension funds invest their money in several different asset classes. One asset class is private equity, which, though often large in absolute terms, tends to make up a rather small proportion of the overall portfolio of investments.

The allocation for private equity can either be channelled directly into the CP3 Fund, into a specific private equity infrastructure fund, or (if the pension fund or sovereign wealth fund is big enough) the money can be invested directly into a portfolio of projects and companies. Similarly the allocation for infrastructure can be channelled into the CP3 Fund, an infrastructure Fund or infrastructure projects.



Source: The authors.

be at non-concessional terms, it is often cheaper and of longer tenor than most commercial finance. Risk mitigation instruments offered by MDBs include political risk and credit guarantees. These, together with public sector investment in the top level CP3 Fund and the investment grade rating of most public finance institutions would help de-risk the investment and also give the local banks confidence to provide debt.

Therefore, CP3 involves feedback between public and private finance at two levels. At the top level, a small proportion of public equity finance is used to anchor the private investment. Further down, at the project finance level, TA, project development assistance and where applicable, debt finance from MDBs and IFIs would facilitate further private sector finance.

In terms of leverage, the public finance leverages in private finance initially. At the project level, there is a 'leveraging feedback loop', where the public participation in various forms sends a signal to private finance institutions to invest, thus overcoming the market failures.

### Broader issues to be addressed by public finance institutions

In addition to specific finance instruments, there are a number of broader areas that could be taken forward by public finance institutions to promote the leveraging of private finance into climate change mitigation:

- There is a clear need for developed country climate finance, including fast start finance and funds routed through MDBs, to focus more on leveraging private sector investment, and for the development of appropriate risk mitigation tools to do this. There is considerable scope for coordinating developed country finance in this field, and for involving developing countries and the private sector in the co-design of appropriate instruments.
- International investor forums have highlighted that general discussions of financing needs among investors are no longer very productive (WEF, 2011), and the conversation needs to move on to project and programme implementation. Investors need to become involved in the process of financial structuring of specific, real programmes to overcome the unfamiliarity risk. A number of mechanisms and processes that promote this engagement are now being developed. Following up its 'Critical Mass Initiative' in 2010, the World Economic Forum, for example, is collaborating with a number of investors and other groups to identify the conditions that would attract international investors to transformative low carbon energy projects. The UK Government's Capital Markets Climate Initiative (CMCI) also aims to bring the City of London-based finance community together with

the UK Government to identify ways in which private sector finance for low carbon investment can be scaled up.

- These international discussions around the role of public finance and instruments to leverage private finance need to include 'new' partners in the conversation, such as non-DAC governments, philanthropic players and non-profit actors, to generate common standards and streamlined approaches. There needs to be recognition that any future articulation of principles to leverage private finance to address climate change should capture the diversity of experience and perspectives across many players.
- The leveraging agenda would benefit substantially from a better understanding of the potential catalytic role of official development assistance (ODA) vis-a-vis the broader range of development finance flows (Rogerson, 2010), and to better understand how ODA can be used to 'crowd in' the private sector. A better and deeper understanding of the relative roles of different international finance institutions, based on their comparative advantages would help to determine the best roles that each financial institution can play.
- Increased transparency in the use of international public finance would elucidate the current and potential role of public finance in leveraging private finance, and would increase understanding of the effectiveness and success rates of such efforts. Metrics to measure leverage and to count the impact of public sector finance in leveraging private capital need to be developed and agreed (AGF, 2010).
- In the context of recent discussions around the design of the Green Climate Fund (GCF), the issue of leveraging has direct and immediate relevance for the GCF Transitional Committee tasked with the Fund's design, and with donors and funders who plan to engage with the Fund. The GCF provides a useful international platform to test out the leveraging tools available to public financiers and to stimulate a broader global focus on leveraging of public sources.

Written by Jessica Brown, ODI Research Officer ([j.brown@odi.org.uk](mailto:j.brown@odi.org.uk)) and Michael Jacobs, Visiting Professor, Grantham Research Institute on Climate Change and the Environment, London School of Economics ([m.u.jacobs@lse.ac.uk](mailto:m.u.jacobs@lse.ac.uk)).

The authors would like to acknowledge Richard Caperton (Center for American Progress), Warren Pimm (Sustainable Development Capital Limited), Radhika Bharat (UK Department for International Development), and Rupert Edwards (Climate Change Capital) for their helpful comments and review of the paper.

## Endnotes, references and useful resources

### Endnotes:

- 1 This Background Note focuses on low carbon energy investments only. Leveraging private finance for investment in other areas such as adaptation and land use/forestry is likely to differ, and the same analysis may not apply.

### References:

AGF (2010) 'The Report by the UN Secretary-General's High-level Advisory Group on Climate Change Financing.'

Caperton, R. (2010) 'Leveraging Private Finance for Clean Energy: A summary of proposed tools for leveraging private sector investment in developing countries'. Global Climate Network Memorandum, Center for American Progress.

Deutsche Bank Group (2010) 'GET FIT Program: Global Energy Transfer Feed in Tariffs for Developing Countries'. DB Climate Change Advisors.

Global Climate Network (2010) 'Investing in Clean Energy: How can developed countries best help developing countries finance climate-friendly energy technologies?' GCN discussion paper no.4.

Hamilton, Kirsty (2009) 'Unlocking Finance for Clean Energy: The Need for 'Investment Grade' Policy'. Chatham House Briefing Paper.

International Chamber of Commerce (2010) 'ICC Public Policy

Roadmap on Finance and Climate Change: Facilitating private sector investment in climate change projects'. Prepared by the ICC Commission on Environment and Energy.

International Energy Agency (2009) *World Energy Outlook 2009*. OECD / IEA, Paris ([www.worldenergyoutlook.org/docs/weo2009/WEO2009\\_es\\_english.pdf](http://www.worldenergyoutlook.org/docs/weo2009/WEO2009_es_english.pdf)).

International Monetary Fund (2010) 'Navigating the Fiscal Challenges Ahead'. Washington, DC, IMF.

Justice, Sophie (2009) 'Private financing of renewable energy: A guide for policy makers'. UNEP-SEFI.

Rogerson, Andrew (2010) 'The Evolving Development Finance Architecture: A Shortlist of Problems and Opportunities for Action in 2011'. Consultation Draft, 17 November 2010, for distribution at workshop on the Evolving Global Aid Architecture.

Ward, Murray (2010) 'Engaging private sector capital at scale in financing low carbon infrastructure in developing countries'. Main report of the Private Sector Investment Project, GTripleC.

World Economic Forum (2011) 'Scaling Up Low-Carbon Infrastructure Investments in Developing Countries', the Critical Mass Initiative Working Report.

### Useful resources:

For more information on climate change funds see: [www.climatefundsupdate.org](http://www.climatefundsupdate.org)



Overseas Development Institute, 111 Westminster Bridge Road, London SE1 7JD, Tel: +44 (0)20 7922 0300, Email: [publications@odi.org.uk](mailto:publications@odi.org.uk). This and other ODI Background Notes are available from [www.odi.org.uk](http://www.odi.org.uk).

Readers are encouraged to quote or reproduce material from ODI Background Notes for their own publications, as long as they are not being sold commercially. As copyright holder, ODI requests due acknowledgement and a copy of the publication. The views presented in this paper are those of the author(s) and do not necessarily represent the views of ODI.

© Overseas Development Institute 2011. ISSN 1756-7610.