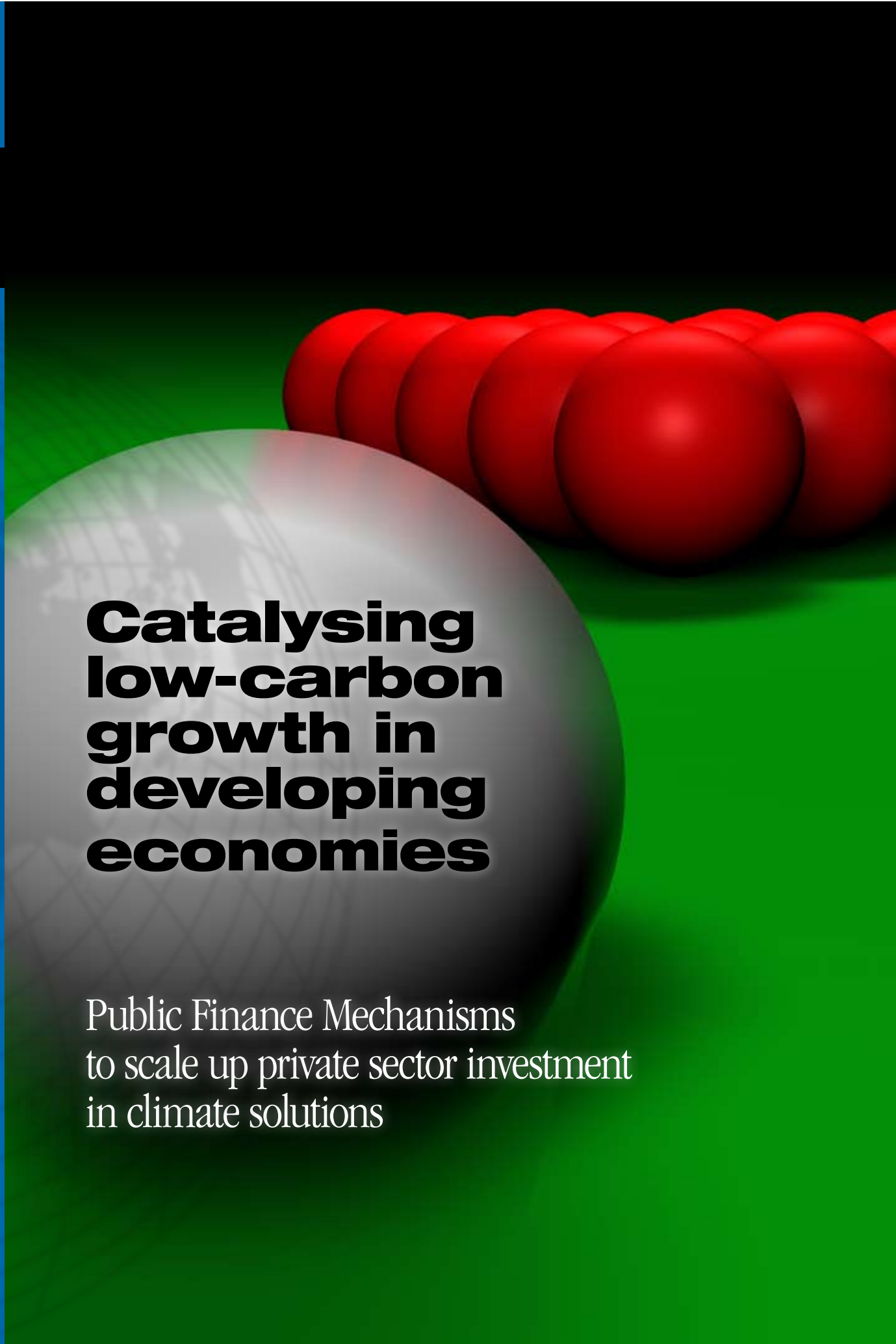
UNEP

UNITED NATIONS ENVIRONMENT PROGRAMME



Catalysing low-carbon growth in developing economies

Public Finance Mechanisms to scale up private sector investment in climate solutions

SEFI

UNEP Finance Initiative
Innovative financing for sustainability

IIGCC
Institutional Investors Group on Climate Change

DFID
Department for International Development

ClimateWise

The Prince of Wales's 7% Group

PRI
Principles for Responsible Investment

Investor Network on CLIMATE RISK

Catalysing low-carbon growth in developing economies

Public Finance Mechanisms to scale up private sector investment in climate solutions

UNEP and Partners
October 2009

This report was commissioned by UNEP and partners:

UNEP Sustainable Energy Finance Initiative (UNEP SEFI)
UNEP Finance Initiative (UNEP FI) under its Climate Change Working Group
The Institutional Investors Group on Climate Change (IIGCC)
ClimateWise
The Investor Network on Climate Risk (INCR)
The P8 Group
The Principles for Responsible Investment (PRI), an investor initiative in partnership with UNEP FI and The Global Compact, and
The UK Department for International Development (DFID)

Acknowledgements

A steering committee
representing partner organisations provided robust guidance to the authors throughout the process. Thank you for their contribution to: Claire Boasson, Remco Fischer, Aled Jones, Giedre Kaminskaite, Rob Lake, Kylee McGee, Stephanie Pfeifer, Nick Robins, Virginia Sonntag O'Brien, Jerome Tagger, Eric Usher, Andrew Voysey.

Authors
Vivid Economics: John Ward, Sam Fankhauser, Cameron Hepburn, Helen Jackson, Ranjita Rajan.

vivideconomics

Thanks to the many stakeholders (see Appendix 2) who provided their input.

Contents

Foreword

In just a few weeks, over 190 nations will gather in Copenhagen for the crucial UN climate convention meeting--it represents perhaps the greatest opportunity in a generation to move the world onto a truly sustainable path.

A new order of partnership is needed between developed and developing economies--one that supports the development needs of developing countries but assists them onto a low carbon trajectory that leap-frogs the 20th century development patterns of the North.

UNEP's Green Economy initiative is about meeting the multiple challenges on a planet of six billion people rising to over nine billion by 2050, by maximizing the impact and opportunities of different investment choices in order to globally propel low carbon, resource efficient growth.

Encouraging financial flows between rich and less well off countries is key as is the involvement of the private finance sector and global investment community. UNEP has been actively engaged with financial institutions around the world for over 15 years to facilitate more sustainable investment patterns.

It has built world-class partnerships focused on sustainable finance, such as the UNEP Finance Initiative and the UNEP Sustainable Energy Finance Initiative. More recently, the interaction between UNEP's Initiatives and other private finance networks has intensified. The partnership mobilized to produce this report bears witness to this encouraging trend. And only a few weeks ago, the finance sector as a whole underlined its desire to see a scientifically-credible deal sealed in Copenhagen when it issued the '2009 Investor Statement on the Urgent Need for a Global Agreement on Climate Change'.

In the near future, appropriate action plans must be implemented at country level to create the demand, to absorb the amounts of investment necessary to mitigate and adapt to climate change, while appropriate financial instruments must be designed to supply the funds.

Combating climate change is not about costs to the economy but an investment in the kinds of renewable, clean-tech and natural resource management economies able to generate low-footprint wealth and employment for over one billion people unemployed or under employed.

This report focuses on the kinds of public finance mechanisms needed to incentivise and scale-up private sector investment.

A sound and solid deal in Copenhagen represents the biggest stimulus package of them all. However, it may be several years before the carbon markets reach top speed, generating the kinds of increased revenue streams envisaged--financial institutions with longer term investment horizons spanning several decades can be the bridge, as long as the risk reward balance is right.

UNEP is pleased to be part of this new report. We are committed to cooperating with the financial industry as we are with sectors from construction and tourism to the media and civil society.

Together we can strengthen and generate returns across the entire social, environmental and economic pillars of sustainable development so that a planet of six billion, rising to nine billion people not only survives but thrives.

Achim Steiner
United Nations Under-Secretary-General and and UNEP Executive Director

Executive Summary

The total investment required to avoid dangerous climate change is more than USD 1 trillion per annum, according to the International Energy Agency (IEA). Half of this amount could be redirected from business-as-usual investment in conventional technologies to low-carbon alternatives. The remainder (USD 530 billion) is required in the form of additional investment.

The challenge can be met. USD 530 billion would represent less than 3 per cent of global investment in 2030. In 2007, energy subsidies were USD 300 billion per annum.

The World Bank estimates that around USD 475 billion of the total annual investment must occur within developing countries. Around USD 400 billion per annum of investment will be required for mitigation investment. A further USD 75 billion per annum will be required for adaptation investment.

Developing countries will be most advantaged if public finance contributions are designed to maximise the leverage of additional private finance. Demands on public finance are acute, especially following the recent financial crisis. It is estimated that existing public contributions to developing world climate-change investment total around USD 9 billion per annum, less than 2 per cent of USD 475 billion. The World Economic Forum (WEF) estimates that the sum of climate-related public sector commitments currently under negotiation, even if delivered to their maximum ambition, totals around USD 110 billion. The shortfall is potentially more than USD 350 billion.

Institutional investors could provide much of the capital, if an appropriate risk-reward balance is offered. Institutional investors, such as pension funds, insurance companies and sovereign wealth funds, are in a position to provide some of the required capital. It is estimated that pension funds alone control assets worth more than $12 trillion and that sovereign wealth funds have a further $3.75 trillion under management. However, to stimulate their engagement the expected returns on climate-change mitigation investment need to be commensurate with the perceived level of risk. This is not currently the case.

Public Finance Mechanisms (PFMs) — which could deliver between $3 and $15 of private investment for every $1 of public money — are part of the solution. Public money can be used to increase returns or reduce risks, and can be an efficient way of mobilising institutional investor capital. Alongside efforts to reform carbon markets and to create the conditions needed for 'nationally appropriate mitigation actions' (NAMAs), PFMs also need to be examined and optimised if they are to facilitate the required scale and speed of private capital injection.

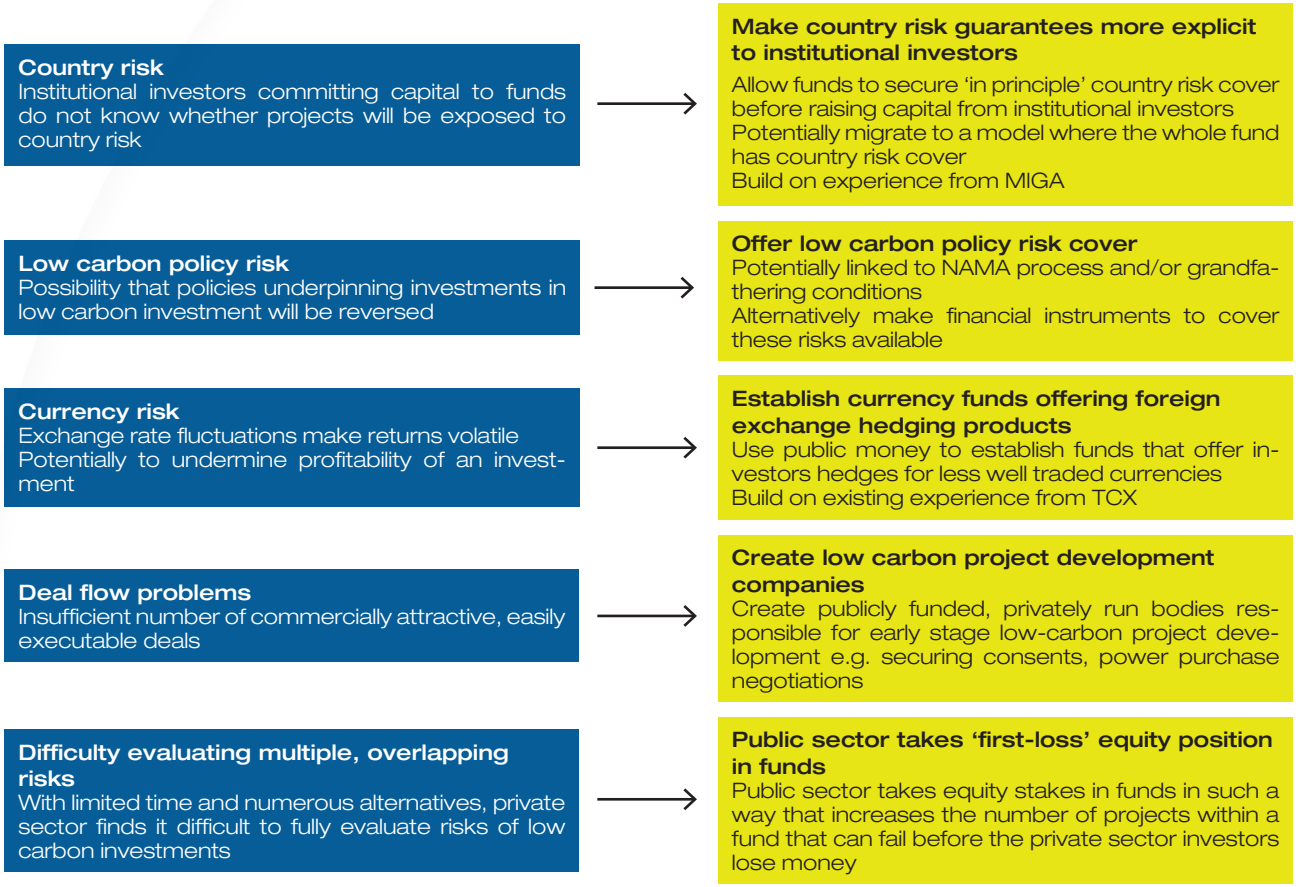
One of the issues for discussion at, and subsequent to, the Copenhagen Conference of the Parties is the role of PFMs and the institutional architecture to deliver them. The guiding principles of the Financial Mechanism under the UN Framework Convention on Climate Change should recognise the potential for use of public funds to leverage private finance.

Based on the findings of five case studies[1], this report identifies five obstacles to institutional investor engagement in low-carbon growth in developing countries and proposes a package of PFMs to address

1 UNEP and Partners (2009), *'Catalysing low-carbon growth in developing economies: Public Finance Mechanisms to scale up private sector investment in climate solutions - Case Study Analysis'*, October.

them (see Figure 1). Much of the required capital will be directed via specialised low-carbon funds, such as those recently proposed by the World Economic Forum and by an international team coordinated by Lord Nicholas Stern at the London School of Economics. This is likely to necessitate institutional investors allocating additional capital into such dedicated funds. However, it is likely that big listed firms, largely owned by institutional investors, may implement individual large-scale low-carbon projects. PFMs should be available to institutional investors in both contexts.

Figure 1 Five constraints to private sector engagement are matched with five operational PFM proposals



Source: UNEP and Partners / Vivid Economics

The package of PFMs is made up of five elements.

- *Country risk cover.* Insurance against country risk is already available at the project level from, among others, the Multilateral Investment Guarantee Agency (MIGA) of the World Bank and the US Government's Overseas Private Investment Corporation (OPIC). Country risk cover could be expanded and explicitly provided to support low-carbon funds. Alternatively, recognising that the specifics of each project may influence the terms of the insurance, 'in principle' cover could be provided at the fund level, subject to shorter due diligence on each project.
- *Low-carbon policy risk cover.* The same organisation(s) providing country risk cover could also provide low-carbon policy risk cover. Although this is not currently a key role of political risk insurers, the risk of policy change is an important constraint to private sector engagement. This insurance could be restricted to situations where countries renege on legal grandfathering conditions.[2] It could also support the development and implementation of Nationally Appropriate Mitigation Actions (NAMAs).

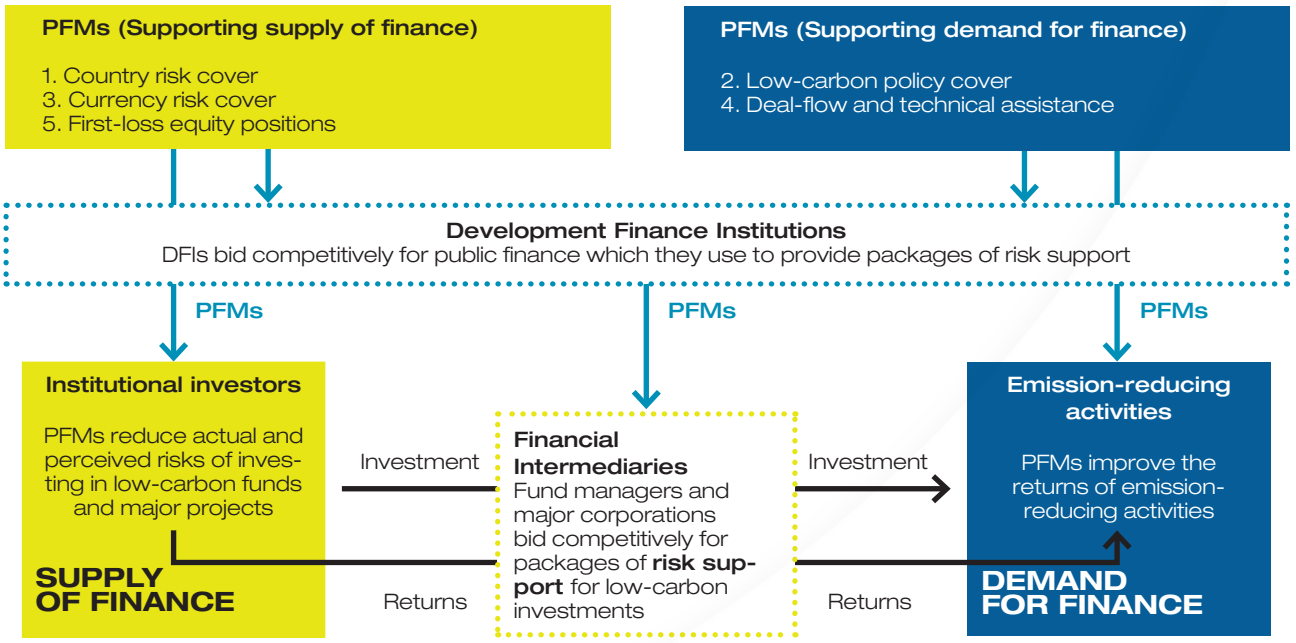
2 These are provisions which mean that if an investment is made under a certain policy, even if it is subsequently altered.

- *Funds to hedge currency risk.* Currency funds offering cost-effective hedges for local currencies which would otherwise not be available in the commercial foreign exchange markets could be supported through public finance. The Currency Exchange Fund, supported by the Dutch Ministry for Development Cooperation, is an example.
- *Improving deal flow.* Some publicly-funded bodies undertake early-stage project execution for infrastructure projects, such as securing consents and offtake arrangements. Infraco and Infraventures are examples. Building on this experience, vehicles specialising in early-stage low-carbon projects could be developed. They could be complemented by technical assistance grants for project development. The spending priorities for such technical assistance grants would be determined in conjunction with the host country.
- *Public sector taking subordinated equity positions in funds.* The public sector could invest directly in low-carbon funds via subordinated or 'first-loss' equity. In this instance, any money made by the fund is directed to private investors first, with the public sector receiving a return on its investment when private sector returns meet a pre-defined threshold. This reduces risk for private investors.

These PFMs complement rather than substitute for the private sector. In each case, the public sector absorbs risk, or undertakes activities that the private sector is not willing to because it is not in a position to control the risks associated with those activities. This complementarity is essential to ensure that the PFMs do not crowd out private sector investment.

The PFMs increase both the *supply* of private finance for low-carbon projects and the *demand* for private finance (see Figure 2). PFMs can support demand for finance by improving the viability of emission-reducing projects. For example, PFMs that overcome planning and other local requirements reduce delay and project risk. This increases the demand for private finance. Cover for carbon policy risk also increases the risk-adjusted return from reducing emissions and creates demand for finance. PFMs that cover country and currency risk and cushion other generic risks reduce the absolute return required by institutional investors and increase the supply of private finance for emission reductions.

Figure 2 PFMs increase the supply of and demand for institutional capital



Source: UNEP and Partners / Vivid Economics

PFMs complement each other and successful leverage of private finance in developing countries is more likely with a menu or a package of them. The case-study experience illustrates that PFMs are context-specific and that in many cases there are multiple barriers to private sector engagement— requiring the use of multiple PFMs.

Competition for PFMs will help ensure that developing countries receive value for money. These PFMs require the public sector to make a significant, ongoing, financial commitment. Introducing competition will incentivise the private sector to develop imaginative proposals that lever PFMs to maximum effect. Robust competition for PFMs can be best ensured through establishing credible long-term global commitments to reduce emissions.

Developing countries should be heavily involved in the development and application of PFMs. A pre-requisite of PFM success is host-country commitment to the investment. Reflecting this, developing countries should be heavily involved in the process of determining the outcome(s) of the competition between investors for the use of PFMs.

Competition to provide PFMs might also be introduced. As a supplement to competition between the users of PFMs, there may also be merit in introducing competition in the supply of PFMs. There is a marked difference in the extent to which Development Finance Institutions (DFIs)[3] attempt to, and succeed in, engaging with the private sector. To create incentives to encourage this engagement, institutions providing successful PFMs could, over time, receive more resources from relevant national governments.

A regular forum could bring together institutional investors, development finance institutions and developing country institutions to ensure the PFMs yield maximum leverage rates for developing countries. The forum would facilitate sharing of ideas, and disseminate best practice in design and implementation. It could be established within the UN Global Forum on Finance, for example. This research raises a number of issues that such a forum could address.

3 Multilateral and bilateral finance institutions created for the purpose of development.

1 Introduction

1.1 The investment requirement

The investment challenge associated with avoiding dangerous climate change is substantial. The IEA has estimated that in order to achieve a 50 per cent reduction in carbon dioxide emissions by 2050, cumulative investment to 2050 of USD 45 trillion will be required.[4] This equates to an average investment of USD 1.1 trillion per annum. Around half of the investment involves replacing conventional technologies with low-carbon alternatives. The remaining (USD 530 billion per annum) is additional investment.[5]

The challenge can be met. An additional USD 530 billion per annum investment amounts to less than 3 per cent of estimated global investment in 2030. In 2007, energy subsidies amounted to USD 300 billion.[6]

Much of the additional investment will be in the developing world. Drawing on a number of estimates, the World Bank[7] suggests that climate-change mitigation investment in the developing world needs to be around USD 400 billion per annum. It estimates that a further USD 75 billion per annum of investment will be required for adaptation.

Both the public and the private sector have roles to play in meeting this challenge. However, demands on public finance can be acute. This has been exacerbated by the current recession. In comparison to the USD 475 billion per annum investment required, the World Bank reports existing public sector commitments of USD 9 billion per annum.[8] This is less than 2 per cent of the required amount.

Public sector commitments may increase following the Copenhagen conference, but will still fall short of the required level. The public sector commitments for the developing world currently under negotiation, if delivered to their maximum ambition, total around USD 110 billion per annum.[9] The shortfall, in excess of USD 350 billion per annum, could be met by the private sector.

1.2 The need for PFMs

At present, the private sector is not motivated to undertake the level of investment needed by the developing world. To generate private sector interest, the expected returns on low-carbon investments will need to match the risks. This is not the case on a sufficiently widespread basis to deliver the scale of investment required. Expansion of carbon markets and international offsets will help, as will credible low-carbon domestic policies. However, in themselves, they are unlikely to be sufficient to drive investment at the level and speed required.

4 IEA (2008) *'Energy Technology Perspectives: Scenarios and Strategies to 2050'.*

5 This assumes an oil price of USD 60 per barrel. More generally, the various estimates of finance requirements and/or costs are not necessarily comparable with each other. First, estimates vary as a function of the stabilisation target and oil price. Total requirements can be split into investment sums which would need to be undertaken anyway but which have to be diverted from conventional into low-carbon technology versus the additional (or incremental) requirement to meet a given stabilisation target. In addition, estimates can vary depending on whether they look at capital versus life cycle costs, or public versus private, or annual versus cumulative, or flows for developing and developed countries etc. Unfortunately, it is not always clear which assumptions accompany different estimates.

6 Barbier, E.B. (2009), *'A Global Green New Deal'*, Report prepared for the Economics and Trade Branch, Division of Technology, Industry and Economics, United Nations Environment Programme.

7 World Bank (2009) *'World Development Report: Development and Climate Change.'*

8 *Ibid.*

9 This includes the Mexican Government's proposal for a US$10 billion fund from government pledges, the Norwegian Government's proposal for a 2% auctioning of Assigned Amount Units in carbon markets, proposals from least developed countries for levies on international air travel and bunker fuel, and the Strategic Climate Investment funds of the World Bank. An additional $100 billion a year fund has also been proposed by the UK Prime Minister, Gordon Brown of which 50 per cent is expected to be from public sources.

Part of the answer is to deploy Public Finance Mechanisms (PFMs). PFMs are financial commitments made by the public sector which alter the risk-reward balance of private sector investments. They include grants, concessional finance, risk mitigation instruments and market aggregation activities. UNEP's prior research provides more information on the range of PFMs available.[10]

PFMs can leverage significant private capital. Previous research suggests that $1 of public investment spent through a well-designed PFM can leverage between $3 and $15 of private sector money. This suggests that a combination of public and private resources can, if allowed under the guiding principles of the Financial Mechanism under the Convention, collectively unlock the required levels of investment.

The opportunities provided by PFMs will only be realised if one of the guiding principles of the Financial Mechanism under the Convention is that private funds should be mobilised by public funds provided by industrialised countries.

1.3 The role of institutional investors

Institutional investors, such as pension funds (both state and public), insurance companies and sovereign wealth funds have resources to direct towards climate-change investment. It is particularly important for PFMs to engage these investors. It is estimated that pension funds alone are responsible for allocating assets worth more than $12 trillion[11] and that sovereign wealth funds have a further $3.75 trillion[12] under management. However, these organisations have, at an aggregate level, a limited tolerance for risk.

The appropriate response is to develop PFMs directed at funds and large scale projects. Institutional investors make capital allocation decisions at several orders of magnitude greater than most individual climate-change mitigation projects. Consequently, to stimulate their engagement in climate-change investment, PFMs could either be designed to encourage investment into dedicated climate-change mitigation funds (which in turn deploy capital to a series of specific projects) or to incentivise these investors to support the (multinational) companies that they part-own to undertake large-scale projects.[13]

A significant proportion of low-carbon investment could be achieved via funds (and fund of fund) structures. For this to happen, institutional investors would have to move a portion of their capital into such funds. Two models to effect this transformation have been discussed recently: a 'cornerstone' model, leading to the creation of a fund of funds, and a 'challenge' fund model. Both models envisage that a package of PFMs would be made available to the funds established, either via arrangement with development finance institutions (DFIs), or through a competitive bid process (Figure 3).

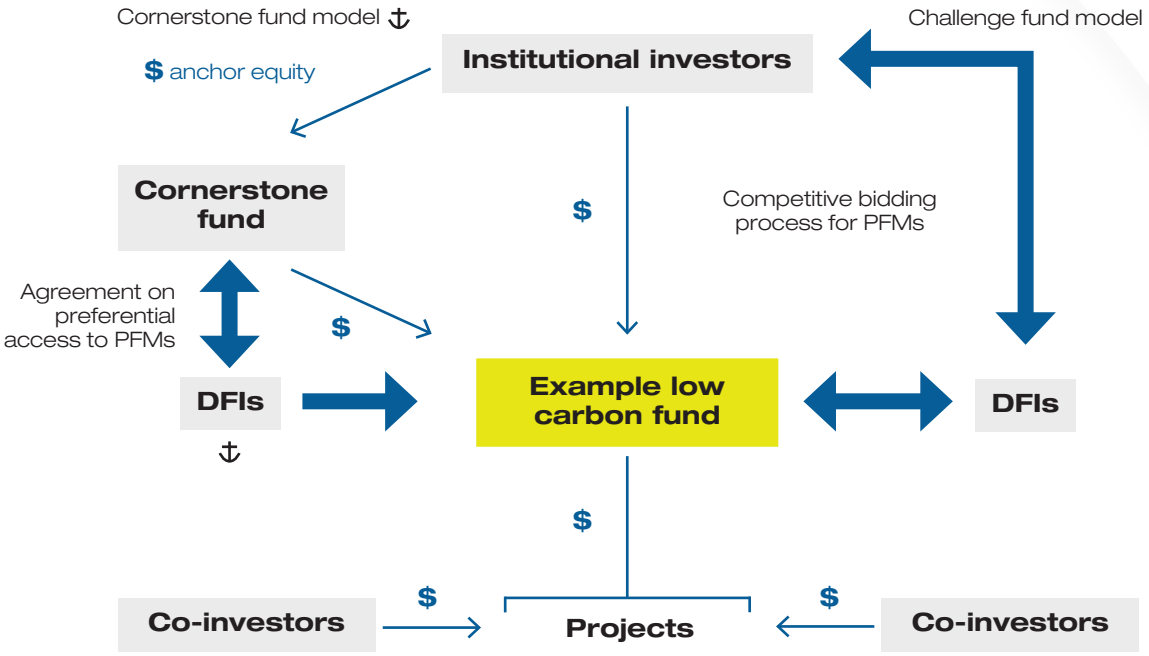
10 UNEP-SEFI (2008), *Public Finance Mechanisms to Mobilise Investment in Climate Change Mitigation*, final report by the United Nations Environment Programme Sustainable Energy Finance Initiative.

11 Watson Wyatt (2009), *Global Investment Matters*, available at: www.watsonwyatt.com.

12 Sovereign Wealth Fund Institute website (www.swfinstitute.org).

13 Such projects are likely to be financed on a 'project-finance' basis i.e. through the creation of a special purpose vehicle (SPV) that would raise capital on the basis of the expected cashflows of the project, with limited or no recourse to the corporate sponsoring the activities. Institutional investors could either provide capital directly to such projects (if the projects were large enough) or capital could be provided via funds.

Figure 3 PFMs have an important role to play in supporting low-carbon funds, regardless of how those funds are established



Note: Thicker arrows indicate the process of establishing and deploying PFMs.
Source: UNEP and Partners /Vivid Economics.

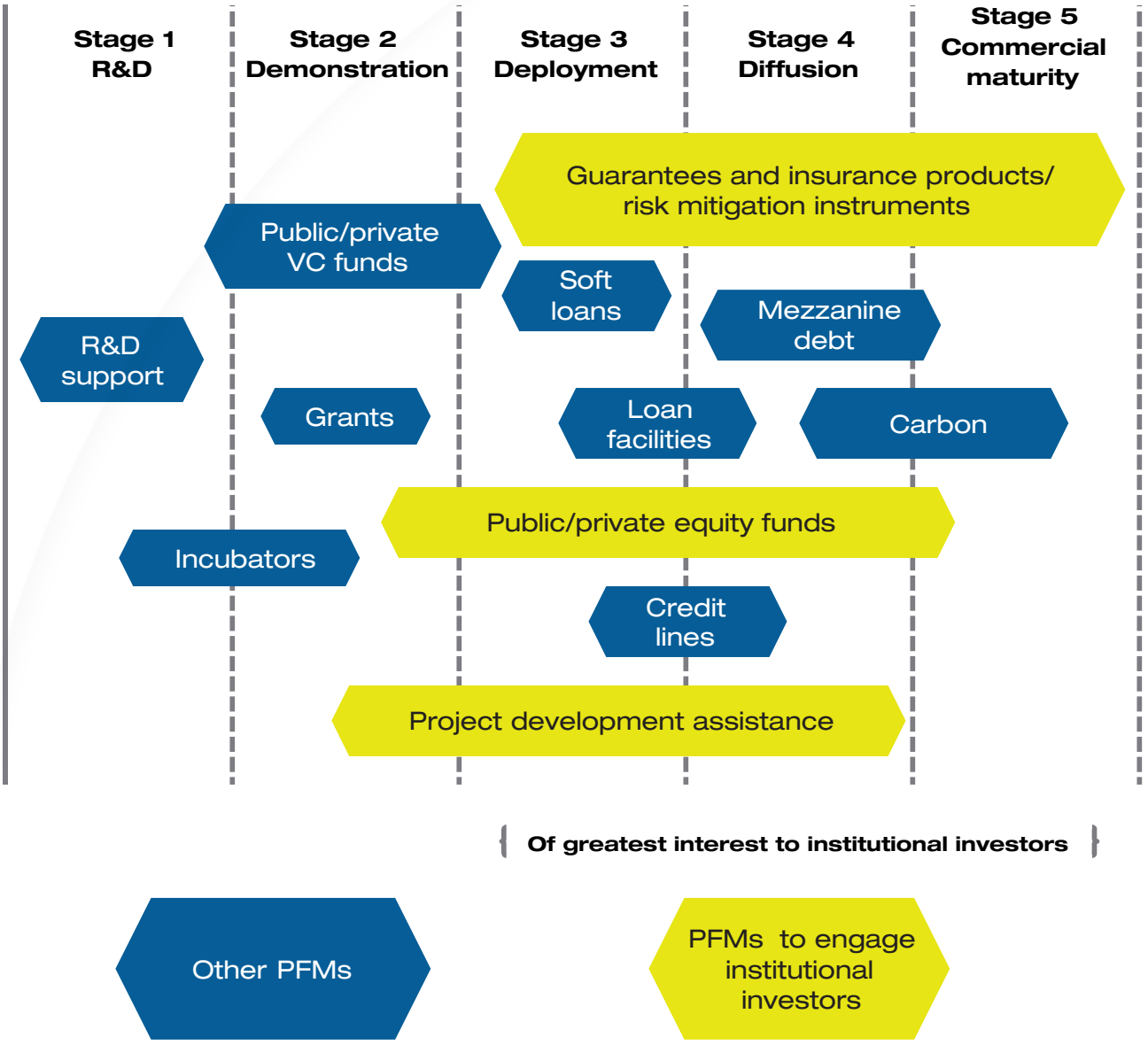
This report identifies the package of PFMs that are most likely to be helpful to such funds, regardless of how they are established.

Large listed firms — owned and financed by institutional investors — can also undertake the large-scale low-carbon investment. PFMs need to be available to these firms and be appropriate to institutional investors in this context as well.

This report builds on an earlier UNEP report on PFMs[14], and specifically focuses on engaging institutional investors at the scale required. This earlier report presented an overview of the full range of possible PFMs and suggestions on how their application might differ depending on the life-cycle of the technology and the scale of the investment. This report's focus on institutional investors dictates that attention be placed on more mature technologies and medium-to-large scale investments. The PFMs proposed here are broadly consistent with those that this earlier UNEP work identified as being important in a context such as this, as shown in Figure 4.

14 UNEP (2008) *op. Cit.*

Figure 4 The PFMs considered in this report are consistent with and build on earlier UNEP analysis of how appropriate PFMs vary with technological maturity



Source: UNEP and Partners / Vivid Economics based on UNEP (2008).

The focus on PFMs to engage institutional investors does not mean that other PFMs and investments that may not attract institutional investors do not have an important role to play in moving to a low-carbon future. Indeed, the case studies undertaken as part of this research, in addition to providing insights into the key question for this report, provide a number of other pointers on how and when these PFMs

should be used, e.g. the importance of taking advantage of in-country distribution networks for small-scale diffuse investments.

1.4 Placing this report in context

The report is complementary to a number of other recent reports on the use of public funds to catalyse private sector engagement in climate-change solutions. These include reports by the London School of Economics under the direction of Lord Nicholas Stern[15] and the World Economic Forum.[16] While each report has a different focus and emphasis, they contribute to the same debate. The common themes are that the private sector currently faces significant barriers to low-carbon investment at the scale required, and that public sector assistance is necessary to overcome these barriers. The PFMs advanced in this report are potentially a core component of the proposals in these other reports.

As well as deploying PFMs, the public sector has a role to play in creating a supportive policy environment. PFMs are one element of solution. Commercially viable low-carbon investment will be further promoted by a favourable policy environment, including credible carbon pricing[17] or a well-functioning carbon market,[18] and reliable energy market regulation (including appropriate energy prices).

This report recommends a package of at least five PFMs, and the establishment of a forum in which relevant players can shape the design and implementation of PFMs over the coming months and years. These recommendations emerge from five case studies and around 30 interviews. The case studies are:

- infrastructure/private equity funds that have considered investing in low-carbon projects;
- the construction of the Baku-Tbilisi-Ceyhan (BTC) pipeline;
- Global Environment Facility (GEF) support to concentrated solar thermal technology in the 1990s;
- EBRD support for energy efficiency investments in Eastern Europe;
- support for Solar Home Systems with particular focus on experience in Sri Lanka and Bangladesh;

Some of the key findings from these case studies are referred to in this report where they are germane to the recommendations. Full details of the case studies are available in a separate accompanying report[19].

15 London School of Economics (2009) *Meeting the climate challenge: Using public money to leverage private investment in developing countries,* September.

16 World Economic Forum (2009) *Task force on low-carbon prosperity*, September.

17 This requires that negotiations at Copenhagen result in a sufficiently high global/industrialised country emissions target and that policy to meet these targets uses market based mechanisms.

18 Necessitating that an appropriate definition of supplementarity is reached during negotiations at Copenhagen: not too flexible as to drive down the carbon price to an inappropriate level but not too rigid as to destroy the market for carbon credit generating activities in the developing world.

19 UNEP and Partners (2009), *'Catalysing low-carbon growth in developing economies: Public Finance Mechanisms to scale up private sector investment in climate solutions - Case Study Analysis'*, October.

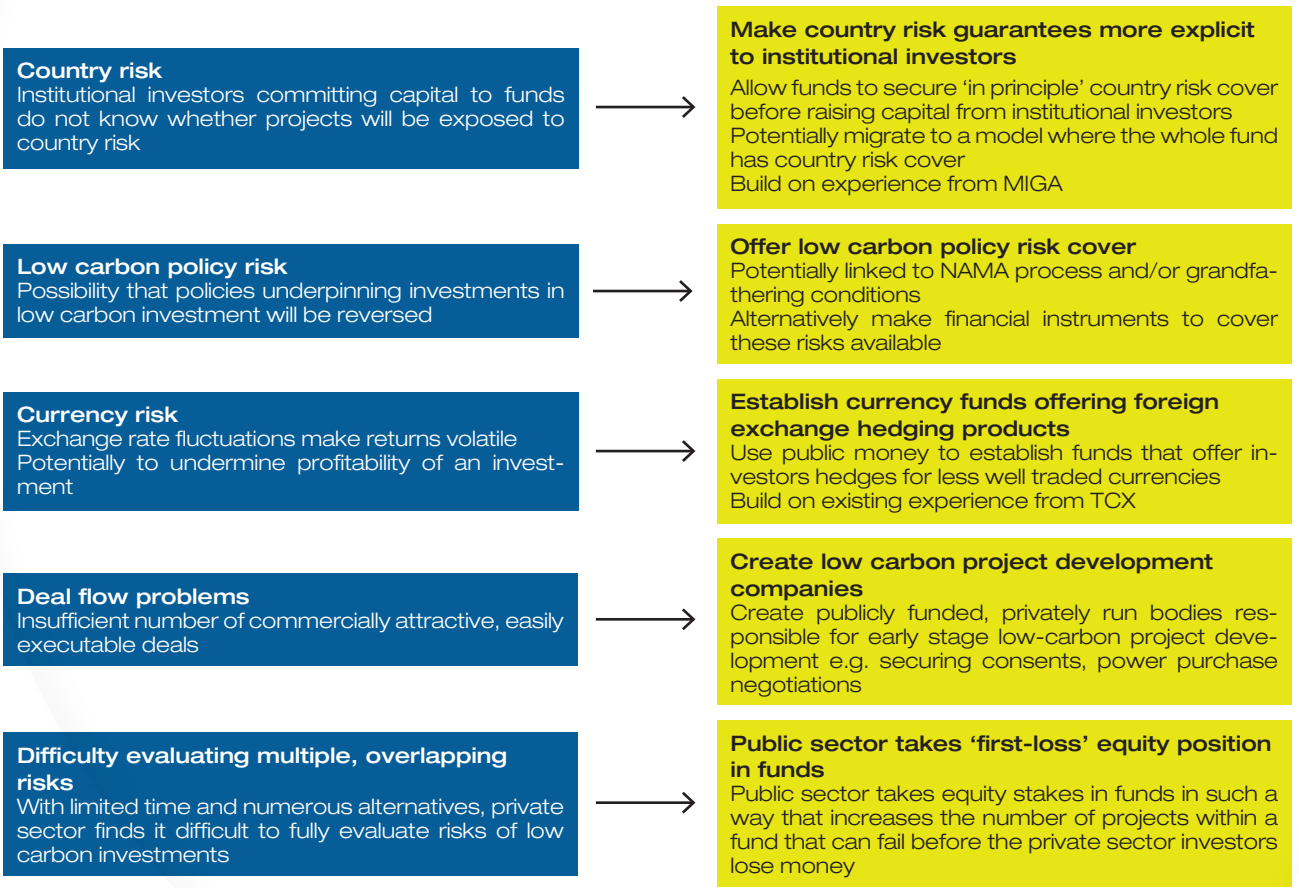
2
A package of PFMs for institutional investors

We identify five key constraints precluding institutional investor engagement in low-carbon investment:[20]

1. country risk, i.e. risk of expropriation, breach of contract, war and civil disturbance;
2. low-carbon policy risk, i.e. the possibility that policies underpinning investments in low-carbon projects (e.g. emissions trading, renewable energy support mechanisms such as feed in tariffs, support for forestry investments) would be reversed;
3. currency (foreign exchange) risk; and
4. a shortage of 'deal flow' – a lack of easily executable, commercially attractive projects;
5. a multiplicity of risks that, in light of limited time and many competing investment alternatives, makes it difficult for institutional investors to evaluate the attractiveness of the low-carbon investment propositions.

The report proposes one PFM to address each of the five constraints. This is shown in Figure 5 below.

Figure 5 Five constraints on private sector engagement are matched with five operational PFM proposals



Source: UNEP and Partners / Vivid Economics

20 These are not listed in any specific order. Different experts placed different levels of emphasis on each of the five factors.

Each PFM would complement rather than duplicate the role of the private sector. The public sector will be most effective at scaling up climate-change investment when it performs roles that the private sector cannot or will not play. This can be contrasted with a situation in which the public sector duplicates the actions of the private sector by, for instance, part-financing investments. Each of the five proposed PFMs absorb risks, or undertake activities, that the private sector is not willing to take on.[21] This complementarity is essential to ensure that the PFMs do not crowd out private sector investment.

2.1 Make country risk guarantees easily available to institutional investors

Although there are many low-carbon investment opportunities in the developing world, country risk can prevent these opportunities from being realised. Some developing countries may be perceived to have unstable governance or political actions, including wars, civil disturbance, and expropriation that make investment in these countries unacceptably risky.

Public bodies writing guarantees which cover this risk have an important role to play in overcoming these problems. This view was consistently expressed in our case study examining low-carbon and infrastructure funds. The BTC pipeline case study further demonstrated how, even for mature technologies, country risk can undermine otherwise attractive investments. The same case study also demonstrated that well designed PFMs can overcome this problem.

The availability of country risk guarantees needs to be sufficiently explicit to institutional investors. This is most challenging in cases where institutional investors commit capital to low-carbon funds that will deploy this capital into specific projects and it may not yet be clear which country the projects will be in. There may also be factors specific to each project in which the fund deploys capital that will influence the appropriate price of the country risk cover.

In this context, one option is for eligible low-carbon funds to secure explicit 'in principle' agreement for cover from the relevant guarantor, subject to that body undertaking appropriate due diligence at the project level. This would be easier to achieve if funds were structured on a country basis. This may provide enough reassurance to institutional investors that cover is available, while allowing the policy provider to review specific projects before providing support. Fund managers would also benefit from a simplified process to secure cover for each investment made.

Political risk cover should be provided by the public sector, probably via multilateral bodies. As established in the case studies, these agencies are not only able to provide an insurance product but also to reinforce it through constructive interaction with the host country. This reduces the likelihood that a claim would be made. This, in turn, means that such bodies are able to offer lower premiums, a wider geographic spread of coverage and/or support for a longer period of time than private insurers.

Existing practices suggest models and lessons learned. The Multilateral Investment Guarantee Agency (MIGA) of the World Bank is one of the largest public sector providers of political guarantees with a gross exposure as reported in its 2008 Annual Report of $6.5 billion. As identified in Box 1 below, there are both good experiences to build on and lessons to be learned from this experience. Other bodies providing this insurance include the Overseas Private Investment Corporation (OPIC), an agency of the US government.

21 Most often the reason that the private sector is unwilling to undertake these roles is that it would involve bearing risk that it is less well placed to control than the public sector e.g. risks that low-carbon policies may change, risks that acquiring permits and consents will take longer than expected and/or involve punitive administrative expense.

Provided that lessons from existing practice are built on, political risk cover could be scaled-up and made available for low-carbon investment, delivered either by (a) new body(ies) or through the expansion and reform of existing institutions.

The provision of insurance itself could leverage further private sector insurance resources. Although the bulk of the political risk cover would be provided by (multilateral) DFIs, models exist to show how additional cover can be provided in partnership with private sector insurance providers. MIGA already offers two models.[22]

Box 1 **Positive experiences**

The types of policy cover provided by MIGA are well suited to the needs of institutional investors. Specifically, cover against expropriation, war and civil disturbance and breach of contract are all likely to be crucial elements in scaling-up private sector investment in climate solutions.

This is corroborated by an ex-post evaluation of the use of MIGA by the Independent Evaluation Group of the World Bank. The group concluded that MIGA made a substantial difference in 18 out of the 21 investments that it had supported and that it was particularly influential in projects involving the private provision of public infrastructure.

Lessons for scaling-up

Some perceive the existing practices of MIGA as discouraging the private sector. This partly reflects MIGA's constitutional constraint, for example, MIGA cannot provide insurance for free-standing debt, only debt that has an equity link. However, the problems also partly relate to implementation. A 2009 Independent Evaluation Group report identified three examples:

- A reluctance by MIGA to deviate from standard contractual language and limited flexibility to change contractual terms in response to changing circumstances.
- An overly bureaucratic and lengthy process for obtaining a guarantee with, for instance, underwriting taking on average 139 days, compared to 7 days by private insurers.
- Problems with staff turnover leading to a lack of continuity in client relationships, as well as perceived indecisiveness about whether a project could be covered.

Not only do the appropriate PFMs need to be provided by the public sector but there also needs to be dialogue between the public and private sector to overcome cultural differences.

2.2 Provide risk-mitigation instruments to cover low-carbon policy risk

Investors are concerned that policy or regulatory risk will undermine the profitability of low-carbon investments. Some investments may be at risk of being rendered unprofitable when supporting low-carbon policies or frameworks change, for example if a feed-in tariff is adjusted or removed.[23] Part of the explanation for the slow and troubled experience of Solar Thermal Electricity Generation (STEG) explored in the case studies was that insufficient attention was placed on private sector concerns relating to these risks.

22 The two models vary depending on whether MIGA assumes the counterparty risk associated with the involvement of a private sector insurer (facultative reinsurance) or whether the guarantor holder assumes this risk (co-operative underwriting programme).

23 Helm, D., Hepburn, C. and Mash, R. (2003) Credible carbon policy, *Oxford Review of Economic Policy*, 19:3, pp 438-450.

One way to mitigate policy risk would be to extend country risk guarantees to cover specific low-carbon policy risks. For example, insurance could be provided against governments reneging on statutory grandfathering provisions. These provisions mean that if an investment is made under a certain policy framework or incentive scheme, the investment continues to benefit from that framework or scheme, even if it is subsequently altered. This PFM could also work in supporting the development and implementation of Nationally Appropriate Mitigation Actions (NAMAs). The key design features and questions to resolve would be similar to those for country risk cover discussed above.

Alternatively, financial instruments such as put options[24] and contracts for difference might allow the policy risk to be hedged. These could place a floor, from the investor perspective, on a key policy variable that crucially affects the profitability of low-carbon investment, for example the carbon price. As with country risk cover, and excluding countries themselves, the risks of policy change might be influenced by DFIs, especially MDBs. These may therefore be the most appropriate institutions to offer these instruments. Some of these institutions are currently better placed to develop and market these instruments than others.[25]

The provision of instruments of this sort could be expected to require no net subsidy. The price for purchasing the instruments would, if designed well, offset any costs for the public sector when it had to step in and support a particular price. However, in order for the instruments to be credible, it is likely that there would have to be some form of back-stop funding provision by DFIs.

2.3 Use public money to establish currency funds to provide foreign exchange hedging

The third major source of risk restricting private sector engagement is the local currency. Exchange rate fluctuation can mean that assets with stable and predictable returns in their local currency are much more volatile when converted to the currency of the investor. Systematic devaluation of the local currency can undermine the value of an investment. This constraint is apparent in the case study examining the experience of low-carbon and infrastructure funds.

Financial instruments to hedge this risk are already available for commonly traded currencies but the private sector appears unwilling to provide the same instruments for currencies traded less frequently. This suggests that there is a gap in the market that the public sector can fill. The existence of such instruments also gives confidence that, with a stimulus from public funds, this is a means of overcoming this constraint.

Public funds, channelled through either multilateral or bilateral DFIs, could be used to create a series of currency funds, each holding a globally diversified portfolio of currencies. Public funds could be supplemented with private sector capital. This could be attractive for the private sector as the return profile of the fund (dictated by the performance of various developing world currencies) would be largely unrelated to the returns from other investments. Private sector investment into the currency fund could also be made more attractive if public capital in these funds is structured to take greater risk.[26] This model is partly based on the experience of The Currency Exchange Fund (TCX) set out in Box 2.

24 Option contracts whereby the owner has the right, but not the obligation, to sell a specified amount of an underlying security at a specified price within a specified time.

25 As well as *spending* money in a way that can alleviate the private sector's concerns about the credibility of low-carbon policies, there are a number of innovative ways in which this money can also be *raised* to enhance the credibility of low-carbon policies, including 'green bonds'. These options are considered in more detail in the report coordinated by Lord Nicholas Stern - London School of Economics (2009) *Meeting the climate challenge: Using public money to leverage private investment in developing countries,* September.

26 In other words, in the same way that the country risk cover provided to low carbon growth funds would be mainly provided by the public sector but potentially augmented by leveraging private sector insurance, so the currency fund proposal could be financed by a combination of the public and private sector. Providing PFMs through a mixture of public and private sources should, if designed effectively, increase the leverage achieved from every dollar of public funds.

Box 2

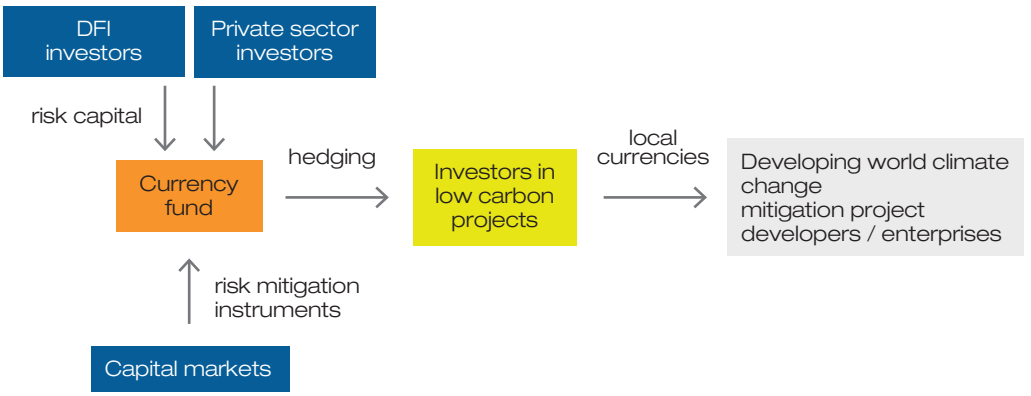
There are already public-private currency funds selling hedging products

The Currency Exchange Fund offers those investing in developing markets the opportunity to hedge their local currency risk with swap products. The fund itself mitigates its risk through a diversified geographic base coupled with a first loss tranche of capital provided by the Dutch Ministry of Foreign Affairs. Other investors include DFIs such as the African Development Bank, EBRD and KfW, as well as private sector investors. In the first instance, these products are only being offered to those who have invested in the fund, but from September 2010, the intention is that the facilities will be opened up to non-shareholders.

These funds would offer foreign exchange hedging products to investors in low-carbon projects in the developing world. These products would need to be provided on (close to) commercial terms in order to provide a reasonable return to investors in the currency fund.[27] The potential mechanism is illustrated in Figure 6.

Figure 6

Investors in low-carbon projects in the developing world could purchase currency hedges from currency funds part financed by the public sector



Source: UNEP and Partners / Vivid Economics based on TCX

The management of the currency funds would be best undertaken by the private sector. The right to manage these funds could be made subject to a competitive tendering process, with the competition designed to identify the fund managers who provided the optimal balance between innovation and value for money in terms of fees. The experience of the Asian Development Bank in commissioning fund managers to run private equity funds to which it had provided capital, offers a model.

Institutional investors would have access to the currency fund. Where institutional investors provide capital to funds, they would know that the fund managers can hedge their currency risk through the currency fund. In cases where institutional investors provide capital directly to large projects in collaboration with a specific company, they could do so in the knowledge that the company is able to purchase currency hedges.

27 In order to encourage private sector investment in the currency fund, preferential terms could be offered to those investors that had also invested in the currency fund.

2.4 Develop publicly-funded project development companies

The final key constraint precluding engagement by the private sector is lack of sufficient deal flow. It is not always (or even often) the case that there is an unwillingness to provide capital for (low-carbon) projects in the developing world *per se,* but rather that there is a shortage of sufficiently commercially attractive[28], easily executable deals in which to deploy capital. This theme is identified in the funds case study.

The PFM component to solving this problem could be to give low-carbon fund managers access to the services of early-stage project development companies. The role of these companies would be entirely focused on early-stage project development, working alongside developing countries to bring forward projects to a stage at which fund managers would be prepared to commit capital. Institutional investors providing capital would know that fund managers would be able to access the services of these project development companies[29].

This PFM is likely to be particularly helpful in the event that funds invest in technologies that are commercially proven but not yet widespread. In these cases there will be less experience on precisely what is required to get a project 'off the ground'. This is consistent with the findings from earlier UNEP research on the applicability of this PFM[30].

There is much to be learnt from existing infrastructure experience. The role performed by these companies would build on the experience of existing entities such as Infraco (sponsored by the Private Infrastructure Development Group) and InfraVentures (a vehicle set up by the IFC), which focus on early stage project development of infrastructure projects of all types exclusively or primarily in the developing world. These companies are responsible for the wide range of activities needed to be undertaken before the financial close of a project as set out in Figure 7.

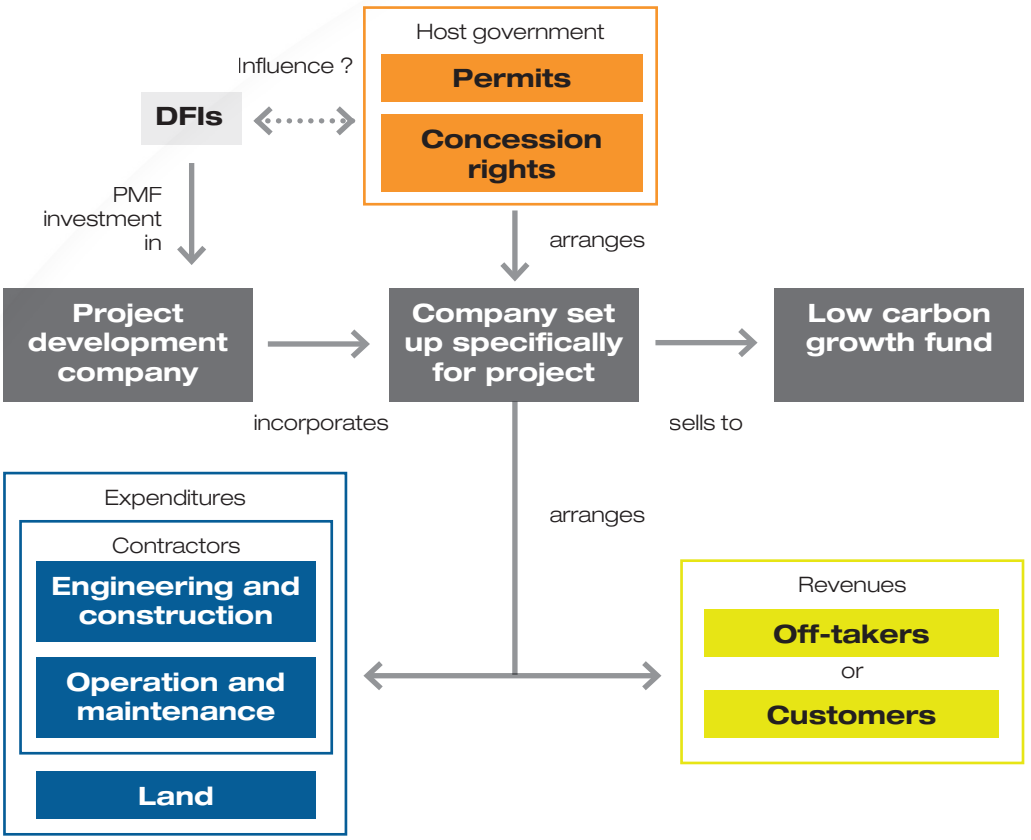
28 One of the reasons is that investment projects are simply too small.

29 In the event that institutional investors were providing capital to established corporates undertaking low carbon infrastructure, the need for this PFM would be limited, as the sponsoring corporate would be likely to have the necessary early stage project development expertise.

30 UNEP (2008) states 'Once commercially proven, public finance instruments then shift from being technology focused to supporting projects or enterprises in deploying and diffusing low carbon technologies ... PFMs can play a role in helping developers make it to financial closure by cost-sharing some of the more costly and time intensive project development activities such as permitting, power purchase negotiations, grid interconnection and transmission contracting.'

Figure 7

The project development company could take a lead in developing projects



Source: UNEP&Partners / Vivid Economics based on Infraco

Part of the capital for project development companies would need to be provided by the public sector, and disbursed and sponsored by DFIs. The public share would allow to mitigate the risks and costs associated to developing early stage investments. This backing could provide significant advantages in the various negotiations undertaken in the process of developing projects. As with the currency fund proposal, it is plausible that both multilateral and bilateral DFIs could sponsor these bodies.

Although publicly backed, the companies are likely to be most effective if managed and run by the private sector. The skills for successful execution of the role are typically found in private sector companies. Furthermore, consistent with the findings of the case studies, local expertise may be needed within the company developing each project.

The remuneration received by these companies ought to create appropriate incentives. It is possible to conceive of two different models by which these services would be made available to low-carbon funds and by which low-carbon funds would remunerate such companies.

- The first model would broadly reflect existing experience and is the model set out above in Figure 7. In this model, the project development company would incorporate a separate entity for each project that it decides to develop. The costs of this particular entity are borne by the shareholders of the project developer (the DFI) and remuneration would only be received in the event of successfully bringing projects to financial close and selling to low-carbon funds. This places the capital provided by sovereigns in establishing these entities at considerable risk (more risk than the private sector is willing to bear). As a corollary, it also provides strong incentives on the company to develop projects. A variant on this model involves the project development company having sufficient (ring-fenced) capital to maintain a financial interest in projects throughout their life-cycle, approaching low-carbon funds for additional capital once early stage activities have been completed.

- An alternative model involves low-carbon funds paying an ongoing fee to project management companies in exchange for their services in supplying them with projects. This fee could be performance related but would result in less risk being placed on the project developers and hence on their shareholders. It might create a weaker incentive for project developers to bring projects to successful completion.

  It would be worth stress-testing both models to see which would be more attractive to relevant stakeholders.

  Complementary technical assistance grants should also be provided. To work alongside these project development companies, grant support could also be provided. Building on the experience that UNEP and other bodies already have in these activities, the grant support might be targeted at building local institutions and capacity, both public and private, to encourage further rounds of private sector investment. This might include capacity building in regulatory and local financial institutions, or providing information to investors regarding potential local projects. These spending priorities should be developed in conjunction with developing countries in order to ensure local support: a key success factor for PFMs in the case studies.

2.5 Take subordinated equity stakes in low-carbon funds

The final PFM involves the public sector taking a subordinated equity stake within given low-carbon funds. In this model, distributable income is directed to private investors first, with the public sector only receiving a return when private sector investors have received a pre-defined return. This means that the number of projects within the fund's portfolio that can fail before the private investor receives a return it considers unacceptable is higher than without the subordinated stake.

This mechanism is most likely to be appropriate when there are multiple barriers to institutional investor engagement which can make it difficult to evaluate all investment risks. In these circumstances, a mechanism which leads to the public sector bearing specific risks is unlikely to be sufficient to ensure engagement, especially in a context where low-carbon investment opportunities compete for investor attention with a wide range of other opportunities. It may therefore be appropriate in circumstances where country and/or policy risk concerns are compounded by uncertainties generated, for example, by immature technologies. The STEG case study highlights vividly how a combination of these risks can inhibit private sector engagement.

Previous (attempted) experience with this PFM warns that there are concerns to be addressed. The funds case study illustrated that when this structure has been attempted in the past, problems have been encountered in relation to European Union competition law. Moreover, discussions with IFIs have revealed a perception that this model results in removing 'too much' risk from the private sector and that it could blunt the incentives for fund managers and institutional investors to the extent that capital is allocated to projects with little chance of commercial success.

Plausible solutions to these concerns exist. Most importantly, vigorous competition between fund managers for access to PFM funding, and appropriate performance based compensation, should ensure that the mechanism delivers value for money for the public sector. It would also minimize the risk of unfair discrimination against fund managers/investors not receiving the PFM, compared to those that receive the support. In addition, the terms of the public sector investment could be structured so that, while absorbing greater losses than the private sector in the event of poor performance of the fund, the public sector would also receive greater returns should the fund's performance meet or exceed expectations. This mechanism would ensure that the public sector's interests were closely aligned with those of the institutional investors and fund managers. Additional returns made by the public sector could also be recycled back into providing more support for scaling-up private sector investment in climate solutions.

2.6 How to structure access to PFMs?

A menu of PFMs, such as those identified above, is needed. This reflects two findings from the case studies. First, appropriate PFM(s) are context-specific. Second, as seen in both the EBRD energy efficiency case study and solar home system case study, there are often multiple barriers to private sector engagement, and multiple solutions are called for. The intermediaries for institutional investors (either fund managers or firms) could choose from any or all of the PFMs available in a manner designed to make the overall investment proposition attractive to institutional investors.

Introducing competition for access to PFMs should help ensure the public sector receives value for money. PFMs such as those outlined above will require the public sector to make a significant, ongoing, financial commitment (although substantially less than if it was undertaking the investment itself). The public sector will wish to ensure that it is receiving value for money in making these commitments. One way of doing so may be to ensure that there are a number of private sector funds and firms competing for access to the PFMs. This competition would incentivise the private sector to develop imaginative proposals to use PFMs in a way that maximises their leverage. Developing countries should participate in the design of, and outcomes from, this competitive process.

Robust competition between private sector players for access to PFMs in low-carbon investments of this sort may be best ensured by establishing a credible long term global commitment to reduce emissions.

Competition in the supply of PFMs could also be introduced. Supplementing competition between the users of PFMs, there may also be merits in introducing competition in the supply of PFMs. The case studies illustrate that there is a marked difference in the extent to which DFIs attempt to and succeed in engaging with the private sector. In some cases, differences in culture between the public and private sector play a part. To create incentives to bridge this gap, institutions providing PFMs that are successful at engaging the private sector could, over time, receive more resources from sovereigns to provide such PFMs than those institutions providing less successful PFMs.

It may be desirable to establish a regular forum to bring both the users and suppliers of PFMs together. Scaling-up private sector investment in climate change will result in a similar scaling-up in the level of interest in the use of PFMs. Reflecting the importance of the issue, a regular forum explicitly focused on this topic could be set up. The intent would be to improve dialogue on what the private sector needs from PFMs and what the public sector expects in return, to share innovative ideas, and to help develop best practice in both PFM design and implementation. Such a forum could sit within the UN Global Forum on Finance and might include representatives from institutional investors, development finance institutions and developing country institutions. A forum such as this is consistent with the proposals for greater public-private dialogue recently outlined by the World Economic Forum.

There are a number of topics that this forum could address. The research for this report, undertaken over a period of 2-3 months, highlights issues that will need further analysis over the coming months and years. This includes the most effective way to integrate PFMs into the NAMA process and whether the PFMs identified should be made available through existing institutions or via new arrangements. Further, as the experience of using PFMs for low-carbon investment is scaled up, there will be important implementation lessons and evaluative work to be undertaken. These could be taken forward under the aegis of this forum.

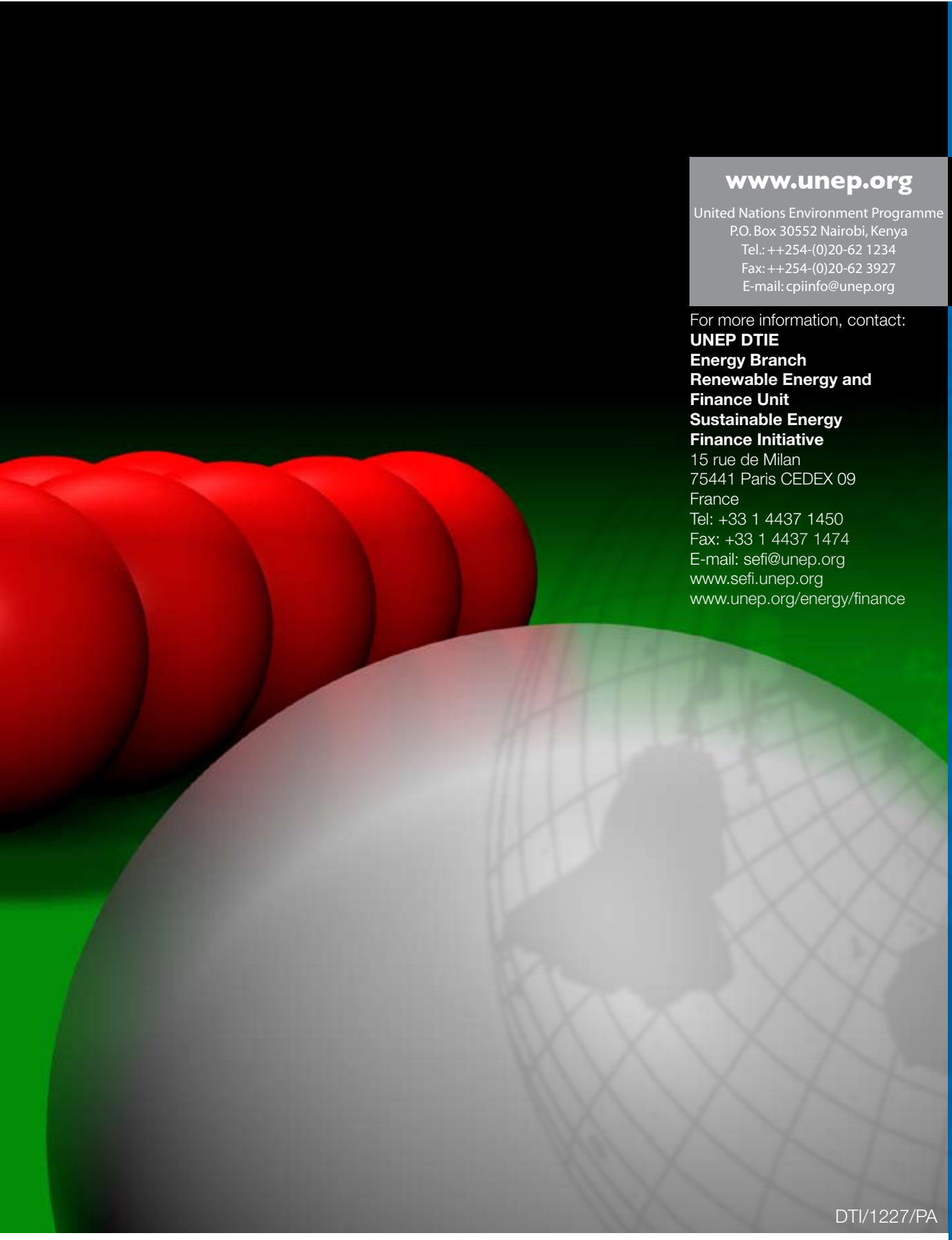
Appendix 1: Glossary

BTC	Baku-Tbilisi-Ceyhan
DFI	development finance institution
EBRD	European Bank for Reconstruction and Development
GEF	Global Environment Facility
IFC	International Finance Corporation
KfW	German government-owned development bank
MDB	multilateral development bank
MIGA	Multilateral Investment Guarantee Agency
NAMAs	nationally appropriate mitigation actions
OPIC	Overseas Private Investment Corporation
PFM	public finance mechanism
STEG	solar thermal electricity generation
TCX	The Currency Exchange Fund
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WEF	World Economic Forum

Appendix 2: Interviewees

We have benefitted enormously from discussions/interviews with a wide range of stakeholders in the purposes of research for this report. We would particularly like to acknowledge the contributions of the following individuals.

Claire Bebbington, BP
Benoit Bosquet, World Bank
Eric Bettelheim, Sustainable Forestry Management
Gerrit Jan Brunink, Triodos Bank
Anil Cabraal, World Bank
Josh Carmody, Asian Development Bank
Stuart Clenaghan, Eco-system services
Elisabetta Falcetti, EBRD
Charles Feinstein, World Bank
Chandra Govindarajalu, World Bank
Michael Green, EBRD
Kirsty Hamilton, Chatham House
Harish Hande, Selco
Richard Hosier, World Bank
Fani Kallianou, EBRD
Abyd Karmali, Merrill Lynch
James Maguire, Marsh
Terry McCallion, EBRD
Alan Miller, IFC
Damian Miller, Orb Energy
Richard Parry, Infraco
Anton Rohmer, Macquarie
Jens Rosebrock, Dresdner Kleinwort
Inderjeet Singh, PWC
Chris Stephens, GLOBE
Ian Temperton, Climate Change Capital
Christine Wallich, Independent Evaluation Group
Dominic Waughrey, World Economic Forum
Ulrik Dan Weuder, ATP
Oliver Yates, Macquarie



www.unep.org

United Nations Environment Programme
P.O. Box 30552 Nairobi, Kenya
Tel.: ++254-(0)20-62 1234
Fax: ++254-(0)20-62 3927
E-mail: cpiinfo@unep.org

UNEP

For more information, contact:
UNEP DTIE
Energy Branch
Renewable Energy and
Finance Unit
Sustainable Energy
Finance Initiative
15 rue de Milan
75441 Paris CEDEX 09
France
Tel: +33 1 4437 1450
Fax: +33 1 4437 1474
E-mail: sefi@unep.org
www.sefi.unep.org
www.unep.org/energy/finance

DTI/1227/PA

SEFI

UNEP Finance Initiative
Innovative financing for sustainability

IIGCC
Institutional Investors Group on Climate Change

DFID Department for International Development

The Prince of Wales's
P8 Group

ClimateWise
REDUCING THE RISK FOR TOMORROW

PRI
Principles for Responsible Investment

Investor Network on CLIMATE RISK