

**Climate Finance - Mobilizing Private Investment to Transform
Development**

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Climate Finance – Mobilizing Private Investment to Transform Development ¹

Introduction

Climate finance is a key issue at the heart of the international climate negotiations. While progress was made in Cancun, important questions remain to be resolved. These include how much additional finance is needed for mitigation and adaptation, how will the money be raised to meet these needs, how will resources be transferred to diverse recipients in developing countries and how will progress and outcomes – reducing emissions of greenhouse gases (GHGs) and adapting to the impacts of climate change – be monitored? Climate finance can be a catalyst to leverage private and public resources, open new economic opportunities, promote technology deployment and transform development pathways. But the need for climate finance comes on top of existing gaps in “baseline” development finance. While climate finance will come from both public and private sources, a critical goal of the design of any climate finance architecture will be to ensure that scarce public funds are used to leverage and mobilize private finance. In particular, given the enormous volume of investable funds in institutional investment pools, public finance should aim to promote investment opportunities that can attract funding from these sources. This note suggests some ideas for using public climate finance to mobilize substantial private financing to allow developing countries to move to low carbon and climate resilient development paths.

What is climate finance? Sources and Uses

Climate finance refers to funds that will be transferred to developing countries to cover their investments in mitigation and adaptation.

Sources. *Current* sources of climate finance include public sources, through bilateral and multilateral channels, private finance from carbon markets, some foreign direct investment and climate related philanthropic sources. Bilateral sources include direct budgetary contributions, including climate related development assistance,² or purchase of emissions credits through bilateral arrangements.³

¹ This paper was written while I was a Visiting Fellow at the Global Economic Governance Programme at University College, University of Oxford. The paper benefited from useful comments and suggestions received from Neil Bird, Simon Caney, Gordon Clark, Cameron Hepburn, Elif Kiratli, Jarl Krausing,, Cor Marijs, Alan Miller, Benito Mueller, Darius Nassiry, Shilpa Patel, Kathy Sierra, David Wheeler and Ngaire Woods and from participants at a presentation at the Smith School of Enterprise and Environment, Univeristy of Oxford.

² Current climate finance includes official development assistance which is recorded through the OECD DAC. One of the debates under the negotiations includes whether ODA should be “counted” as climate finance given the principle agreed under the Bali Action Plan that climate finance should be “new and additional” (to ODA).

³ “Strengthening International Climate Finance,” Pew Center for Global Climate Change, December 2010

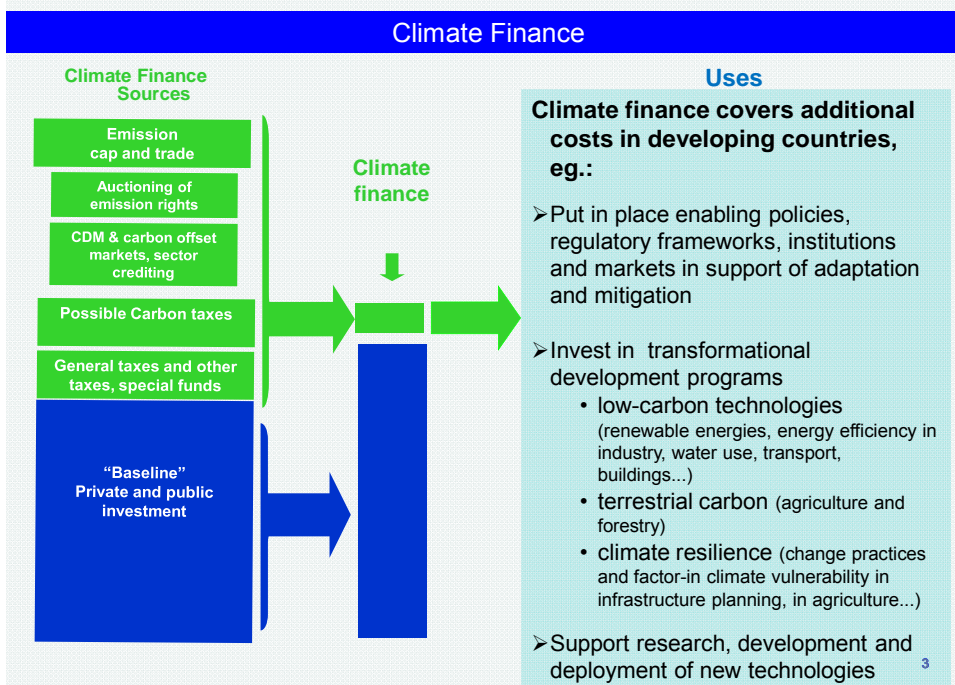
Uses of climate finance refers to financing for expenditures and investments **in developing countries**⁴ to help them reduce emissions of greenhouse gases and to adapt to the adverse impacts of climate change. Climate finance is funding that covers actions and investments that are **additional** to core or “baseline” development programs. This can mean finance to cover the **additional** cost of low carbon infrastructure relative to the high carbon choices that might be “least cost”, such as renewable energy instead of fossil fuel based power. It can refer to the additional cost of maintaining intact forests rather than converting forest land to other, possibly more financially profitable uses. It can refer to the adoption of policy measures to promote low carbon choices that may require subsidies or loss of fiscal revenues, such as feed-in-tariffs for renewable energy. Or it can mean financing to cover the **additional** cost of development investments needed to make economies resilient to the adverse impacts of climate change, such as bridges that can withstand higher levels of river flow or roads that can withstand more frequent flash floods.⁵ While some investments in climate mitigation and adaptation may have a positive rate of return, e.g., energy efficiency and removal of mal-adaptation, there may nevertheless be up-front costs and/or barriers to investment which justify technical and financial assistance.

Climate action is additional to but needs to be integrated with development. While climate finance covers additional costs, the actions and investments undertaken to reduce GHG emissions or to respond to the adverse impacts of climate change need to be closely integrated with a country’s development strategies and investment plans. Climate actions are generally not end-of-pipeline or separate actions that are disconnected from a country’s broader economic and social development programs. Mitigation and adaptation actions, and thus planning for climate investment, need to be fully integrated into development planning and not “ghettoized”.

⁴An important aspect of meeting the challenge of climate change is to overcome market barriers to new technologies for mitigating GHGs and adapting to adverse climate impacts. Public finance will be important to support R&D and to move new technologies to the stage of commercial deployment, overcoming the “Valley of Death”. In this note climate finance refers to transfers to developing countries. Since most technology *development* investments have so far taken place in industrial countries, public finance for early stage technology *development* is not included in this note unless the investment takes place in a developing country or is targeted at technology transfer to a developing country.

⁵The notion of the “additional” or “incremental” cost of climate action is distinct from the “new and additional” financing contained in the UNFCCC process. “New and additional” relates to climate finance relative to an assumed level of official development assistance. The incremental cost concept was originally incorporated in the London Amendment to the Montreal Protocol in 1990, a context in which it was relatively straightforward as new, more expensive chemicals were expected to substitute for ozone-depleting ones. The term has since been incorporated in both the climate and biodiversity conventions in 1992, although it has not been as easily applied.

What is climate finance?



Climate Finance Today: the Cancun Agreements

Cancun Agreements on Climate Finance. The UNFCCC climate meeting in Cancun in December 2010 made progress on the climate finance front. Developed countries committed to mobilize \$30 billion in “Fast Start” climate finance for developing countries over the short term (2010-2013) and to mobilize \$100 billion p.a. in climate financing by 2020, with a “balanced allocation” between funding for adaptation and mitigation. Consistent with the recommendations of the UN Secretary General’s High-level Advisory Group on Climate Change Financing (AGF),⁶ these funds are to be raised from “a wide variety of sources: public and private, bilateral and multilateral, including alternative sources”. The AGF concluded that mobilizing \$100 billion for climate finance by 2020 is “challenging but feasible”. The Cancun Agreements leave a gap of 8 years (2012-2020) during which no funding commitments are included.

The Cancun Agreements also agreed to establish a **Green Climate Fund (GCF)**. The GCF would be “accountable to and under guidance of” the Conference of the Parties of the UNFCCC. It would have a 24 member board, comprised by equal numbers of representatives from developed and developing countries; an Independent Secretariat; a Transitional Design Committee to design the GCF, comprised of 40 members (15 developed, 25 developing) and open to observers. The UNFCCC + Mexico are to convene the Transitional Design Committee,

⁶ Report of the Secretary-General’s High-level Advisory Group on Climate Change Financing, Final Report, November 2010

scheduled for late April 2011. A Standing Committee will be established to improve coordination and monitoring/reporting/verification (MRV) of finance.

Estimates of Climate Finance Needs. Current estimates of financing needs for mitigation and adaptation in developing countries range from \$60 billion to more than \$175 billion p.a. for mitigation and \$75 – 100 billion p.a. for adaptation,⁷ far exceeding existing dedicated resources (about \$10 billion) and future pledges under the Cancun Agreement. While the WDR provides the most transparent summary of these estimates, they are still quite preliminary and speculative, and subject to considerable debate.

Existing Dedicated Climate Finance Flows to developing countries are about \$10 billion p.a., with approximately \$1 billion for adaptation and \$6-9 billion for mitigation. For the “Fast Start” funding, nearly the entire \$30 billion can now be identified from individual country pledges, although less than \$12 billion has yet been committed to specific projects or programs, and disbursement may be years away. It should also be noted that even for “Fast Start” Funding a number of definitional (“new and additional”) and monitoring, reporting and verification (MRV) issues remain to be sorted out. The World Resources Institute, OECD, World Bank and others are trying to develop definitions and tracking systems but these have not yet been agreed.

Climate Finance Comes on Top of Shortfalls in Funding Other Development Priorities. One of the challenges in mobilizing finance for climate action is that funding gaps for “baseline” development investments already exist. The notion of climate finance as *additional* assumes that “baseline” development finance is already available in sufficient quantity and that climate finance just needs to cover the additional climate costs/benefits of mitigation or adaptation. However, in many developing countries, especially low income developing countries, domestic and international financing for essential development investments is insufficient. Gaps exist in “baseline” finance to cover current and projected investments in infrastructure, power, agriculture, forestry and other development priorities at levels that will allow developing countries to generate the economic growth needed to reduce poverty and meet the Millennium Development Goals (MDGs). Therefore it will be important to ensure that climate finance does not compete with or draw resources away from other development priorities. The estimated financing gap for low-income countries to reach the MDGs was \$73 billion in 2006 and is projected to rise to \$135 billion by 2015.⁸ It should be noted that if climate finance for mitigation were to focus mainly on the small number of developing countries that are the largest emitters – as the Clean Technology Fund has done – this would leave many countries with very limited financial assistance.

In Africa alone, the World Bank estimates that annual spending of \$93 billion would be required to improve Africa’s infrastructure.⁹ Investment in water storage, etc. on the order of \$1.2 trillion would be needed to bring the level of water security in sub-Saharan Africa to that of South Africa.¹⁰ Of the \$93 billion needed to improve Africa’s infrastructure, almost half is to boost

⁷ World Bank Group, World Development Report (WDR) 2010: Development and Climate Change, November 2009

⁸ UN Millennium Project, UNDP, 2006

⁹“Africa's Infrastructure: A Time for Transformation,” World Bank, 2009

¹⁰ Interview with water resource specialist David Grey

the continent's power supply. Even if the full potential of efficiency gains in the power sector were realized, a substantial funding gap of US\$31 billion p.a. would remain.

Large Unmet Financing Needs

✓ *Energy investment in non-OECD countries: average \$600 billion p.a. needed from 2007 - 2030*

- ✓ Additional investment to meet MDG energy access goal by 2015: \$41 billion p.a.
- ✓ Additional investment to meet goal of universal access to modern energy services by 2030: \$36 billion p.a.

✓ *Infrastructure financing needed in Africa: \$93 billion p.a.*

- ✓ Investment needed to reach OECD level of water security in Africa: \$1.2 trillion

✓ *Financing gap for low-income countries to reach MDGs: \$73 billion in 2006, rising to \$135 billion in 2015*

Sources of Development Finance. Most financing for development investments come from **domestic public and private** resources. Gross domestic investment (GDI) in developing countries in 2009 was \$4.6 trillion, down from \$5 trillion in 2008 (World Development Indicators). Africa is already spending \$45 billion a year on infrastructure from public and private *domestic* resources .

Official Development Assistance (ODA) from OECD countries to developing countries ranges from \$100 – 150 billion p.a. to all developing countries. ¹¹ Although many developed countries have committed to a goal to scale up ODA to 0.7% of GDP this target has only been met in a handful of countries, and the United States did not commit to the target. Thus the shortfall in ODA commitments forms part of the gap in “baseline” development financing.

¹¹ World Development Indicators 2010, World Bank

Domestic resources (GDI):

2008 - \$5.0 trillion

2009 - \$4.9 trillion

ODA: ~\$100 – 120 billion p.a.

Private Equity Flows:

FDI: 2007 – \$1,200 billion

2008 - \$597 billion

2009 - \$359 billion

Portfolio Investment:

2007 - +\$133 billion

2008 - -\$53 billion

2009 - +109 billion

Private Debt Flows:

Total: 2007 - \$283 billion

2008 - \$196 billion

2009 - \$53 billion

o/w bonds:

2007 - \$88 billion

2008 - \$24 billion

2009 - \$51 billion

o/w bank loans:

2007 - \$195 billion

2008 - \$172 billion

2009 - \$2 billion

Source: World Bank

After rising for several years, **net private capital inflows** to developing regions began to fall in 2008 due to the global financial crisis and continued to fall in 2009. **Foreign direct investment** equity flows to developing countries reached \$1.2 trillion in 2007 but fell sharply to \$597 billion in 2008 and \$359 billion by 2009¹². **Portfolio equity flows** to developing countries are very

¹²World Development Indicators , op cit. An exception is China: China has large international reserves and has continued to attract foreign investment in many sectors including renewable energy. The RE Finance Forum in Beijing in May, 2009, indicated that shortage of capital was not a central issue in China; indeed international financial sector players described ongoing interest from their clients in China given very large potential demand. This is not true in many developing countries however.

volatile from year to year. They fell sharply from \$133 billion in net inflows in 2007 to \$53 billion in net outflows in 2008 but began to recover to \$109 billion in inflows in 2009.

Direct Foreign Investment in developing countries (\$ billion)			
		2008	2009
AFR		37	30.2
EAP		187	101
ECA		159	85
LAC		129	76
MNA		36	28
SAR		49	38
<u>LAC</u>		<u>128</u>	<u>76</u>
Total		597	359

Thus **financing gaps for development** – the difference between expenditures needed to meet the Millennium Development Goals and other development targets and available resources -- are substantial even before the additional cost of climate proofing development is considered.

Public Sources of Climate Finance Won't Be Enough

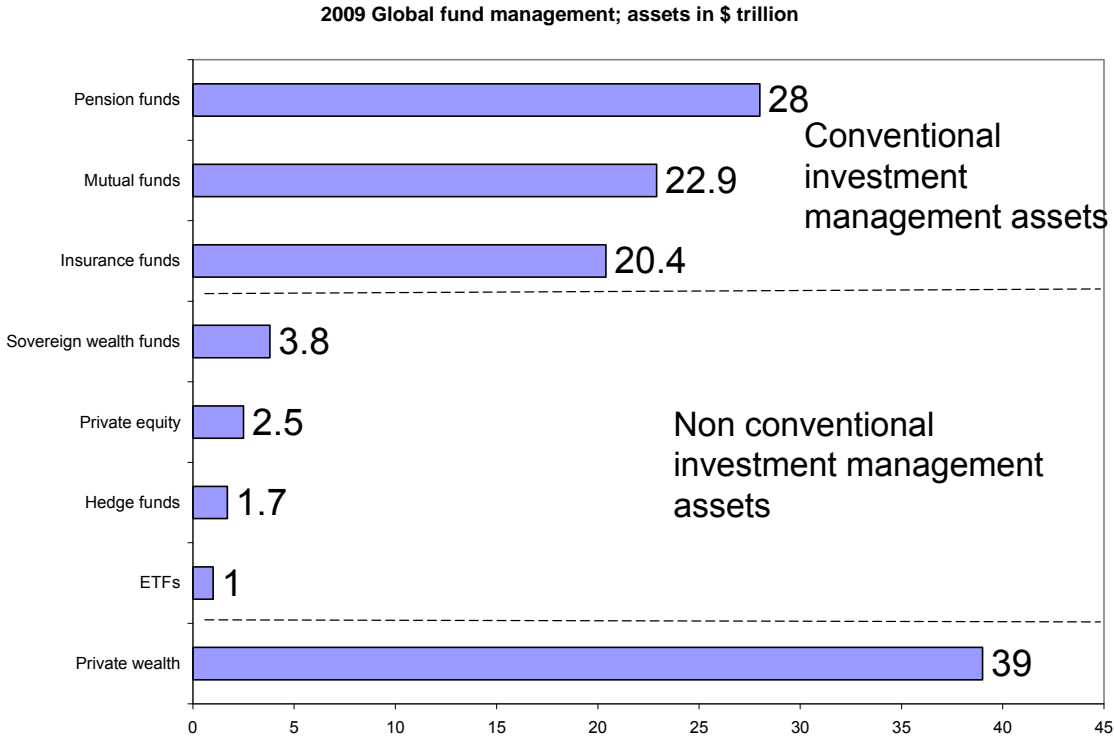
As noted above, funding to cover the cost of climate mitigation and adaptation in developing countries is estimated to be about \$250 billion p.a. by 2020. While developing countries would prefer that climate finance come mainly from public sources, this won't be possible in light of serious fiscal problems in many OECD countries following the 2008 financial crisis, the need to meet the prior commitment by many donor countries to raise funding for development assistance to 0.7% of GDP, anti-tax sentiment in some countries that limits the potential for new carbon related taxes (e.g. on aviation or bunker fuels) and slow progress in scaling up carbon markets that could produce public revenues, a portion of which could be allocated for climate finance. In addition, priority in the use of public funds needs to be given to funding adaptation costs in the most vulnerable countries. These countries are most likely to suffer the negative consequences of climate change and at the same time are least able to attract private investment. This partly because the most vulnerable countries generally are poor countries¹³ with low country creditworthiness and partly because sectors in which adaptation investments are concentrated (water, coastal protection, agriculture) are less attractive to private investors than the large infrastructure investments where mitigation action is needed (energy, transport, urban infrastructure).

Therefore public funds for climate action, particularly for mitigation in middle-income countries, need to be used strategically to scale up the opportunities to attract private investment. Leveraging public finance to scale up private investment for mitigation can free up public finance for adaptation in the poorest and most vulnerable countries.

Scaling Up Private Investment in Climate Action: Where is the Money?

¹³ See Annex I, World Bank: "Six Climate Threats, Who is Most at Risk?"

Institutional Investment Pools Have a Large Amount of Capital to Deploy. Current levels of ODA, foreign direct investment and portfolio investment in developing countries are small relative to the size of the assets under management in the large institutional investment funds. These large pools of assets are distributed into a variety of investment vehicles and asset classes. While the majority of assets are managed in OECD countries, they are invested globally. Will it be possible to attract assets from institutional investor pools to low carbon investments in developing countries?



Source: Deutsche Bank, “Investment in Climate Change, 2011”

What do institutional investors/fund managers look for? Scale, risk and motivation.

Scale. Given the volumes of assets that need to be invested, fund managers look for **large scale** investments and are beginning to look for **higher returns**, in asset classes where they can earn more than is possible on government bonds. The need for fund managers to boost annual returns is steering them to look for longer-term returns to investment, for investment horizons that can stretch up to ten years, and for diversification into new asset classes such as equities, commodities and real estate.¹⁴ In addition Sovereign Wealth Funds (SWF), invested through private asset managers in the world’s largest financial centers, provide opportunities for investment in sectors, like renewable energy, and markets in which they (the SWF countries)

¹⁴ Henry Wai-chung Yeung, “Strategic governance of Singapore’s sovereign wealth funds,” from Clark, G.L., Monk, A., Dixon, A.I, Pauly, L.W., Faulconbridge, J., Yeung, H. W-c, Behrendt, S., “Symposium: sovereign fund capitalism,” September 2010,

don't have mature multinational firms or the local financial expertise sufficient to capture the profits of the global economy.¹⁵ Infrastructure projects offer both large scale and potentially larger returns (though with higher risks) than corporate securities.

Infrastructure Investments in Developing Countries Offer Large Scale Investment Opportunities. Large scale, climate sensitive investments cover many core development sectors. For mitigation these include clean energy, energy efficiency, transport and waste. For adaptation, key sectors include agriculture, forestry, water and infrastructure. In Africa, for instance, sufficient hydropower potential exists to provide twice the continent's energy access needs, offering the potential to provide electricity to Africa's citizens and industries and doing so in a climate friendly way. The investment required to develop this hydropower potential is huge, both to generate the power and to build the transmission and distribution networks required to move the energy from the locations where the water resources are located to the cities and industries where demand is located. Investment in hydropower is a slow process and projects take years to develop. Coal deposits are widespread and, without a price on carbon, coal fired power plants are cheaper and faster to build. Using public climate finance to accelerate investment in hydropower in Africa could have the double benefit of meeting the energy access challenge and avoiding locking in GHG emissions from lower cost, faster thermal power plants that are starting to be constructed across the continent. The projects are of sufficient scale to be attractive to institutional investors but financial, technical and policy support will be needed.

¹⁵Adam Dixon, "Sovereign wealth funds and the trap of state-centrism," *ibid*

Scale: Africa's hydropower potential is twice what is needed for energy access



Transforming Africa's Infrastructure

In other renewable energy areas public-private partnerships for technology transfer and development at scale are starting to happen. For example, planned Concentrating Solar Power projects under development in Algeria, Morocco, Egypt, Mexico, China and South Africa would add more than 3,500 MW of clean power. These private public-private partnerships engage large volumes of private investment and will help to overcome the financing, policy and technology problems that have limited the effectiveness of this promising technology in developing countries in the past.¹⁶

Balancing Risk and Return. Institutional investor capital is distributed into a variety of investment vehicles and asset classes. While there is significant capital available, the risk / return profile needs to meet specific parameters to attract institutional investors. Institutional asset owners such as pension funds, endowments, philanthropic foundations and Sovereign Wealth Funds (SWFs) have fiduciary obligations to their beneficiaries that shape their investment choices. They evaluate risks and returns across and between asset classes in light of the timeframe and the return potential to meet their long-term liabilities. They assess risk at both

¹⁶ CSP investments in developing countries have had limited success in the past. See GEF: "Assessment of the World Bank/GEF Solar Thermal Market Development Strategy." See also Alan Miller, "The Global Environment Facility program to commercialize new energy technologies," *Energy for Sustainable Development*, Vol. XI, 2007.

a deal / investment (project) level and at a portfolio level. At the deal / investment level, fund managers analyze all significant risk and return factors potentially affecting the investment. At a portfolio level, they evaluate the *interaction* between investments and the exposure of the aggregate portfolio to external factors.¹⁷

Asset classes, low to high risk:

Fixed income: publicly traded debt securities issued by governments or corporations

Public Equities: publicly traded equity securities issued by corporations

Private Equity/Venture Capital: early stage investment in private companies

Project Finance (Infrastructure): project level ownership of infrastructure related assets

<u>Asset Class</u>	<u>Risk</u>	<u>Target Return</u>
Fixed Income	low	3 – 6%
Public Equity	medium	5 -- 20%
Private Equity/VC	high	20 – 30%
Project Finance	med-high	10 – 15%

Motivation. Given their traditionally conservative approach, why would institutional investors be willing to consider low carbon investments in developing countries? Pension funds, endowments and SWFs are naturally risk averse in their investment approaches, historically preferring low risk government bonds (fixed income asset class) to other, riskier investment vehicles, as their main task is to maximize returns to investment on behalf of their clients within certain fairly narrow risk parameters. However both ethical and financial considerations are prompting some institutional investors to show interest in investing in climate friendly infrastructure in developing countries.

Socially Responsible Investors (SRIs). Some investment funds are moving more aggressively into the SRI (socially responsible investor) sphere. An example is the Norwegian Government Pension Fund which has an explicit mission to integrate long-term investment return objectives with an ambitious ethical commitment.¹⁸ Other funds are looking at the potential to include ethical targets in addition to investment returns.¹⁹ Within the SRI community there is a growing interest in investment to address climate change and other “green growth” investments.

Large Pension Funds Are Beginning to Looking for Low Carbon Investments. The **P-8**, an initiative of the Cambridge Programme for Sustainability Leadership and HRH Prince of Wales’s Business and Environment Programme (BEP), is a group of senior leaders from some of the

¹⁷ Deutsche Bank, Investing in Climate Change, 2011, Deutsche Bank Climate Change Advisors, February 2011

¹⁸ Gordon Clark, Ashby Monk, “The Norwegian Government Pension Fund: Ethics over Efficiency,” Rotman International Journal of Pension Management, May 2010, “The Norwegian Government Pension Fund Global has an explicit mission to integrate LT investment return objectives with an ambitious ethical commitment.”

¹⁹ Benjamin J. Richardson, “Fiduciary *duties* to fiduciary *relationships* for socially responsible investing: responding to the will of beneficiaries,” PRI Academic Conference, 2010. The paper outlines legal moves to make SRI objectives acceptable.

world's largest public pension funds, working together to contribute to solving global issues, particularly climate change. The P-8 aims to encourage pension funds to take the lead in the move toward a low carbon economy. The P-8 started as a group of eight of the largest pension funds and now involves ten leading global pension funds and sovereign wealth funds, including representatives from Europe, Asia, Australasia and North America. They represent over \$3 trillion of investment capital and as pension funds have an inherently long term focus. While they have not yet committed to a climate related investment in a developing country through the P-8 initiative, at the first two P-8 Summits participants agreed to work together to address climate change, both within their organizations and as a group to influence policy and markets. They are working closely with development agencies and multi-lateral development banks to identify specific investment opportunities.

In addition to investor groups motivated to make a difference, investors are paying increasing attention to climate risks and opportunities. A recent report by Mercer²⁰ advises fund managers to increase asset allocation to “climate-sensitive” (friendly) assets as a “climate hedge.” It advises to shift up to 40% of portfolios into climate sensitive investments. Examples of the move toward climate friendly investment choices include the Danish pension fund, ATP, which committed to a Euro 1 billion climate fund for investing in emerging economies in December 2009, based on the assessment that climate change solutions will be one of the big drivers of investment returns over the next 40 years.²¹ The **Investor Network on Climate Risk** is a network of 80 institutional investors and financial institutions, with more than \$8 trillion of assets under management. They seek to better understand the financial risks and investment opportunities posed by climate change.²² The **Institutional Investors Group on Climate Change**, established in 2001, is a collaborative network of European pension funds and other institutional investors that seek to address the investment risks and opportunities associated with climate change. There are currently over 50 members, with assets of over EUR 4 trillion under management.

The Carbon Disclosure Project collects and distributes information on the business risks and opportunities presented by climate change and greenhouse gas emissions data from over 2,500 organizations in some 30 countries, including some of the world's largest companies. They currently represent over 470 institutional investors with over \$55 trillion of assets under management. According to Deutsche Bank, the momentum behind institutional investors in demanding increased disclosures around climate change will result in increased capital deployment in the climate sensitive sectors. Standard and Poors has also announced that they will consider climate risk in their risk evaluations.

Taken together these promising trends are likely to lead to increasing interest in climate related investments. Given the need for massive expansion of infrastructure in developing countries as their economies grow, the largest growth in greenhouse gas emissions over the next 20 years is projected to be in developing countries. Thus the potential for large investment opportunities in

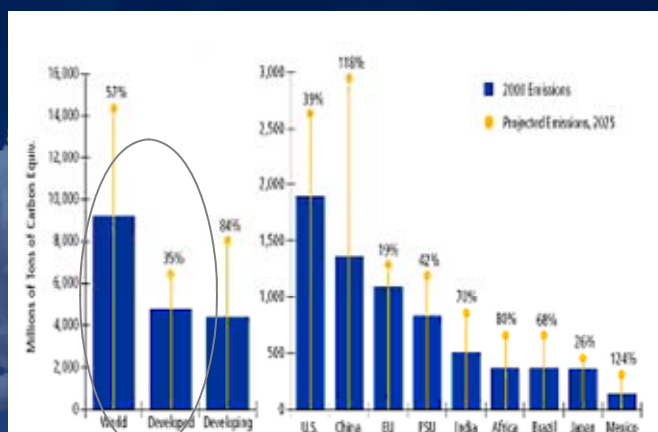
²⁰ Mercer, “Climate Change Scenarios- Implications for Strategic Asset Allocation”, 2011

²¹ Chatham House, “Unlocking Finance for Clean Energy: The Need for ‘Investment Grade’ Policy,” Kirsty Hamilton, December 2009

²² Deutsche Bank, op cit

climate friendly assets will be there as well. However, while institutional investors may be increasingly motivated to invest in climate sensitive sectors, their investments may continue to be concentrated in OECD countries given their need to transform their own economies to meet climate targets and the lower risk of investments in these countries. The challenge is to influence institutional investors to look increasingly to developing countries for investment opportunities.

Developing Countries Soon to Produce More Emissions than Developed Countries



How can scarce public climate finance help to attract private flows into low carbon investments in developing countries?

There is no silver bullet. Motivating institutional investors, and other private funds, into low carbon investments in developing countries will require developing deal flow: identifying well designed projects with good underlying economic and financial parameters, that conform to investment grade standards in countries with attractive regulatory regimes; reducing real and perceived risks; enhancing returns; and supporting the creation of new investment vehicles. It will be important to ensure that public funds don't over-compensate private investors in reducing risks and enhancing returns. It may be useful in this context to consider competitive mechanisms

such as auctions to assign public climate funds to investments that ensure the greatest leverage of private funding and produce the largest GHG reduction per dollar of public funding.

Promoting good deal flow. When asked why they don't invest more in low carbon infrastructure in developing countries, many investment managers – even those whose investments are concentrated in emerging markets – reply that there is a lack of good deal flow. One of the tasks that public climate finance must address is to create a better pipeline of investments to attract private investors. Some public groups are already doing this. Private Infrastructure Development Group (PIDG) is a coalition of donors (public funds) seeking to mobilize private sector investment in developing countries by building project preparation capacity to facilitate renewable energy project preparation, through technical assistance and advisory facilities (e.g. in understanding and allocating risk). It also undertakes project development focusing on the nuts and bolts of getting the engineering, contractual and financing elements lined up, helping to get projects moved from concept through to construction. MDBs and bilateral agencies can help to improve the development of investment projects. A proposed Green Venture Fund to Finance Clean Technology in Developing Countries²³ includes a technical assistance component to develop deal flow.

Reducing Risk. Projects in developing countries are inherently riskier than in OECD countries even without adding climate risks. Low carbon investments in developing countries can increase risks, and include market/macroeconomic risks, policy risks, project risks, technology risks, country/foreign exchange risk, political risk, etc. The extent and kind of risk involved affects the availability and cost of the financing, whether debt financing (higher interest rate) or equity (higher expected returns). Banks and investors have a range of sectors and countries to choose from and will select the projects or investment funds that provide the most attractive risk/return opportunities. To help developing countries attract private financing to low carbon investments, at the scale needed, public climate finance can help to reduce or offset risks in addition to providing required additional capital.

Covering First Loss. Public climate finance can be used to cover first loss, take the riskier part of an investment or to set up a fund to cover first losses.

Asset Class	Climate Finance Instrument	Public Finance Role	What kind of Risk Reduction, Enhanced Return?	How much Leverage?
Fixed Income: Sovereign bonds	“Green Bonds”	ECAs/MDB Political or Partial Credit	Sovereign	1: 3 - 4

²³ “A Green Venture Fund to Finance Clean Technology for Developing Countries,” Darius Nassiry David Wheeler, Center for Global Development, January 2011

		Risk Guarantees		
PE/VC, Public Equity	New infrastructure investment funds and funds of funds	Co-investment (debt or equity), first loss	Technology, policy, sovereign	1 : 9 or larger
Infrastructure Project – debt or equity	Climate Investment Funds Climate Guarantees	Co-invest with MDBs: concessional loan or equity; Partial Risk or Partial Credit Guarantees	Project, technology, policy	Up to 1 : 7
All	“Green Policies”	Subsidies for RE premium; support to policy reform	Policy, technology	

Providing Guarantees: an under-utilized tool with potential to reduce risk. A set of risks that would otherwise be a barrier to investment can be reduced through a range of public finance entities, including government-backed Export Credit Agencies (ECAs) such as OPIC in the US, EKF in Denmark; multilaterals development banks such as the World Bank, Asian Development Bank, European Investment Bank, and national development banks, e.g. the Brazilian Economic Development Bank, BNDES.²⁴ Export Credit Agencies (ECAs) and MDBs can provide co-investment or investment guarantees. “Private financiers expect the multilaterals and public finance entities such as ECAs to provide a scaled-up set of current products and facilities, e.g. loan guarantees, partial risk guarantees, revolving credit facilities, etc., to reduce risks and to facilitate returns thereby creating a stronger internal case for investment.” Guarantees and insurance can help to leverage relatively high levels of private finance. These tools may be particularly suited to investments in the middle-income countries, where access to project finance is generally easier (although currently constrained by the financial crisis) than in the least developed countries.²⁵

World Bank (WB) guarantees provide an example. In the WB there are three risk instruments for countries with market access (emerging market countries with higher creditworthiness) and two for low-income countries that do not typically have market access.²⁶ For market access (IBRD) countries the guarantee products offered are Partial Risk Guarantees, Partial Credit Guarantees, and Policy-based guarantees. In low-income countries guarantee products include

²⁴ Chatham House, “Unlocking Finance for Clean Energy: The Need for ‘Investment Grade’ Policy,” Kirsty Hamilton, December 2009

²⁵ “Meeting the Climate Challenge: Using Public Funds to Leverage Private Investment in Developing Countries,” Grantham Research Institute in Climate Change and the Environment, September 2009

²⁶ Countries with market access are those that are eligible for IBRD borrowing, that is, borrowing at favourable market-based rates. Lower income countries that are not creditworthy for IBRD loans receive IDA credits, very long term concessional loans financed by contributions from donor governments and World Bank net income.

Enclave Guarantees (to cover the foreign exchange risk for market-based loans in foreign exchange-earning enclave investments) and Partial Risk Guarantees.

Partial Risk Guarantees (PRG) can be used for any commercial debt instruments (loans, bonds) provided by any private institution, including debt provided by sponsors in the form of shareholder loans. PRGs can cover both foreign currency and local currency debt. The PRG ensures payment in the case of default resulting from a government (or government-owned entity) failing to perform its contractual obligations with respect to a private project. Risks covered typically include: maintaining an agreed regulatory framework, including tariff formulas; delivering inputs, such as fuel to a private power company; paying for outputs, such as power or water purchased by a government utility; or compensating for project delays caused by political actions or events. Partial risk guarantees may also cover transfer risks that may be caused by constraints in the availability of foreign exchange, procedural delays and adverse changes in exchange control laws and regulations. Typical projects are those with private participation dependent on certain government contractual undertakings, such as: Build-Operate-Transfer (BOT) and concession projects; Public-Private Partnership (PPP) projects; or privatizations.

Partial Credit Guarantees (PCG) allow the extension of debt maturity and/or lower interest rate costs. They cover all events of non-payment for a designated portion of the financing. While historically these guarantees have been used to encourage extension of maturity by covering the later years of the financing, it's also possible to structure a partial credit guarantee to cover a single coupon interest payment on a rolling basis throughout the life of the facility, plus the final bullet principal repayment.

Policy-based Guarantees (PBG) cover the risk of adverse policy changes that affect project returns. This could include changes in regulatory policies, or feed-in-tariffs or other incentive policies.

Enclave guarantees in low income (IDA) countries are partial credit guarantees that cover export-oriented foreign exchange generating commercial projects operating in low income countries that would not normally be eligible for market based lending. This kind of instrument may be relevant for renewable energy projects in very low income countries, e.g. large hydropower projects such as the Nam Thuen 2 project in Laos, where most of the power will be exported. This type of guarantee might be relevant for hydropower projects in Africa.

Partial Risk guarantees in low income (IDA) countries are offered to private lenders against country risks that are beyond the control of investors and where official agencies and private markets currently offer insufficient insurance coverage. These guarantees can cover up to 100 percent of principal and interest of a private debt tranche for defaults arising from specified sovereign risks including government breach of contract, foreign currency convertibility, expropriation, and political violence.

Co-investment with Multilateral Development Banks to reduce risk. Financing climate actions is now a priority in all the MDBs²⁷ and climate considerations are increasingly integrated and mainstreamed into the MDBs' development and operational strategies. Total MDB mitigation financing for demand and supply side energy efficiency, renewable energy and reducing carbon emissions from transport, urban infrastructure and land use, increased from \$5.4 billion in 2006 to \$10.7 billion in 2008 and \$17 billion in 2009. The value of total projects/programs supported by this lending rose from \$20 billion to \$50 billion during the period, and is projected to grow to \$21 billion in 2012, supporting projects with a total value of \$50 billion. The trend demonstrates the ability of MDBs to leverage their lending. The AGF estimates that for every \$10 billion in paid-in capital, MDBs could deliver \$30 – 40 billion in gross capital flows and significantly more by fostering private flows (AGF). The Inter-American Development Bank recently received an increase of ordinary capital of \$70 billion with the agreement that it increase lending for climate change and environmental sustainability from 5% p.a. (baseline as a percent of total lending in 2006 through 2009) to up to 25% at the end of 2015. The AGF further estimates that each dollar of MDB lending generates about 3 dollars of private capital co-investment of which approximately 50% is from international sources.

The recently established **Climate Investment Funds** provide a good example of the possibility to use public climate finance to mobilize private funding through MDB lending. The **Clean Technology Fund** leverages significant private sector and MDB financing: every dollar of public climate finance provided through the CTF leverages \$7.7 from other sources such as domestic public and private finance, carbon finance and private finance. The CIF overall leverage is 1:7.7 of which private finance is 1:2.7. In the CTF (mitigation, large scale) overall leverage is 1:8 of which leverage of private funding is 1:2.7, that is every dollar of publicly provided funding to the CTF leverages \$8 from other sources, of which \$2.7 is from private sources. In the **Pilot Program for Climate Resilience** (adaptation) the leverage ratio is 1:2.7

²⁷ Joint MDB Climate Financing Report, June 2010, includes data from AfDB, ADB, EIB, IDB, World Bank, IFC, EBRD

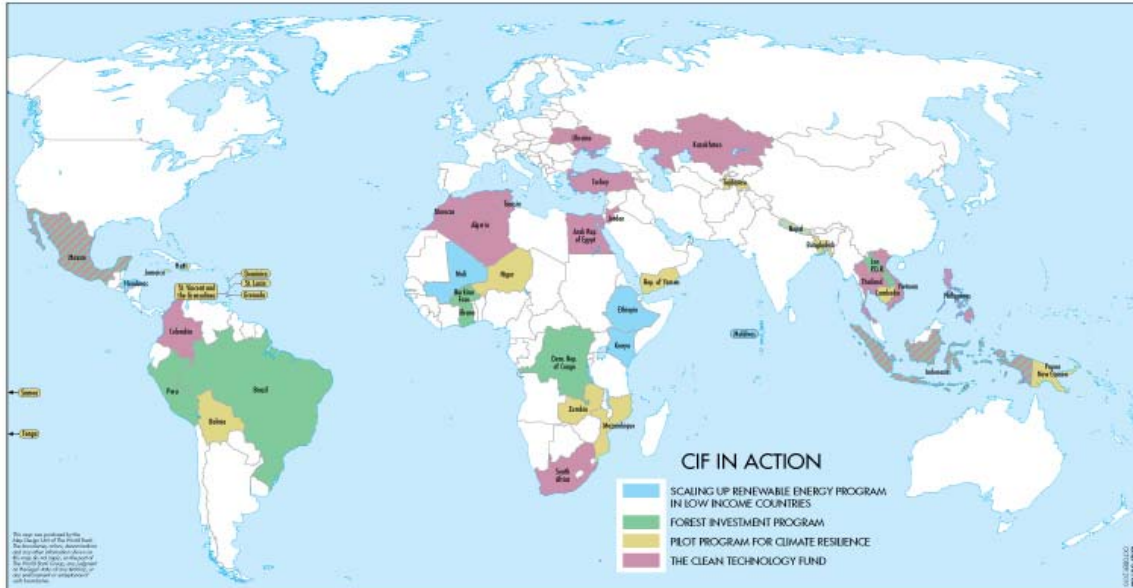
with so far no private sector funding.

CTF COFINANCING SUMMARY/LEVERAGE RATIO
As of Feb 2011
(in millions)

CTF Funding		4,600
Cofinancing		36,806
MDBs	13,925	
Bilaterals	2,515	
Private Sector	2,554	
Carbon Finance	340	
Government	7,420	
Other Agencies	54	
LEVERAGE RATIO Total Cofinancing		1:8
LEVERAGE RATIO Private Sector Cofinancing		1:2.7

Leveraging MDB Lending: Concessional Loans and Equity in the Climate Investment Funds (CIF)

?



44 countries: \$6.4 billion pledged, of which CTF \$4.5 billion, FIP \$587 million, PPCRF \$1 billion, SRP \$318 million

Enhancing Returns: Improving Regulatory Regimes. Predictable and effective regulatory policies can help to reduce investment risk. An important role for public finance will be to help developing countries put in place regulatory and incentive frameworks that can make investments in developing countries as economically and financially attractive as investments in OECD countries. “Everything depends on policy, without policy we are not going to get very far” (in renewable energy investment).²⁸ Low carbon infrastructure, whether energy, transport or buildings, often costs more than traditional infrastructure at current prices. Up front capital costs of low carbon investments are often higher than traditional choices. In OECD countries governments have begun to scale up policy support and incentives to increase the attractiveness of investment in higher cost, low carbon sectors.²⁹ Many developing countries, with limited fiscal resources and large competing needs from other development investments in health, education, etc., and without current obligations under the climate treaty, often are not in a position to offer similar policy support and incentives, such as feed-in-tariff policies. China is an exception as it has introduced new policies that are ambitious in scale and scope and are committed to major structural changes in the economy. Additional measures are included in the

²⁸ Chatham House, “Scaling up Renewable Energy in Developing Countries: finance and investment perspectives”, Kirsty Hamilton, April 2010

²⁹ Deutsche Bank, op cit

newly released 12th 5-year plan. Public climate finance can be used to create incentives to accelerate technology switching and to provide incentives for low carbon investment.

Public climate finance can be used to subsidize policy incentives such as feed-in-tariffs that would not be in a developing country's own interest but could be important to attract investment in renewable energy. An example is the Deutsche Bank **GET-Fit** Program (Global Energy Transfer Feed-in Tariffs) which provides capacity building and public subsidies to incentivize renewable energy. The DB GET-Fit Program supports scale up of renewable energy (RE) and energy access in developing countries through international Public-Private Partnerships where public climate finance is used to create a transparent regulatory environment and to fund the renewable energy (RE) premium: the additional cost of RE over fossil fuels, using concessional funding and loan guarantees. Another example is InfoDev, a partnership using public funds to set up **Climate Innovation Centers** which will assist developing countries to put in place appropriate policy and regulatory frameworks. It aims to set up 30 centers with a goal to build 3000 MW of off-grid energy capacity. Many developing countries are introducing innovative policies to promote energy efficiency and reductions in GHGs. India's PAT program for industrial energy efficiency is another recent example.

Eliminating fossil fuel subsidies in developing countries could free up resources that could be used to support low carbon investments. The International Energy Agency (IEA) estimates that fossil fuel subsidies globally are more than \$300 billion, with the bulk being in developing countries. Public climate finance can be used to support policy reforms like eliminating fossil fuel subsidies, using instruments such as Climate Development Policy Operations (providing budget support for policy reforms) through MDBs.

Enhancing returns through scaled up and streamlined carbon offset markets. Carbon market finance may, in the longer term, generate significant additional private investment in developing countries needed to meet stringent emission targets. Purchases of emission offsets by developed countries could generate as much as US\$20-40bn a year by 2020³⁰ and another US\$7-30bn could be collected through auctioning revenues. Expectations for potential climate finance from carbon markets are very high for the longer term, once binding emissions targets, global carbon markets and a global price for carbon are in place. In the nearer term, carbon market offsets are expected to generate significant gross flows: between \$5 – 50 billion in gross flows (depending on a carbon price of \$10 or \$25 per ton), crowding in between \$8 – 75 billion in additional international private capital investment in developing countries by 2020.³¹

In 2009, despite the financial crisis in 2008, the global carbon market grew 6 percent to \$144 billion. Most of the trade was in the European Union's carbon market, which was worth \$118.5 billion at end 2009, up 18 percent. However in the portion of carbon markets most relevant to developing countries – the project based CDM, JI and voluntary markets – capital inflows fell by

³⁰ "Meeting the Climate Challenge: Using Public Funds to Leverage Private Investment in Developing Countries," Grantham Research Institute for Climate Change and the Environment, LSE, 2009

³¹ AGF, op cit

54%. China continues to dominate the CDM although Africa and Central Asia picked up somewhat in 2009.³²

Growth of the CDM is constrained by the complexity and changing nature of regulations, inefficiencies in the regulatory chain and capacity bottlenecks which cause delays, increase transaction costs and undermine the financial viability of projects, especially small ones. It now takes over 3 years for a CDM project to make it through the regulatory process and issue a Certified Emissions Reduction (CER). The overall impact is to erode confidence in the CDM as a tool for effective greenhouse gas mitigation and to negatively impact project finance.³³

For the CDM to be an effective tool to leverage private financing into climate relevant investments significant regulatory and process reforms are needed. Programmatic approaches, including sectoral crediting, crediting for NAMAs and city-wide approaches need to be tested and applied. Rules need to be simplified, guidance clarified, methodologies simplified and standardized and timelines for registration reduced. Communication and working relations between the auditors (Designated Operational Entities) and the CDM Executive Board need to be improved with greater capacity, independence and accountability for DOEs. While some progress was made in Cancun to make REDD+ fully operational, more needs to be done to make the market for forest-based emissions reductions fully functional. Land based sources like soil and agriculture need to be made eligible.

A few developing countries (China, Chile, possibly Turkey and Indonesia) are taking steps to set up domestic carbon markets which will stimulate investment in low carbon approaches. They are being assisted under the **WB Partnership for Market Readiness** to develop domestic markets. The PMR also helps developing countries that have not been able to access carbon markets to develop capacity to participate in carbon markets.

Creating New Climate Finance Instruments. Public climate finance can help developing countries to attract institutional investor funds through financing instruments that can **lower risk and improve diversification**. Climate finance can help to create investment vehicles that are attractive to institutional investors.

“Green Bonds.” Public climate finance can be used to help developing countries to create “green bonds,” sovereign bonds where the bond proceeds are committed to be used for low carbon investments. “Green bonds” have been issued by MDBs and private companies, allowing them to access funding on somewhat better terms than standard bonds. Since 2008 the World Bank has issued more than \$2 billion in green bonds. Emerging market economies – the relatively higher income group of developing countries – already issue their own sovereign bonds to finance domestic public investments. It could be possible to use sovereign guarantees, such as from the MDBs or Export Credit Agencies, to increase sustainability/climate themed bonds to form indices in passive investment portfolios. “Energy efficiency and green bond proposals could be very powerful instruments for developing countries themselves to raise funds in global capital markets.”³⁴ To expand the market for “green bonds” it will be important to create transparent definitions and standards for what constitutes “green” investments. “Green

³² World Bank, “State of the Carbon Market,” 2010

³³ World Bank, “State of the Carbon Market,” 2010

³⁴ Grantham Research Institute, op cit

bonds” in developing countries could provide the attractiveness of the fixed income asset class to institutional investors, allow investors a relatively low risk hedge on future carbon risk and provide an incentive to developing countries to expand the universe of low carbon investments.

Low Carbon Public-Private Investment Funds. Public climate funds can be used to create leverage through new investment vehicles. “Banks do not generally provide equity financing and the type of investment community that does so in the developed world is hardly present in developing countries. Equity-focused public financing mechanisms are therefore needed that are either structured as funds that can take direct investments in companies and projects or as funds of funds which can also be referred to as cornerstone funds that invest in a number of commercially managed funds, each of which then invests in projects or companies. The cornerstone funds approach can be more catalytic, leveraging private capital both into the fund itself and later into the investments that the fund makes.”³⁵ Creating more clean technology investment funds and funds of funds (cornerstone funds) can allow for diversification of risk and enable institutional investors to gain access to countries and technology sectors in which they may not have sufficient expertise to evaluate the range of risks involved in buying public equities or country-specific low carbon investment funds directly. An example is a proposal for a **Green Venture Fund** to Finance Clean Technology in Developing Countries.³⁶ The idea is to establish a public-private cornerstone fund to invest in country and sector specific investment funds that invest directly in RE/Energy Efficiency/Forestry companies and projects in developing countries. Emerging market clean tech funds already exist. These can be replicated and scaled up through the fund of funds approach, allowing greater investment scale and diversification to attract institutional investors. Public climate funding in these investment funds can reduce risk and enhance returns for private investors.

Conclusion: Implications for the Green Climate Fund³⁷

³⁵ Grantham Research Institute, op cit

³⁶Center for Global Development, January 2011, op cit

³⁷Many others have written about the need for efficiency, fairness, transparency, equitable governance, etc. in designing the GCF. See among others “Governing Climate Change: lessons from other governance regimes,” by Arunabha Ghosh and Ngaire Woods, Published in *The Economics and Politics of Climate Change*, eds Dieter Helm and Cameron Hepburn, Oxford, Ox U Press, 2009; *Designing Climate Finance Institutions*, Arunabha Ghosh, NYU-MoFA Workshop on Climate Finance, NYU Abu Dhabi Campus, Jan 2011; “International climate financing: from Cancun to a 2 degree centigrade stabilisation pathway”, Timme van Melle, Niklas Hohne, Murray Ward, ECOFYS 2011; “The politics of climate finance”, Simon Maxwell, www.opendemocracy.net; “Design Challenges for the GCF, “Climate finance policy brief No. 4, Heinrich Boll Stiftung/North America, Neil Bird, Jessica Brown, Liane Schalatek, Jan 2011. The criteria proposed here would build on and be additional to these important considerations.

It is expected that the Green Climate Fund may take 3 – 5 years to set up and begin to disburse funds. Some portion (not defined) of the funding “pledged” in the Cancun Agreements will be channeled through the Green Climate Fund. While the amount has not been determined, it is likely that most of the funding in the GCF will come from public rather than private sources; it will be challenging to attract private sources into a fund outside the control of the owners of the funds. However GCF funding can provide co-financing with private sources to reach the Cancun Agreement \$100 billion goal.

While not all climate finance flows will go through the GCF, financing mobilized under the Cancun Agreement, including through the GCF, can provide important lessons for other climate finance channels. The GCF should be designed to maximize the impact of public climate finance flows; to demonstrate that climate finance is being used effectively to achieve the goals of emissions reductions and “climate resilience.” It should be a basis for lessons learned.

The GCF should be designed keeping in mind the following:

- Public climate finance will be a very scarce resource. **Leveraging public climate finance to mobilize private investment in low carbon and climate resilient investments should be a key goal and a key success criteria.** Public funds channeled through the GCF should be able to demonstrate success in combining with other national and international sources of finance and to attract private financing at a multiple of public funds. The use of public climate funds to mobilize private investment should include a competitive process so that risk reduction and credit enhancement don’t exceed the minimum amount needed. Mechanisms should be developed to ensure that private finance is attracted into countries that have not traditionally been as successful at attracting international private investment (e.g. China).
- Demonstrating leverage will be a particular challenge for funds that are transferred via **Direct Access** mechanisms. It will be important that leverage be measured for Direct Access funding as well as for funding delivered through financial intermediaries.
- Given the sectors (water, agriculture) and countries (many low income, low creditworthiness) in which they are likely to be concentrated, it will be relatively harder to attract private investment into adaptation investments compared to mitigation. Therefore it will be important that public climate finance be used to maximize private investment in mitigation so as **to free up public climate finance for adaptation.**
- Public climate finance support should be given to **developing deal flow.**
- **Risk reduction instruments and new climate instruments** can leverage public climate funds to attract private investment. The GCF should consider the potential to establish guarantee instruments and new public-private investment funds and funds of funds to draw in private investment. Risk reduction instruments, such as enclave guarantees, should be considered to attract private investment into large-scale low carbon infrastructure investments in countries with low creditworthiness.
- **Supporting policy reform and appropriate regulatory regimes** through subsidies and policy reform operations should be a component of the GCF.

It could be possible to mobilize funding for low carbon investments from large institutional investor pools if public climate finance is used strategically to develop deal flow, reduce risks and create new investment opportunities.

Annex I

6 Climate Threats: Who is Most at Risk?

	Low Income		Middle Income		High Income	
	<i>Drought</i>	<i>Flood</i>	<i>Storm</i>	<i>Coastal 1m</i>	<i>Coastal 5m</i>	<i>Agriculture</i>
Malawi	Bangladesh	Philippines	All low-lying Island States	All low-lying Island States	Sudan	
Ethiopia	China	Bangladesh	Vietnam	Netherlands	Senegal	
Zimbabwe	India	Madagascar	Egypt	Japan	Zimbabwe	
India	Cambodia	Vietnam	Tunisia	Bangladesh	Mali	
Mozambique	Mozambique	Moldova	Indonesia	Philippines	Zambia	
Niger	Laos	Mongolia	Mauritania	Egypt	Morocco	
Mauritania	Pakistan	Haiti	China	Brazil	Niger	
Eritrea	Sri Lanka	Samoa	Mexico	Venezuela	India	
Sudan	Thailand	Tonga	Myanmar	Senegal	Malawi	
Chad	Vietnam	China	Bangladesh	Fiji	Algeria	
Kenya	Benin	Honduras	Senegal	Vietnam	Ethiopia	
Iran	Rwanda	Fiji	Libya	Denmark	Pakistan	

Source: World Bank staff estimates



The Global Economic Governance Programme was established at University College in 2003 to foster research and debate into how global markets and institutions can better serve the needs of people in developing countries. The three core objectives of the programme are:

- to conduct and foster research into international organizations and markets as well as new public-private governance regimes
- to create and develop a network of scholars and policy-makers working on these issues
- to influence debate and policy in both the public and the private sector in developed and developing countries

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