

Meeting the Climate Challenge: Using Public Funds to Leverage Private Investment in Developing Countries

Section 5 – Global architecture

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This section looks at the **financial architecture for climate change and how its design could increase private sector confidence and promote investment in climate change mitigation and adaptation in the developing countries**. Choices around the financial architecture will have a significant impact on the risk perceived by private investors and, as a result, on the returns they expect from their investment and the resulting profitability of the projects. The more the global architecture contributes to reducing the regulatory risk to private investors, the more effective it will be in mobilising private investment.

5.1. Requirements for private sector investments

Mobilising large scale private investment will be critical to delivering mitigation measures globally at the scale required. Private investments, however, will only flow if projects have **an adequate risk / return profile** relative to the alternative, high carbon technologies.

It is helpful to differentiate between two factors that are required to mobilise investments:

- **Covering incremental cost:** mitigation projects often have higher costs than their high carbon alternatives. For example, it is more expensive to produce 1 kWh of electricity from solar than from coal. To overcome this cost difference, mitigation measures will require a premium. This could come from the sale of credits to carbon markets, government financing (through, for instance, tax credits or feed-in tariffs), or support from international financial institutions. Developed countries have committed under the UNFCCC to supporting developing nations with the financing of the incremental cost of mitigation measures. **For the international architecture, it is therefore important to create mechanisms and institutions that enable this transfer in the most efficient (low transaction cost), stable and predictable way.**
- **Reducing investment risk** to ensure private financing is made available for upfront investment capital. Mitigation projects often are riskier than investments in high carbon

technologies due to the fact that many rely on technologies that are not proven to the same extent as high carbon alternatives. Furthermore they often rely on regulation and financing from governments to cover incremental costs, which can be perceived as unreliable. As a result, private investors use higher discount rates for cash flows that depend on government budgets and regulation. In particular, for large infrastructure investments which require high upfront capital investment, as many mitigation projects do, **it will be important to provide investors with a form of support that minimises the risk profile and thus the discount factor applied to future cash flows.** The effectiveness of the financing architecture is therefore directly linked to how well it reduces these risks and influences investor discount rates.

In concrete terms, ensuring that incremental costs are covered and investment risk minimised will mean that the **global architecture needs to meet the following six criteria:**

- 1. Ensure that international financing flows covering incremental cost are predictable and reliable at the scale required.** As far as carbon markets finance is concerned, this means tight targets for developed countries, clear rules for the use of offsets, moving towards programme and sector based schemes and clarification of rules on the overhang of AAUs from the first Kyoto Protocol compliance period. As far as public funds are concerned this means that sources of financing that are independent of government budget decisions are preferred over those that are subject to annual budget cycles and changes in government.
- 2. Establish unequivocally the commitment and the credibility of global policies required to reduce emissions.** Political commitment and leadership of major economies are crucial to create the necessary integrity of the financial architecture.
- 3. Ensure that financing instruments used minimise regulatory risk to investors;** the architecture should be capable of providing risk mitigation instruments at scale and effectively. Instruments that provide financing upfront (e.g. concessional debt), financing provided over the investment's lifetime which lead to stable and predictable cash flows (e.g. feed-in tariffs), and other forms of financing for which the amount is known will be preferable over financing that is subject to significant price fluctuations (e.g. carbon credits from the current carbon markets). Since Governments face lower discount rates than typical investors, value can be created by providing support upfront, as long as the financing governments have control over the conditions for delivery of the project and its mitigation or adaptation impact (e.g., ability to control that wind farms are connected to the grid and maintained over their lifetime).
- 4. Ensure developing countries' plans for low-carbon growth are instrumental in determining the required financial flows,** and that the domestic policy and regulation put in place creates an environment conducive to investment, including creating a level playing field for low-carbon energy solutions over high-carbon options. This will require not only clear regulatory frameworks but also comprehensive plans for

supported mitigation. These plans could identify clearly the scale and sources of public and private funding required, thus laying the foundations for creating and maintaining a viable project pipeline.

5. **Ensure that the transfers do not result in high transaction costs**; this means that processes for providing financing should be standardised as much as possible (e.g. use of standardised baselines for certain abatement technologies).
6. **It should be operational as soon as possible** to ensure that investments made from now onwards do not lock us in high-carbon path dependency. At the same time, interim measures should not prejudice or replace, but rather supplement and support, the financing architecture that will emerge from the Copenhagen process.

5.2. Architectural options

The international financial architecture will need to consist of systems that **collect funding** (typically through the carbon markets and different forms of public finance), **allocate funding** (typically through designing carbon market flows or through ring-fenced international support funds) and then **deliver support** (typically through project, programmatic or sectoral delivery mechanisms). Different proposals have been put forward within and outside the Copenhagen negotiations for how to reform carbon markets and raise and allocate financing to developing countries. We use the criteria identified above to discuss some of these proposals.

5.2.1 Carbon finance: CDM and lessons for private sector involvement

The offset market will need to play an important (albeit limited) role for delivering financing to developing countries. The current system will need to be reformed to meet the requirements for mobilising large scale private investment in an efficient way.

The Kyoto Protocol has laid the foundation for the offset financing mechanisms, through which Annex-I countries can ‘offset’ their domestic emission caps by financing abatement in non Annex-I or developing nations. To date, the project-based Clean Development Mechanism (**CDM**) has been the key offset finance mechanism and yet it has been limited in scope. The CDM has become an important financing mechanism for incremental costs but is well short of the scale required. CDM financed 140 MtCO₂e of abatement in 2008, compared to 12,000 Mt of total abatement needs in developing countries by 2020, or just about 1% of total requirement.

The future scale of the offset markets and the role of the private sector will critically depend on the caps adopted by developed countries, the share of emissions covered by private sector emission trading schemes, rules for offsets entering developed country markets and how the current “AAU overhang” from the first Kyoto Protocol compliance period is addressed .

Current proposals for caps put forward by developed countries add up to about 10-16% below 1990 emission levels, well short of the 25%-40% recommended by the IPCC. Taking into account the limitations of offset supplies, it has been estimated that offset markets could deliver 700-1,600 Mt of abatement by 2020. If developing countries were to increase their caps to a collective 25% below 1990 emissions, offset demand could increase to around 3,000 Mt by 2020. To be able to deliver this increase from the supply point of view, transaction costs in the current CDM system need to be reduced (e.g. through standardisation), and delivery mechanisms created that allow scale up, e.g. through programmatic and sectoral schemes.

Assuming offset demand is roughly proportional to the share of emissions covered by Emission Trading Schemes and assuming all major developed countries put in place trading systems, an estimated 2,000 Mt of offsets would be bought by private sector compliance buyers covered by the Emission Trading Schemes, while about 1,000 Mt would be purchased by Governments. Clearly this split will depend heavily on the rules governing access to carbon markets. Under current proposals, up to 1,500 Mt would be allowed into the U.S. ETS (Waxman Markey bill), while in the EU this would stand at only between 100-200 Mt per year (20% cap for the EU).

The effectiveness of carbon markets is at risk from an overhang of around 7,000 Mt¹ of “hot air” accumulated in the first Kyoto Protocol compliance period and the risk of new “hot air” in the next compliance period. Both taken together could reduce the demand by up as much as 700 Mt per annum.

Lastly, government offset markets should be made more effective by stabilising the demand of government buyers for offsets. A key issue in the first compliance period has been that governments have waited until well into the 4th year of the Kyoto Protocol compliance period until starting to purchase any significant amount of offsets. This could be improved by agreeing in Copenhagen the need to comply with interim targets and not only the caps agreed for the end of the period.

Keeping in mind the criteria set above, it will be important, in order to facilitate private investment, that the reformed CDM system creates **predictable and reliable international flows at scale**. It will be important that rules are put in place not just for the next few years but for a 20-30 year time horizon, with regular compliance checks. Furthermore, increasing the scale of carbon markets, e.g. by creating schemes similar to the EU Emissions Trading Scheme (**EU ETS**) in new geographies (e.g. Japan), expanding the reach of the existing schemes, and linking them together and/or putting in place sectoral trading mechanisms would further enhance the predictability of carbon market flows. This will substantially **reduce the risk to investors**. It is also important that offset financing is part of a broader policy and regulatory enabling structure in the developing country. Offset finance is unlikely to be the sole financing mechanism for individual projects, so **clear plans** on financing action in developing countries, including through domestic policy and regulation, will be crucial. The architecture should also

¹ Currently there are an estimated 7-10 Gt of “excess” AAUs in the system from the first Kyoto Protocol compliance phase, mostly from Russia and the Ukraine.

ensure that **the transfers do not result in high transaction costs**: for carbon markets this means both **scaling up of offsets from project-based to programmatic and sector-based schemes** and reduction of transaction costs in the process, e.g. by use of standardised baselines.

5.2.2 Public finance: options for raising, management and distribution

As Governments determine how to best use public monies to achieve stringent emission targets, they will need to design the global financial architecture to deliver the necessary financial flows to developing countries. For a public funding point of view, it is important **how funding is raised and how it is being delivered**.

To achieve a 450 ppm pathway, which G8 Governments have committed to in L'Aquila in summer 2009, financing of \$95-145 billion / €65-100 billion² will be required on average between 2010 and 2020. Under a 25% target for the developed world, private sector carbon markets could deliver an estimated \$22-44 billion / €15-30 billion³ leaving as much as \$73-\$102 billion / €50-70 billion to be delivered by other sources of funding.

Financing for the international system could be **raised** as follows:

- Developed country Governments could use their balance sheets **to raise debt at concessional rates** and provide concessional debt or guarantees for developing country investments.
- **Auctioning AAUs** to developed country Governments – the total flows will depend on prices in the AAU markets, the amount of reductions delivered domestically in developed countries and the offset supply.
- **Levies on international aviation or marine** activities could create a flow of finance that is independent from government budget cycles.
- **Direct government transfers**, e.g., based on a formula accounting for responsibility for emissions and ability to pay.
- Developed countries might use **auctioning of domestic carbon credits** into the EU or US ETS (if and when it is established) to raise financing domestically; in the US, under the proposed Waxman-Markey Bill, a share of auction revenues has been earmarked specifically for financing deforestation measures, for example. However, it is likely that any such financing would not be incremental to the mechanisms outlined above but rather counted towards government transfers or be used to fund AAU auctions.

² All conversions in this section are based on the currency exchange rate available as of 15 September 2009.

³ Assuming effectiveness of financing flows from ETS markets is maximised through market interventions such as discounting of offsets, taxation, or intermediation that allow to finance mitigation measures at or close to their average cost.

One of the questions concerning the features of the financial architecture is **to what extent the fund architecture should be managed and distributed in a centralised or decentralised manner.**

In the **centralised option**, one global fund, or a series of sector-specific funds, would gather and allocate the financing to the developing countries. Those funds could use the same mechanisms (project, programmatic, sectoral) for cash flow support as the carbon markets would use – but the sources of finance would be public funds rather than revenues from carbon credits. The G77 and Mexico have put forward proposals with centralised fund architectures. The funds could potentially be managed by existing international finance institutions (IFIs). Looking at this proposal in the context of the criteria discussed earlier, a centralised solution, depending on the reliability of the funding commitments, could contribute to the predictability of transfers to the developing countries. Regardless of how funds are raised, it would create a central hub for climate finance which would be easy to monitor and influence. The private sector could be directly involved in its design to ensure that mechanisms are well suited to disburse funds in a way which promotes private sector investment, for instance through well established mechanisms in the IFIs that the private sector understands well and is used to. However, the institutional design of a centralised fund, and the control over the fund's allocation decisions, could become cumbersome due to the different interests of member countries. This could make the institution ineffective and slow, undermining the predictability of fund disbursement – hence decreasing the attractiveness of this option to the private sector. Therefore, a global fund is likely to only ever be able to deliver part of the solution and may need to be complemented by a more decentralised network of funds.

In the **decentralised option**, – a network of bilateral and multi-lateral funds would be at the heart of the system, supported by a global fund that would finance mitigation and adaptation measures not covered by the decentralised networks. In this system, developed countries would have a choice over where to allocate their contributions, choosing recipient sectors and countries and negotiating the terms of support directly. The European Union and multiple third parties (such as WWF and KfW) have put forward proposals for decentralised fund architectures. A decentralised system could be built on **a system of bilateral agreements that could be deeper and have greater longevity than relationships between a global fund and individual countries and require a strong global oversight function.** As a result, the decentralised solution would offer fewer guarantees of predictability of financial flows initially, but once an agreement is reached and a bilateral partnership is established, predictability may improve. Additionally, the existence of a global fund would further enhance predictability. It is important to note that political considerations might drive some funding decisions, which would damage the sense of long-term commitment to emission reductions and hence decrease the confidence of the private sector in investing. On the other side, a decentralised mechanism would not exclusively rely on a new global fund, which would require a complex political agreements on its governance, as it could rely on the existing network and comparative strengths of the international financing and development institutions

complemented by a set of new national funds which could be established more quickly on a national level. As a result, financing is likely to start flowing earlier than under a global fund architecture. Money would flow to the countries that reduce emissions most efficiently, aligning the incentives of public and private financiers. **To make this system effective, a global oversight function would be required** that provides coordination, standard setting functions in particular on how to measure contributions by developed countries, match sources and uses of funds and support the emergence of a set of shared rules, conduct norms and best practise. This function would be critical to avoid misuse of funds and gaming of the system.

Under both systems, **low carbon growth plans of developing countries would be important** to define a credible pathway to a climate resilient, and low carbon economy that creates confidence in the private sector and to establish the financing requirements for this transition – outlining the incremental financing needs to be supported by developed countries on top of self-financing commitments by developing countries.

5.3. Mobilising private investment: innovative architectural options⁴

As outlined above, the international finance system will most likely require **a series of new funds, bi-lateral, multi-lateral and truly global in nature**. The following two subsections outline two specific, innovative ideas for funds that could complement the system of national, bi-lateral funds and a global fund recommended for establishment under the UNFCCC in the preceding paragraphs.

5.2.3 Challenge funds

To ensure investment can be mobilised quickly and in any case by 2011, **“challenge fund” mechanisms** could be put in place by the multilateral development banks (MDBs) in the near to medium term. The challenge fund mechanism would involve the international and regional MDBs creating and bidding out preferential access to **“packages of support”** i.e. standardised, easily accessible and sizeable packages of instruments highlighted in the remainder of this report as exhibiting high private finance leverage potential, for example:

- Credit lines;
- Guarantees;
- Debt financing;
- First loss equity positions;

⁴ The ideas contained in this subsection have been developed in cooperation with the World Economic Forum Task Force on Low Carbon Economic Prosperity (Investment Working Group), a group of experts drawn from multinational companies, financial institutions, international organisations, think tanks, universities and NGOs across the world convened by Prime Minister Gordon Brown in Davos, January 2009.

- Carbon finance facilities; and
- Technical assistance.

Fund managers would tender for the bid, explaining how they would leverage the mechanisms on offer to generate investment flows for low-carbon technologies, energy and other sectors of climate change mitigation and adaptation. Based on the reputation and track record of the fund manager, additional investors may join the fund manager's bid, offering the relevant MDB more confidence about the offer. In addition, the packages of support could also be available for end-investors (such as individual project sponsors).

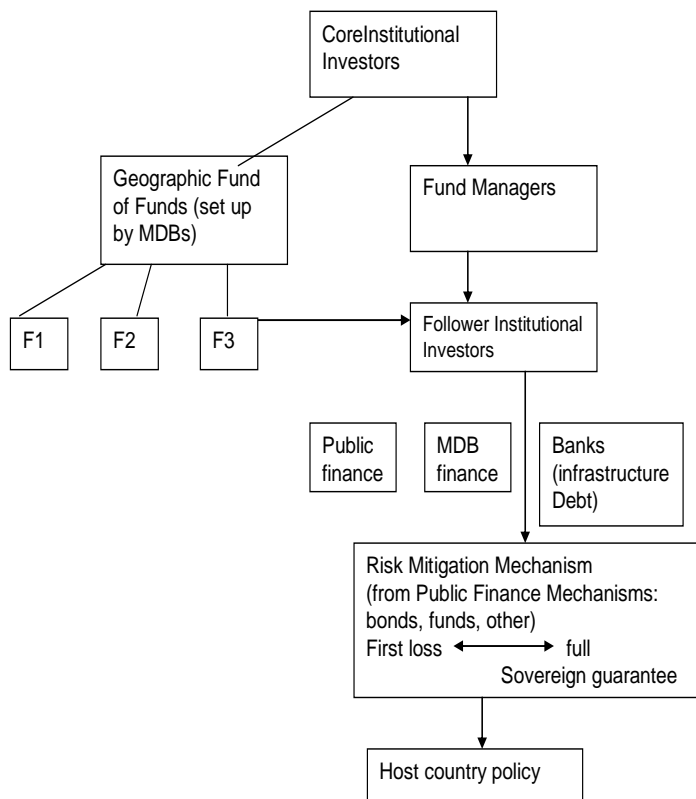
To achieve the necessary scale, it is important that multilateral and bilateral development finance institutions provide support to **funds** rather than individual projects. Most institutional investors such as pension funds invest in funds rather than individual projects. The minimum investment size for these institutions is usually significantly larger than that of individual projects. These institutions therefore need to invest in funds that aggregate a number of investments and also diversify risk as this provides them with certainty that potential losses will be mitigated at the fund level, and that sufficient numbers of attractive deals will be available to the fund.

The challenge fund structure would be relatively easy to create and has the potential to offer scaled-up financing for climate mitigation and adaptation at greater scale and more effectively than is currently the case.

5.2.4 Cornerstone Fund structures for low carbon energy and technologies

As mentioned previously in the report, institutional investors (including sovereign wealth funds, state, public, corporate and private pension funds, insurance companies, private banks and others) have significant asset bases and tend to look for predictable infrastructure-style rates of return and long investment tenors. This accords with the investment profiles of the energy sector, and some aspects of the technology, forestry and (to a lesser extent) adaptation, sectors. However, the risk profile (whether real or perceived) of the said sectors means that there remains a gap between the rate of return required by the institutional investors and the rate of return currently obtainable through investment into such sectors. Moreover, institutional investors' internal management structures and the size of their asset base mean that they favour large-scale investments with limited transaction costs due to targeted due diligence.

This is where the MDBs can play a potentially transformational role.



With the support and convening power of the regional MDBs⁵, regional **cornerstone funds** (CFs) could be established with a view to leveraging significant private sector financing for low carbon energy, technology and other sectors of climate change mitigation and adaptation (see graph below). Regional CFs (such as the India CF, China CF or Latin America CF) would in their turn invest into smaller funds (such as the China Renewable Energy fund, the India Green Building fund etc) which themselves would invest into individual projects in the relevant region.

The investor base of each regional cornerstone fund would consist of institutional investors such as pension funds or sovereign wealth funds who, through a (inter) governmental initiative, would be invited to commit some equity financing to anchor the cornerstone fund. A public-private entity, which had the confidence of institutional investors, would be responsible for overseeing the management of this new cornerstone fund. This could be the MDB itself, or a

⁵ Alternatively, the CFs could be set up as a specialised institution operating separately from the MDBs; however, given the MDBs’ convening power, regional expertise as well as their involvement in reducing risk and raising additional financing, there appears to be a strong case for their institutional involvement in the setting up of the CFs.

new entity it helps to create, perhaps something similar to the model of the US Overseas Private Investment Corporation⁶. The entity would then invite leading global investment management firms to establish individual funds by bidding for anchor financing from the CF. Each investment management firm would be expected to raise additional financing based on this anchor equity from the wider range of institutional investors who invest in global emerging markets. Since most of the projects the various new funds would subsequently invest in would have infrastructure style investment characteristics, each fund should potentially be able to secure at least a 66% debt to equity ratio for its project portfolio, a proposition that would be expected to have the ‘in principle’ support of the largest infrastructure-providing banks and debt capital markets⁷.

In addition to establishing the CFs, the MDBs would also play a critical role in **reducing the risk** of the investments made by the end-funds (by providing, for example, risk mitigation instruments such as guarantees or insurance, or through carbon finance) as well as potentially **raising and underwriting additional financing**. The bids from fund managers for portions of CF equity will depend greatly on the degree to which the MDBs could provide access to their public finance mechanisms at the fund as well as the project level.

This, then, would ensure that the financing instruments highlighted throughout this report as playing a potentially transformative role in de-risking and raising additional funds for climate mitigation and adaptation investments could be deployed at scale, supporting (rather than crowding out) private finance.

The CalPERS experience

Something similar to the proposed cornerstone fund structure has been successfully applied in the past; of most relevance being the recent California Public Employees Retirement System (CalPERS)-led “Green Wave” programme which has catalysed clean energy and clean technology funds across the US. In 2005, CalPERS allocated US \$200 million / € 137 million as an anchor investment into qualified clean sector investment funds. This initial allocation was invested by a manager into seven premier clean technology venture capital funds which received total commitments of US \$2 billion / € 1.37 billion. Following the successful deployment of the initial funds, the manager established a clean technology Fund of Funds with commitments of \$400 million / € 274 million from CalPERS and another \$299 million / € 205 million from New York City pension funds. With a typical maximum contribution of 20% in any one fund, this programme catalysed investment of another \$4 billion / € 2.74 billion in clean technology venture capital firms, funding hundreds of early to mid-stage clean technology and energy companies.

⁶ For more information on OPIC, see <http://www.opic.gov/>.

⁷ This debt in turn could be supported if necessary by “green” debt capital market mechanisms currently being widely discussed (green bonds etc).

It should be noted that this model is currently in the early stages of development and therefore necessitates **the establishment of a strategic initiative and a high-level public-private design forum** which would elaborate the proposed structure and its governance arrangements; convene the interested private sector participants who may be willing to commit anchor financing; and build regional consensus on the functions and investment priorities etc.

As a final remark, it must be highlighted that the two models outlined above (the challenge fund and the cornerstone fund) are **not mutually exclusive**, with the “packages of support” idea offering an effective interim solution that may later coexist side-by-side with the cornerstone fund structures to ensure flexibility and breadth of financing mechanisms.

5.4. Recommendations

► Carbon markets

The **architecture of the carbon markets is crucial to creating the right incentives for the private sector**. Hence its reform from the current model should be a priority. Its reform should involve:

- Setting tight caps in developed countries (25-40%);
- Increasing coverage of existing ETS, and linking existing and emerging ETSs;
- Creating predictability by establishing targets for the 15-20 year horizon and ensuring compliance on a regular basis (not just the end of the period);
- Reducing transaction costs by using standardised baseline setting approaches;
- Increasing scale by moving towards programmatic and sectoral schemes;
- Addressing the AAU overhang of the first Kyoto Protocol compliance period.

► Public funds

- **Multiple sources of funding should be used to create commitments for developed countries**, e.g. through AAU auctioning, an agreed formula for international transfers (e.g. as per the Mexico proposal), and the use of international sources of funding such as bunker fuel levies.
- On the fund architecture, **a balanced solution could include a bilateral fund network in combination with a global fund that addresses adaptation and mitigation measures not covered by the bilateral network**. This solution should be accompanied by a strong oversight function that provides system coordination, accounting for the

contribution of different parties, matching sources and uses of funds, and supporting the emergence of a set of shared rules on conduct norms and best practices.

- It is important to ensure the **private sector is directly involved in designing elements of the architecture** that will have an important impact on the perceived riskiness and hence on private financial flows. These include:
 - Scale and predictability of the public money commitments;
 - Stability of the targets in developed countries and hence of the demand for carbon credits on the offset markets;
 - Linking up of the different carbon markets.
- The developing countries should be encouraged to develop their **low-carbon growth plans** in a way that is country-led and that addresses the concerns of the private sector, in particular in terms of minimising local regulatory risk and supporting a viable project pipeline, and hence encourages early private financial flows.
- Be pragmatic in terms of encouraging early mechanisms of delivering finance, particularly **decentralised mechanisms** which can be made to operate quickly and have low transaction costs. It is important that such mechanisms inspire, supplement and support the financing architecture that will emerge from the international climate negotiation process in Copenhagen and beyond.

► **Cornerstone funds and challenge funds**

- Cornerstone funds and challenge funds offer potentially effective means of mobilising private financing for climate mitigation in the short term (challenge funds) and the medium to long-term (cornerstone funds). Developing these models further would require **the establishment of a strategic initiative and a high-level public-private design forum** which would elaborate the proposed structure and its governance arrangements; convene the interested private sector participants who may be willing to commit anchor financing; and build regional consensus on the functions and investment priorities etc.