

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

Summary for Policy Makers

1. **The past high-carbon growth of the rich world is responsible for the bulk of current concentrations of greenhouse gas emissions (GHGs) in the atmosphere.** However, given the scale of the challenge of reducing global emissions from the current level of almost 50Gt to around 20Gt by 2050, together with the projected rate of economic growth in large developing countries, reductions of this magnitude will be impossible without the participation of developing countries.
2. **Achieving a global agreement on climate change will require significant financial flows to developing countries to support low-carbon growth.** Growth is indispensable for developing countries to tackle poverty. But this growth will need to follow a low carbon trajectory so that global climate change objectives are not compromised. Poverty and climate change are interdependent: if we fail on one, we fail on the other.
3. **In order to halve global emissions by 2050, 17Gt of emissions reductions will be needed by 2020 relative to BAU, of which 12Gt¹ could be delivered by developing countries.²** About 3Gt of this 12Gt could be achieved through energy efficiency improvements, which will require upfront capital but could save up to US\$40bn a year between 2010 and 2020. The remaining 9Gt of potential abatement in developing countries will need to be undertaken at positive cost.
4. **To achieve such emissions reductions, an additional \$80-\$190bn³ per year of upfront capital in addition to business as usual investments would be required between 2010 and 2020** (i.e. additional investment on top of energy investment, which is projected to be around \$600bn per year between 2007 and 2030 in non-OECD

¹ Project Catalyst (2009). At a carbon price of US\$40.

² This goal would be consistent with long-term concentrations remaining below 500ppm CO₂e - and if concentrations are reduced further from there to 450 ppm CO₂e there would be a good chance of holding temperature rises below 2°C relative to the pre-industrial era.

³ Project Catalyst (2009). The lower end of the range assumes substantial savings from increased energy efficiency.

countries⁴). Furthermore, the total incremental finance flow (i.e. operating costs and cost of capital) could be around \$100-\$150bn per year⁵, of which:

- **\$80-\$120bn per year** would be the financing required for **mitigation** in developing countries.
 - **\$15-\$30bn per year** would be required for **adaptation**. Other estimates further suggest that the total cost of adaptation in developing countries could be as high as \$85bn per year by 2015, with this figure rising in subsequent years.
5. **Carbon market finance may, in the longer term, generate sufficient additional investment to meet stringent emission targets.** Purchases of emission offsets by developed countries could generate as much as US\$20-40bn a year by 2020⁶ and another US\$7-30bn could be collected through auctioning revenues. Whilst it is crucial to move swiftly at Copenhagen and beyond to reach agreement on scaling up the carbon market, financial flows to developing countries will not appear overnight. Future targets need to be stringent enough to create demand for credits. Building confidence in it will take time and may require substantial public intervention to kick-start investment. It will therefore be crucial to consider instruments to leverage private finance flows whilst pursuing measures to reform and build the carbon market.
 6. **The private sector alone cannot deliver all the investment in mitigation that will be needed** because of the uncertainty surrounding the commercial viability of some mitigation projects. This uncertainty stems partly from a lack of confidence in governments' commitment to adopt stable regulations and standards, and hence on the prospect of sustained carbon pricing. Whereas some of the risk of investing in low-carbon technologies and projects is market related (for example fluctuations in fossil fuel prices), some of it also relates to the direction of public policy. Public finance should therefore be used to take on those elements of project risk associated with public policy delivery, leaving market related risk to market instruments⁷. With the introduction of strong regulatory frameworks, the prospects of a sustained carbon price improve and the need for public money will diminish. Carbon markets will develop and deliver more predictable returns on investment in emission reduction projects.
 7. **With this in mind, government intervention should be guided by three goals:**

- a. **To correct market failures, of which there are:**

⁴ IEA (2008) *World Economic Outlook projections under reference scenarios*

⁵ Project Catalyst (2009)

⁶ Including carbon market interventions (under an optimistic assumption of a 25% cap in developed countries).

⁷ For more information on case studies where public finance has been deployed successfully and unsuccessfully to reduce risks associated with public policy, see: Vivid Economics, *Public Finance Mechanisms to scale up private sector investment in climate solutions*, Commissioned by UNEP & Partners, October 2009.

- **Environmental market failures:** these arise as a result of not pricing GHGs in spite of the damage they cause. Creating a price for carbon, through taxes or markets, or a shadow price through regulations, are all examples of instruments that can potentially be used to address this externality.
 - **Innovation and technology market failures:** often technology and innovation are slowed down by market failures that stem from protecting the private benefits of innovation research.
 - **Finance markets failures:** examples of this include asymmetric information between borrowers and lenders (particularly in poorer countries) and high transactional costs. Instruments that could address these issues include concessionary debt, debt guarantees and financial insurance, as well as policy interventions such as capacity building schemes for local banks.
- b. **To improve the credibility of regulations.** Policy makers should demonstrate their commitment to strengthen the regulatory framework for climate change mitigation, to enhance its credibility and encourage private sector investment. For example, policy commitments that include financial incentives to reach set targets can boost credibility. Confidence that emissions reductions have actually been achieved is also vital: an incentive system whereby verification standards (similar to the ISO quality standards) are sought by the project operators themselves would be a useful first step.
- c. **To ensure equity.** Moving to a low-carbon economy will involve significant allocation of resources to developing countries. However public intervention may be necessary to ensure that developing countries have equal access to private investment. An argument can also be made for safeguarding future generations, ensuring that their right to a stable climate is protected against short-term benefits.
8. **When considering the most appropriate government intervention, the following criteria should be applied:**
- a. **Appropriate risk allocation between the private and public sectors.** The private sector will invest to the extent that it expects a competitive risk-adjusted return. The role of the public sector, therefore, should be limited to reducing risks associated with market failures, policy credibility and equity considerations. To go beyond this would be inefficient, stretching the financing capacity of governments and causing deadweight loss. Government intervention would also risk ‘crowding out’ market players that were otherwise ready to take on market-related risk.
- b. **Alignment of incentives between public and private sector.** Virtuous cycles, whereby credible policy change generates private investment at scale, are only possible if the private sector and governments face similar incentives. If

governments face self-imposed financial incentives to meet their emissions reductions commitments, and private investors face market pressure to deliver returns on their emission reduction investments, they will then be in a strong position to work together. Indexed bonds or equity co-investment are examples of possible mechanisms to align incentives.

- c. **Scale, scope and usability.** Mechanisms proposed must be able to deliver the scale of change required: this means large-scale financial transfers, but also large-scale policy change. Simple and clear financial structures, paired with administrative simplicity, will be crucial to attracting institutional investors. Climate change action plans in developing countries are an important opportunity to set in place simple but effective policy frameworks.
 - d. **Political acceptability.** Mechanisms must be set in political context. For example, the current financial crisis will imply some tough choices in terms of use of public resources, and public intervention needs to be characterised by efficiency and public accountability. With respect to developing countries, mechanisms and measures related to investment in emission reduction projects need to complement and be integrated into existing national policy instruments.
9. **When using public finance to leverage private investment, two distinct issues need to be addressed:**
 - a. First, **raising public finance.** While there are a number of options for doing so (including through taxation or auctioning of emission rights), this paper focuses predominantly on raising public finance through debt issuance on the capital markets.
 - b. Second, **spending public money** to mobilise investment in climate change related activities in developing countries. Some of this money will take the form of direct public transfers to developing countries, for example through grants for technical assistance. Public money could also be used to directly leverage private investment, for example through instruments such as concessional debt or risk mitigation (guarantees and insurance). Clearly, public finance ought not to be used to substitute for investments which can and are already being made through private finance.
10. **It is likely that governments will use mostly traditional instruments, including treasury bonds, to raise public finance. However using bonds innovatively could, in addition to raising finance upfront, increase the credibility of governments' commitment to policy change** (e.g. tying the repayment of the bond principal and interests to the governments' fulfilment of their emissions reduction targets). Using the criteria described above, Table 1 reviews a number of proposed financial instruments, including general bonds, bonds linked to specific investments (green bonds), energy

efficiency bonds, indexed bonds and long-term options. The review produces some important conclusions:

- a. Some of the proposed instruments (in particular indexed bonds/long term options) could play an important role in improving the credibility of government policy, setting out clear financial incentives for governments to deliver the regulatory change that will at the same time increase the profitability of investments in low-carbon projects.
- b. The synchronised release of similarly structured bonds by major economies (particularly appropriately indexed bonds) would be most powerful, as it sends a strong signal of coordinated commitment to policy change.
- c. The structure of bonds should be as standardised as possible in order to attract institutional investors.
- d. Energy efficiency bonds could be effective, and would benefit from being issued at the local level (municipality level in the US), since they rely on widely spread returns on energy savings in households and commercial operations. Federal Government guarantees would ensure that they reach the widest possible financing pool (in the US this could mean a market of US\$500bn a year).
- e. Some of the proposals, particularly the energy efficiency and green bonds proposals, could be very powerful instruments for developing countries themselves to raise funds in global capital markets.

Table 1 – Analysis of financial instruments that could be used to raise public finance to leverage private investment

Instruments	Instrument description	Criteria			
		Appropriate risk allocation	Alignment of incentives	Scale, scope and usability	Political acceptability
Traditional government bonds	<ul style="list-style-type: none"> • Money raised through general borrowing from governments • Sovereign guarantee hence higher rating • Standard characteristics (duration, coupons, etc) to appeal to institutional investors. • Treated as traditional government borrowing, budgets used directly to support developing countries' projects 	<ul style="list-style-type: none"> • Government bears risks related to projects financed by the bonds • No formal link between risk and specific management of the regulatory framework on emissions 	<ul style="list-style-type: none"> • No additional incentive for governments to deliver on the regulatory framework (e.g. incentive to create a carbon market) 	<ul style="list-style-type: none"> • Ideal for raising large investments through institutional investors. However, limited by current concerns about borrowing • No effect in terms of pushing large policy changes. • Administrative simplicity 	<ul style="list-style-type: none"> • As hard as any government debt issuing at this stage
Bonds linked to specific investments (green bonds)	<ul style="list-style-type: none"> • Issued by a government institution with sovereign guarantee (similar to the World Bank green bonds, with stronger link between bonds and investment) • Raised money used specifically to co-invest with the private sector in emission reduction projects in the developing world • Returns from investment (both carbon market revenues and additional revenues) would pay for 	<ul style="list-style-type: none"> • Risk remains with government • Returns from projects that governments invest in are dependent not only on the ability of governments to implement regulatory framework but also on other factors (e.g. evolution of global carbon markets) 	<ul style="list-style-type: none"> • Both public and private sectors have similar incentives to ensure maximum returns from the projects • As a result, greater incentive for governments to implement an efficient regulatory framework. 	<ul style="list-style-type: none"> • Potential for large investments from institutional investors if bonds have sovereign guarantee and standard characteristics • Bonds could be administratively easy to develop, but institutional set-up could be complex 	<ul style="list-style-type: none"> • Impact on budget similar to traditional bonds (perhaps slightly different depending on the nature of the assets financed with the revenues). Bonds could be marketed successfully as specific 'green instruments', hence increasing their political acceptability

Instruments	Instrument description	Criteria			
		Appropriate risk allocation	Alignment of incentives	Scale, scope and usability	Political acceptability
	bonds' coupons and interest				
Indexed bonds	<ul style="list-style-type: none"> • Could be combined with traditional bonds or green bonds • Payments of coupons/interest on bonds indexed to carbon prices or national emission reductions to provide an incentive for governments to deliver an effective regulatory framework to reduce emissions (if carbon prices too low or emission reduction targets are not met, bonds would pay higher interest) • Could serve as a hedging instrument for companies investing in renewable energy or emission reduction business 	<ul style="list-style-type: none"> • Government has only indirect control over risks associated with returns (e.g. risk relating to the regulatory framework) • Bond buyers would face the risk of lower returns if the government achieves its objectives fully: hence it should be treated as a good hedging instrument only 	<ul style="list-style-type: none"> • Aligns incentives between financiers in emission reduction projects and the government, as both would want higher carbon prices or emission targets to be met (depending on indexing) • Bond buyers would have opposite incentives. However, because it is a hedging instrument, bond buyers are likely to be the same agents as financiers in emission reduction projects 	<ul style="list-style-type: none"> • Niche product, because only attractive as a hedging instrument • Indexed bonds set the right policy incentives, but not as powerful as other instruments in creating radical policy change 	<ul style="list-style-type: none"> • Potentially hard in current context because of burden it creates on public budgets • Risk would need to be limited by putting a ceiling on returns • Treating this as a niche product could make it more acceptable.
Long-term option contracts for carbon	<ul style="list-style-type: none"> • Put options provide the buyer with the right to sell a carbon emission permit at a specified price/date. The option seller is obliged to purchase the carbon asset if the option is exercised by the buyer 	<ul style="list-style-type: none"> • Governments issuing put options would face the risk of carbon prices lower than the option's exercise price • Appropriate alignment 	<ul style="list-style-type: none"> • Sale of put options by governments would demonstrate commitment to a carbon price floor and would provide upfront 	<ul style="list-style-type: none"> • Mostly hedging instruments, as indexed bonds • Provides an instrument to limit the carbon price risk and reach 	<ul style="list-style-type: none"> • If issued at scale, the burden on the public purse could be substantial

		Criteria			
Instruments	Instrument description	Appropriate risk allocation	Alignment of incentives	Scale, scope and usability	Political acceptability
emissions	<ul style="list-style-type: none"> •Source of upfront finance for governments issuing options. Buyers would then be businesses hedging the risk of investment returns linked to the carbon price 	of risks, as with indexed bonds	finance <ul style="list-style-type: none"> •Governments could differentiate price of put options according to the investors (e.g. charging a lower price to CCS investors) •Safe hedging instrument for companies investing in emissions reductions, while increasing government's incentive to minimise policy and regulatory risks 	substantial scale. <ul style="list-style-type: none"> •Characteristics of options could be determined according to governments' policy priorities on different technologies •Does not require a fully functioning option market to price the option contracts 	
Energy Efficiency Bonds	<ul style="list-style-type: none"> •Municipal financing district issues bonds to raise capital for loans used to finance energy efficiency measures •Currently proposed in the US and called Property Assessed Clean Energy (PACE) bonds. Property owners borrow money from a "municipal financing district" to finance efficiency measures and 	<ul style="list-style-type: none"> •Limited risk of capital impairment for the lenders, given property tax liens are senior to first mortgage debt •Individual households do run the risk that their energy efficiency improvements are not large enough to be 	<ul style="list-style-type: none"> •Aligned incentives between lenders and households. Lenders need to ensure households are in a position to repay loans through the property tax surcharge, and hence want to ensure large energy savings. Similarly, households 	<ul style="list-style-type: none"> •In the US, the market for municipal bonds is relatively small (around \$6bn) •Given low risk and debt seniority, could be viewed as treasury bond surrogates, thus receiving federal guarantee, implying a 	<ul style="list-style-type: none"> •Political acceptability would be quite high, as no added risk compared to normal debt issuing, while focus on delivery of energy efficiency by governments

Instruments	Instrument description	Criteria			
		Appropriate risk allocation	Alignment of incentives	Scale, scope and usability	Political acceptability
	micro renewable energy, and repay over 20 years through an annual special tax on property tax bill	repaid through the 20 years loan, although this risk is minimal	want to get the maximum savings from their investment	significantly larger market (US treasury bond markets currently over \$500bn)	
Increased use of emissions offsets	<ul style="list-style-type: none"> •Regulated entities required to cover their emission liabilities through a large number of offsets generated in developing countries, thus creating high and early financial flows to developing countries •This money could then be used to support and finance projects in developing countries 	<ul style="list-style-type: none"> •Although no financial risk to governments, there is a strong environmental effectiveness risk, as effectiveness of early emission reductions investments in developing countries may be questionable •Potential to access larger amounts of cheap abatement opportunities early on 	<ul style="list-style-type: none"> •Governments would have to take on the responsibility of ensuring that emissions reductions paid for upfront by regulated entities are actually achieved 	<ul style="list-style-type: none"> •Potential scale of offsets purchased by regulated entities is substantial (especially in Europe and even more so in the US), hence creating a large pot of money available for investments in developing countries in the short-term •Administratively simple, but potential negative effect on domestic investments to reduce emissions 	<ul style="list-style-type: none"> •No additional financial liability for governments •Could be very difficult for governments to guarantee the environmental effectiveness of the measure, hence creating potential political liability

11. **The private sector does not yet take into account expected returns from carbon revenue streams when making their investment decisions.** Scepticism prevails about the ability of developing countries to create the appropriate enabling environments for investment. Public interventions to support developing countries as they put in place the **regulatory frameworks and policy instruments** will be important. Equally, **public financing instruments** will be paramount in stimulating private investment into climate mitigation and adaptation in developing countries whilst carbon markets continue to develop.
12. **The design of public financial instruments to support investment in key sectors in developing countries (new technologies, energy efficiency, forestry and adaptation) will need to take account of the following points:**
 - a. **Policies and regulatory frameworks** to clarify, enhance and reduce the risk of unpredictable or uneven carbon revenue streams associated with low-carbon energy and technology investments, at global, national and local levels, are a priority.
 - b. **Concessional debt** is an instrument favoured by the private sector. In many cases it is best disbursed through domestic banks (thus increasing local capacity).. Concessional debt is key to many mitigation examples, including low carbon technology, energy, energy efficiency and forestry. Other important instruments capable of leveraging relatively high levels of private finance include **risk mitigation and credit enhancement instruments**, in the form of full or partial guarantees and insurance. The latter are particularly suited to investments in the middle income countries, where access to project finance is generally easier (albeit constrained by the financial crisis) than in the least developed countries.
 - c. **Public procurement** of low-carbon technologies at all levels would play a strong role in creating appetite for investment in both climate mitigation and adaptation.
 - d. **The use of a ‘cornerstone fund’** appears to offer a potentially effective means of mobilising climate finance at scale. Here, large commercially managed regional fund structures would rely on anchor financing from institutional investors, as well as strategic support from public sources, to attract additional equity and debt financing with a view to investing in low-carbon infrastructure projects in developing countries. Regional & Multilateral Development Banks (**MDBs**) could play a key role in both convening the institutional investors and underwriting some of the risk of the cornerstone funds’ end-investments. It will be important to match the ‘cornerstone funds’ with adequate standard setting and monitoring of public support effectiveness to ensure emission reductions.
 - e. **The use of a ‘challenge fund’** could also be effective, whereby MDBs would bid for access to a “package of support” (to include debt, risk and credit enhancement

- instruments) to fund managers who offer the best combination of relevant projects and private finance.
- f. An **enhanced mandate for the MDBs** to leverage private investments for climate mitigation and adaptation should be a key priority. This would be consistent with an approach to strengthening MDBs' ability to play a transformational role in stimulating investment in emerging markets.
 - g. **National action plans** in developing countries, particularly if backed by credible international and domestic financial commitments, will be crucial in generating private investment. As part of national action plans, it will be important to ensure that a **viable deal flow** (i.e. a pipeline of bankable low-carbon energy projects) is created and maintained in developing countries. Here, **public financing** will also be needed for both technical assistance and capacity building.
 - h. **While performance in reducing emissions should be central to financial transfers, determining such standards, whether agreed internationally with the developed countries, or implemented at the national level, should be led by the developing countries and motivated by their national interests and development priorities.**
13. **Decisions on the global financial architecture will have a significant impact on the perceived risk by private investors** and on the returns they expect from their investments. The global architecture can help reduce the regulatory risk to private investors by:
- a. Ensuring that international financing flows covering incremental cost are predictable and reliable and at the scale required.
 - b. Establishing unequivocally the commitment to, and the credibility of, global policies that generate emissions reductions.
 - c. Ensuring that the financing instruments used minimise regulatory risk to investors.
 - d. Ensuring that the low-carbon growth plans of developing countries are instrumental in determining the financial flows.
 - e. Ensuring an acceptable balance between developed countries monitoring the performance of emission reduction projects they co-finance in developing countries and developing countries pursuing their independent plans for low-carbon growth.
 - f. Keeping transaction costs low.
 - g. Becoming operational as early as possible.

14. **Reform and scaling-up of the carbon market** is central to the global financial architecture and its ability to encourage private sector investments.
15. **Private-public dialogue on innovative ways of using public funds to leverage private investment could become much stronger.** Dialogue on the overall design of climate finance architecture could also be improved, so that private funds can flow at the necessary scale and speed. Lack of dialogue – and clarity - on these issues undermines private sector confidence that reliable returns from low-carbon investment can be achieved, and postpones private investment. **An enhanced and more systematic public-private dialogue will be very important going forward.**

Different solutions for different challenges:

This section highlights proposals that are beginning to emerge as a result of public-private dialogue:

Raising finance using index-linked carbon bonds

Index-linked carbon bonds are emerging as one of the most promising instruments for raising finance on the capital markets, since they provide for genuine government commitment that directly addresses the primary concern of private sector investors.

An index linked carbon bond is a government issued bond where, in its simplest form, principal and/or interest payments are linked to the actual greenhouse gas emissions of the issuing country against published targets. **An investor receives an excess return if the issuing country's emissions are above its published government target.** The bond thus provides a hedge against the risk of the issuing government not delivering on its commitments or targets. As a result, this instrument enables investors to put money into projects or technologies that would pay off in a low-carbon future, despite regulatory risks. Potential indexes include: level of greenhouse gas emissions, levels of feed-in tariffs for renewable energy, prices of emission reduction certificates in a trading system, or levels of taxes on fossil fuels.

Once bonds are actively traded, simple derivatives would allow investors in low carbon projects to obtain a hedge against government risk without having to physically purchase the government bond. This would broaden the appeal further to include investors unable to buy government debt, for example because their investment mandate stipulates they must invest in low carbon projects only. Offering such innovative capital market instruments would be consistent with a number of criteria underlying the rationale for government participation:

- **risk allocation:** the choice of index allows the public sector to take on a specific risk and so enables the flow of private sector investment in a specific sector(s);
- **usability:** documentation would be simple, scale would depend on demand for hedging instruments;
- **equity:** a developed country's government could take on specific risks related to low carbon projects in a developing country, so there is scope to transfer the burden to developed countries and enable investment in developing countries.

If governments coordinate the timing and characteristics of the issue of such bonds, they could serve to hedge against risks associated with the collective behaviour of several countries (for example the price of carbon permits on linked markets). This would encourage additional private investment in low carbon projects.

Financing clean energy and low-carbon technologies

Addressing climate change will require a rapid transition to a low-carbon energy mix. This entails the **accelerated deployment and diffusion of clean energy technologies** that are commercially operating today (on-shore wind, small hydro, geothermal, various forms of solar and bioenergy, and hybrid vehicles in the transport sector), as well as the **development, demonstration, deployment and diffusion of new technologies** (offshore wind, advanced solar, plug-in hybrids and electric vehicles, second generation biomass, and carbon capture and storage).

Two facilities are proposed for this purpose, each targeting countries at different stages of development and thereby offering a different mix of instruments. Taken together these facilities, if capitalised with \$10 billion of public financing, would aim to mobilize \$80 billion in private investment flows into clean energy projects in the developing world. These facilities **focus on debt provision**, but they could complement other public facilities such as equity or insurance; and they should explicitly discourage “crowding out” private sector financing,

The first facility would aim to mobilise debt financing for clean energy projects in **middle-income countries**, where financial markets are sufficiently developed but not yet engaged in the low carbon sectors. The facility would **redirect financing away from fossil fuel exploitation to clean energy projects**. It would not directly lend to projects, but offer a suite of instruments, including financial risk management products, political risk insurance and other credit enhancements.

The second facility would aim to **mobilise debt financing for clean energy projects in low-income countries** where the financial markets are insufficiently developed to finance infrastructure investment of any form. Mechanisms to compensate for shallow capital markets would be offered, ranging from direct financing, public-private co-financing through syndications, risk mitigation products for deepening domestic lending, as well as technical assistance to cover the skills gap.

Both facilities would be used to finance actions as part of Low Carbon Growth Plans.

Support of clean energy generation through these two facilities is advantageous for several reasons:

- **The incentives of the public and private investors would be well-aligned under this structure.** The two facilities would profit from the commercial viability of clean energy projects, creating an inducement for shareholder-governments to implement a robust global climate deal.
- **The approach is scalable**, and builds on the experience of the development finance community.

- Channelling the funding through a development bank or agency – which can potentially make a return on the investment – is likely to be **politically acceptable** in the current economic climate.

Promoting energy efficiency

Energy efficiency has an almost universal relevance, for organisations as small as a corner shop to multinational companies and even countries; and it covers everything from double glazing through district heat systems to transport. The broad coverage of energy efficiency across all types of organisation makes financing it somewhat complex. On the one hand, a wide range of mechanisms and instruments are needed to ensure energy efficiency measures are implemented; on the other, it requires high upfront capital expenditure without generating any revenue. Nevertheless, energy efficiency measures reduce costs and **improve profitability**: the energy efficiency savings made are both consistent and reliable and this (together with high upfront costs) lends the sector to loan or debt financing.

Access to capital along with appropriate regulation is crucial to a growing and accelerating energy efficiency market. However, while large organisations in developed countries do not face significant problems in accessing debt capital for efficiency projects, **small institutions and companies in developing countries will and do have difficulty accessing debt for energy efficiency**.

Consequently, MDBs have a key role to play in ensuring that the requisite finance is delivered to all interested parties. However, as this is not their primary mandate, there is a potential requirement for a **new supranational development bank** specifically tasked with delivering finance, expertise and capacity building, particularly in developing countries, to improve energy efficiency in a broader context. Such an organisation could champion best-available technology and offer technical assistance and other support to bridge skills and knowledge gaps in all sectors of the economy.

MDBs (and a new energy efficiency bank, once it is established) have the potential to efficiently leverage public money by bringing additional finance into projects. This is effected by institutional quality but also by requiring projects to have additional sponsor cash, syndicated loans or additional lending from local banks. In addition, guarantees can be used to offset some of the risks associated with energy efficiency; or equity investment from the institutions can be used to direct the policy of companies.

This proposal could be **politically acceptable** as these measures would reduce carbon emissions at relatively low cost and would generate energy and hence income savings. It would also be consistent with the principle of scale, scope and usability, as potentially significant savings could be generated through relatively simple technical adjustments.

Stimulating private investment in forestry

The root causes of deforestation are economic in nature, stemming from under-investment in the sustainable production of land-based commodities, including agricultural products and timber. **Long-term investment is required to effect economic transformations that put forest nations onto a sustainable footing**, facilitating growth and poverty reduction and improving living standards.

Sustainable forestry and agricultural investments can produce attractive returns for private sector investors, but in many countries there is a **significant investment gap** between project returns and those required by investors mainly because of high risks regarding political stability and land tenure security. Underinvestment in sustainable land-based commodity production is exacerbated by a lack of access to long-term debt, credit risks, competition from unsustainably produced commodities, and the limited capacity in many regions to absorb investment.

The investment gap could be closed through provision of targeted finance from MDBs, delivering on an ambitious mandate to finance the reduction in emissions from deforestation and forest degradation (REDD+). Such finance could include standard debt, concessional debt, political risk insurance and credit risk guarantees. This could be provided directly to REDD+ projects, or through local intermediaries. Such targeted financial provisions are needed throughout the economies of forest nations – from subsistence farmers to multinational corporations.

To effect a move towards sustainability in forest nations, such financial support needs to be provided in conjunction with detailed regional or national plans that identify root drivers of deforestation and appropriate REDD+ projects. Host countries should identify investment opportunities and partnerships with international investors. Investment to train local personnel to manage projects is required, as well as research to determine the long-term effectiveness of REDD+ strategies. Because many REDD+ projects are land-based, it is essential to ensure that the interests of local communities are aligned with REDD+ projects.

Provision of targeted finance for REDD+ by the public sector will catalyse private sector investment, by taking on risks that the private sector cannot manage and providing finance (for example long-term loans) that is unavailable through commercial banks. The private sector would take operational and business risks. Public sector investment in the creation of country plans and in **capacity building** through training, education and research will create an enabling environment for private investment, and facilitate alignment of national and local interests with the wider objective of REDD+. The sustainable production of land-based commodities could promote growth in forest nations, contributing to poverty alleviation at the same time as conserving natural forests. Over time, private sector risk perceptions should fall, closing the investment gap and thereby facilitating the scale of investment required to meet ambitious targets for REDD+.

Increasing the private sector's role in adaptation

Recognition is growing of the role the private sector will play in building and supporting climate resilience in developing countries, with the majority of adaptation undertaken through every-day decision making made by small-scale farmers through to multinational corporations. Equally, governments will need to help mobilise these agents and overcome any barriers to their engagement. Governments will also need to better align private action and investment with broader public adaptation interests, as well as to enhance the scale and efficiency of government-led adaptation measures and investment. In practice, however, **few businesses have recognised the full commercial interest of a changing climate and governments have yet to understand and promote private sector adaptation needs and prospects**. If governments alone try and respond in addressing a country's adaptation requirements, they risk generating a temporary and unsustainable supply of support, creating a distortionary impact on markets and crowding out the private sector.

The following key proposals would go some way to addressing the lack of combined public-private action in the field of climate change adaptation:

Raising awareness and business engagement. Support to help raise awareness and build the capacity and necessary capabilities among governments and the domestic and international business community to mobilise private actions that promote wider public adaptation interests. As a priority this should include facilitating greater engagement of the private sector in developing and delivering national climate resilient development strategies.

Creating a suitable enabling environment. As part of their national climate resilient development strategies, developing country governments commit to provide a suitable enabling environment for private adaptation that includes establishing regulatory incentives (in particular voluntary or mandatory disclosure of adaptation related risks and standards for public procurement agencies) and addressing perverse pricing incentives; and commitment by businesses to integrate adaptation needs into the governance, due diligence and public disclosure of risks in their operations and supply chains.

Innovative funding mechanisms: While caution is needed in promoting a plethora of international funding mechanisms, targeted support may be necessary to mobilise private sector effort and action that, on a commercial basis, can help meet the wider public interest on adaptation. This could include the use of Challenge Funds, access to concessional financing and developing insurance facilities to help pilot and scale up access to affordable products in developing countries (see the **box** below). This would be in addition to public spending required on addressing public goods and investing in necessary research and development.

Innovative funding mechanisms: Enterprise Climate Insurance Facility

Insurers can provide both risk management expertise and risk transfer mechanisms to assist individuals, businesses and governments in pooling and transferring their risks. While the needs and opportunities are recognised, insurance coverage (in any shape or form) is very low in developing countries, particularly among low income households; less than 3% of losses to households and businesses from natural disasters are insured. In recognition of the need to scale up the development of, and access to, affordable climate insurance products in developing countries, in particular targeting the needs of micro and small enterprises, a programme and network of support is needed to help pilot innovative products, scale up access to successful instruments, and support governments in designing and implementing the required policy and institutional infrastructure to support the industry. This could be undertaken through the establishment of an **Enterprise Climate Insurance Facility** that could build and draw on the range of insurance proposals currently being discussed and developed. Such a Facility could help stimulate ideas and involve new players in providing affordable climate insurance services in developing countries through, for example, provision of competitive innovation grants and encouraging private businesses to bid to pilot or scale approaches that require an element of public support. The precise mandate and breadth of interventions would evolve from the greater articulation of local, national or regional needs. This would be consistent with the principle of **scope and scale** as a key consideration in justifying public intervention to stimulate investment into climate adaptation.

Proposals for a global architecture: challenge funds and cornerstone funds

Two proposals have emerged which offer an effective means of mobilising finance (particularly from institutional investors) for climate mitigation and adaptation: **challenge funds and cornerstone funds**. The strength of these financial instruments lies in the fact that they can be deployed at scale, supporting (rather than crowding out) private finance. Mobilising private sector financing in this way would be consistent with two of the key criteria justifying public intervention: generating investments at the scale needed to tackle climate change, and allocating risk appropriately between public and private entities.

Most institutional investors need to invest in funds that aggregate a number of investments and also diversify risk, since 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. To ensure that investment can be mobilised quickly, “**challenge fund**” **mechanisms** could be put in place by 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 which exhibit high private finance leverage potential, such as credit lines, guarantees, debt financing, first loss equity positions, carbon finance facilities etc. Fund managers would tender for the bid, explaining how they would leverage the mechanisms on offer to generate investment flows for low-carbon technologies. In addition, the packages of support could also be available for end-investors (such as individual project sponsors).

In the medium to longer term, with the support and convening power of the regional MDBs, 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. Regional CFs would in their turn invest in smaller funds (such as the China Renewable Energy fund, the India Green Building fund etc) which themselves would invest in individual projects. The investor base of each regional cornerstone fund would consist of institutional investors such as pension funds or sovereign wealth funds, who would be invited to commit some equity seed financing to anchor the cornerstone fund. In addition to helping to set up 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).