

Making Fast Start Finance Work

Briefing paper

(7 June 2010 version)



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Introduction

The Copenhagen Accord outlines a pledge by many developed countries “to provide new and additional resources, including forestry and investments through international institutions, approaching \$30 billion for the period 2010 to 2012 with balanced allocation between adaptation and mitigation.” The objective of the funds is to help developing countries adapt to the impact of climate change and to pursue actions that put them on a low-carbon development pathway. Successful deployment of Fast Start Finance will be critical to the future development of climate negotiations and also act as a vital bridge to the larger amounts of long-term climate finance needed to address adaptation and mitigation needs in developing countries.

For Fast Start Finance to be a success, it will need to be deployed both quickly at scale and effectively – laying the foundation for future action. This raises a set of questions around what the sources of funding will be, how the funds will be used and how spending will be coordinated. Interviews with contributor and recipient countries have highlighted a lack of clarity and alignment on the answers to these important questions despite already being six months into the three year Fast Start period.

Therefore, this paper aims to provide a fact base on the current sources of Fast Start Finance, including size, composition, and intended use, as well as analysis on the Fast Start Finance priorities and the institutional mechanisms needed to ensure that it delivers real impact.

The analysis in this paper draws on largely publicly available sources of information, refined where possible by interviews with major contributor countries. This information is clearly subject to change, but our hope is that these initial estimates can serve as the basis for discussion between different contributor countries, and between contributor and developing countries, with the expectation that estimates will be refined as new data comes to hand.

Project Catalyst would like to thank the many countries and organisations that supported this research, including the World Resources Institute (WRI), the Organisation of Economic Cooperation and Development (OECD), the Overseas Development Institute (ODI) and ClimateFundsUpdate.org. The views expressed in this paper have not necessarily been endorsed by all of the governments or organisations involved in this research. The ClimateWorks Foundation takes sole responsibility for the content of this paper.

About Project Catalyst

Project Catalyst is an initiative of the ClimateWorks Foundation. ClimateWorks is a global, non-profit philanthropic foundation headquartered in San Francisco, California with a network of affiliated foundations in China, India, the US and the European Union. The ClimateWorks family of organisations focus on the enactment of policies that reduce greenhouse gas emissions through three general policy areas: energy efficiency standards, low-carbon energy supply, and forest conservation/agriculture.

Project Catalyst was launched in May 2008 to provide analytical and policy support for stakeholders engaged in the United Nations Framework Convention on Climate Change (UNFCCC) negotiations on a post-Kyoto international climate agreement. Project Catalyst and its working groups provide a forum where key participants in the global discussions can informally interact, conduct analyses, jointly problem solve, and contribute ideas and proposals to the formal UNFCCC process. This paper summarises output from Project Catalyst, but the views expressed in this paper have not necessarily been endorsed by all of the members of Project Catalyst nor their governments or organisations.

For more information on ClimateWorks see www.climateworks.org

For more information on Project Catalyst and additional working papers see: www.project-catalyst.info

Executive Summary

Current pledges of Fast Start Finance for 2010–2012 to developing countries for adaptation and mitigation add up to a gross amount of approximately \$28 billion, slightly less when grant-equivalency is considered.

Based on publicly available data, current pledges of Fast Start Finance to developing nations for 2010–2012 add up to approximately \$28 billion (slightly below the \$30 billion outlined in the Copenhagen Accord). Our analysis of other sources of public climate finance in the 2010-12 period, but which are not considered by donor countries to be ‘Fast Start Finance’, amount to roughly an extra \$4-7 billion. Publically pledged funds comprise both grants and investment capital. Using OECD methodology and historical data on the ‘grant element’ of past loans from each contributor country, the grant-equivalent component of Fast Start Finance is actually \$3 billion less than the pledged amounts (i.e. \$25 billion).

Because the sources of funding are fragmented, and no coordination mechanisms currently exist, it is hard to pinpoint the intended uses of the funds. Historically, more than 80 percent of climate funds have been directed to mitigation (including REDD) and less than 20 percent to adaptation. However, this balance could change substantially going forward as contributor countries increasingly focus on addressing adaptation concerns. The Commonwealth countries for example have recently agreed to allocate Fast Start Finance equally between adaptation and mitigation activities.

The Copenhagen Accord states that funding should be “new and additional”, but the baseline of comparison is not stated. Some metrics involve a comparison to past climate finance, whilst others proposed by countries such as Denmark and Sweden, involve a calculation of additional finance available compared to a baseline of Official Development Assistance (ODA). Given the volatility of ODA funding, the fungibility of funds, the lack of transparency on how countries define additionality and other measurement constraints, it is difficult to provide an accurate assessment of additionality based on these different methodologies. However, it is clear from our preliminary analysis that only a share of this total funding will be new and additional.

Preliminary analysis indicates that \$21–54 billion of public climate finance could be needed from 2010–12.

The needs for public climate finance are likely to range between \$21–54 billion from 2010–12 (excluding China which has indicated it will not seek Fast Start Finance); the proposed Fast Start Finance of \$28 billion, taken together with an estimated \$4-7 billion of other public climate finance identified over the period, would reach the lower end of this range. Applied effectively, this would be a start towards the 450 ppm pathway needed to keep global temperatures to 2°C warming. It would also help ensure that developing countries are ready to adapt to this change. The precise impact of the funds will depend on factors such as private capital leverage, avoidance of longer-term locked-in emissions, the absorption capacity and the rate of learning, which need further analysis.

It is difficult to estimate the current pipeline of available projects for investment. Limited preliminary analysis suggests that the current value of registered projects (\$16-23 billion) is lower than the estimated needs for climate finance. If this is indeed the case, it will be critical to address the current shortfall in projects by investing in capacity building to create a larger pipeline of projects while simultaneously investing in programmatic schemes with longer term investments (beyond 2012). If more climate finance is made available this could also potentially spur more climate change programmes to be created in developing countries.

Given actual needs (\$21–54 billion) are likely to be greater than available funding (\$28-35 billion), funds need to be spent in ways that most efficiently address urgent mitigation and adaptation needs, whilst also building absorptive capacity.

There are opportunities to broaden the impact of Fast Start Financing through careful prioritization. We have identified 6 key questions that should be considered by donors to ensure that Fast Start Financing maximizes the impact of scarce resources:

- (1) Is the specific project/programme part of a broader development strategy addressing low carbon growth or part of a NAMA in the developing country? **(Policy prioritization)**
- (2) For mitigation projects, does the project result in emission reductions incremental to those financed by carbon markets, and avoid lock-in to high-carbon infrastructure? **(Mitigation prioritization)**

- (3) For adaptation projects, is the project proposal the result of a robust analysis?
(Adaptation prioritization)
- (4) Does the project have both adaptation and mitigation benefits? **(Synergy prioritization)**
- (5) Is the project designed in such a way that it will leverage private sector funding?
(Private sector prioritization)
- (6) For capacity-building support, does the support include the creation of a LCGP/NAMA/NAPA (where absent) and also allow for input from likely investors and local communities? **(Capacity prioritization)**

Whilst it is unlikely for projects and programmes to satisfy all of these questions, they can nevertheless serve as useful guidelines for ensuring that Fast Start Finance is being used most effectively.

1. **Policy prioritization:** A significant part of the mitigation opportunity in developing countries has low or negative opportunity costs (e.g., 1.2 Gt of abatement in 2015 or 30% of required abatement to reach a 450 ppm pathway by 2015 has negative costs). Providing financing to those non-Annex-I nations that have low carbon growth strategies or sector plans that allow capture of the value of projects with “negative (net) cost” (e.g. energy efficiency), while implementing policies supporting more expensive mitigation and adaptation measures with Annex-I country support can increase the cost effectiveness of support. For example, Guyana’s low carbon growth plan envisages using all of the payments for reduced deforestation to support additional development, mitigation and adaptation projects, effectively leveraging the international financing provided for avoided deforestation to broaden potential impact. Preliminary analysis suggests this could reduce the cost per tCO₂e abated by at least a third. Funding should therefore be prioritized for those countries which either have a low carbon growth plan or NAMA in place, or to ensure that countries have the support to develop such plans.
2. **Mitigation prioritization:** Given the scarcity of funding, Fast Start Finance needs to result in ‘real’ net reductions. There must be a careful distinction between mitigation from public financing sources and financing from carbon markets, as the latter will lead to increased emissions in developed countries, resulting in no global net reductions. Fast Start Finance should therefore be directed towards activities where there will be no overlap with carbon market financing. In some instances, such as the financing of abatement measures which are initially quite expensive (but have large learning effects),

there may be a need for both carbon market and public financing. In these cases, it is crucial that Fast Start Finance only finances the remaining ‘gap’ between the incremental cost and potential financing from carbon markets. In addition, some climate investments, if made early, will have an extremely large impact on reducing future emissions. Such investments are typically infrastructure investments (e.g., in the industrial or power sectors) with high upfront capital requirements. Conversely, if ignored, these missed opportunities will result in high emissions that are locked in for a long period of time as nations choose high-carbon alternatives instead. Climate investments that avoid lock-in represent almost a quarter of available abatement in developing nations. Fast Start Finance should be directed to projects that avoid lock-in, including some measures with a comparatively higher cost per tonne CO₂e than other cheaper measures (e.g. renewable energy opportunities such as solar), because avoiding future emissions now is more cost effective over time than reducing emissions later. Our analysis shows that the additional benefits of addressing ‘lock-ins’, such as learning benefits which lower the future costs of technology and greater flexibility in options to reduce future emissions, can in some instances be more than three times as large as their cost differential between these measures and cheaper abatement alternatives.

3. **Adaptation prioritization:** Concerns have been raised by some contributing countries that it is difficult to “quantify” the impact of adaptation measures, unlike mitigation where cost per tCO₂e abated becomes a useful proxy for impact. A systematic approach to adaptation that can develop a robust, fact based case for adaptation measures in the highly uncertain context of climate change is therefore helpful. The Economics of Climate Adaptation (ECA) working group¹ has developed a practical methodology based on a modular approach to systematically (a) put a price tag (both in economic and human terms) on the overall climate risk of today and the future in order to help prioritize the most urgent climate problems, (b) identify and prioritize an actionable portfolio of adaptation measures and (c) create a roadmap to implementation and an investment plan. This methodology, which can be applied across all countries, sectors and hazard types, can be used to provide a fact-based assessment to help prioritize adaptation spend within a given country context.
4. **Synergy prioritization:** In order to try to minimize the trade-off between using limited available financing to address either adaptation or mitigation needs, opportunities that

¹ The Economics of Climate Adaptation (ECA) working group is a consortium of major global non-governmental organisations (ClimateWorks Foundation, Rockefeller Foundation), public sector (the European Commission, the Global Environment Facility) and private sector organisations (Swiss Re, Standard Chartered Bank, McKinsey & Company).

can provide both mitigation and adaptation benefits should be prioritized. For example, extension services that can provide farmers with the know-how to improve productivity (and introduce environmentally-sustainable practices) on existing land can achieve CO₂ mitigation (e.g. by reducing the pressure to open up new forests for farmland) and also support adaptation. There are potentially a large amount of mitigation levers with adaptation co-benefits, particularly in the forestry and agriculture sectors. Whilst sizing this co-benefit can be challenging, some approximate estimation of the size of adaptation co-benefits (based on the adaptation prioritization methodology described earlier) could be combined with measures of CO₂ impact to develop a combined prioritization criteria.

5. **Private sector prioritization:** A total of \$100–190 billion annually will be required in investment capital from 2010–12 for mitigation and adaptation measures (above and beyond incremental cost financing), mostly from the private sector, which is able to effectively mobilize this amount of finance. There is the opportunity to use Fast Start Finance to help recipient countries to attract private investment capital by putting in place stable, effective policy regimes that ensure sufficiently attractive returns to engage the private sector. This can be done by reducing associated risks such as currency risk, country risk and policy risk (in the India solar market for example, these risks inflate required returns by up to 11 percent), by overcoming start-up challenges (e.g., supporting project developers and pilot projects to demonstrate the financial viability of private sector involvement) and by strengthening private sector lending for low carbon investments (e.g., providing loan guarantees to local banks to spur lending). Renewable feed-in tariffs, for example, have proven to be quite effective in creating investor certainty – Fast Start Finance could be used to scale them up. In India international financing support could help to offset part of the required cost burden of the feed-in tariff, and spur more ambitious solar penetration, potentially resulting in 173 Mt CO_{2e} additional abatement by 2022 and in overall savings in costs by reducing the time to grid parity (i.e. the point at which renewable electricity is equal to or cheaper than grid power).
6. **Capacity prioritization:** Given that preliminary estimates suggest that the current value of registered projects (\$16–23 billion) could be lower than actual needs (\$21–54 billion), it is crucial to use some of the Fast Start Finance to target capacity building. Funding for the creation of low carbon growth plans, which can integrate mitigation and adaptation into development plans, is the most urgent priority. Very few countries, in both the developing and developed world, currently have clear strategies for the low carbon transformation that is required. At present, out of roughly 150 developing countries, only

44 countries have submitted National Adaptation Programmes of Action (NAPAs) to the United Nations Framework Convention on Climate Change (UNFCCC) and only 13 countries have submitted concrete Nationally Appropriate Mitigation Plans (NAMAs) which outline specific actions. Involving investing entities (e.g., multi-lateral development banks) and communities in the design and delivery of capacity building efforts is also potentially useful.

A high performing Fast Start Finance system will need to ensure effective delivery of funds, based on 5 principles.

In addition to carefully prioritizing *what* is funded, the question of *how* Fast Start Finance is delivered is also of critical importance. Discussions with developing and developed countries have highlighted several principles (which are consistent with the principles in the Paris Declaration on Aid Effectiveness) that a Fast Start Financing system should satisfy to effectively deliver the available funding and pave the way for effective delivery of the longer term (post-2012) public climate finance that will be required:

- **Support flexibility and predictability to encourage forward planning:** The need to spend Fast Start Finance in the year it is included in donor countries' budgets is a serious threat to effective spending. In addition, many of the climate change challenges in developing countries require transformational changes to a country's economy which developing countries cannot commit to without assurances of future financial support. Fast Start Finance needs to be sufficiently flexible to allow earmarking of funding for future attractive projects that may not be available until after 2012, ensuring that Fast Start Finance is not wasted on a pool of lower impact, currently available projects. By pledging a sizable amount to the Amazon Fund contingent upon the delivery of reductions in deforestation, Norway and Brazil charted a new path for international cooperation by creating certainty that funds will flow as results are delivered. If other developed countries were to follow this example, they would provide the certainty required by developing countries for forward planning necessary to address climate change challenges and also ensure that funds are spent in an efficient manner. To support this, it is critical that a concrete plan is developed to mobilize the \$100 billion of climate finance to developing countries by 2020 outlined in the Copenhagen Accord.
- **Boost harmonization:** There is currently little coordination between nations on Fast Start Finance. This risks Fast Start Finance being fragmented, disbursed through a large

number of channels, and spread over individual efforts in a suboptimal way. In the short-term, coordination of spending might be required to allocate money strategically and effectively. This could involve bi-lateral funds requiring that they coordinate in-country investment plans with other contributing funds. The Climate Investment Funds requires such coordination among Multilateral Development Banks (MDBs) and the initial feedback suggests that whilst there have been some initial challenges, it has proved beneficial.

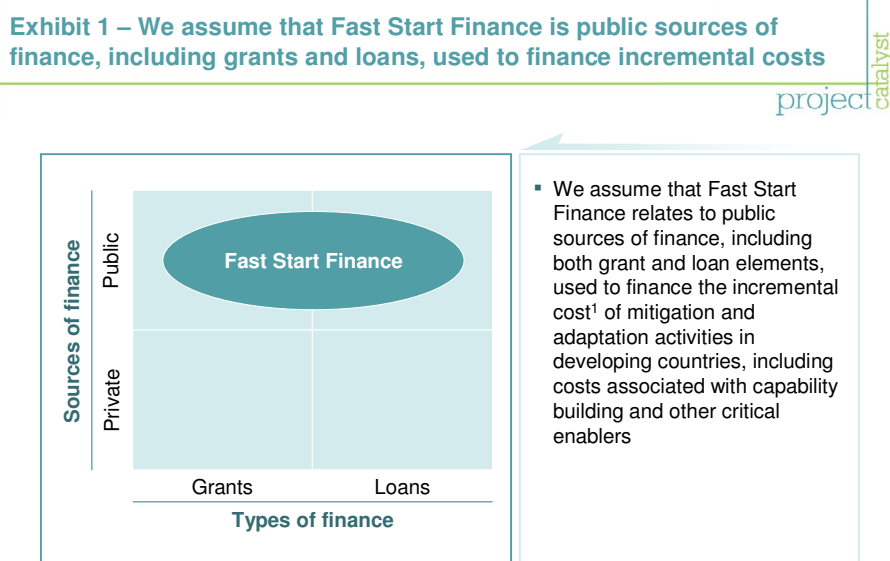
- **Manage for results:** Performance assessment frameworks need to be developed to serve as system-wide standards for specific areas (e.g., REDD, energy efficiency). These frameworks can be initially based on simple proxies, becoming more detailed over time, and should build on the lessons learnt from existing promising frameworks such as the Amazon Fund. Abatement (incremental to that financed by carbon markets) per unit of Fast Start Financing would be a useful starting point for assessing the performance of mitigation/REDD actions.
- **Create more transparency:** Currently there is no clear definition of what Fast Start Finance entails; there is little transparency on what the pledges are; and there is no means of assessing either the actual demand for funding or the absorption capacity. This creates mistrust between developed and developing nations, which can hamper progress on tackling climate change. Clear definitions and standards for what constitutes Fast Start Finance are needed, including grant equivalence guidelines and additionality requirements. At a minimum, donor countries should disclose their working definition for these issues. Clarity is also needed on the pledges of Fast Start Finance – in aggregate and by country; on the investment pipeline in developing countries; and on how the funds are deployed and their performance. An existing institution could be well-placed to perform these roles, but would require active donor and recipient country support (including agreeing on a common set of criteria by which climate finance is assessed).
- **Ensure efficient disbursement:** From a developing country's perspective, the current, fragmented system of donor funding (particularly differences in assessment criteria), makes it hard to apply for funding. Additionally, the time to disbursement is often slowed by bureaucratic processes that take too long to administer. As a starter, the system could be enhanced by seeking to harmonize requirements of major donors (e.g., climate investment funds and the Hatoyama Initiative) and assessment processes, with efforts to minimize time for approval.

Whilst there are sizeable challenges to creating a successful Fast Start Finance system, the potential rewards are even greater. A Fast Start Finance system which can prioritize and deploy funds effectively can provide a strong foundation for future action post-2012, create trust in both developed and developing countries and will be critical to the successful development of climate negotiations.

1. Defining Fast Start Finance

The Copenhagen Accord is imprecise on the sources and types of finance included in Fast Start Finance. For the purpose of this paper we assume Fast Start Finance to be: *public monies (including both grants and loans) used to finance the incremental cost of mitigation and adaptation activities in developing countries, including costs associated with capability building and other critical enablers.*²

In calculating the needs for Fast Start Finance, this definition excludes the upfront capital investment (but it includes the cost of financing these on an annual basis) and assumes that financing the incremental cost of mitigation and adaptation will create conditions for investment by multinational development institutions, bilateral sources, and private financial institutions – local or international (Exhibit 1).

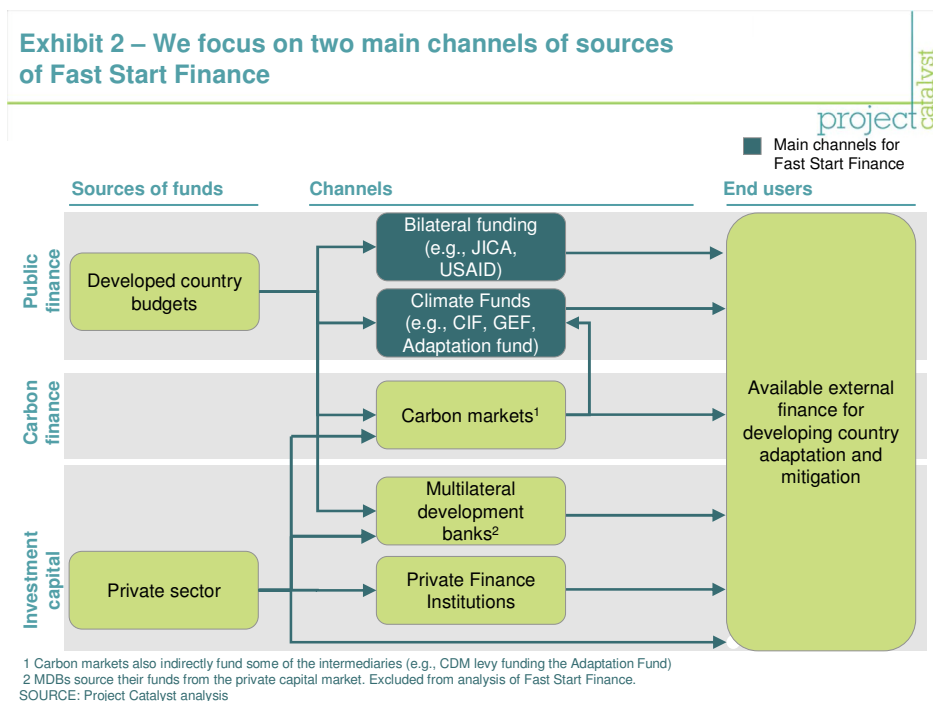


¹ By ensuring that the IRR (Internal Rate of Return) on climate change projects is equal to the WACC (Weighted Average Cost of Capital) of private sector operators

² Donor countries have different definitions of Fast Start Finance. For example, the Netherlands reports its Fast Start Finance as climate finance that is “new and additional” to its ODA percentage of 0.8% of GNP. In this paper we have included all the pledges that countries themselves have labelled as Fast Start Finance. We have then shown separately, where possible, any other public climate finance planned by countries over the 2010-12 period (this is the case for Germany, the Netherlands and France). Financial support for domestic companies in developed countries to export and/or invest in climate change related goods / projects (e.g. through export credits, guarantees, etc) have been excluded (e.g. US plans to spend \$706 million in 2010 and \$873 million in 2011 to help American firms and investors deploy clean energy technologies in developing countries) as this could be viewed as largely support for domestic companies. For some countries (e.g. Japan), there is a lack of clarity as to what share of climate finance is related to export / investment credits for domestic companies, and so the estimates for these countries may overstate the total amount of climate finance being provided.

To estimate Fast Start Finance, this analysis focuses on two main channels (Exhibit 2):

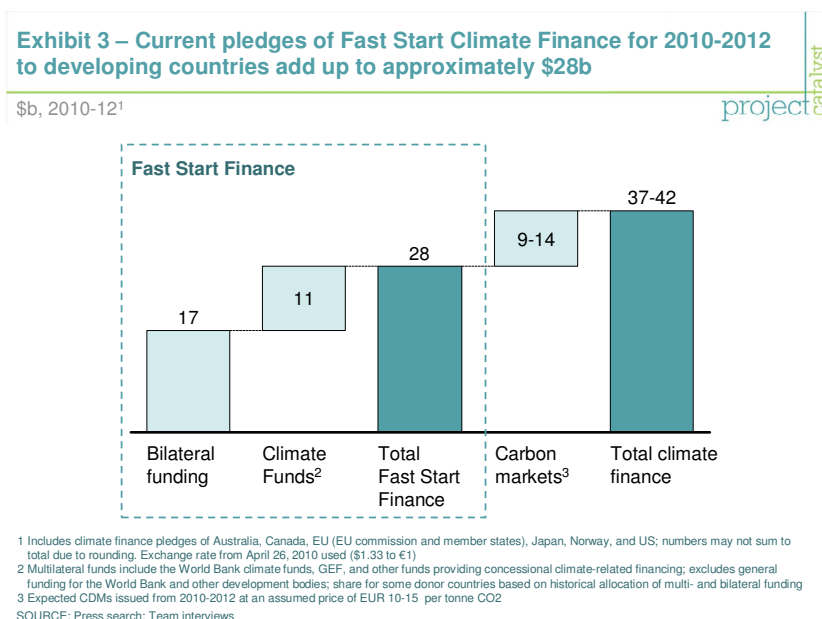
- **Bilateral funding:** funding directly from single contributor countries, often routed through national organizations such as the US Agency for International Development (USAID), the German Development Bank (KfW), and the Japan International Cooperation Agency (JICA).
- **Climate funds:** financial flows from multilateral climate funds (those that receive contributions from multiple countries) such as the Climate Investment Funds (CIF), the Adaptation Fund under the Kyoto Protocol, and the Global Environment Facility (GEF).



2. Sources and uses of Fast Start Finance

Current pledges of Fast Start Finance from 2010–2012 to developing countries add up to approximately \$28 billion.

Although major developed countries are still finalising their positions and have not yet formally communicated their decisions, we have made a preliminary assessment of the funds that have been pledged and published (based on publicly available sources of information). Current pledges of Fast Start Finance to developing nations from 2010–2012 add up to approximately \$28 billion.³ Our preliminary analysis of other sources of public climate finance in the 2010-12 period, which some countries distinguish from ‘Fast Start finance’, amount to roughly an extra \$4-7 billion.⁴ Exhibit 3 shows the total Fast Start Finance (\$28 billion) with another \$9–14 billion in carbon (offset) finance available.⁵



³ Our estimates are largely consistent with those produced by World Resources Institute (WRI) and the Environmental Defense Fund (EDF). Both EDF and WRI have slightly different estimates of \$29 and \$23 billion respectively. The main reasons for differences with WRI are: 1) WRI excludes additional commitments by the EU not yet confirmed (~ \$3.5 billion 2010–12); 2) WRI excludes REDD pledges; and 3) WRI only includes US pledges for 2010 and 2011 while Project Catalyst assumes equal donations for 2012 as Budget 2011. Main reasons for differences with EDF are that EDF only includes US pledges for 2010 and that EDF assumes \$11 billion commitments by the EU while Project Catalyst estimates EU commitments to be \$10 billion.

⁴ Exhibit 5 provides further detail on the breakdown of these additional amounts

⁵ To avoid double-counting, the emissions reductions of offset finance should only be accounted towards the investing country's emissions.

The Copenhagen Accord states that funding should be “new and additional”, but the baseline of comparison is not provided. Some metrics involve a comparison to past climate finance, whilst others proposed by countries such as Denmark and Sweden, involve a calculation of additional finance available compared to a baseline of Official Development Assistance (ODA).⁶ Given the volatility of ODA funding, the fungibility of funds, the lack of transparency on how countries define additionality and other measurement constraints, it is difficult to provide an accurate assessment of what funds are new and additional based on these different methodologies. However, it is clear from our preliminary analysis that only a share of this total funding will be new and additional. As discussed in Chapter 5, clear definitions and standards for what constitutes Fast Start Finance are needed, including grant equivalence guidelines and additionality requirements. At a minimum, donor countries should disclose their working definition for these issues.

Exhibit 4 - There are currently a range of alternative definitions of “new and additional” being used by contributing countries

SELECTED EXAMPLES - NON EXHAUSTIVE

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	Description	Country examples
Additional to existing climate-related funds	<ul style="list-style-type: none"> Climate finance should be additional to existing climate-related funds 	<ul style="list-style-type: none"> The Netherlands
Additional to existing aid flows	<ul style="list-style-type: none"> Climate finance should be additional to existing aid flows 	<ul style="list-style-type: none"> Belgium
Additional to a specific level of ODA support	<ul style="list-style-type: none"> Only climate finance above a specified benchmark level is considered additional 	<ul style="list-style-type: none"> Sweden/Denmark: 0.7% GNI baseline, above which is additional
Blending ODA and non-ODA	<ul style="list-style-type: none"> Climate finance and other ODA bundled together 	<ul style="list-style-type: none"> UK: rising aid with no more than 10% of aid budget to be spent on climate¹

1 UK definition relates to long-term financing in 2020

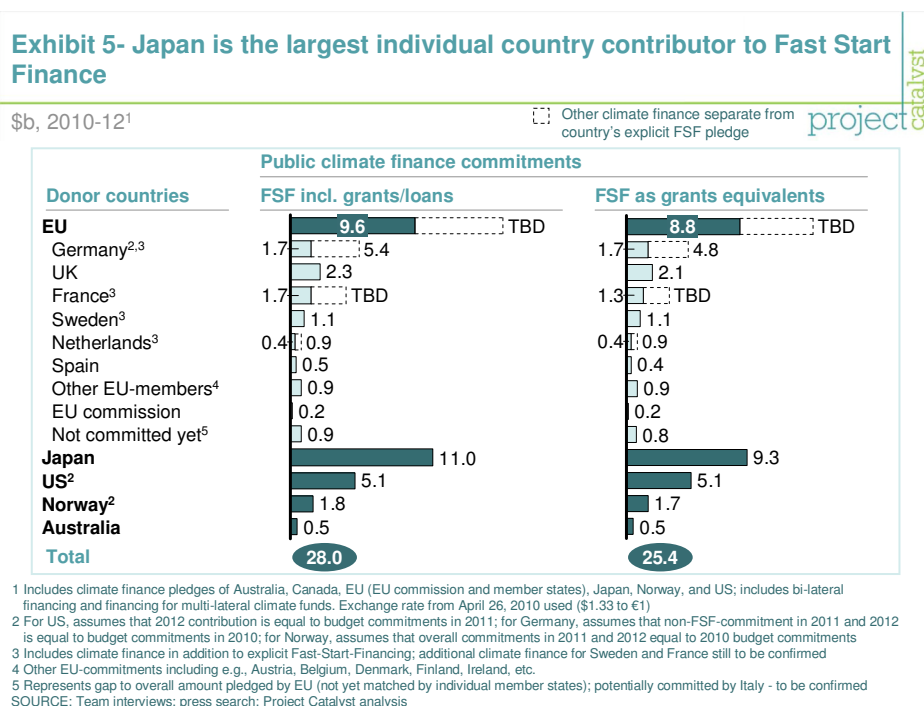
SOURCE: ODI, “Climate financing and Development Friends or foes?”, January 2010; WRI; “Counting the Cash: Elements of a Framework for the Measurement, Reporting and Verification of Climate Finance”, December 2009; Team analysis

Japan is the largest contributor.

The largest current contributor to Fast Start Finance is Japan, providing over one third of financing (Exhibit 5), followed by the US. Some European countries (including Germany, the Netherlands and France) will provide other public climate finance over the 2010-12 which they do not label as ‘Fast Start Finance’. This is shown in Exhibit 5 by the dotted

⁶ See Exhibit 4

lines for those countries and our early estimates suggest this could amount to \$4-7 billion over the period. Sources of publically pledged funds comprise both grants and loans. Based on a mixture of historic and current information we estimate that roughly one third of current Fast Start Finance commitments will be in the form of loans (Exhibit 6). We have used OECD methodology and historical data on the ‘grant element’ of past loans from each contributor country to assess the grant-equivalent amount of funding. Based on this approach, the total grant-equivalent funding is actually \$3 billion less than the pledged amounts (Exhibit 7).⁷ After adjusting for grant-equivalence of the loan component of country contributions, the shares of funding from Japan, France and the UK are reduced because a significant share of their financing is pledged in the form of loans (Exhibit 5).

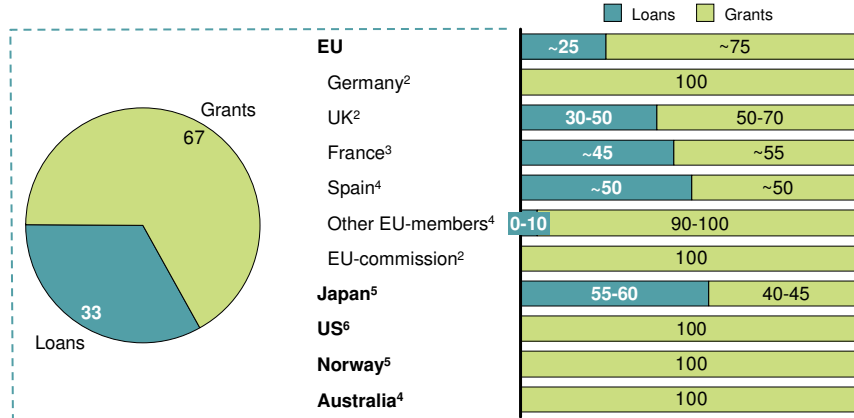


⁷ This is based on loans being estimated to be approximately 32 percent of total climate finance and the average grant equivalence being approximately 70 percent.

Exhibit 6 - Almost a third of funding could be in the form of loans

Fast Start Finance by type¹, percent

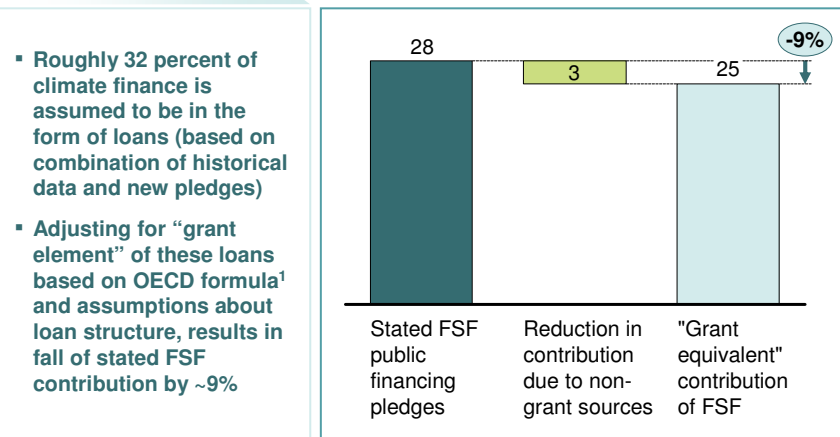
INCLUDES BI-LATERAL AND CLIMATE FUND CONTRIBUTIONS



1 All estimates based on historical data with exception of the US, UK, Germany, and Japan; weighted average based on new Fast-Start-Funding pledges
 2 Based on interviews with government representatives and information from the EU commission
 3 Includes bilateral funding through "Agence française de développement" (AFD and climate change", AFD, March 2009)
 4 Based on historical climate finance commitments stated by climatefundsupdate.org
 5 Estimates based on information by the Ministry of Foreign Affairs of Japan and Norway
 6 Historical commitments to climate funds were 100% grants
 SOURCE: Team interviews; press search; Project Catalyst analysis; climatefundsupdate.org; AFD

Exhibit 7 – Adjusting loans provided for their historical ‘grant equivalence’ results in Fast Start Finance falling by \$3b

\$m, 2010-12



1 See OECD website for further information on methodology: <http://www.oecd.org/dataoecd/15/0/31738575.pdf>. Includes both bilateral funding and contributions to climate funds. Data was unavailable for UK and Germany, so for these countries a weighted average of the grant elements of other OECD countries was applied. For EU pledges not yet matched to any individual country, the average EU grant / loan share and grant equivalency rate was used. Overall average grant equivalency of approximately 70 percent.
 SOURCE: Team interviews; Press search; Project Catalyst analysis; climatefundsupdate.org; OECD Development Cooperation Report 2009

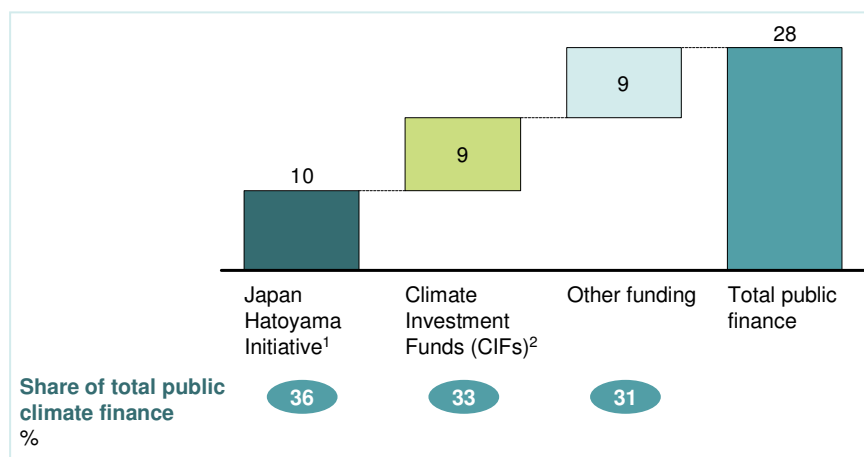
In terms of channels, Japan’s Hatoyama Initiative and the Climate Investment Funds (CIFs) together represent roughly two thirds of total Fast Start Finance (Exhibit 8).

Exhibit 8 – Japan’s Hatoyama Initiative and the Climate Investment Funds represent roughly two thirds of total public climate finance

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\$b, 2010-12

CIF BASED ON HISTORICAL SHARE



¹ Excludes the 10 percent of Japan’s \$11 b public financing pledge from 2010-12 is to be allocated to the Clean Technology Fund (CTF)
² Based on projected funds according to historical share of overall public funding of the CIFs
 SOURCE: Interviews; Press search; climatefundupdate.org

Whilst historically the majority of climate finance has been directed to mitigation activities, there is likely to be a shift of spend towards adaptation going forward.

Because the sources of funding are fragmented, and no coordination mechanisms currently exist, it is hard to pinpoint the uses of the funds. Actual spending will depend on the requests put forward by the recipient countries and the preferences of the contributors. The Copenhagen Accord calls for Fast Start Finance to be “balanced allocation between adaptation and mitigation”. Historically, over 80 percent of overall funds have been directed to mitigation (including REDD) and less than 20 percent to adaptation (Exhibit 9). However, this balance could change substantially going forward as contributor countries increasingly focus on addressing adaptation concerns. The Commonwealth countries for example have recently agreed to allocate 50 percent of funding to adaptation activities, 20 percent to REDD, and 30 percent to other mitigation activities.⁸ Non-commonwealth countries appear to be allocating significantly larger shares to REDD and other mitigation activities.

⁸ This decision was reached at the Commonwealth Heads of Government Meeting (CHOGM) in November 2009.

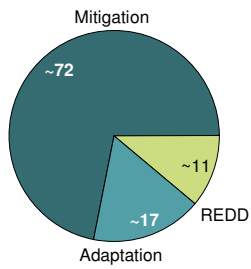
Exhibit 9 - Whilst past climate finance was largely focused on mitigation, going forward there is likely to be a larger share of finance to adaptation

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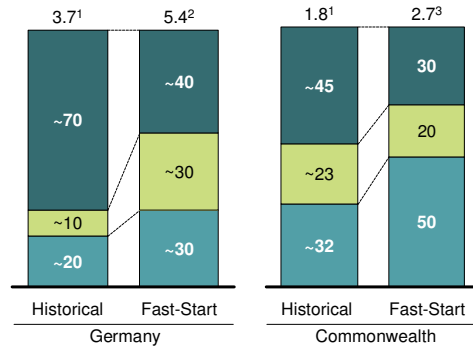
\$b, 2010-12; split of climate finance by intended use, percent

■ Mitigation ■ REDD ■ Adaptation

Historically¹, REDD and other mitigation together represented more than 80 percent of spend ...



... intended use of Fast-Start-Funding commitments shows that a larger part is likely to be used on adaptation⁴

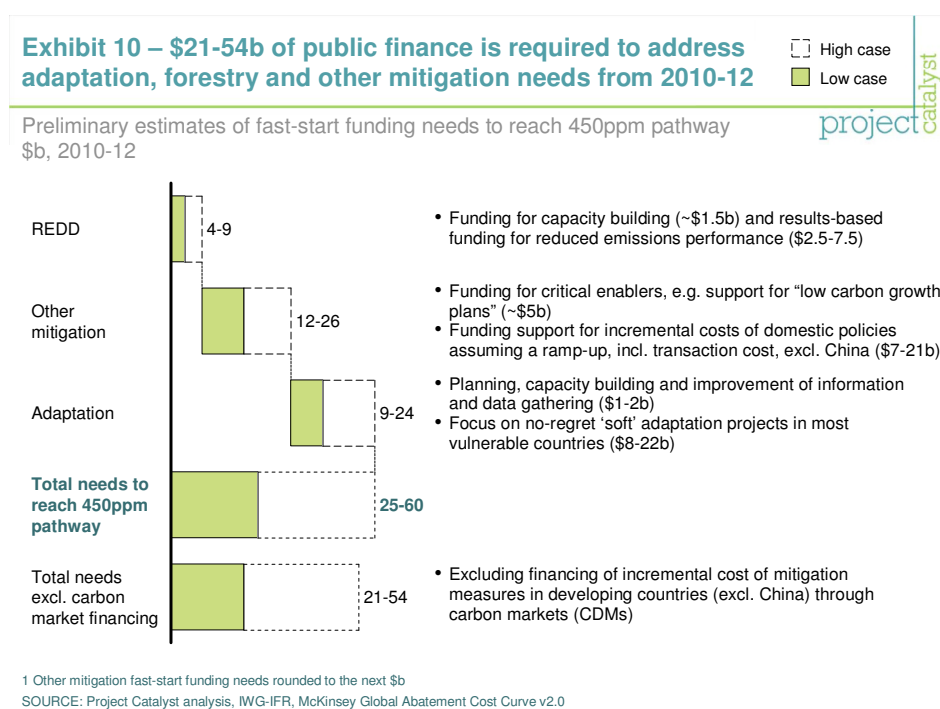


1 Historical splits based on commitments until End of 2009 (provided by climatefundsupdate.org)
 2 Based on budget 2010, assumes that non-FSF-commitment in 2011 and 2012 is equal to budget commitments in 2010
 3 Split based on commitments at CHOGM 2009 for 50:30:20 split between adaptation, mitigation and REDD
 4 63% of already decided EU commitment will be allocated to mitigation and 37% to adaptation; 36% not allocated yet (based on Climate Action-report)
 SOURCE: Team interviews; press search; Project Catalyst analysis; climatefundsupdate.org, "Climate Action" report

3. Needs for Fast Start Finance

Preliminary analysis indicates that \$21–54 billion in public climate finance could be needed from 2010–12.

There is great uncertainty about actual funding needs in developing countries. We have made a preliminary assessment of the funding needs, split into forestry (REDD), other mitigation, and adaptation (Exhibit 10), which in total ranges from \$25–60 billion for 2010–12. China has been excluded from these estimates based on the assumption that China will not be seeking Fast Start Finance.⁹ After adjusting for potential financing provided through carbon markets, roughly \$21–54 billion remains to be funded from public sources.¹⁰

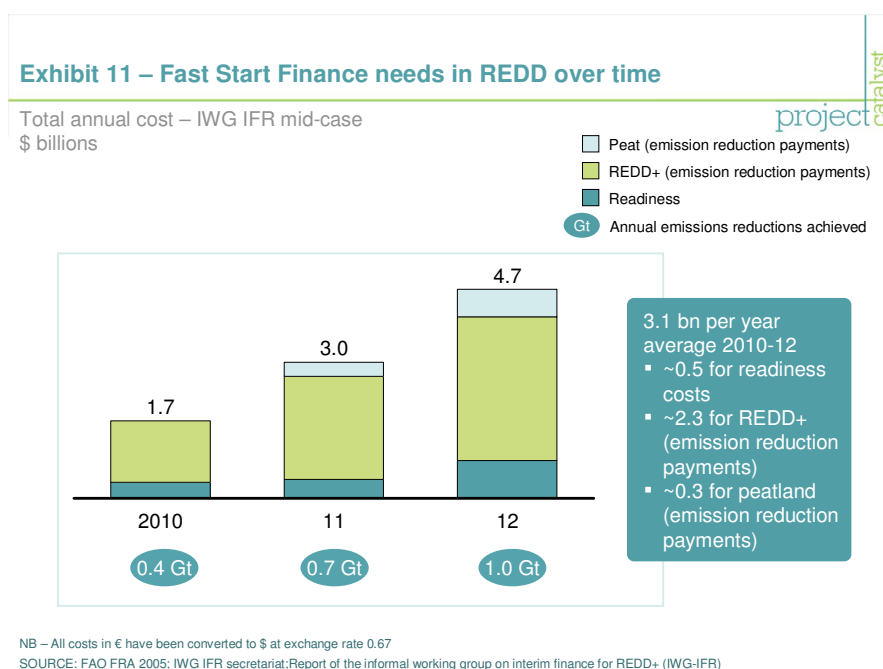


⁹ On December 15 2009, Jiang Yu, spokesperson of the Ministry of Foreign Affairs in China, said in a press conference that given likely limited financial support from developed countries, China would give prioritized access to financial aid to least developed and island countries.

¹⁰ To avoid double-counting, the emissions reductions of offset finance should only be accounted towards the investing country's emissions.

Forestry-related mitigation requires up to \$9 billion over 2010–12.

The importance and urgency of extensive action on REDD+¹¹ can hardly be overstated. According to the Food and Agriculture Organization of the United Nations, some 13 million hectares of forest – an area the size of England – are destroyed annually. With land-use change, this causes about 17 percent of global greenhouse gas emissions as estimated by the Intergovernmental Panel on Climate Change (IPCC). Stopping deforestation, and promoting afforestation and reforestation, may on some analyses provide up to 30 percent of cost-effective global mitigation potential. Without realizing the mitigation potential from forests in developing countries, it will be all but impossible to avoid global warming in excess of 2°C.



The Informal Working Group on Interim Finance of REDD (IWG-IFR)¹² has demonstrated that developing forest countries could act immediately to reduce emissions – but also that financial incentives would be required to catalyze such action. The world could achieve a 25 percent reduction in annual global deforestation rates by 2015 if total financing of \$22–

¹¹ Reducing emissions from deforestation and forest degradation, enhancement of carbon stocks, conservation, and sustainable management of forests in developing countries.

¹² World leaders met on April 1, 2009 and acknowledged the great importance of forests in addressing climate change and providing broader benefits for the world, emphasized the urgency of greatly scaling up funding for this purpose, and established the Informal Working Group – Interim Finance for REDD.

37 billion¹³ were made available for the 2010–15 period. Of this amount, up to \$9.4 billion is required for the period 2010–12 (Exhibit 11). This makes REDD+ a significant, fast, and cost-effective way to fight climate change, and so a priority for Fast Start Financing.

BOX 1: Existing REDD+ initiatives by developing forest nations

Brazil – Amazon Fund: pay for performance on avoided deforestation, with multilateral backers

The Amazon Fund has been established as part of Brazil’s wider climate change strategy to reduce deforestation of the Amazon by 80 percent (compared to 1994–2005 levels) by 2020. It is open to contributions from individuals, companies, and national governments and is based on pay for performance. Norway has committed \$1 billion, conditional on performance. This early support will enable the fund to become operational immediately and start supporting governments, landowners and projects to avoid deforestation. To meet its targets the fund needs \$21 billion over 10 years.

Guyana – Integration of REDD+ into Low Carbon Development Strategy, supported by bilateral partnership with Norway

Over 80 percent of Guyana is covered by largely untouched forest. Yet there is risk of increased deforestation due to pressures from improved internal infrastructure links with Brazil and from increasing private development and enterprise. An ‘economically rational’ development trajectory could see deforestation in Guyana causing 1.5 Gt in emissions cumulative until 2020. The Guyana REDD Investment Fund (GRIF) has been established as part of a comprehensive Low Carbon Development Strategy that will invest in avoiding deforestation and create alternative livelihoods to reduce demand for deforesting activities.

Norway has committed \$250 million to the fund until 2015 (contingent on results). The intention of both countries in this agreement is to “provide the world with a working example of how partnerships between developed and developing countries can save the world’s tropical forests.”

¹³ Converted from €15–25 billion at rate 0.67

This funding would make it possible to scale up, at pace, the array of voluntary efforts already being made by developing forest countries and their supporters. For example, Brazil's Amazon Fund, with initial performance-based support from Norway of \$1 billion, is taking immediate action towards its target of an 80 percent reduction in deforestation (see Box 1). With Fast Start Financing, many other countries will be able to follow Brazil's lead. Creating a structure that puts a value on forest carbon will also help countries with forests at risk, such as Guyana, to avoid deforestation without sacrificing economic opportunities.

The IWG-IFR has proposed a results-based incentive structure that pays developing forest countries for reduced forest-related emissions relative to an agreed national reference level. This results-based incentive could be complemented by additional public support to reduce the risk associated with early private sector investment in REDD+. The incentive also puts a value on forests that are untouched but at risk of deforestation, by estimating the emissions they would cause if deforested at the global rate. This allows countries such as Guyana to continue to protect their forests in the face of increasing economic pressure.

The bulk of the Fast Start Financing allocated to REDD+ (\$2.5 billion of the \$3 billion per year proposed for 2010–12) would contribute to these incentives, paying for forest-related emissions reductions at predictable prices. This would provide both predictability in funding flows to developing countries, and incentives for performance, because the more emissions were reduced, the higher the payments would be. Fast Start Financing would allow the results-based incentive structure to be implemented immediately and to be expanded, even while discussions continue on the future evolution of the financial mechanisms for long-term REDD+ funding.

Additionally, the Fast Start Financing system could usefully invest \$0.5 billion per year in 'readiness' activities for REDD+ during 2010–12. These would consist of grants for building enabling capabilities in developing forest countries. The capabilities would include relevant legal frameworks and law enforcement; better forest governance, including the resolution of uncertainties around land tenure where necessary; and institutions able to validate emissions reductions.

While funding for institutional capacity building can be used immediately in all forest nations, those that are most prepared (generally middle-income countries) are likely to deliver far more abatement in the early years and so receive the bulk of results-based incentive payments. These countries will develop methods and techniques that will enable lower income countries to implement REDD+ schemes at a later date.

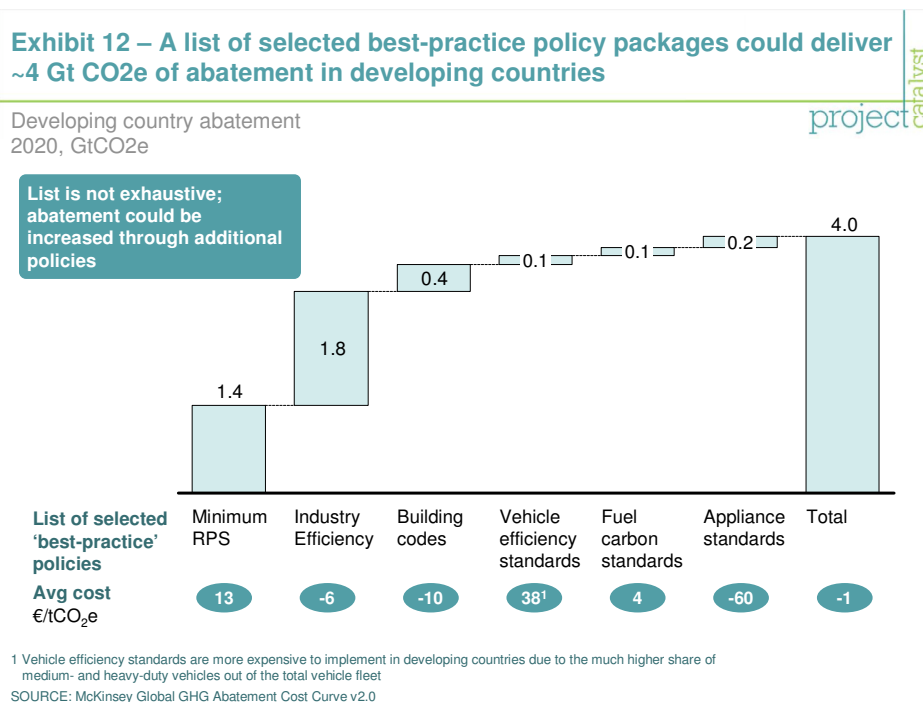
Non-forest mitigation requires \$12–26 billion in 2010–12.

While some increase in mitigation investment has been observed in recent years, the speed of this ramp-up needs to increase by an order of magnitude if a 2°C pathway is to be achieved. We estimate that 14 Gt of abatement is needed by 2020 compared to our current global emissions trajectory of 58 Gt in 2020.¹⁴ Of this 14 Gt, 4.5 Gt can be abated at a cost of under \$90 per tonne in developed countries, and up to 5.5 Gt can be achieved in forestry in developing countries, leaving a minimum of 4 Gt to be abated in developing countries in other sectors by 2020. Particular focus needs to be placed on ‘lock-in’ effects which if not addressed now could greatly affect the future development trajectory of emissions (e.g., the building of new coal-based power plants).

Six best practice policy measures in developing countries could deliver roughly all of the required abatement by 2020 (Exhibit 12):

- Feed in tariffs or renewable portfolio standards (RPS) designed to capture the entire renewable power opportunity at costs of less than \$90 per tonne CO₂e abated;
- Industry efficiency standards aimed at maximising the carbon productivity of important emitting industries by mandating them to capture energy efficiency opportunities and production-line improvements;
- Building codes enforced for all new builds and retrofits, including standards for efficient lighting;
- Vehicle efficiency standards gradually mandating improvements in fuel-mileage to capture full technical potential at less than \$90 per tonne CO₂e abated;
- Fuel carbon-content standards to facilitate the adoption of carbon efficient biofuels, taking into account indirect land use changes; and
- Appliance standards coupled with appropriate information campaigns.

¹⁴ ‘Taking Stock – the emissions levels implied by the current proposals for Copenhagen’, December 2009



Funding available through Fast Start Finance can directly stimulate mitigation action by covering the incremental cost of abatement initiatives, as well as funding needed to cover planning, capacity building, and technology transfer. This needs to be complemented by leveraging existing funding flows (including the billions of dollars that the World Bank and other international financial institutions currently allocate to projects such as energy and transport) to ensure they are mindful of climate change objectives.

Excluding forestry, developing countries need to achieve abatements of 2.5 Gt by 2015. Around half of this has positive cost, estimated (in total) at \$7–21 billion from 2010-12 (including transaction costs of negative and positive cost measures, but excluding China), plus an additional \$5 billion for capacity development.¹⁵ This corresponds to a cost per tCO₂e abated of approximately \$1.5-4.¹⁶

Funding already committed will finance some of this, and some could be self-financed in fiscally strong emerging economies due to co-benefits such as energy security or competitiveness.

¹⁵ McKinsey Global Cost Curve v2.0. Assumes 10 percent discount rate, transaction costs of €1–5 per tonne CO₂. Of the total, about 50 percent would go to fiscally strong emerging economies (Brazil, China, Mexico, Middle East and South Africa), 10 percent to least developed countries and 40 percent to other developing countries – approximately the same as the relative share of emissions

¹⁶ Refers to only non-forestry mitigation, including transaction costs of positive and negative cost measures, but excluding China and capacity building costs. Including capacity building costs, average price per tCO₂e abated is \$2.5-5.

Adaptation requires \$9–24 billion in 2010–12.

The developed world has made a commitment to support the costs of adaptation and has already made some pledges, but very little additional finance has actually been made available to date. Less than 10 percent of the money promised for adaptation to climate change has been disbursed so far, causing frustration for developing country negotiators.¹⁷ It is in the interests of the developed world to meet its commitments – first, to address the issues of equity and fairness in climate change; second, to prevent the possibility of long term ‘lock-in’ of maladaptive infrastructure in the developing world, potentially raising costs later; and third, because lack of progress on adaptation can create distrust amongst developing countries, hampering progress in the negotiations and wider battle against climate change.

Estimates of the cost of adaptation vary widely, but it seems likely that \$9–24 billion will be needed from 2010–12. At the very least, the NAPAs already developed by 40 least developed countries should be covered by the Fast Start Fund, at around \$1.6 billion (in total).¹⁸ Most experts think that the NAPAs greatly underestimate the real cost of adaptation, with estimates for 2010–20 ranging from around \$8 billion to \$40 billion per year.¹⁹

This funding would focus on two priority areas:

■ **Actions to support soft adaptation activities (\$7.5–22.5 billion from 2010–12).**

Recent estimates²⁰ put the cost of climate - proofing the Millennium Development Goals to be \$8–17bn per year 2010–20 for Africa alone, roughly aligned with Project Catalyst’s previous estimates for adaptation need of \$15–30bn per year globally. With a linear ramp up this corresponds to around \$7.5–22.5 bn per year in 2010–12 (excluding capacity building). Adaptation funding in the next few years should focus on no-regret ‘soft’ adaptation, such as improving agricultural practices, rather than large infrastructure investments such as large-scale flood defences, which should come later once the extent of future climate change is clearer and planning more advanced. Given scarce resources, funding should be weighted to the most vulnerable countries.

■ **Planning, capacity building, and improving information and data gathering (~\$1.5 billion from 2010–12).** Funding needed for capacity building and further

¹⁷ Based on Overseas Development Institute research.

¹⁸ Box 2 provides examples of adaptation strategies in two developing countries.

¹⁹ See for example “From adaptation to climate resilient development” – Fankhauser and Schmidt - Traub, November 2009.

²⁰ “From adaptation to climate resilient development” – Fankhauser and Schmidt - Traub, November 2009

development of adaptation planning.²¹ This cost estimate is based on scaling up the Pilot Programme on Climate Resilience to all highly vulnerable countries. This programme has so far identified eight initial recipient countries, with an estimated cost of \$285 million, with the aim of piloting and demonstrating ways to integrate climate risk and resilience into core development planning and financing. Investment is also needed to develop information and data gathering at a global level, but since this is focused globally rather than only on developing countries, it would probably not form part of the Fast Start system.

Particularly in the most vulnerable countries, adaptation and development are inextricably linked. In practice this could mean blending funds for adaptation with development funding on the ground (while ensuring additionality of Fast Start Finance at its source). In addition, the funding disbursed by existing development institutions and International Finance Institutions (IFIs) needs to be leveraged effectively in order to increase climate resilience of other development investments (for example, by changing the criteria for project evaluation to incorporate future climate risks) and avoid potential maladaptation.

²¹ As estimated by our Working Group on Adaptation.

BOX 2: Adaptation

The Maldives – coastal protection of safer islands

The Maldives, a low-lying island nation, is highly vulnerable to climate change and severe weather events. Following the 2007 tsunami the Maldives developed a safer island strategy, focused on eventual resettling of communities from smaller, more vulnerable islands to the larger, comparably safer ones. In preparation for this resettlement, the government has identified an urgent need to improve coastal protection and vulnerability to sea flooding of these safer islands. To achieve this, the country's NAPA requests \$3 million to complete a detailed risk assessment of coastal engineering and adaptation requirements on the safer islands and to implement the recommendations on one island.

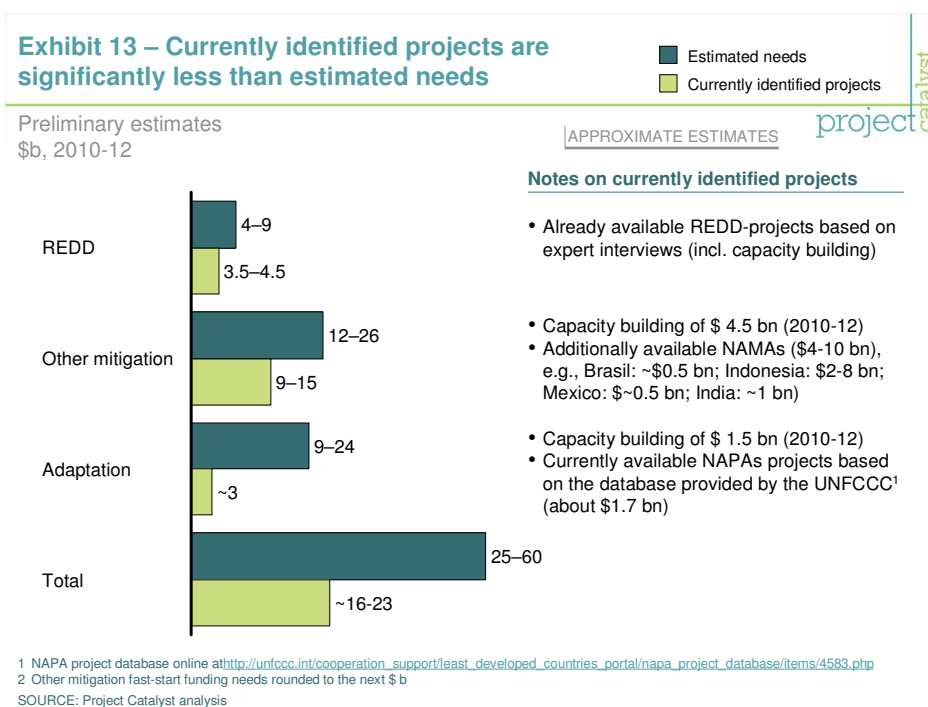
Bangladesh – adaptation to agricultural systems in areas prone to enhanced flash flooding

Northeast and central Bangladesh are becoming increasingly prone to extreme flooding, which can destroy the rainy season rice crop (bora). Late recession of flooding can delay planting of the next rice crop and lead to several months without food for many farming communities. Bangladesh's NAPA requests support to introduce floating bed potato and vegetable cultivation in this period to provide flood-affected communities with staple food, nutrition and a source of income. The programme would cover an estimated 10,000 farmers with an estimated cost of \$6.5 million, to cover provision of seeds, fertiliser, credit to cultivate the crop, and training on the new technology.

Preliminary estimates suggest that currently registered adaptation and mitigation projects could be less than the estimated needs.

The absorption capacity of developing countries to effectively use Fast Start Finance to address mitigation and adaptation issues has been raised as a significant area of concern. Assessing absorption capacity is extremely challenging; however, one approximation is to calculate the value of currently registered projects in developing countries, acknowledging that existing development strategies could well contain climate related activities not yet identified. Based on a combination of interviews and estimates of the value of submitted

national mitigation and adaptation plans (NAMAs and NAPAs), the value of registered projects ranges from \$16–23 billion for 2010–12 (Exhibit 13).²² It is important to stress however that these estimates are only rough estimates, and should not be interpreted as a justification for developing countries not receiving climate finance – not least because, as more climate finance is disbursed, the incentive for new projects to be developed by developing countries would increase and thus spur more climate change programmes in those countries.



If these estimates are indeed accurate and the current value of registered projects is lower than actual needs (\$21–54 billion), it will be critical to use part of Fast Start Finance to invest in capacity building to create a larger pipeline of projects while also supporting programmatic schemes with longer term investments (beyond 2012).

²² Excluding China and ODA projects not included in NAPAs

4. Priorities for Fast Start Finance

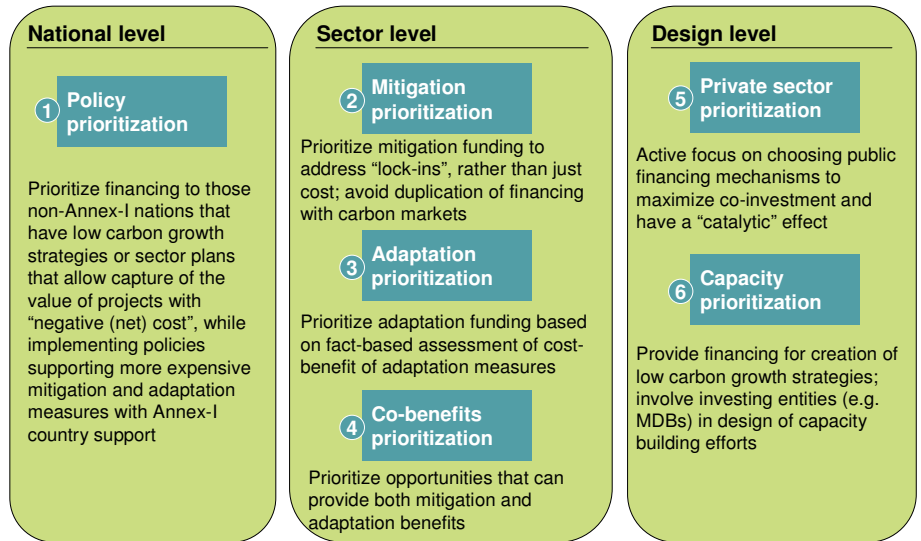
Given actual needs (\$21–54 billion) are likely to be greater than available funding (\$28-35 billion), funds need to be spent in ways that both address short-term adaptation and mitigation needs and that also build developing country capacity to effectively utilize this funding.

There are opportunities to broaden the impact of Fast Start Financing through careful prioritization. We have identified 6 key questions that should be considered by donors to ensure that Fast Start Financing maximizes the impact of scarce resources (Exhibit 14):

- (1) Is the specific project / programme part of a robust broader development strategy addressing low carbon growth or part of a NAMA in the developing country? (**Policy prioritization**);
- (2) For mitigation projects, does the project avoid lock-in to high-carbon infrastructure and result in mitigation which is incremental to financing from carbon markets? (**Mitigation prioritization**);
- (3) For adaptation projects, is the project proposal the result of robust analysis? (**Adaptation prioritization**);
- (4) Does the project have both adaptation and mitigation benefits? (**Synergy prioritization**);
- (5) Is the project designed in such a way that it will leverage private sector funding? (**Private sector prioritization**);
- (6) For capacity-building support, does the support include the creation of a LCGP (where absent) and also allow for input from likely investors? (**Capacity prioritization**).

Whilst it is unlikely for projects and programmes to satisfy all of these questions, they can serve as useful guidelines for ensuring that Fast Start Finance is being used most effectively.

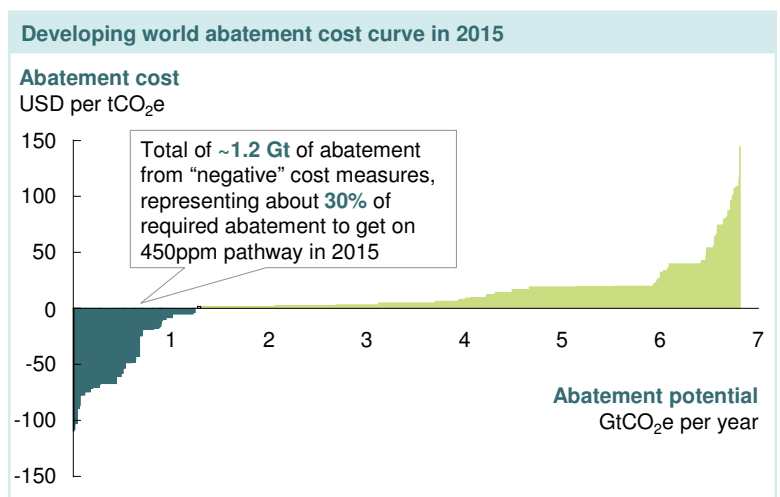
Exhibit 14 – There are six prioritization criteria, split across three different levels



(1) Policy prioritization

A significant part of the mitigation opportunity in developing countries has low or negative opportunity costs – for example, 1.2 Gt of abatement in 2015 or 30% of required abatement to reach a 450 ppm pathway by 2015 has negative costs (Exhibit 15).

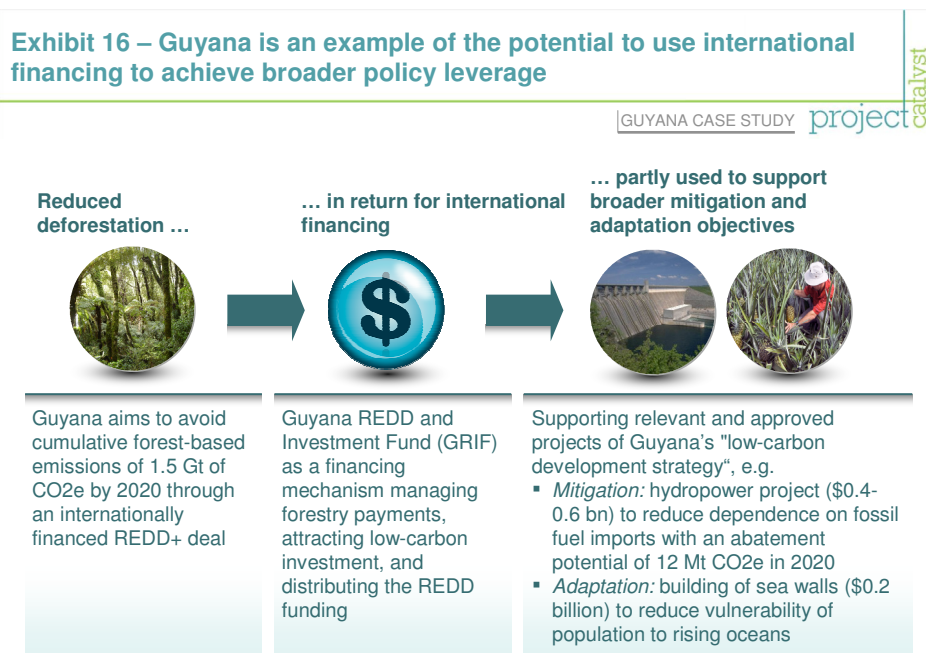
Exhibit 15 – ‘Negative cost’ measures are critical to deliver 450 ppm pathway representing about 30 percent of required 2015 abatement



SOURCE: McKinsey Global Abatement Cost Curve v2.0, team analysis

Some national and sub-national governments have implemented proven, effective policies that address mitigation opportunities that have both positive and negative opportunity costs (as well as adaptation initiatives) – usually as part of a national climate change plan. Providing financing to those non-Annex-I nations that have low carbon growth strategies or sector plans that allow capture of the value of projects with “negative (net) cost” (e.g. energy efficiency), while implementing policies supporting more expensive mitigation and adaptation measures with Annex-I country support can increase the cost effectiveness of support.

Guyana serves as a great example of the potential benefits from policy leverage. Faced with a combination of inter-linked development, mitigation and adaptation challenges, the President of Guyana led the creation of a low carbon growth strategy in 2007. As part of this plan, Guyana has created an innovative ‘payment for forestry’ mechanism, with Guyana selling avoided deforestation credits to international donors and eventually to carbon markets. All of this money is then earmarked for other development, mitigation and adaptation investments, effectively leveraging the international financing provided for avoided deforestation to broaden potential impact (Exhibit 16). By capturing these mitigation and adaptation ‘multipliers’, the cost effectiveness of international support is increased significantly. For example, Norway has committed to spend \$250 million to 2015 to buy Guyana’s forestry credits at a price of €5 per tonne CO₂e. Guyana plans to use some of these funds to finance a hydropower plant and when the abatement potential of this plant is included, the cost per tonne CO₂e reduced by international support falls by almost a third.

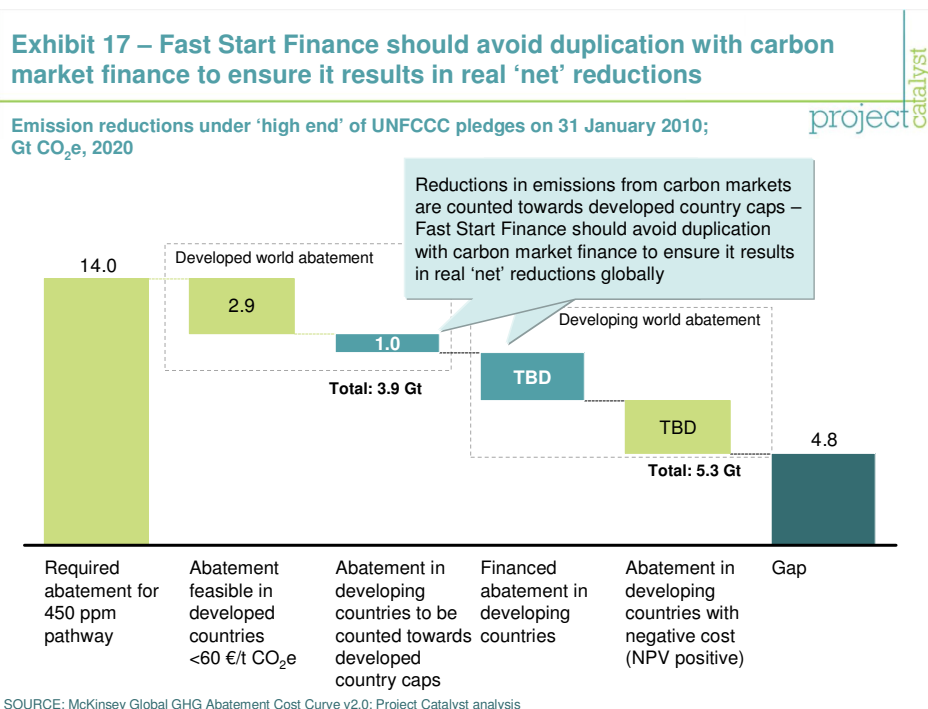


SOURCE: Guyana low carbon growth strategy, December 2009

Funding should therefore be prioritized for those countries which either have a low carbon growth plan in place, or to ensure that countries have the support to develop such plans.

(2) Mitigation prioritization

Given the scarcity of funding, Fast Start Finance needs to result in ‘real’ net reductions. It will be important to secure the highest possible abatement per unit of public funding spent. This needs to be calculated as net abatement, subtracting any carbon credits that would be generated, as carbon market financing will lead to increased emissions in developed countries, resulting in net reductions of zero (Exhibit 17). Fast Start Finance should therefore be directed towards activities where there will be no overlap with carbon market financing. In some instances, such as the financing of abatement measures which are initially quite expensive (but have large learning effects), there may be a need for both carbon market and public financing. In these cases, it is crucial that Fast Start Finance only finances the remaining ‘gap’ between the incremental cost and potential financing from carbon markets.



In addition, some climate investments, if made early, will have an extremely large impact on reducing future emissions. Such investments are typically infrastructure investments (e.g., in the industrial or power sectors) with high upfront capital requirements. Conversely, if avoided, these missed opportunities will result in high emissions that are locked in as nations choose high-carbon alternatives instead (Box 3). Climate investments that avoid lock-in represent roughly 30 percent of available abatement in developing nations (2 Gt by 2015) and are most prevalent in the power, industry, buildings and transport sectors (Exhibit 18).²³ Of these, 1.4 Gt are available for abatement at a relatively low price (less than \$30 per tonne CO₂e). There are additional opportunities totalling 0.6 Gt (Exhibit 20) available at a higher cost (i.e., above \$30 per tonne CO₂e).

²³ An argument can also be made that the forestry sector faces “lock-in” challenges. For example, once a road is constructed through forest areas, this can create path dependency leading to further deforestation and emissions.

BOX 3: Implications of lock-in

What is lock-in?

When an emission source such as a coal-fired power plant has a long life-span (20 years or more) and significant upfront investment costs (also known as 'sunk costs') its CO₂e emissions are said to be locked-in. Once the initial investment has been made, reversing it is likely to be both difficult and expensive. Sectors affected by lock-in include power, buildings, transport, and industry.

How is lock-in connected to mitigation leverage?

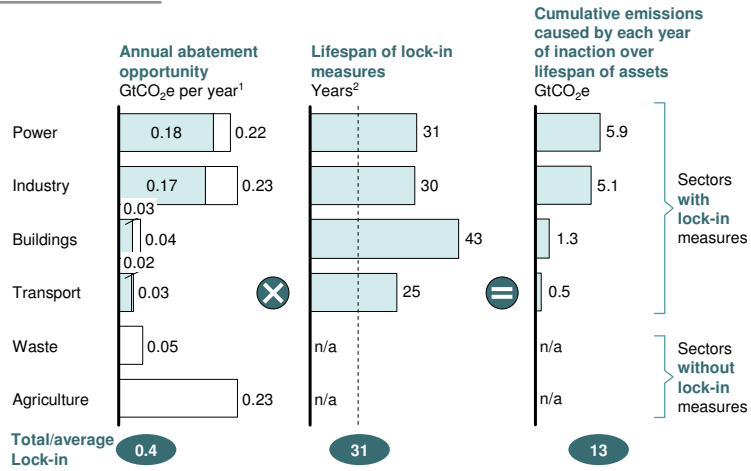
Countries seeking to reduce emissions have a choice of projects and policies to achieve their aims. If a nation chooses projects and policies today that disincentivise investment in infrastructure with lock-in vis-à-vis low carbon alternatives (e.g. by supporting feed-in tariffs for renewable energy sources, providing financial support for investment in energy efficient buildings, etc), investment in these lock-ins will be reduced, together with the high future emissions associated with these investments (Exhibit 19). This has the potential to create significant mitigation leverage, which can be estimated by multiplying the average difference in emissions (between the lock-in investment and the low carbon alternative) with the life-span of the asset.

Exhibit 18 – There are large “lock-in” effects across many sectors in developing countries

□ Non Lock-in
 □ Lock-in

project catalyst

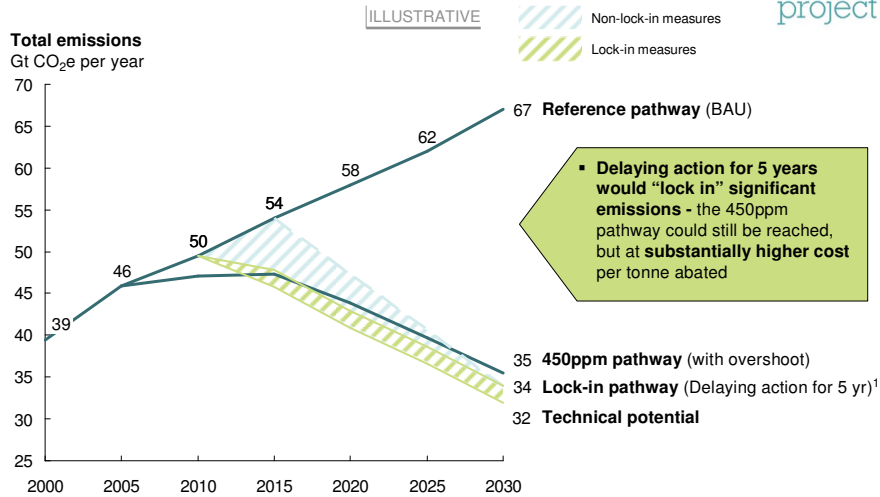
DEVELOPING COUNTRIES



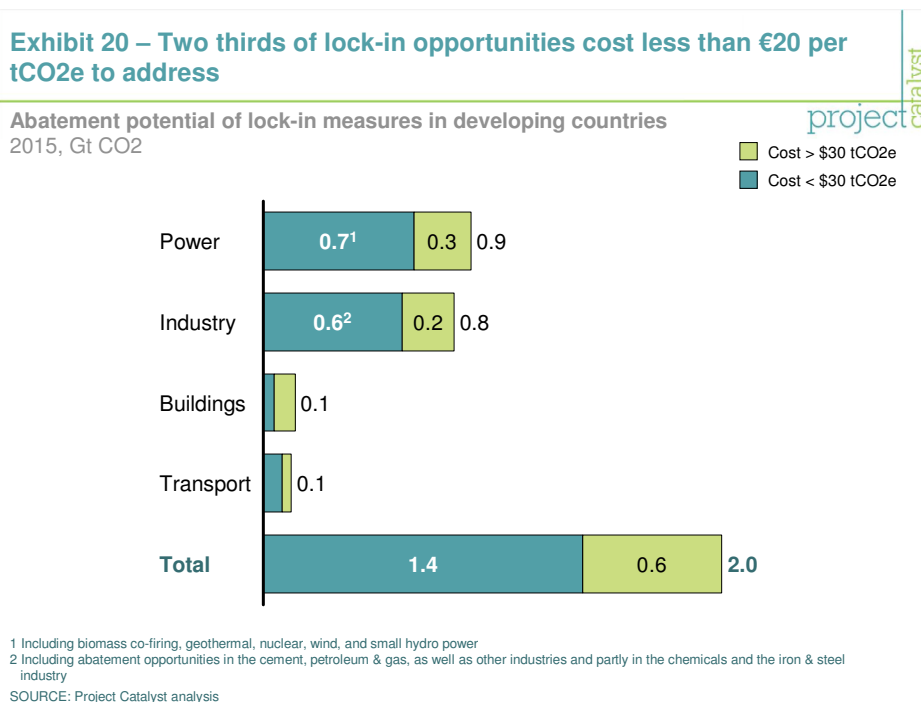
1 Annual between 2010–15; calculated as emission difference between BAU and emissions after abatement.
 2 Weighted average of lifespan of lock-in measures in sectors power, industry, buildings and transport in developing countries
 3 Measures with a lifespan of more than 20 years and large capital investment (capex 2010-2015 larger than 0.005% of regions GDP estimate for 2015)
 SOURCE: Global GHG Abatement Cost Curve v2.0; Team analysis

Exhibit 19 - Delaying action for 5 years “locks-in” a large amount of emissions

project catalyst



SOURCE: Project Catalyst analysis



Fast Start Finance should be directed to projects that avoid lock-in, including those abatement opportunities which are slightly more expensive than other non lock-in opportunities - avoiding future emissions now is more cost effective over time than reducing emissions later. Our analysis shows that the additional benefits of addressing ‘lock-ins’ can in some instances be more than 3 times as large as their cost differential between these measures and cheaper abatement alternatives due to the following benefits:²⁴

- i. **Technology learning effect:** Many of the lock-in opportunities relate to technologies that will get cheaper over time as we learn better means of production and achieve scale. The future economic viability of some climate investments such as carbon capture and storage (CCS) or solar PV is strongly dependent on early investment. This effect can be substantial. Assuming abatement costs remain at 2020 levels in 2025 and 2030 leads to an increase of incremental cost of 50 percent for solar PV (>\$10 billion per year.); 20 percent for equipping coal plants with CCS (~\$5 billion per year.); 30 percent for equipping gas plants with CCS (<\$5 billion per year.).
- ii. **Development co-benefits:** from a country perspective, investing in low-carbon infrastructure has compelling co-benefits (e.g., energy security, reduced air pollution,

²⁴ Additional incremental costs of prioritizing ‘lock-ins’ over simple cost prioritization ranges from \$20-90 billion per annum (depending on funding scenario). Benefits range between \$70–155 billion per annum (based on \$10–15 billion for ‘rebound effects’; ~\$20 billion for ‘learning effects’; \$20–50 billion for ‘co-benefits’; and \$20–70 billion for ‘flexibility effects’). Note: estimates are very rough approximations and would vary greatly depending on the specific ‘lock-in’ opportunity being considered.

reduced health care cost). Past research has shown that co-benefits for renewable power projects can be up to 100 percent of generation cost.²⁵ Even if the co-benefits were 50 percent of the incremental cost of renewable power capacity (\$40–100 billion per year from 2020–30), this would deliver annual co-benefits of \$20–50 billion.

- iii. **Future flexibility:** Prioritizing investments that avoid lock-in in the short-term gives greater flexibility later on as there will be more affordable choices for mitigation. In contrast, a country locked in to high emissions would be stuck in future paying for expensive emission reduction programmes. The impact of this is very difficult to measure, but could be substantial, representing savings of abatement costs of \$20–70 billion per annum from 2020–2030.²⁶
- iv. **Rebound effect:** Because climate investments that avoid lock-in generally have large sunk costs, they remain in place despite potential changes in political will or consumer behaviour. Other comparably priced abatement measures are subject to a ‘rebound effect’ where the savings achieved are often squandered elsewhere due to basic human behaviour or changes in political will. The magnitude of these ‘rebound effects’ are difficult to measure but could potentially increase the costs of abatement by \$10–15 billion per annum from 2020–2030.²⁷

(3) Adaptation prioritization

Mitigation is a significant challenge and opportunity, but will take decades to achieve success. While effective mitigation measures are unavoidable to curb climate change in the long run, the models in the IPCC’s (Intergovernmental Panel on Climate Change) Fourth Assessment Report (AR4) show that global warming to 2030 will be little influenced by the level of greenhouse gas emissions in the next 20 years, due to lags in the climate system. Hence, in addition to developing mitigation measures and paths towards low-carbon growth,

²⁵Jeremy Fisher, John Levy, and Paul Kirshen “Co-Benefits of Energy Efficiency and Renewable Energy in Utah Synapse Energy Economics, Inc, 2010.

²⁶ Calculated as the extra-cost of addressing more expensive measures due to locked-in measures being ‘unavailable’. Range depends on funding scenario, with low case being the additional costs based on the likely funding availability, and the high case based on the costs of reaching a 450 ppm pathway.

²⁷ Terry Barker and Athanasios Dagoumas “The Global Macroeconomic Rebound Effect of Energy Efficiency Policies: an analysis 2012–2030 using E3MG”, University of Cambridge, 2009, estimate approximately 20–40 percent of the energy consumption decrease achieved through energy efficiency policies could be offset by an increasing demand for energy (arising from energy prices falling relative to the ‘business-as-usual’ scenario). Additional abatement cost estimates based on assumption that 30 percent of positive cost energy efficiency measures (with costs less than \$30 per tCO₂e) are ‘lost’ due to rebound effects and that additional abatement must be achieved by other more expensive abatement opportunities to remain on a 450 ppm pathway.

policymakers need to adopt adaptation measures to protect their people and economies from the negative effects of increasing climatic risks in the medium term.

Concerns have been raised by some contributing countries that it is difficult to “quantify” the impact of adaptation measures unlike mitigation where cost per tCO₂e abated becomes a useful proxy for impact. A systematic approach to adaptation that can develop a robust, fact based business case for adaptation measures in the highly uncertain context of climate change is therefore helpful. The Economics of Climate Adaptation (ECA) working group²⁸ has developed a practical methodology based on a modular approach to systematically (a) put a price tag (both in economic and human terms) on the overall climate risk of today and the future in order to help prioritize the most urgent climate problems, (b) identify and prioritize an actionable portfolio of adaptation measures and (c) create a roadmap to implementation and an investment plan. This methodology, which can be applied across all countries, sectors and hazard types, can be used to provide a fact-based assessment to help prioritize adaptation spend within a given country context.²⁹

Given the need to prioritize funding to adaptation projects that deliver the greatest impact in terms of increased resilience to climate change, it is important that adaptation projects/programmes within a country (funded through Fast Start Finance) have undergone some form of cost-benefit analysis such as this. Otherwise, there is a danger that funds get allocated to low impact adaptation projects and diverted away from potentially more impactful development projects (the fact that a large share of the \$30bn pledged will not be additional to ODA makes this cost-benefit prioritization all the more important).

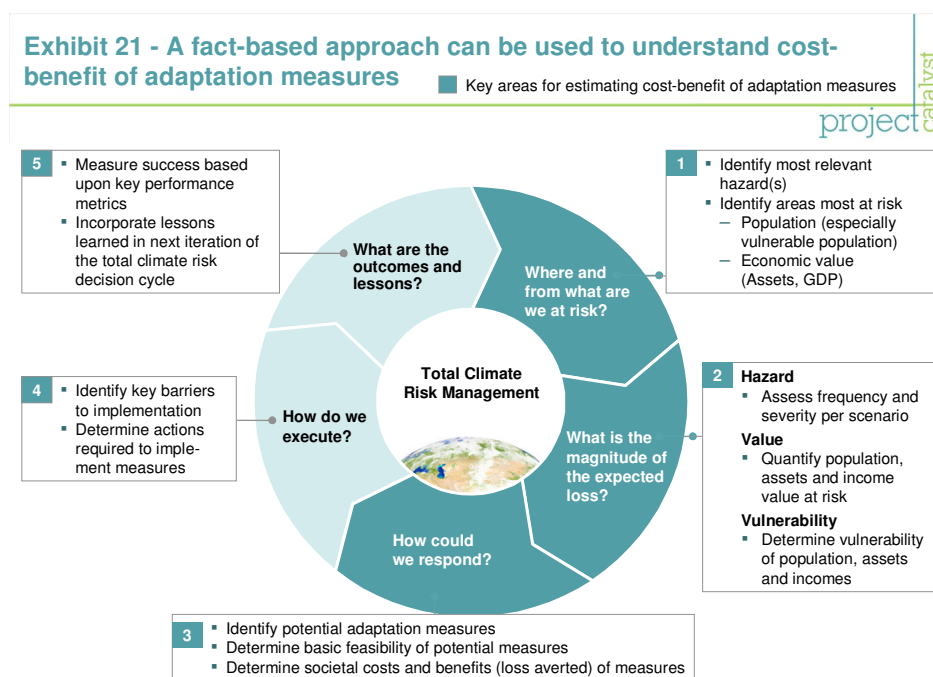
The ECA approach poses five questions, each driving a core set of analyses (Exhibit 21):

1. *Where and from what are we at risk?* Identify the most relevant hazards as well as the areas of the country, region or city that are most at risk by an overlay of the spatial distribution of population and economic value.
2. *What is the magnitude of the expected loss?* Determine what value and/or population is at stake from the risk – today and in the future – under different scenarios for climate change and economic development.

²⁸ The Economics of Climate Adaptation (ECA) working group is a consortium of major global non-governmental organisations (ClimateWorks Foundation, Rockefeller Foundation), public sector (the European Commission, the Global Environment Facility) and private sector organisations (Swiss Re, Standard Chartered Bank, McKinsey & Company).

²⁹ Further details on the approach can be found in “A national strategy for adaptation to climate change”, McKinsey & Company, 2010.

3. *How could we respond?* Build a balanced portfolio of risk mitigation and risk transfer measures based on detailed cost–benefit and loss aversion assessments.
4. *How do we execute?* Develop a holistic climate risk strategy to overcome barriers and launch fully-funded adaptation initiatives.
5. *What are the outcomes and lessons?* Measure success and conduct the risk management process periodically, adjusting strategies as climate scenarios change.



SOURCE: Economics of Climate Adaptation working group

To calculate the expected loss, climate change scenarios are first developed. Three modules are then used to estimate the expected loss - *Hazard assessment module* (to understand how climate change affects the severity and/or the frequency of natural hazards); *Value of assets module* (to understand the effect of a worsening hazard, the assets, sources of livelihood and population are mapped in detail); and *Vulnerability module* (defines the percentage of value damaged by hazards for a given severity). The total expected loss today and for different climate change scenarios in the future can then be quantified.

A portfolio of different measures (screened for their feasibility³⁰) can then be assessed according to their societal cost and expected benefits defined in terms of:

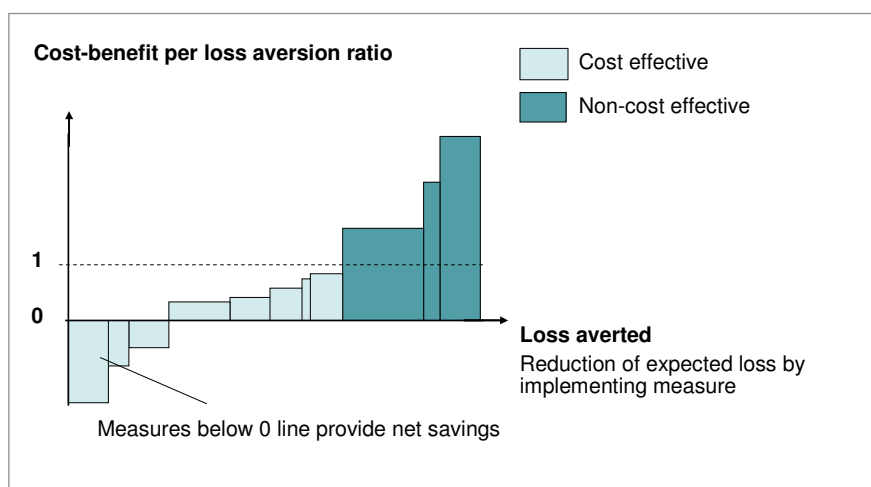
- *Societal cost*: should include capital expenditures to erect the measure, as well as operating costs net of any savings the measure could create indirectly. The calculation of costs often requires a pragmatic bottom-up approach as comprehensive cost estimates are not available. For example, the costs of home-installed water catchments should include the costs of roofing upgrades, a storage tank, labour and maintenance.
- *Benefit*: defined as the value of the annually expected loss averted (both in economic and human terms). Measures can affect the expected loss by reducing the hazard frequency and/or severity, reducing the value at risk or reducing the vulnerability.

Finally, a cost–benefit curve can be developed with all shortlisted counter measures (Exhibit 22).

Exhibit 22 – A cost-benefit curve of adaptation measures can help to prioritize adaptation measures for a given country

ILLUSTRATIVE

project catalyst



SOURCE: Economics of Climate Adaptation working group

Measures can be grouped into three categories according to their cost-benefit ratio:

- *Cost-benefit ratio less than zero*: The measure pays for itself and creates additional economic value.

³⁰ This includes an evaluation of technological feasibility, engineering complexity, cultural fit and appropriateness for local setting.

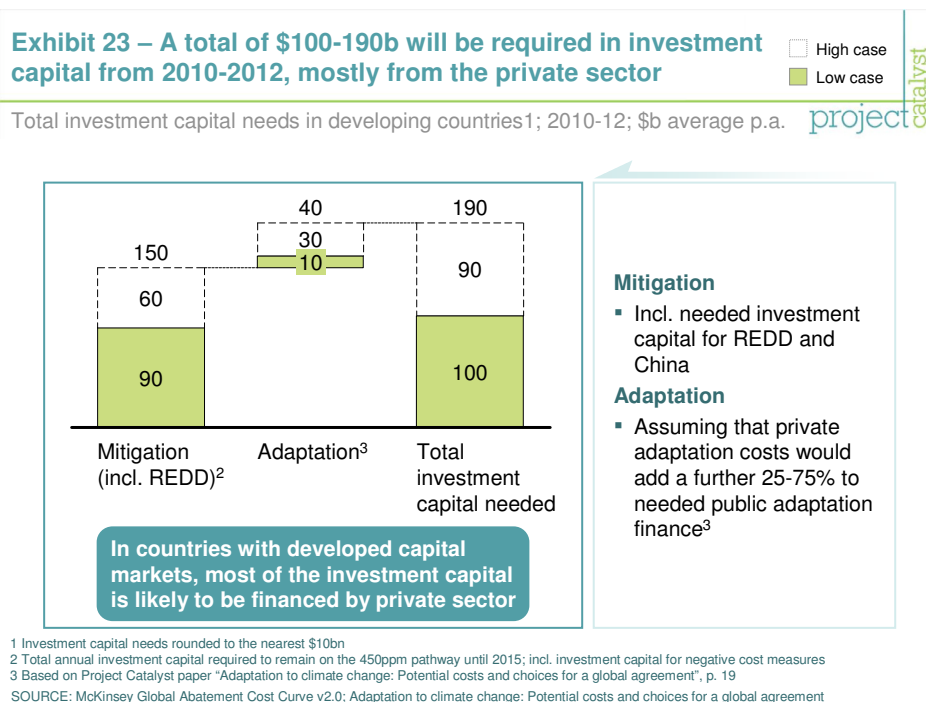
- *Cost-benefit ratio less than one:* The measure is cost effective because the loss averted is higher than the societal costs. Experience from the ECA case studies suggests cost-effective measures cover about 40–65 percent of expected losses.
- *Cost-benefit ratio greater than one:* Although the measure is not attractive based on a risk-neutral, purely economic rationale, it may be attractive to a decision-maker based on his/her aversion to risk. For example, a decision maker may set a threshold on the damage he/she is willing to accept, far beyond what can be done cost-effectively.

(4) Synergy prioritization

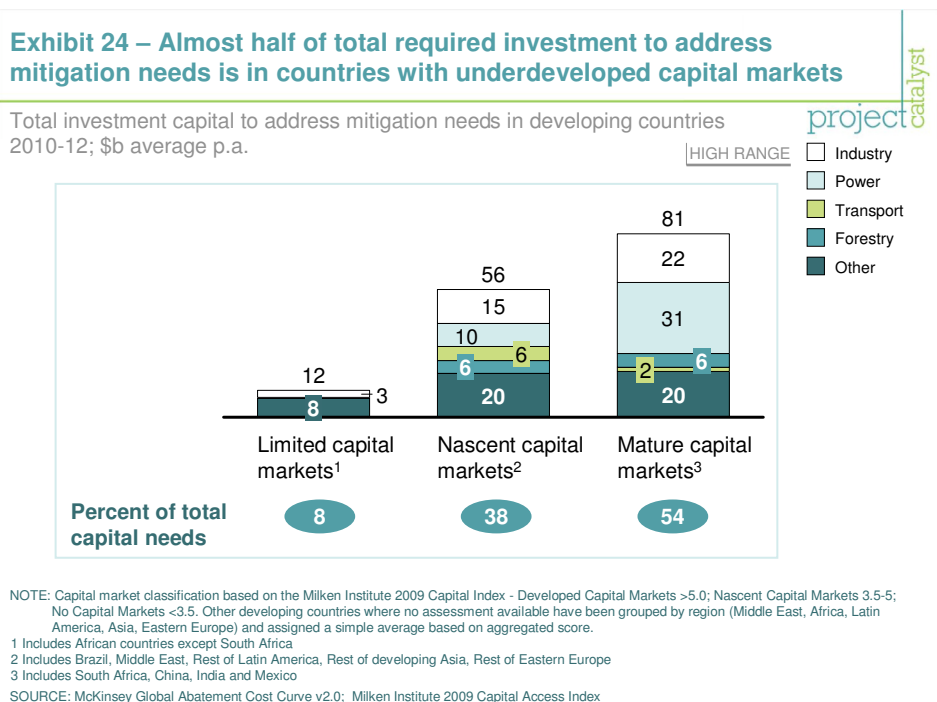
In order to try to minimize the trade-off between using limited available financing to address both adaptation and mitigation needs, opportunities that can provide both mitigation and adaptation benefits should be prioritized. For example, extension services that can provide farmers with the know-how to improve productivity (and introduce environmentally-sustainable practices) on existing land can achieve CO₂ mitigation (by reducing the pressure to open up new forests) and also support adaptation. There are potentially a large amount of mitigation levers with adaptation co-benefits, particularly in the forestry and agriculture sectors. Some approximate estimation of the size of adaptation co-benefits (as described in the adaptation prioritization section) could be combined with measures of CO₂ impact to develop a prioritization criteria.

(5) Private sector prioritization

Adaptation and mitigation will require a total of \$100–190 billion annually in investment capital from 2010–12 (above and beyond incremental cost financing), mostly from the private sector (Exhibit 23). Fast Start Financing should be prioritized toward actions that attract private capital and create momentum for future financing, in particular: strengthening access to financing, improving the economic returns from adaptation and mitigation initiatives, reducing investors' return expectations, and building momentum by addressing start-up challenges.

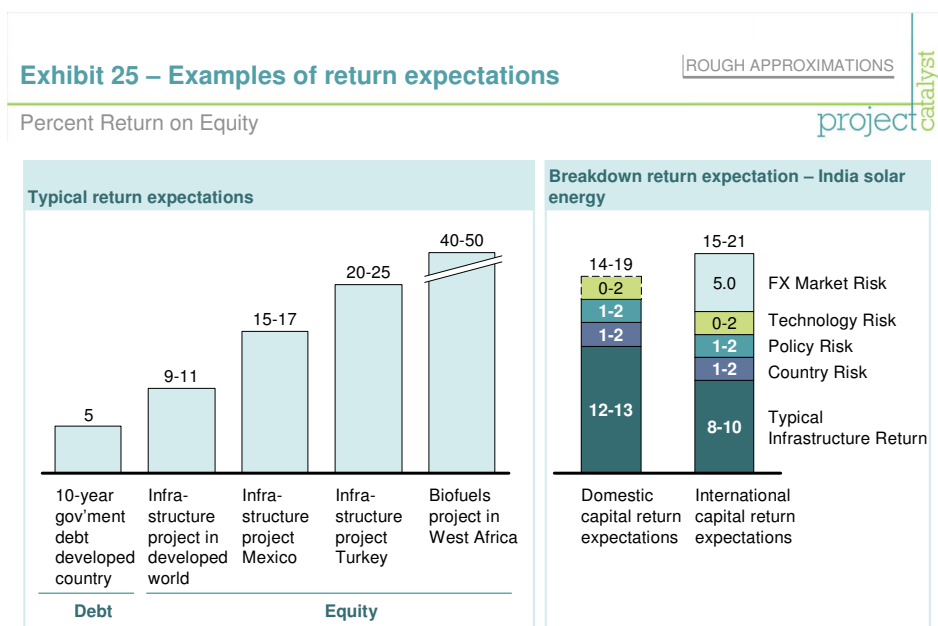


A. **Strengthening access to financing:** underdeveloped local capital markets will be a key barrier to private capital investment in developing countries. Almost half of the approximate \$150 billion of annual capital investment (in a high case) needed to address mitigation needs from 2010–12 will be channelled through financial markets which are currently severely underdeveloped (Exhibit 24). Strong support for local policymakers by multilateral development banks is crucial to strengthening local capital markets and can be supported by Fast Start Finance. This must include a mix of policy reforms to improve transparency and investor protection, as well as promoting liquidity by channelling financial flows in these markets through various mechanisms such as loan guarantees and co-financing. In some cases, this needs to be supported by technical support to local financial institutions to make them more fully aware of the opportunities and the associated risks of lending to new areas. In Vietnam for example, local financial institutions are often not aware of the profitability of lending to industrial energy efficiency projects and as a result, lending to this area is currently constrained (Annex V).



- B. Improving the economic returns from adaptation and mitigation initiatives:** many mitigation projects are not economically viable without financial support. We estimate that mitigation and adaptation projects require an aggregate \$21–54 billion support on average per year from 2010–12 (and more thereafter) for incremental cost financing (assuming no change in private sector required returns). Various financial mechanisms, such as feed-in tariffs, can be used to provide stable and predictable income support for incremental costs (over the duration of the project life) in order to increase the returns of private sector investment. For example, to support India’s National Solar Mission, a total of about \$3.5 billion will be required in investment capital from 2010–2012 to reach the Phase 1 target of about 1.1 GW solar capacity, growing to approximately \$51 billion by 2020. However, solar energy is currently not a viable commercial opportunity (without subsidy, solar projects would result in negative returns), driven by current low cost competitiveness (solar power is currently 4–5 times the cost of coal). In India, a feed-in tariff is being used to support development of the solar market. For utilities, a 25 year Purchasing Price Agreement is in place for solar power (reviewed annually) guaranteeing a 19–24% pre-tax return on equity (Annex IV). There is a potential role for Fast Start Finance to provide funding for incremental costs where no domestically funded sources exist or to help scale up existing domestically funded programmes to increase potential mitigation and adaptation benefits.
- C. Reducing return expectations:** there are additional risks associated with many mitigation and adaptation projects in developing countries which could inflate required private sector

returns. These include policy risk (i.e., risk of changes to policy regime that could undermine investment economics); country risk (i.e., general macro-economic, legal and local political risks); currency risk (i.e., lack of liquid markets required to hedge currency risks for a number of countries); and technology risk (i.e., the risk associated with nascent, unproven technologies). The return expectations of investors are driven by these risks, and could range from 9–11% for infrastructure projects in mature technologies in developed markets but be as high as 40% in some developing markets (Exhibit 25).



SOURCE: Interviews; team analysis

Fast Start Finance can be used for public interventions to reduce the risk to capital thereby lowering the Weighted Average Cost of Capital of private sector operators.

- i. *Country risk*: a number of institutions already exist in that space, such as the Multilateral Investment Guarantee Agency (MIGA) or Overseas Private Investment Corporation (OPIC). Their pot of financing could be expanded and their remit focused more heavily on climate related investments.
- ii. *Policy risk*: there are currently very few mechanisms for private investors to cover policy risk specifically. Whilst this should first and foremost be the responsibility of developing countries to put in place solid and reliable policies, there is the potential opportunity for bodies such as MIGA or OPIC to extend their coverage to climate related policy risk.

- iii. *Currency risk*: there are currently very few mechanisms to cover long term currency risks, except for the currency exchange fund supported by the Dutch Ministry for Development Corporation.
- iv. *Technology risk*: R&D support can help to reduce some of the risks associated with new technologies and accelerate time required for new technologies to become cost competitive against existing alternatives.

D. Building momentum by addressing start-up challenges: climate change investments in developing countries are often constrained by a lack of know-how and infrastructure on both the financing and project development side (i.e., project developers are not investing due to lack of capital and investors face a limited investable project pipeline). It often takes an initial investment to catalyse a pipeline of investable projects. A publicly-funded body could help support early-stage project development in the private sector, complemented by efforts to support local capital market development (as noted earlier).

The appropriate use of Fast Start Financing will differ according to the sector and the degree of local capital market development. For example, in the energy sector in developed local capital markets, market-based mechanisms such as the UK’s Renewable Obligation Certificate (ROC) or feed-in tariffs may be appropriate, whereas in less developed markets direct public financing grants complemented with efforts to strengthen the local capital market may be needed to support private investment.

(6) Capacity leverage

The sixth priority for Fast Start Finance is capacity building. Given the current value of identified projects (\$16–23 billion) is considerably lower than actual needs (\$21–54 billion), it is crucial to use some of the Fast Start Finance to target capacity building. Funding for integrating climate concerns in existing development plans (e.g. Low Carbon Growth Plans) is the most urgent priority. At present, out of roughly 150 developing countries, only 44 countries have submitted National Adaptation Programmes of Action (NAPAs) to the United Nations Framework Convention on Climate Change (UNFCCC) and only 13 countries have submitted concrete Nationally Appropriate Mitigation Plans (NAMAs) which outline specific actions.³¹ Involving investing entities (e.g., multi-lateral development banks) and local communities in the design and delivery of capacity building efforts is also potentially useful. Finally, Fast Start Finance needs to be sufficiently flexible

³¹ We define “concrete” NAMAs as those which outline specific actions for how they will achieve the stated mitigation targets.

to allow earmarking of funding for future attractive projects that may not be available until after 2012 (ensuring Fast Start Finance is not wasted on a pool of lower impact, currently available projects).

A critical question is how these different prioritization criteria interact to guide an overall approach to prioritization of Fast Start Finance. The starting point should be to prioritize funding for those countries which either have climate planning in place, or to ensure that countries have the support to develop such plans. Within these plans, initiatives that can address mitigation ‘lock-in’, can provide large adaptation benefits, or that provide adaptation co-benefits should then be prioritized. Finally, initiatives should be designed such that they both address the barriers to private sector investment noted earlier and that they incorporate the outlined approach to capacity building.

Exhibit 26 provides an overview of what these prioritization criteria could mean for funding of specific projects. Support for high carbon infrastructure, such as coal plants, should clearly be avoided to prevent ‘lock in’ effects, even if they offer minor efficiency improvements. Conversely, initiatives that form part of a broader sector or national low carbon growth plan, and that have the potential to avoid ‘lock in’ or offer adaptation benefits (e.g. extension services to farmers) should be prioritized. Whilst it is unlikely for projects and programmes to satisfy all of these criteria, they can nevertheless serve as useful guidelines for ensuring that Fast Start Finance is being used most effectively.

Exhibit 26 – Dos and Don'ts for prioritization of Fast Start Finance

Prioritization criteria	Dos	Don'ts
1 Policy prioritization	<ul style="list-style-type: none"> Support FSF projects that form part of a broader LCGP, or support the creation of the plan itself 	<ul style="list-style-type: none"> Support projects that are inconsistent with the LCGP
2 Mitigation prioritization	<ul style="list-style-type: none"> Support mitigation measures which address large 'lock-ins' (e.g. power and industry measures) 	<ul style="list-style-type: none"> Support high carbon infrastructure (e.g. coal plants), even if offer minor efficiency improvements
3 Adaptation prioritization	<ul style="list-style-type: none"> Support adaptation measures with large potential benefits (in reducing expected losses) relative to costs 	<ul style="list-style-type: none"> Fund adaptation projects within a country without a fact-based assessment of cost-benefits
4 Co-benefits prioritization	<ul style="list-style-type: none"> Support forestry and those agriculture opportunities that have potential adaptation co-benefits 	<ul style="list-style-type: none"> Ignore potential adaptation co-benefits in prioritizing mitigation levers
5 Private capital prioritization	<ul style="list-style-type: none"> Focus on public financing mechanisms allowing leverage of most private capital 	<ul style="list-style-type: none"> Ignore addressing barriers to private sector investment (e.g. currency risk, policy risk)
6 Capacity prioritization	<ul style="list-style-type: none"> Include investing entities and communities in design of capacity building projects 	<ul style="list-style-type: none"> Develop capacity building projects in isolation from investing entities and communities

5. Elements of a successful Fast Start Finance system

A high performing Fast Start Finance system will need to ensure effective delivery of funds, based on 5 principles.

In addition to carefully prioritizing *what* is funded, the question of *how* Fast Start Finance is delivered is also of critical importance. Discussions with developing and developed countries have highlighted several principles (which are consistent with the principles in the Paris Declaration on Aid Effectiveness) that a Fast Start Financing system should satisfy to effectively deliver the available funding and pave the way for effective delivery of the longer term (post-2012) public climate finance that will be required:

- 1. Support flexibility and predictability to encourage forward planning:** The need to spend Fast Start Finance in the year it is included on donor countries' budgets is a serious threat to effective spending. In addition, many of the climate change challenges in developing countries require transformational changes to a country's economy which developing countries cannot commit to without assurances of future financial support. Fast Start Finance needs to be sufficiently flexible to allow earmarking of funding for future attractive projects that may not be available until after 2012, ensuring Fast Start Finance is not wasted on a pool of lower impact, currently available projects. By pledging a sizable amount to the Amazon Fund contingent upon the delivery of reductions in deforestation, Norway and Brazil charted a new path for international cooperation by creating certainty that funds will flow as results are delivered. If other developed countries were to follow this example, they would provide the certainty required by developing countries for forward planning necessary to address climate change challenges and also ensure that funds are spent in an efficient manner. Potential barriers to forward planning need to be addressed. For example, budgetary allocations are normally only done 12 months in advance and thus any forward commitments would entail a significant change to government processes. The experience of Brazil's engagement with Norway however suggests that such change is feasible. To support this, it is critical that a concrete plan is developed to mobilize the \$100 billion of climate finance to developing countries by 2020 outlined in the Copenhagen Accord.
- 2. Boost harmonization:** There is currently little coordination between nations on Fast Start Finance. This risks Fast Start Finance being fragmented, disbursed through a large

number of channels, and spread over individual efforts in a suboptimal way. In the short-term coordination of spending might be required to allocate money strategically, avoid leaving countries out and to increase the flow of learning. This could involve recipient countries requiring contributing countries to coordinate their investment plans. The Climate Investment Funds requires such coordination among Multilateral Development Banks (MDBs) and the initial feedback suggests that whilst there may be some teething issues, it has helped to improve coordination. Promisingly, there are already signs of increasing coordination between MDBs – at a recent meeting MDBs committed to “coordinate actions as appropriate to enable client countries and other partners to maximize the effective use of additional financial flows.”³² The willingness of large bilateral funds, such as Japan’s Hatoyama Initiative, to coordinate investment plans with other contributing countries (and channels) is crucial to achieving meaningful progress in harmonization.

3. **Manage for results:** Currently there are long delays in finalizing many mitigation and adaptation project financing arrangements due in part to the creation of new performance frameworks. There is the opportunity to potentially shorten this process by creating agreed templates for different types of projects (e.g. REDD, feed-in-tariff) which could serve as system-wide standards for specific areas (e.g., REDD, energy efficiency). These frameworks can be initially based on simple proxies, becoming more detailed over time, and should build on the lessons learnt from existing promising frameworks such as the Amazon Fund and Guyana’s forestry payment mechanism (Exhibit 27). Whilst different contexts will require tailoring the performance frameworks for those unique circumstances, identifying ‘best practice’ examples of performance frameworks in different categories and using them to create templates that could be adapted for different circumstances could nevertheless be beneficial.
4. **Create more transparency:** Currently there is no clear definition of what Fast Start Finance entails, there is little transparency on what the pledges are, and there is no means of assessing the actual demand for funding, or the absorption capacity. This creates mistrust between developed and developing nations, which can hamper progress on tackling climate change. Clear definitions and standards for what constitutes Fast Start Finance are needed, including grant equivalence guidelines and additionality requirements. At a minimum, donor countries should disclose their working definition for these issues. Clearly, there is likely to be some resistance from certain contributing countries to providing this level of transparency, however the recent efforts of European

³² “Multilateral Banks Discuss Climate Finance”, April 9, 2010, Reuters.

Union countries to agree a timeline for countries to publish their definition of “new and additional” is a useful first step. Clarity is also needed on the pledges of Fast Start Finance – in aggregate and by country; on the investment pipeline in developing countries; and on how the funds are deployed and their performance. An existing institution could be well-placed to perform these roles, but would require active donor and recipient country support (including agreeing on a common set of criteria by which climate finance is assessed). The World Resources Institute (WRI) has suggested a useful approach whereby the COP mandates an independent and experienced body to prepare a draft reporting framework for endorsement by the COP, which includes discussion of what is to be tracked, how it will be tracked, and who could be responsible for tracking.³³

Exhibit 27 - Guyana's forestry payment mechanism could provide a useful template performance framework for REDD activities	
GUYANA CASE EXAMPLE	
Clear proxies for impact, aligned with capabilities	Description <ul style="list-style-type: none"> ▪ A set of basic interim indicators for CO2 emission reductions such as deforestation rates used in phase 1 (2010-15), transitioning towards development of a more sophisticated MRV over time ▪ National scale of action prevents leakage concerns
Strong performance incentives	<ul style="list-style-type: none"> ▪ Payment for reduced deforestation set at level to be competitive with opportunity cost of using forests in “economically rational” manner (\$5/ton CO₂) ▪ Payments start immediately ▪ Also incentives for key enabling activities
High transparency	<ul style="list-style-type: none"> ▪ Independent assessments of forest governance and logging practices ▪ Financial mechanism managed by a reputable international organization (World Bank) ▪ Annual assessment and verification by third party
Sunset clause on public support	<ul style="list-style-type: none"> ▪ Transition towards funding being provided by international carbon markets and a shrinking baseline over time, reducing dependence on international public financing support

Source: Team analysis, Guyana low carbon growth strategy, December 2009

6. Ensure efficient disbursement: From a developing country’s perspective, the current, fragmented system of donor funding, particularly differences in assessment criteria (Exhibit 28), makes it hard to apply for funding.³⁴ Additionally, the time to disbursement is often slowed by bureaucratic processes that take too long to administer. As a starter,

³³ World Resources Institute; “Counting the Cash: Elements of a Framework for the Measurement, Reporting and Verification of Climate Finance”, December 2009.

³⁴ See “Matching Mitigation Actions with support: Key issues for Channelling international Public Finance”, by Joy Aeree Kim, Jane Ellis (OECD) and Sara Moarif (IEA), Dec 2009, for an excellent overview of the different criteria used by multilateral funds.

the system could be enhanced by seeking to greater harmonize requirements of major donors (e.g., climate investment funds and the Hatoyama Initiative) and assessment processes, complemented by efforts to minimize time for approval (whilst maintaining appropriate due-diligence) by understanding areas of major bottleneck.

Exhibit 28 - Multilateral climate funds have contrasting eligibility criteria
NON-EXHAUSTIVE

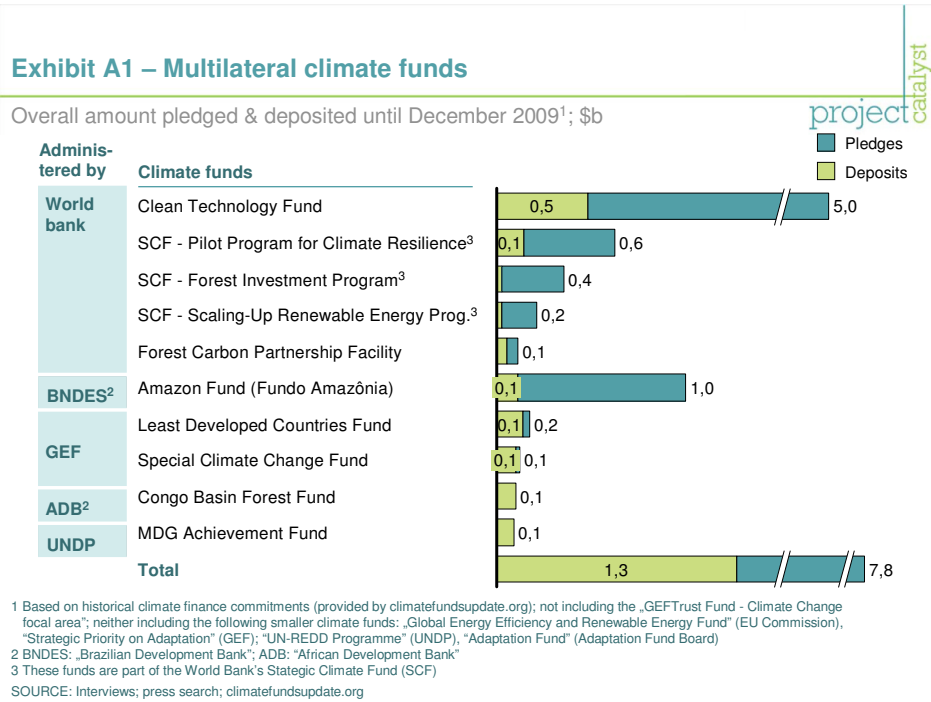
project catalyst

Criteria	Funds ¹	Country			Project						
		MDB programme	Implementation feasibility	ODA eligible	Mitigation potential	Potential to scale	Part of investment plan	Generation of econ. and social benefit	Implementation feasibility	Market transform. potential	Monitoring and evaluation
CIF	Clean Technology Fund	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗
	Strategic Climate Fund	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗
	Pilot Programme for Climate Resistance	✓	✓	✓	✗	✗	✓	✗	✗	✓	✗
	Forest Investment Programme	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗
	Scaling-up renewable energy programme	✓	✓	✓	✗	✗	✓	✓	✓	✓	✗
GEF	Least Developed Countries Fund	✗	✗	✗	✗	✗	✓	✗	✗	✗	✓
	Special Climate Change Fund	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗
UNDP	MDG Achievement Fund	✗	✗	✗	✓	✓	✗	✗	✗	✗	✓

¹ Guidance on the eligibility criteria for the Adaptation Fund has yet to be fully developed
Source: "Matching Mitigation Actions with support: Key issues for Channelling international Public Finance", OECD, Dec 2009; IEA

Whilst a climate finance system that meets all of these criteria will not develop overnight, the Fast Start Finance period of 2010-12 provides countries, developed and developing, with a timeframe in which to get on the right track. If this period results in a more effective model of climate cooperation, along the lines of that described in this paper, we believe that the world will be in good shape to be able to deliver the much larger sums of public climate finance, and the required climate benefits, that are required through to 2020 and beyond.

Annex I – Multilateral climate fund overview

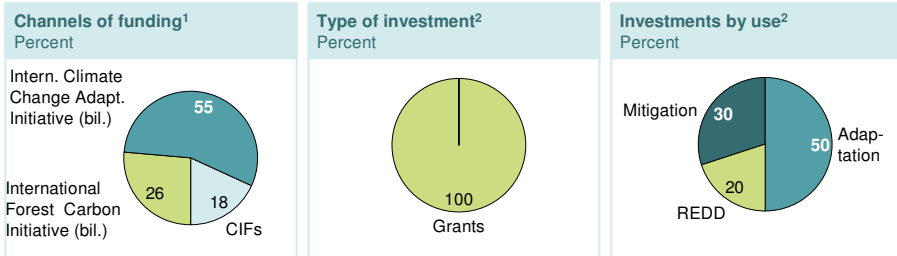


Annex II – Contributor country climate finance profiles

Exhibit A2 – Australia climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 0.5 billion Grant equivalent contribution: \$ 0.5 billion 	<p>"Australian Budget 2010-11, Part 2: Expense measures, Climate Change and Energy Efficiency", online at http://www.budget.gov.au/2010-11/content/bp2/html/1</p> <p>Team analysis; Climate Funds Update</p>

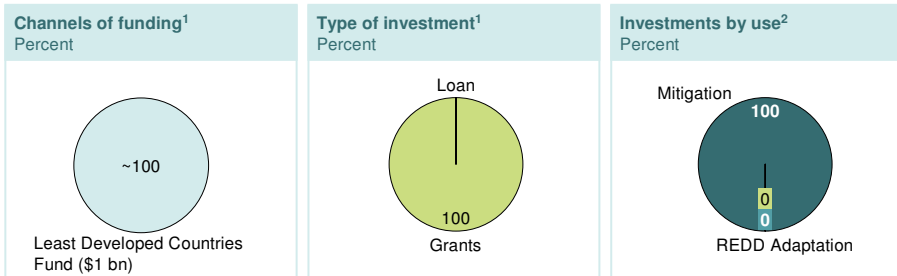


1 Based on Budget 2010-11, online at http://www.budget.gov.au/2010-11/content/bp2/html/bp2_expense-05.htm as well as "Australia's action on climate change", online at www.climatechange.gov.au/~media/publications/adaptation/action-on-climatechange.aspx
 2 Based on commitments of Commonwealth countries at CHOGM 2009
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A3 – Austria climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 0.2 billion Grant equivalent contribution: \$ ~0.2 billion 	<p>Interviews</p> <p>Team analysis; Climate Funds Update</p>



1 Based on historical climate finance commitments (provided by climatefundsupdate.org), no information available about channel, type and usage of FSF-commitments
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A4 – Belgium climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 0.2 billion Grant equivalent contribution: \$ ~0.2 billion 	<ul style="list-style-type: none"> Interviews Team analysis; Climate Funds Update

Channels of funding ¹ Percent	Type of investment ² Percent	Investments by use ² Percent
<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A

1 No information available on historical climate finance commitments (as provided by climatefundsupdate.org)
 2 No information available on historical climate finance commitments (as provided by climatefundsupdate.org); type and usage of new committed investment still part of ongoing consultations
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A5 – Denmark climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 0.3 billion Grant equivalent contribution: \$ ~0.3 billion 	<ul style="list-style-type: none"> Interviews Team analysis; Climate Funds Update

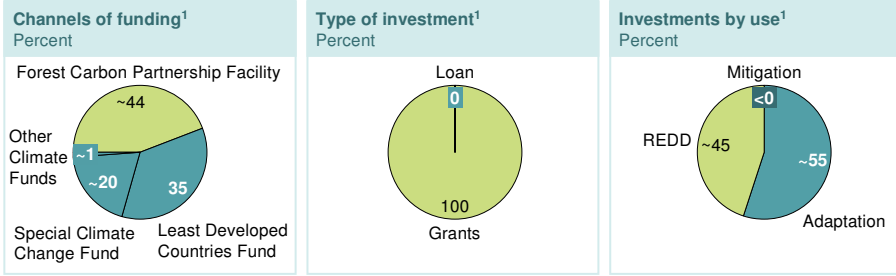
Channels of funding ¹ Percent	Type of investment ² Percent	Investments by use ³ Percent																						
<table border="1"> <caption>Channels of funding</caption> <tr><th>Channel</th><th>Percent</th></tr> <tr><td>Least Developed Countries Fund</td><td>~43</td></tr> <tr><td>Forest Investment Program</td><td>~27</td></tr> <tr><td>Other Climate Funds</td><td>~7</td></tr> <tr><td>Special Climate Change Fund</td><td>~24</td></tr> </table>	Channel	Percent	Least Developed Countries Fund	~43	Forest Investment Program	~27	Other Climate Funds	~7	Special Climate Change Fund	~24	<table border="1"> <caption>Type of investment</caption> <tr><th>Type</th><th>Percent</th></tr> <tr><td>Grants</td><td>100</td></tr> </table>	Type	Percent	Grants	100	<table border="1"> <caption>Investments by use</caption> <tr><th>Use</th><th>Percent</th></tr> <tr><td>Adaptation</td><td>~70</td></tr> <tr><td>REDD</td><td>~30</td></tr> <tr><td>Mitigation</td><td>0</td></tr> </table>	Use	Percent	Adaptation	~70	REDD	~30	Mitigation	0
Channel	Percent																							
Least Developed Countries Fund	~43																							
Forest Investment Program	~27																							
Other Climate Funds	~7																							
Special Climate Change Fund	~24																							
Type	Percent																							
Grants	100																							
Use	Percent																							
Adaptation	~70																							
REDD	~30																							
Mitigation	0																							

1 Based on historical climate finance commitments (provided by climatefundsupdate.org)
 2 Based on interviews with government representatives
 3 Based on historical climate finance commitments (provided by climatefundsupdate.org); share of FSF-pledges for mitigation still under discussion
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A6 – Finland climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 0.1 billion Grant equivalent contribution: \$ ~0.1 billion 	<ul style="list-style-type: none"> Interviews Team analysis; Climate Funds Update

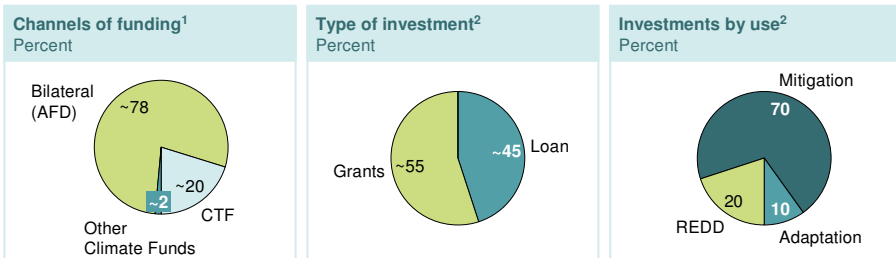


¹ Based on historical climate finance commitments, only including multilateral funds (except the GEF). Data provided by climatefundsupdate.org.
No information available about channel, type and usage of FSF-commitments
SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A7 – France climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 1.7 billion Grant equivalent contribution: \$ ~1.3 billion 	<ul style="list-style-type: none"> Press press reports, e.g., “<i>Seulement 12 % de l'aide financière promise par la France serait nouvelle</i>”, Le Monde, February 2, 2010. Team analysis; Climate Funds Update

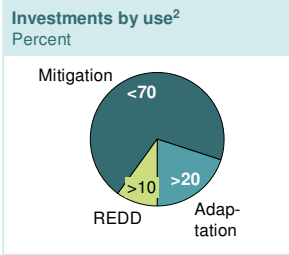
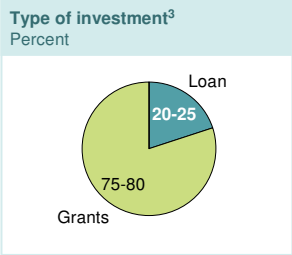
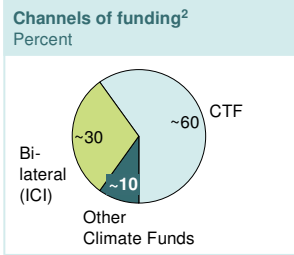


¹ Based on historical climate finance commitments (provided by climatefundsupdate.org) and AFD data
² 2008 breakdown (‘AFD and climate change’, Agence française de développement (AFD), March 2009)
SOURCE: Interviews; press search; climatefundsupdate.org; Agence française de développement (AFD); Le Monde

Exhibit A8 – Germany climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 1.7 billion¹ Grant equivalent contribution: \$ ~4.8 billion 	Budget 2010, 'Deutscher Bundestag; 23.03.2010; Antwort der Bundesregierung auf die Kleine Anfrage - Drucksache 17/961'; Online at http://dip21.bundestag.de/dip21/btd/17/011/1701196.pdf Team analysis; Climate Funds Update

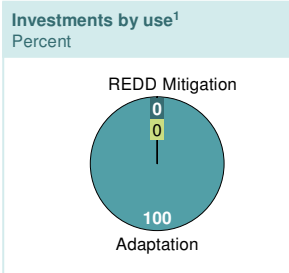
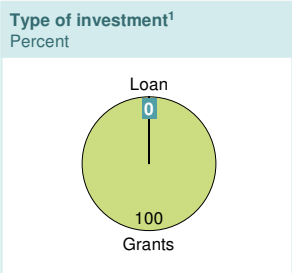
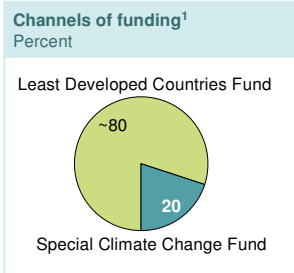


1 Assumes that non-FSF-climate finance commitments in 2011 and 2012 equal budget commitments in 2010 (EUR 0.9 bn in budget 2010). Excludes an additional \$3.7b of other climate finance.
 2 Based on historical climate finance commitments (provided by climatefundsupdate.org)
 3 Based on interviews with government representatives
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A9 – Ireland climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 0.1 billion Grant equivalent contribution: \$ ~0.1 billion 	Press press reports, e.g., "Taoiseach pledges up to €100m to EU aid fund", The Irish Times, December 12, 2009. Team analysis; Climate Funds Update

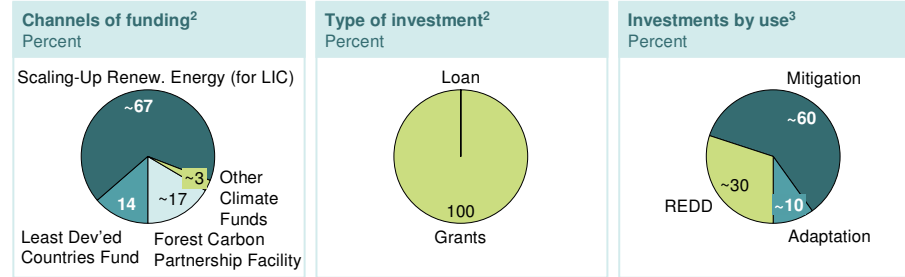


1 Based on historical climate finance commitments (provided by climatefundsupdate.org), no information available about channel, type and usage of FSF-commitments
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A10 – Netherlands climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 0.4 billion¹ Grant equivalent contribution: \$ ~0.9 billion 	<ul style="list-style-type: none"> Interviews with government representatives Team analysis; Climate Funds Update

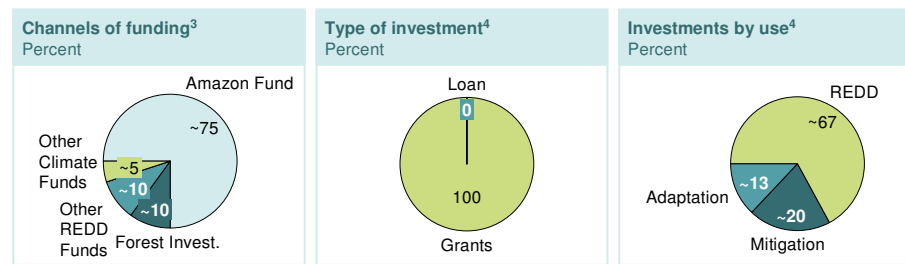


1 Fast Start Finance pledge of \$0.4 billion excludes an additional \$0.5 of other climate finance which is not considered by the Dutch to be "new and additional"
 2 Based on historical climate finance commitments (provided by climatefundsupdate.org); large bilateral share of about EUR 0.15-0.2bn planned for FSF-pledges
 3 Based on interviews with governmental representatives
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A11 – Norway climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 1.8 billion¹ Grant equivalent contribution: \$ 1.8 billion 	<ul style="list-style-type: none"> Ministry of the Environment press releases for the 2010 commitments, October 13, 2009. Online at http://www.regjeringen.no/² Team analysis; Climate Funds Update



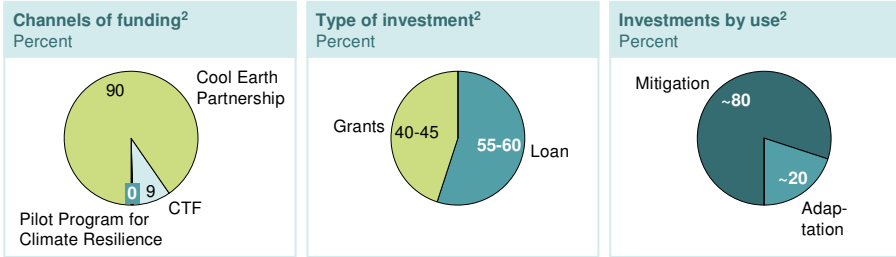
1 Assumes that overall commitments in 2010 and 2012 equal to budget commitments of NOK 3.5 billion in 2010
 2 <http://www.regjeringen.no/en/dep/md/presesenter/pressemeldinger/2009/650-millioner-kroner-mer-til-skog-og-klil.html?id=581294> as well as http://www.regjeringen.no/hb/dep/ud/presesenter/pressemeldinger/2009/budsjett09_bistand.html?id=581355
 3 Based on historical climate finance commitments (provided by climatefundsupdate.org)
 4 Based on budget 2010 and information provided by on information provided by the Ministry of Foreign Affairs
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A12 – Japan climate finance overview



project catalyst

Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 11 billion Grant equivalent contribution: \$ 9.3 billion 	<p>Support for developing countries under the "Hatoyama Initiative"; press release of the Government of Japan, December 16, 2009. Online at www.kantei.go.jp/foreign/topics/2009/1216initiative_e.pdf</p> <p>Team analysis; Climate Funds Update</p>



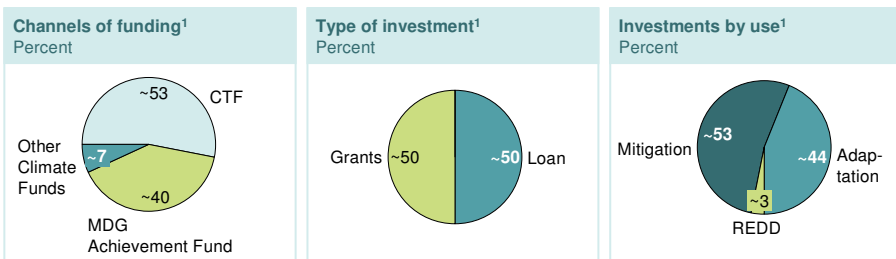
1 Only \$ 2.2 billion of "Cool Earth Partnership"-commitments for 2008-2010 delivered yet (WRI); additional USD 4 billion committed private financing through the Japan Bank for International Cooperation
 2 Based on historical climate finance commitments (provided by climatefundsupdate.org) and information given by the Ministry of foreign affairs (<http://www.mofa.go.jp/policy/economy/wef/2008/mechanism.html>)
 SOURCE: Interviews; press search; climatefundsupdate.org; WRI

Exhibit A13 – Spain climate finance overview



project catalyst

Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 0.5 billion Grant equivalent contribution: \$ ~0.5 billion 	<p>Interviews</p> <p>Team analysis; Climate Funds Update</p>

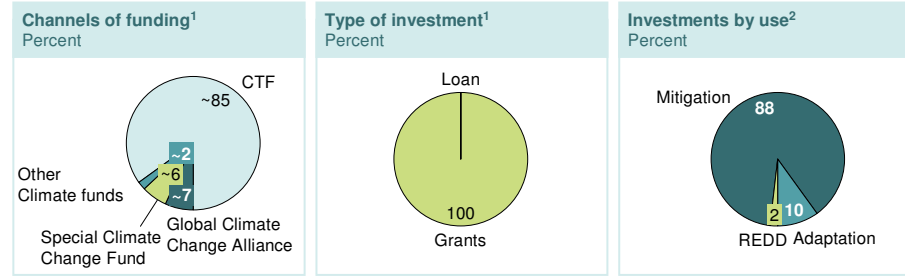


1 Based on historical climate finance commitments (provided by climatefundsupdate.org)
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A14 – Sweden climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 1.1 billion Grant equivalent contribution: \$ ~1.1 billion 	<ul style="list-style-type: none"> Interviews Team analysis; Climate Funds Update

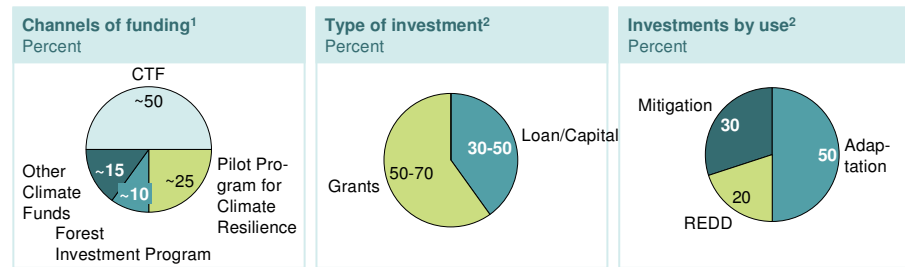


1 Based on historical climate finance commitments (provided by climatefundsupdate.org); larger bilateral share planned for FSF-pledges
 2 Based on historical climate finance commitments (provided by climatefundsupdate.org); larger share planned on adaptation for FSF
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A15 – UK climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 2.3 billion Grant equivalent contribution: \$ 2.1 billion 	<ul style="list-style-type: none"> <i>UK pledges climate aid for developing countries</i>, The official site of the Prime Minister's Office, December 11, 2009. Online at http://www.number10.gov.uk/Page21711 Team analysis; Climate Funds Update

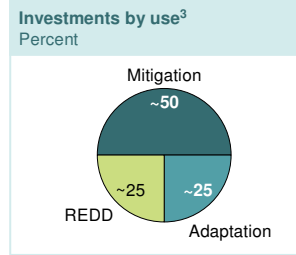
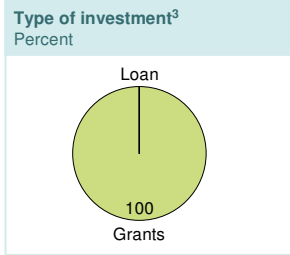
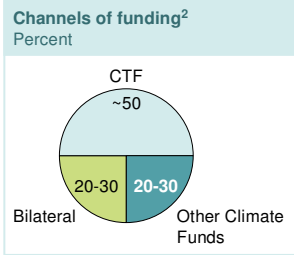


1 Based on historical climate finance commitments (provided by climatefundsupdate.org)
 2 Based on commitments of Commonwealth countries at CHOGM 2009
 SOURCE: Interviews; press search; climatefundsupdate.org

Exhibit A16 – US climate finance overview



Pledges for Fast Start Finance 2010-12	Sources
<ul style="list-style-type: none"> Total COP15-pledges: \$ 5.1 billion¹ Grant equivalent contribution: ~\$ 5.1 billion 	<p>US budgets 2010 and 2011. Online at: http://www.state.gov/documents/organization/140689.pdf See also for the climate finance breakdown of NRDC¹</p> <p>Team analysis; Climate Funds Update</p>



¹ Assumes that US 2012 contribution is equal to budget commitments in 2011
² Based on 'President Obama's budget contributes to fast-start international climate finance', National Resource Defense Council (NRDC), February 2, 2010. Online at http://switchboard.nrdc.org/blogs/hallen/president_obamas_budget_contri.html
³ Based on historical climate finance commitments (provided by climatefundsupdate.org) and Budget 2010; historical commitments to climate funds were 100% grants; need to be confirmed for Budget 2010-12 (USAID, Department of State, and Treasury)
 SOURCE: Interviews; press search; climatefundsupdate.org

Annex III – Guyana’s low carbon growth strategy

Country/sector context

Following the re-establishment of a market-led, democratic system of government in the early 1990’s, Guyana has now embedded its first generation of socio-economic reforms and infrastructure development, establishing a strong foundation for future growth. However, the country still faces formidable challenges. Since 1992, Guyana's per capita GDP has tripled but incomes are still less than 6 percent of the US, the incidence of extreme poverty remains high at 18.6 percent, and the economy is still highly dependant on low value-added sectors such as agriculture and forestry (representing roughly 60 percent of economic activity). At the same, Guyana’s future growth is highly vulnerable to the effects of climate change (in 2005, 60 percent of GDP was destroyed due to floods). Guyana also has about 16 million hectares of forest (more than the size of England). Avoiding an economically rational rate of deforestation has the potential to save 1.5 Gt of CO₂e by 2020.

Challenges

In late 2007, the President of Guyana laid out three challenges to creating low carbon prosperity.

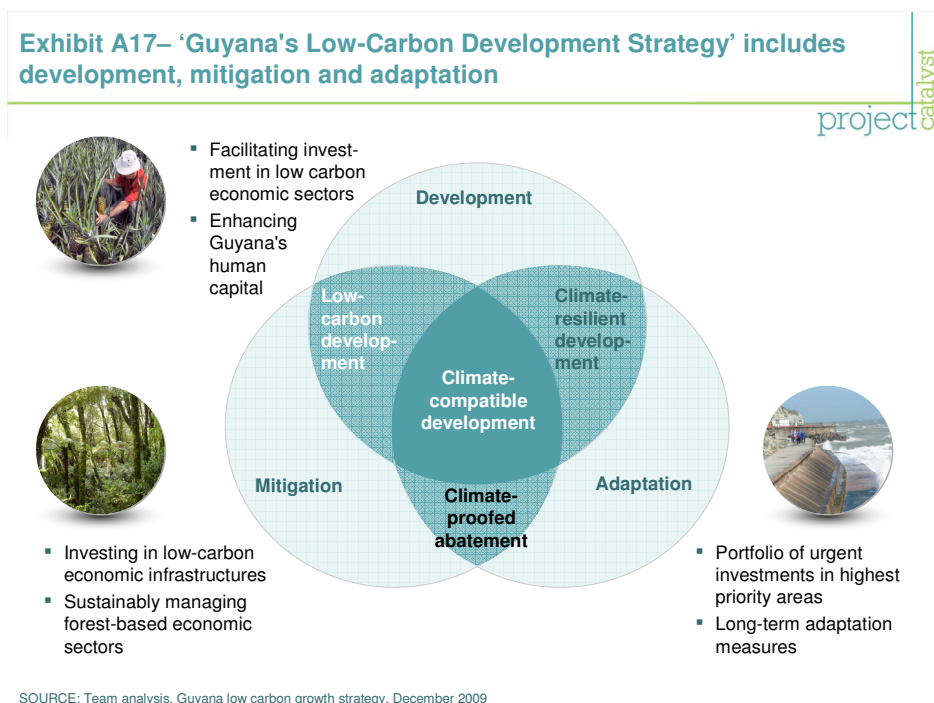
1. *How to make forests worth more alive than dead:* The total opportunity cost of Guyana’s forests is approximately \$580 million per annum, which is far less than its global opportunity cost (estimated to be greater than \$11 billion per annum). Virtually the entire forest could be put under long term protection if the right economic incentives were created.
2. *How to de-carbonise predicted future growth:* As the country embarks on a second generation of socio-economic reform and infrastructure development, a “business-as-usual” development trajectory would lead to increased deforestation and carbon-intensive economic development. Yet, about US \$2 billion of public and private investment (in the first wave) in low carbon alternatives can realign the economy onto a low carbon trajectory, and enable Guyana to grow at or in excess of predicted Latin American growth rates, while simultaneously eliminating approximately 30% of its non-forestry emissions. There will be challenges for local capital markets in absorbing these

large required flows of private investment (up to \$2 billion) as foreign direct investment in Guyana is still rather small, increasing from about \$30m in 2004 to about \$170m in 2008.

3. *How to protect against climate change:* Guyana’s coastal regions, including the capital Georgetown, lie below sea level, and about 40 percent of Guyana’s population live in regions exposed to significant flooding risk. By 2030, the annual loss due to flooding in Guyana is projected to be \$150 million (or close to 10 percent of current GDP). Extreme events (e.g. the serious flooding in 2005 which resulted in losses equivalent to 60 percent of GDP) could result in some \$0.8 billion in losses. Financing for adaptation, including building critical defences against the effects of climate change (e.g., coastal walls to address the risk of floods) is critical to combating the effects of climate change.

Solutions

Guyana has developed a low carbon growth strategy which includes the three interlinked components of development, mitigation and adaptation (Exhibit A17):



At the heart of this strategy is an innovative forestry payment mechanism ensuring that there are strong incentives to protect forests. The mechanism is structured as payment for services, with Guyana selling reduced deforestation credits at a rate which is above the opportunity cost of using the forests in an economically rational, non-sustainable manner. The mechanism has four important attributes:

- i. *Clear proxies for impact, aligned with capabilities:* The mechanism uses a set of basic interim indicators for national-scale CO₂ emission reductions – such as deforestation rates used in Phase 1 (2010–15) – and transitions towards development of a more sophisticated Measurement, Reporting and Verification (MRV) system over time.
- ii. *Strong performance incentives:* Payment for reduced and avoided deforestation is set at such a level as to be competitive with the opportunity cost of using forests in economically rational manner (\$5/tonne CO₂). Payments start immediately and there are also incentives for key enabling activities.
- iii. *High transparency:* There are independent assessments of forest governance and logging practices; the financial mechanism is managed by a reputable international organization (World Bank); and an annual assessment and verification is carried out by a third party.
- iv. *Sunset clause on public support:* The system is designed to transition towards funding from international carbon markets, reducing Guyana’s dependence on international public financing support.³⁵ It also incorporates a shrinking baseline for deforestation credits, thereby reducing carbon market supply over time.

The payment methodology is compatible with the recommendations of the IWG-IFR, implying that its replication internationally could support reductions in global deforestation rates of 25% by 2015.

In parallel to the payment for forestry system, a first wave of investments to support the transition towards a low carbon economy have begun – for example, private investment to create a hydropower plant (\$400-600 million) has recently been secured, while discussions with private investors are in process for other infrastructure related projects. Additionally, a roadmap for driving growth in six key sectors (sustainable forestry, aquaculture, agriculture on non-forested land, business process outsourcing, eco-tourism and bio-ethanol) has been finalized. Guyana has also identified priority projects of about \$288 million to support

³⁵ The financial mechanism is structured to avoid ‘double dipping’ (i.e. whereby carbon markets can claim some of the publicly financed abatement, leading to no net reductions in global emissions) as carbon market and public finance will purchase separate forestry credits.

adaptation, including the reinforcement of ocean sea walls, the expansion of the early warning and emergency response system, and the improvement of sanitation and water.

How Fast Start Finance can help

There is a strong role for Fast Start Finance in supporting the forestry payment mechanism. International financing of up to \$330 million is required from 2010–12 and up to \$3 billion to 2020. Norway has already committed to providing US\$250 million to 2015.

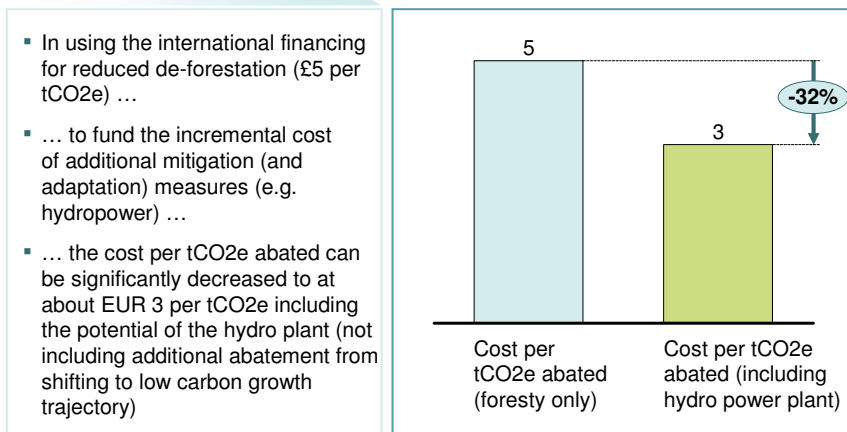
This support is highly cost effective from an international perspective, particularly when broader impacts of the financing are considered:

- i. *Forestry credits are reasonable priced:* Forestry credits are being sold at a price of \$5/tonne CO₂e abated, which is above Guyana's opportunity cost from using the forests in a non-sustainable (but economically rational) manner, but still fairly low compared to other global abatement opportunities.
- ii. *Forestry payments enable policy leverage:* Due to the fact that Guyana is using the REDD+ payments to support other mitigation and adaptation objectives (e.g., its \$0.4–0.6 billion hydropower project), the cost per tonne CO₂e abated has the potential to become significantly cheaper. Theoretically (i.e. using the \$130 mn REDD payment, corresponding to 26 Mt CO₂e, to support the hydropower project, which has an abatement potential of 12 Mt CO₂ in 2020), this could reduce the cost per tonne CO₂e abated by almost a third, to around \$3.4 per tonne CO₂e abated (Exhibit A18).

Exhibit A18 – By capturing mitigation and adaptation “multipliers”, the cost effectiveness of international support is increased

Cost (EUR) per tCO₂e; 2020

project catalyst



SOURCE: Guyana low carbon growth strategy, December 2009; Team analysis

- iii. *Forestry payments enable private sector leverage:* There is also a potential role for Fast Start Finance in addressing broader barriers to investment in Guyana. For example, Guyana is planning to use some of the REDD+ payments to invest in early stage critical infrastructure projects, with the aim of reducing the risks that would normally deter private investment (e.g. policy risk), before selling the projects on to private investors.

Two key lessons can be learnt from the example of Guyana:

- Guyana’s pay for performance mechanism can potentially serve as a model for effective REDD payments. It is a transparent, performance-focused mechanism for avoiding deforestation with incentives to cover opportunity cost and MRV developed in-line with country capabilities (beginning with simple proxies).
- Support for projects that are part of an overarching nationally-owned local carbon growth plan can create significant opportunities for policy leverage – that is, creating additional benefits for broader mitigation / adaptation beyond the specific project.

Annex IV – India solar development

Country/sector context

Solar energy offers multiple potential economic and social benefits for India, and represents a large opportunity for carbon abatement. Benefits include:

- i. *Ability to address peak power shortages:* Power demand in India will increase to 300 GW by 2017. It faces peak deficits of 15–20% which will remain even after India maximises the potential from conventional sources.
- ii. *Improved energy supply:* India is endowed with vast solar energy potential – about 5,000 trillion kWh per year energy; The National Solar Mission anticipates achieving grid parity by 2022 and parity with coal-based thermal power by 2030.
- iii. *Electricity access to rural areas:* Off-grid solutions can enable access to electricity in rural areas where there are currently severe shortages.
- iv. *Ensuring energy security:* Without solar, India will rely on imported energy sources. By 2030, a Business as Usual scenario predicts that 135 million tonnes of oil will need to be imported to satisfy total demand of 170 million tonnes.
- v. *Potential to be a global supplier:* Global solar demand has grown at a rate of over 50% for the last 5 years (and is expected grow at 28–35% CAGR for the next 3–4 years). India has the potential to be an attractive location for solar components manufacturing.
- vi. *Large CO₂ mitigation opportunity:* Solar power represents the second largest potential opportunity for carbon abatement within the power sector, comprising 16% of possible abatement (Exhibit A19).³⁶

Challenges

Large private sector investment is needed to support solar energy development; a total of about \$3.5 billion will be required in investment capital from 2010–2012 to reach the Phase

³⁶ The National Solar Mission allows the claiming of CDM benefits for solar projects, with 100 percent of the CDM benefit to be retained by the project developer in the first year, falling to 50 percent after 5 years. However, this could result in zero ‘net mitigation’ globally as (subject to offset purchase limits) it would allow developed countries to expand their emissions. However, interviews with India solar developers suggests that they do not appear to be including carbon market finance in their current return expectations.

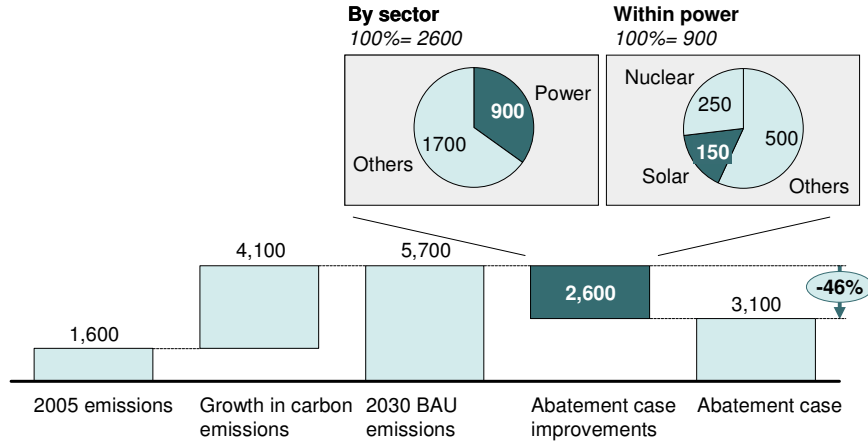
1 target of about 1.1 GW solar capacity. This need will grow to approximately \$51 billion by 2020 (Exhibit A20). However there are currently four key barriers to private sector investment in the solar market in India at present:

1. *Low economic returns:* Solar energy is currently not a viable commercial opportunity (without subsidy, solar projects would result in negative returns), driven by current low cost competitiveness (solar power is currently 4–5 times the cost of coal).
2. *Risks to capital:* The risk adjusted cost of capital decreases the attractiveness of solar as an investment. These risks include policy risk, political risk, technology risk, and, for foreign investors, foreign exchange risk. Interviews with local and foreign investors suggest that together these risks inflate required returns anywhere from 5–13 percent.
3. *Capital market constraints:* Interviews with private investors suggest that access to debt is a significant constraint. In particular, there is a high cost of debt (linked to local financial sector being relatively unfamiliar with the risks and opportunities linked to solar energy and being unable to appropriately ‘cost’ debt financing); short loan durations (private investor interviews suggest that it can take up to 25 years for solar projects to become profitable, whereas it is currently difficult to find loan durations greater than 10 years); and a lack of liquidity – particularly since the global financial crisis.
4. *Start up challenges:* Several resources needed for solar energy projects are scarce, including land and water permits that must be provided by states and necessary technology inputs (due to limited scale of current local supply chain).

Exhibit A19 - Solar in India represents a significant abatement opportunity

project catalyst

Annual emissions and abatement potential by 2030
MtCO₂e per year

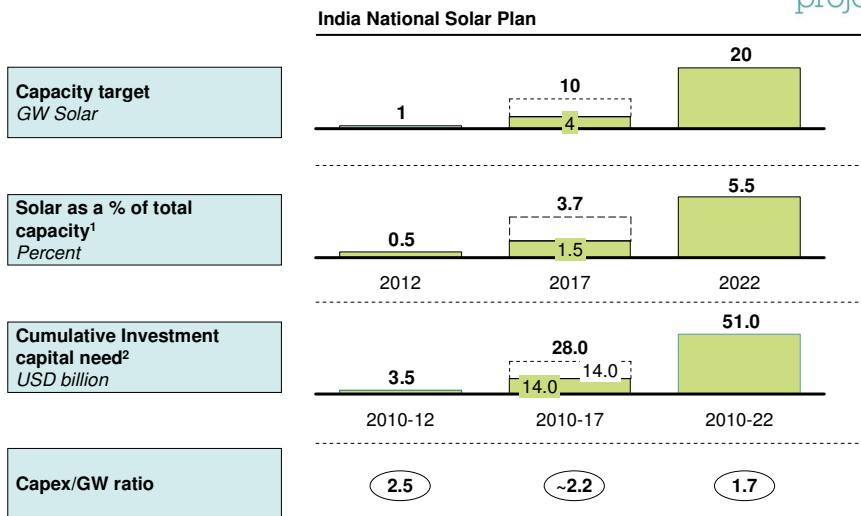


Source: IEA Estimates; Team analysis

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Exhibit A20 - The Indian Government has set a target of 20 GW by 2020, requiring approximately \$35 billion of cumulative investment capital

project catalyst



¹ Assuming energy efficiency measures are included
² Applying a scaling factor relative to the investment capital needed for the technical potential capacity of 8.3 GW in 2015 and 20.6 GW in 2020
 Source: McKinsey Global Abatement Cost Curve v2.0; Government of India: "National Solar Plan (Final Draft; April 2009); Team analysis

Solutions

The Indian government has launched an ambitious “National Solar Mission” to drive increases in solar power, with a well-structured feed-in tariff

India's stated ambition with its National Solar Mission is to improve energy security and become a global leader in solar manufacturing and R&D. The Mission has three phases of activity. The largest part of the programme is focused on utility scale grid connected power, the targets for which are: 1 GW to 2013 (Phase 1); 4 GW–10 GW to 2017 (Phase 2); 20 GW to 2022 (Phase 3).

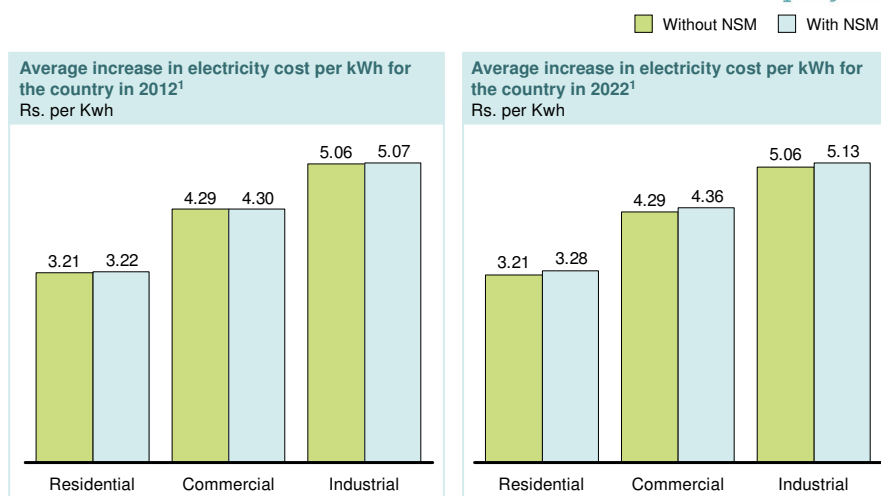
As part of this strategy, India has developed an innovative feed-in tariff to stimulate private sector demand. For utilities, a 25-year purchasing price agreement is in place for solar power (reviewed annually) guaranteeing a 19–24% pre-tax return on equity. International evidence suggests a feed-in tariff can be effective in stimulating demand, but if not structured carefully to reflect expected market returns, it can create significant waste of public finances, or inadequate development of the market. India's feed-in tariff appears well structured and is attracting large amounts of private investment. Interviews with private investors suggest that applications will far exceed the 1 GW capacity limit for the feed-in tariff in 2013, possibly by a factor of 10.

There are three key attributes of India's feed-in tariff:

1. *Reduction of policy risk:* Policy risk has been reduced through creating 25-year-long public purchasing agreements (PPAs) set for each specific vintage, with payment from the NVVN (purchasing arm of the government-controlled generation company).
2. *Attractive returns:* The return levels of approximately 19% for private investors appear to be set at an appropriate level to attract private investors.
3. *Minimizing costs to consumers:* The yearly review of tariffs for new capacity (reduced in line with decreasing costs of key inputs, technologies, etc) ensures cost efficiency. Importantly, given the dependence of costs on upstream manufacturers, the National Solar Mission also targets the development of upstream solar manufacturing, including the establishment of Special Economic Zones. As the market develops, reverse auctions are planned to ensure that operators bid to provide required capacity, with the expectation that this will drive down the costs of solar energy. The NVVN also acquires all solar, acting as a one-stop shop for all solar developers, ensuring consistency in the PPAs and minimizing transaction costs. The costs of the feed-in tariff will be born by Indian consumers of electricity, but the increase is unlikely to be significant. Our preliminary estimates suggest that costs will only increase 1–2% based on the projected solar market development in the National Solar Mission (Exhibit A21).

Exhibit A21 – Preliminary analysis suggests energy costs for Indian consumers will be minimally impacted

project
catalyst



¹ Assuming based on targets of 2,000 MW (2013), 14,000 MW (2017), 40,000 MW (2022) Grid Parity reached at 20000 MW. Grid Parity price 7 Rs. All figures are in real values. Expert interviews indicate that prices will remain roughly constant 2010-2022
SOURCE: Team analysis

There are several remaining concerns for private investors in India solar

1. *Policy risk:* Private sector investors are concerned of the risk that the NRVN could potentially default on payments and/or that state utilities may not meet renewable portfolio obligations (RPOs) outlined by the national regulator. The finalization of the Tripartite Agreement between the Indian Reserve Bank, the NRVN and the state utilities to guarantee feed-in tariffs is seen as an important requirement to remove policy risk.
2. *Capital market constraints:* Interviews with private investors suggest that capital market concerns have not been adequately addressed in the National Solar Mission. While sufficient debt financing is expected to be available to meet Phase 1 targets, a lack of liquidity, short durations of loans and high relative costs could prove major barriers to developing solar beyond 2013. Underlying these challenges are the local financial sector being relatively unfamiliar with the risks and opportunity in solar, combined with relatively undeveloped local capital markets (e.g. financial assets relative to GDP were less than half that of the UK in 2006).

3. *Start-up challenges*: Whilst availability of technology inputs is expected to improve as the solar market develops, access to land and water permits at the state level remains a concern.

How Fast Start Finance can help

Fast Start Finance could support the development of solar power in India by providing financial assistance to ramp up targets (which will be complemented by flows from carbon markets over time) and by helping the private sector achieve these targets through supporting access to finance:

1. *Support more aggressive ramp up of solar*: Premium payments passed through the Indian government could help to offset part of the required cost burden and could spur more ambitious solar penetration (14,000 GW by 2017), potentially reducing the time to grid parity by five years. If achieved, this would result in 173 Mt CO₂e additional abatement in 2022 and an overall savings in costs. However, it will be important to establish that this abatement is not eligible for carbon market credits in order to avoid concerns of ‘double dipping’ (resulting in zero ‘net abatement’ globally). Support could be provided within a broader sector strategy that includes addressing areas with positive net benefit such as energy efficiency. This could be complemented with a ‘challenge fund’ which provides fiscal incentives for state electricity boards to meet their solar RPOs, helping to address remaining policy risk.
2. *Support the private sector to reach more ambitious targets*: Fast Start Finance can support debt and equity availability by:
 - Addressing shallow local capital markets by supporting the creation of a secondary market for Indian solar debt (possibly through the Power Finance Corporation) by providing technical assistance to enable the securitization of debt and its pass-through to international institutional investors³⁷ ;
 - Helping local financial institutions become comfortable with the risks and opportunities in financing solar investors by providing ‘pari passu’ loan guarantees and co-financing to encourage local financial institutions to expand lending, while also offering technical support (e.g. credit analysis, financial

³⁷ The Indian government has recently announced it will establish an \$11bn fund to invest in infrastructure, with at least \$4.4bn (about 40 percent) hoping to be sourced from international pension funds, insurance funds, sovereign wealth funds and multilateral agencies.

product development, sector studies to identify relevant target segments) to improve understanding of the risks and business opportunities in the sector.

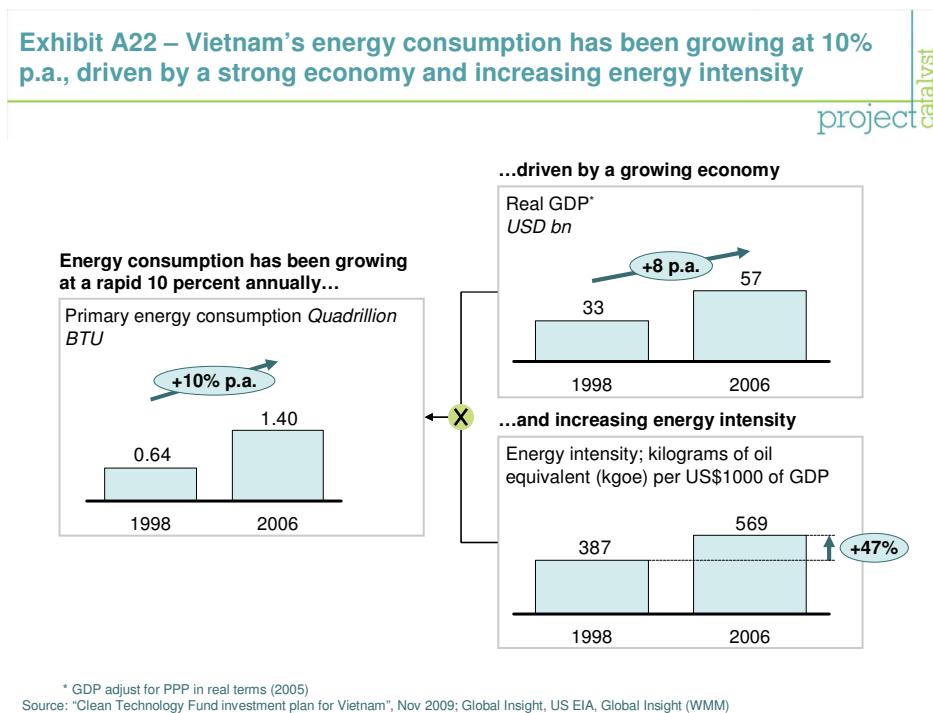
Two key lessons can be learnt from the example of India solar on how to support private investment:

- *Need for efficient incremental cost measure:* India is supporting rapid investment in solar by ensuring attractive returns for investment and effectively removing policy risk through 25 year price guarantees. International evidence shows that if not structured carefully to reflect expected market returns, a Feed-In Tariff can either create significant waste of public finances, or inadequate development of the market. India's annual price review and transition to a competitive auction system provides a useful example of how to ensure cost efficiency.
- *Need to address capital market barriers in parallel:* it is also critical to support access to financing by helping local financial institutions see solar as a viable commercial opportunity, through making them comfortable with risks and potential returns, and also designing appropriate mechanisms to address shallow local capital markets.

Annex V – Vietnam energy efficiency

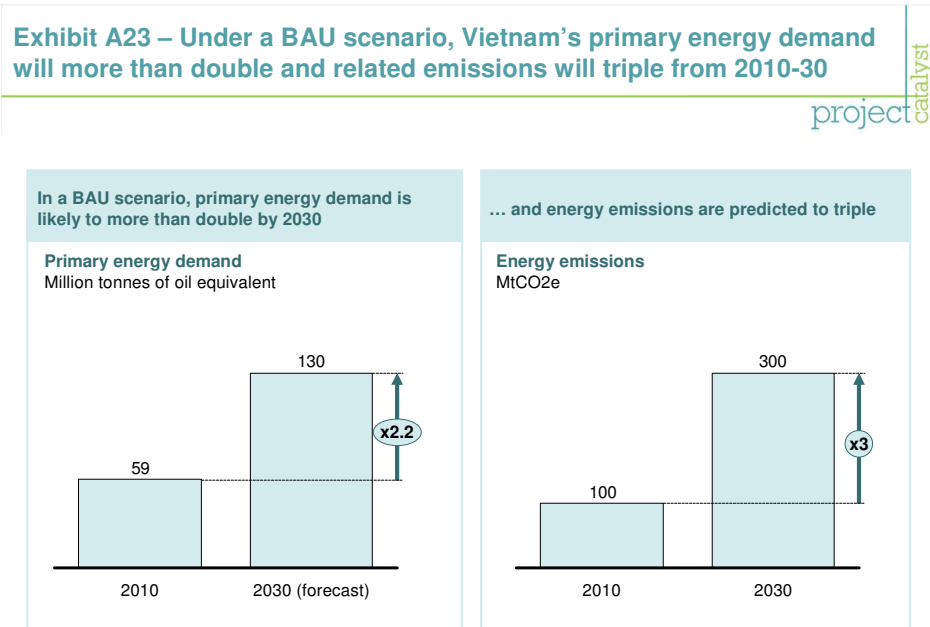
Country/sector context

Energy efficiency represents a significant opportunity for reducing future emissions in Vietnam. Vietnam has been one of the fastest growing economies in Asia for the last two decades, with real gross domestic product (GDP) growth averaging 8.0% annually between 2003 and 2007. For the past 8 years, energy consumption has been increasing faster than GDP, averaging about 10% per year, with energy intensity of growth almost doubling (Exhibit A22). Energy related CO2 emissions are a large overall driver of Vietnam’s emissions (42 percent of Greenhouse Gas emissions in 2000) and have more than doubled over the past decade.



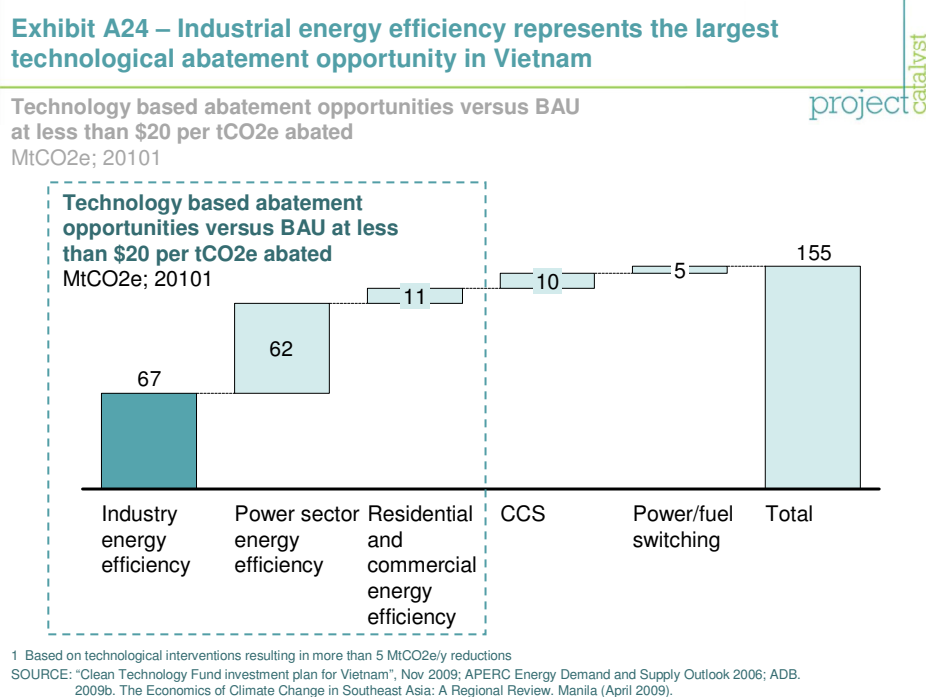
In 2005, Vietnam was ranked 41st in the world in Greenhouse Gas (GHG) emissions. Although emission per capita remains low compared to other countries like China and Thailand, the annual emission growth rate in Vietnam is extremely high, and constantly on the rise (6.7% per year between 1996–2000; and 10.5% per year between 2000–2005).

Under a Business as Usual (BAU) scenario, Vietnam’s primary energy demand will more than double and related emissions will triple between 2010 and 2030 (Exhibit A23).



SOURCE: “Clean Technology Fund investment plan for Vietnam”, Nov 2009; APERC Energy Demand and Supply Outlook 2006

Energy efficiency in residential and industrial electricity use is currently low while consumption has been growing rapidly. Industry efficiency is the largest technology-based abatement opportunity in Vietnam at present, offering 67 Mt CO₂e abatement against current emissions (Exhibit A24).



Challenges

There are large start-up challenges currently preventing private sector investment in energy efficiency. The three main barriers to private sector investment in energy efficiency at present are:

1. *Constrained access to finance:* Whilst energy efficiency measures may have positive economic returns, they often require large upfront capital investments, which can be difficult when financial markets are not fully developed. In particular, local financial institutions lack awareness of opportunities for energy efficiency and the risks associated with lending to this area. As a result, local financial institutions either avoid financing equipment or technologies or they require high levels of collateral (150%) which many Small and Medium Enterprises (SMEs) do not have. Financing terms have been often restrictive and unattractive for customers.
2. *Low private sector incentives to change:* Companies are currently often not aware of or are inadequately informed about the energy savings potential and energy saving options when making new investments. As a result, there is a lack of commercial incentives for making energy efficient investments. In addition, Vietnam still has large energy subsidies (approximately \$808 million spent on oil subsidies in 2008, or roughly 1.4% of GDP) which reduce the incentive for local businesses to become more energy efficient.

3. *Lack of technical capacity*: there is limited availability of entities providing high quality, specialist energy efficiency services, such as energy audits and preparation of loan applications.

Solutions

Vietnam has launched its first-ever comprehensive plan to institute measures for improving energy efficiency and conservation. The programme's energy savings targets are 3% to 5% of total national energy consumption relative to business as usual projections during phase 1 (2006–2010) and 5% to 8% of total national energy consumption during Phase 2 (2011–2015). The programme has a strong focus on information dissemination around the opportunities for energy efficiency, implementing energy efficiency standards and supporting projects focused on energy efficiency related research.

To complement the programme, there is a critical need to engage private sector, however past efforts have had limited traction due to inadequate focus on helping firms and financial institutions view energy efficiency as a commercial opportunity. The “Green Credit Trust Fund” (supported by the Swiss government) for example provides a \$2 million grant line for three Vietnamese banks and allows for a 30% reduction in loan costs to loan recipients if they meet a set of green indicators. However after nearly 3 years, none of the banks have granted loans under this scheme, with interviewees suggesting that the financial scheme is too complex and sends the wrong signals to local financial institutions of the commercial viability of lending in this area by providing subsidies to end users (for what should be already profitable investment opportunities).

Coupled with this, there are a lack of private sector incentives to invest in energy efficient measures due to the remaining high subsidies, the lack of awareness of commercial opportunities, and the delays in passage of key laws (e.g. the proposed Law on Energy Conservation and Efficient Use Act has yet to be implemented).

How Fast Start Finance can help

Focusing on helping local businesses and financial institutions see energy efficiency as an attractive commercial opportunity is the key to promoting CO₂ mitigation in this area

There are three broad areas of action:

1. *Create the right incentives:*
 - Conduct sector studies and information campaign that will encourage businesses to undertake energy audits.
 - Help the government fully understand the benefits of reducing subsidies (e.g. budget savings) and enacting the proposed Law on Energy Conservation and Efficient Use, and to develop a transition plan that helps to mitigate impact on low income groups and businesses.
2. *Encourage financial institutions to see energy efficiency as a commercial opportunity:* Incentivise local financial institutions by:
 - Providing training for financial institutions on energy efficiency finance techniques, credit analysis, marketing, support with financial product development, and portfolio reporting; conducting sector studies that would help local financial institutions to identify relevant target segments for them, and guide them in marketing efforts to relevant end-users.
 - Offer loan guarantees (e.g. portfolio loss guarantees) and other co-financing instruments to incentivize local financial institutions to set up energy efficiency lines by reducing perceived risk exposure and increasing potential returns. The International Financial Corporation (IFC) has recently launched a challenge fund that provides \$20 million of loans through local financial institutions, and which provides reduced interest costs if local financial institutions match this with a certain share of their own financing.
3. *Support development of energy efficient value chain:* opportunity to provide targeted support to energy efficiency service providers (EESPs) to allow them to better understand market opportunities and to share information on core functional areas (e.g. loan preparation, energy audits).

Three key lessons can be learnt from Vietnam in how to support private sector investment in mitigation activities with positive net benefits:

- *Address information failures:* for positive net benefit opportunities, need to make sure both the private sector and financial institutions are fully aware of opportunities.
- *Focus incentives on financial institutions, not end users:* loan guarantees can be an effective mechanism to encourage financial institutions to lend, whereas subsidies to end

users can not only represent a waste of donor money, but can send the wrong signals to local banks of the commercial viability of lending in this area.

- *Subsidies that reduce incentives to change must be tackled in parallel:* large energy subsidies reduce incentives to change and must be addressed in parallel (with a transition plan to help mitigate the impact on low income groups and businesses).

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