Financing Climate Change Action

Transitioning to a low-carbon and climate-resilient economy will require clear and stable climate policies, targeted public climate finance and well structured financial instruments to catalyse a major shift of private capital investment. Limited public funds need to be used efficiently to overcome barriers and to mobilise the power of market forces to support climate action. Domestic policy reform is essential to level the playing field, expand low-carbon and climate-resilient investment opportunities, and to help to manage the risks and increase the returns for investors. The OECD is assisting countries in their efforts to find lasting solutions to scaling-up public finance and shifting private sources of capital to support climate action.

Key Messages

Scale-up new sources of climate finance, leverage public sources with private investment:

Current 2010 public climate finance flows from developed to developing countries for mitigation and adaptation are estimated to be USD 37 billion, significantly higher than estimates in previous years. These include first-ever OECD estimates of annual flows for adaptation (upper bound estimates of USD 9 billion of which USD 4 billion covers both mitigation and adaptation). Given the current economic situation, efforts to mobilise new public climate finance cannot unnecessarily increase the burden on already tight budgets. Priority policy reforms include:

- Level the playing field by shifting public support away from activities that encourage greenhouse gas (GHG) emissions, such as subsidies to fossil fuel use or production.
- Implement market mechanisms to price carbon. If all Annex I countries met their Cancun mitigation pledges with carbon taxes or with emission trading schemes using full auctioning, they could raise as much as USD 250 billion (0.6% of GDP) in revenue per year by 2020. Even a fraction of this could make a significant contribution to supporting climate action.
- Establish common rules and design a framework against which to provide export credit support with a view to encouraging favourable financial terms for trade and private investment in cleaner technologies.
- Expand the use of risk-sharing mechanisms (e.g. loan guarantees) for climate-relevant investments in development finance institutions in partnership with the private sector.

Catalyse private capital for low-carbon and climate-resilient investment through domestic policy reform and use of innovative instruments:

- Establish clear, predictable policy goals and legally-binding climate targets to align investment timescales and build confidence in the market for low-carbon and climate-resilient (LCCR) technologies.
- Target direct support for RD&D to overcome market and financial barriers to investment in the early stages of LCCR technologies and practices. Such support should include “sunset clauses” with clear timelines and criteria for phase-out.
- Foster liquid, transparent and sustainable market conditions and instruments to attract institutional investors to long-term, LCCR infrastructure investment through use of appropriate investment vehicles and institutional support, such as green bonds and green banks respectively.
- Encourage good corporate governance, accountability and transparency on climate issues; internationally harmonise greenhouse gas reporting standards at the company level. Standardise definitions of low-carbon, climate-resilient or “green” investments to better guide investor behaviour.

Specifically target financing for adaptation and REDD+:

- Use limited public finance to target areas where private funding will not be available or sufficient, *e.g.* adaptation and REDD+.
- Increase access to climate risk-sharing instruments to engage private sector actors in adaptation, especially as extreme events are expected to become more frequent as a result of climate change.

Track financial flows to build trust through transparency and accountability:

- Build on existing multilateral institutions and national monitoring systems to improve measurement, reporting and verification (MRV) of climate finance both in developed and developing countries under the UN Framework Convention on Climate Change.
- Working through country-led systems, identify and support policies that most effectively and sustainably boost development while also addressing climate change.

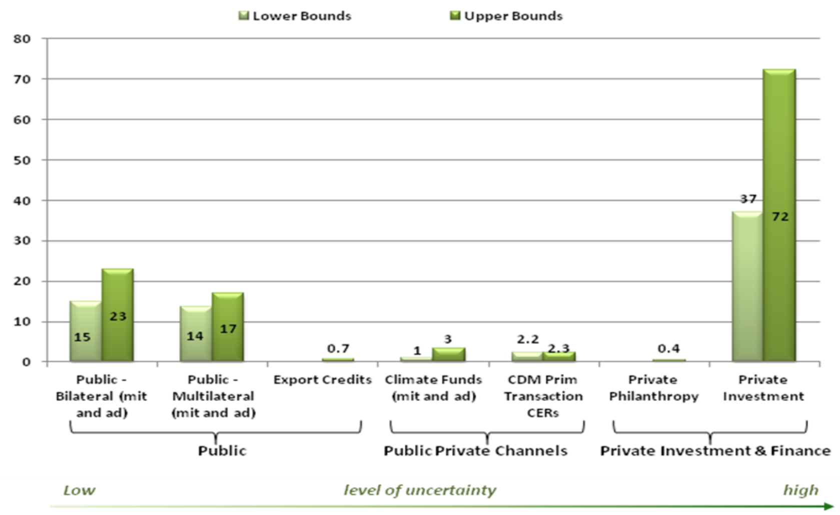
Scale-Up New Sources of Climate Finance

Delivering ambitious climate change goals will require a significant scaling up of today's levels of support for climate action to address both adaptation and mitigation in developing countries between now and 2030. The IEA and others estimate that annual incremental investment to support decarbonisation alone could be hundreds of billions USD per year to 2030. In an important step forward to scale-up financing for climate change action, the Cancún Agreements called on developed countries to provide new and additional resources for developing countries: USD 30 billion "fast start financing" over 2010-2012 and a longer term goal of USD 100 billion per year by 2020, from public and private sources.

In the 2009-2010 period, aggregate flows for mitigation and adaptation are estimated in the range of USD 70 to 120 bn annually (see Figure 1; Clapp *et al.,* 2012).

Figure 1. Estimates of North-South Climate Finance Flows:

(USD 70 – 120 billion per year, latest year estimates 2009-2010, billion USD)



Source: Clapp et *al.,* 2012, http://www.oecd.org/dataoecd/61/27/50034816.pdf.

From public bilateral sources, estimates range from USD 15-23 billion for mitigation and adaptation, depending upon whether we count project commitments marked as having "significant" in addition to "principal" objectives (Clapp *et al.,* 2012; OECD DAC-CRS, 2012, with adjustments for overlap). Estimates of public bilateral flows range from USD 4-18 for mitigation-specific aid (see Figure 6 for more detail) and from USD 4-9 for adaptation.

Multilateral development finance (including concessional and non-concessional sources) is estimated to provide another USD 14-17 billion, including 97% for mitigation and 3% for adaptation for 2009-2010. In addition, climate funds for adaptation and mitigation amount to USD 1-3 billion, including 97% for mitigation and 3% for adaptation as well (Buchner et al., 2011a).

Current estimates of international private climate finance are large, far out-weighing public sources (Figure 1). These can come in different forms, including foreign direct investment (FDI), other private flows and investment, or finance flows associated with CDM (which also involves public flows) (Clapp *et al.,* 2012). Private sector flows have the potential to be the motor of change to drive low-carbon, climate-resilient growth. FDI and other private finance flows are estimated to be USD 37-72 billion in 2009-2010 (UNCTAD, 2010 and BNEF as cited in Buchner *et al*, 2010a). Carbon market flows, including CDM and specialised carbon finance funds (about USD 2 billion for CDM) represent a small fraction of total private flows (Buchner *et al*, 2011a). Less than USD 1 billion of export credits are considered to be supporting low-carbon projects (see Figure 2 for further information).

While there is still no formal agreement on what to count as climate finance under the UNFCCC (Buchner *et al*, 2011b), simply the magnitude of the different flows suggest that steering private sector investment is essential to greening development.

A recent World Bank/IMF/OECD/RDBs report (2011) to the G20 underscores the need to mobilise new sources of climate finance, including from the private sector. It states: "*Both public and private flows are indispensable elements of climate finance. Competitive, profit-oriented private initiatives are essential in seeking out and implementing least cost options for climate mitigation and adaptation. The dominant scale of global private capital markets and growing fiscal challenges in many developed economies also suggest that the large financial flows required for climate stabilization and adaptation will, in the long run, be mainly private in composition.*"

Remove public support for activities that encourage GHG emissions

As an important first step, OECD analysis shows that reforming environmentally-harmful subsidies, and specifically inefficient fossil fuel subsidies, is necessary to establish policy frameworks that “get the prices right” to reduce greenhouse gas (GHG) emissions. A recent inventory of 24 OECD countries has found that fossil fuel production and use was supported by about USD 45-75 billion per year between 2005 and 2010 (OECD, 2011i).[1] Fossil fuel consumption subsidies in 37 developing and emerging economies amounted to an estimated USD 409 billion in 2010 (IEA/OECD/WB, 2010; IEA, 2011).

Removing these subsidies would lower the global cost of stabilising GHG concentrations, saving money for governments and taxpayers. It would help to shift the economy away from activities that emit CO_2, encourage energy efficiency, and promote the development and diffusion of low-carbon technologies and renewable energy sources. OECD *s*imulations using IEA data (2008 estimates) indicate that phasing-out fossil fuel consumption subsidies in emerging and developing countries could reduce global GHG emissions (excluding land-use change emissions) by 6% globally by 2050, compared with business as usual, and by over 20% in Russia and middle eastern countries. As subsidies artificially reduce the price paid by final consumers, removing this price-wedge would influence behaviour and reduce final energy demand. This could increase global real income by 0.3% in 2050, with benefits especially in the major emerging economies.

Phasing out subsidies is often politically challenging, and can in some cases have negative impacts on low-income households. Such policy reforms must be implemented carefully to ensure that any negative impacts on household affordability are mitigated through appropriate measures (*e.g.* means-tested social safety net programmes). To achieve intended social benefits efficiently, without encouraging carbon emissions, it is preferable to target the support directly to those who most need it, rather than to maintain an across-the-board subsidy to all fuel users.

Put a price on carbon to send a clear signal for investment

Market instruments are essential to put a price on carbon and to steer private investment to low-carbon development. A clear, credible and binding policy signal on emissions of greenhouse gases is necessary to align incentives for investment (OECD, 2009b). Putting a price on carbon emissions through taxes or cap-and-trade schemes, will penalise carbon-intensive investments, and create markets for low-carbon investments such as energy efficiency, solar, wind energy and carbon capture and storage; and stimulate climate action in the energy, industry, transport and agriculture sectors. Recent OECD analyses demonstrate that carbon taxes can be very effective in triggering investments which reduce abatement costs. In the case of the United Kingdom’s Climate Change Levy, firms subject to the full rate on fossil fuels and electricity were significantly more likely to innovate than firms paying a negotiated reduced rate (OECD, 2010a).

Market mechanisms can provide new sources of funding

The use of market instruments can also provide a large and stable source of public finance, making it feasible to fund climate change action in a context of tight government budgets. OECD research shows that if all industrialised countries were to use economy-wide carbon taxes or auction all emission trading permits to achieve the emission reductions they originally pledged in Copenhagen and Cancun, they could raise about 0.6% of GDP (USD 250 billion) in revenue per year by 2020 (OECD, forthcoming 2012a). Just a fraction of this would make a significant contribution to the financing specified under the Cancún Agreements, while also contributing to fiscal consolidation and other government priorities.

A wide variety of other possible sources could be used to scale-up public finance to support climate change in this time frame, including taxes on international aviation or marine bunkers, which are currently unregulated (World Bank/IMF/OECD/RDBs, 2011). In the context of a cash-strapped public sector, the use of domestic market instruments and policies could generate a stable source of revenues to bolster economic growth, compensate reductions in other taxes (*e.g.* on labour), and/or to provide new sources of public revenue which could in part help governments to support mitigation and adaptation action in developing countries.

[1] Further analysis would be needed to determine which of the support measures identified encourage greenhouse gas emissions or may be inefficient.

A further deepening and extension of the carbon market also creates the scope for substantial transfers of private funds from developed to developing countries. In the near term, the main channel for such transfers could be based on scaled-up versions of existing crediting mechanisms such as the Clean Development Mechanism (CDM). Improving the CDM framework and supporting institutions, and addressing barriers to investments through this mechanism, could increase the potential for financed mitigation in developing countries (Ellis and Kamel, 2007).

In a rapidly urbanising world, the choice of urban infrastructure and policies can help deliver low-carbon development. However, access to financing remains a challenge. Offset market mechanisms (such as CDM and Joint Implementation) might be designed to provide better carbon market access to urban mitigation projects and programmes so as to tap the potential for cost-effective mitigation in this area (Clapp *et al*, 2010). If more ambitious GHG emission cuts were pursued and offset and crediting mechanisms were scaled-up at the same time, the level of transfers through emission crediting – or "offsets" – could rise rapidly. These transfers could support mitigation efforts in developing countries and in rapidly developing locations such as urban city centres. Well-functioning crediting mechanisms also reduce the cost of mitigation (OECD, 2009b).

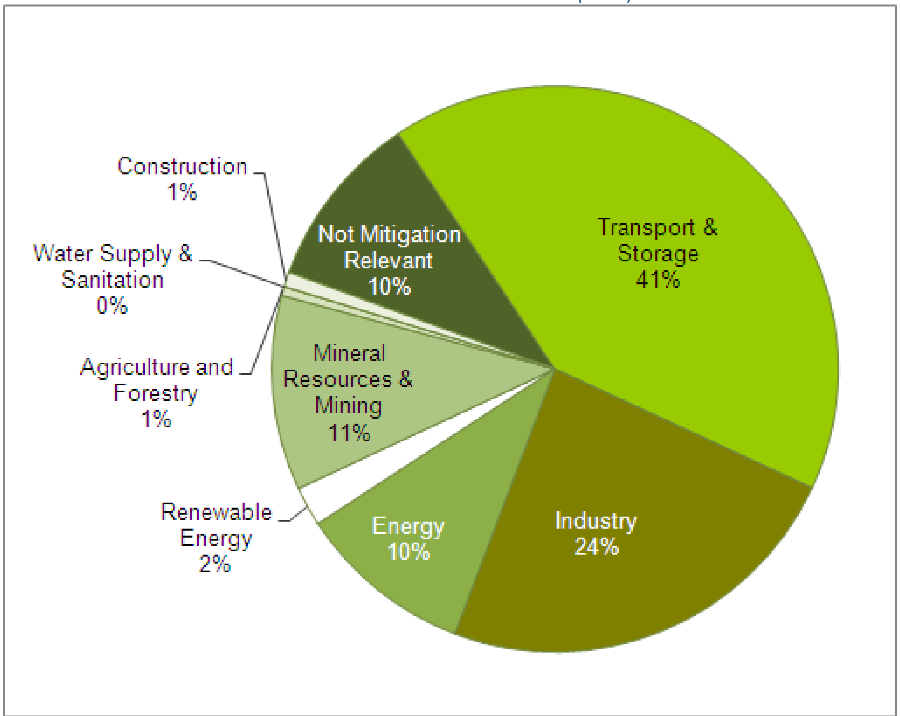
Explore the contribution of export credits to climate change finance

Greener export credits could provide an important opportunity to stimulate private investment in developing countries in low-carbon development. Export credit agencies (ECAs) typically provide funds (direct loans) or guarantees to facilitate exports (OECD, 2011a). In recent years, the majority of the medium and long-term official export credit flows that go from OECD governments to developing countries have supported potentially carbon-intensive sectors (Figure 2). While information is not tracked on the carbon-intensity of these projects overall, the projects supporting renewable energies and cogeneration/district heating represent only a tiny share of official export credits to the energy sector (USD 0.7 billion out of a total of USD 32 billion in 2009).

OECD member countries are taking three active steps to introduce and maintain environmental accountability in official export credits and to address climate change issues. First, ECAs are encouraged, under a 2007 OECD Recommendation, to assess the environmental impacts of projects that they finance or support (OECD, 2007a). While this does not guarantee the "greening" of projects supported by official export credits, it aims to ensure that support is only provided to projects that meet international standards. The benchmarks for project assessment are World Bank and IFC standards, and these also include GHG emission related indicators. Secondly, under the auspices of the OECD, special rules governing the provision of support for renewable energy and water projects were liberalised in June 2009 to encourage the export of technologies and practices in these areas. OECD countries are now in a position to support exports in these areas with favourable financial terms

Figure 2. Official Long Term Export Credits by Sector

North-South Flows - USD 32 billion (2009)



Source: OECD statistics on export credits, 2010.

and conditions to reflect the high up-front investment costs and expected useful lives of projects. Finally, as a follow-up to the adoption of the June 2009 changes to the Sector Understanding on Renewable Energies and Water projects, OECD countries are also engaging in negotiations to address ongoing challenges related to climate change in the export credits area (OECD, 2009c). Negotiations are under way to consider whether and how key sectors and technologies, such as energy efficiency and other low-carbon projects, could become eligible for favourable financial terms and conditions, similar to those for renewable energies.

Design policies to leverage private investments and use public finance to target areas where private funding will not be available

Public finance will necessarily be limited and should be used as a time-bound catalyst to leverage private investments wherever possible. Experience with the GEF, climate funds and the carbon market, shows that public funding for climate mitigation can leverage private investment by widely ranging factors from 1:2 to 1:10. However, these ratios are calculated in different ways making them difficult to compare (Brown *et al*, 2011).

Public financing is best used to target cost-effective activities unlikely to attract sufficient private funding on their own. These include capacity building to strengthen enabling environments for investment and integration of climate change concerns into sectoral and other economic policies, investing in education and training as well as technology research and development. Other priority uses could include protecting forests and other natural resources, and adaptation. Policy dialogue on such priorities for development assistance, and targeted capacity building to support policy reforms, are an important part of development co-operation activities and can lead to strengthened, country-driven policies for low-carbon, climate-resilient development.

Catalyse Private Capital Investment to Support Climate Action

Strengthen domestic LCCR investment policies

Achieving ambitious climate change goals requires redirecting private capital towards LCCR infrastructure and practices. Countries can establish sound "investment-grade" climate policies by combining good practice elements of investment policy with climate policy into a single integrated framework.

Investor confidence requires, first and foremost, clear goal setting and strategies for climate change and other environmental policis as welll as sound policies to create enabling conditions for business and investment. These enabling conditions will depend upon: transparent information on how governments implement and change rules and regulations dealing with investment; property protection through a system of secure and verifiable property rights; non-discrimination that ensures all investors, both foreign and domestic, are treated equally; and policy coherence across a variety of policy areas. These include: trade and competition policies; financial, infrastructure and tax policies; and human resource, corporate and public governance policies (OECD, forthcoming 2012b).

Secondly Policy coherence for investors also requires the integration of clear climate change goals into investment policies through a mix of instruments, including carbon pricing, R&D, financial, and regulatory policies as well as "soft" measures such as education and information. The use of climate performance criteria to clearly define what is "low carbon" and "climate-resilient" may also be used to allocate limited public finance, working in partnership with private investment. For example, performance criteria can be built into public-private partnership (PPP) contractual agreements that underpin key infrastructure investments (OECD, forthcoming 2012b).

Depending upon the context, climate policies may give uneven or weak signals for LCCR investment. Carbon prices – even where they exist – are often not high enough to be transformational in driving investment away from high carbon activities. They will typically need to be complemented with other regulatory instruments. Therefore, specific climate policies will also be needed to address a variety of market failures and barriers to LCCR investment, notably:

- *Lack of certainty about policy and regulatory frameworks for climate change*: The use of national low-emission development strategies (LEDS) can be an effective tool to provide a vision of the future for governmental and non-governmental stakeholders (Clapp *et al,* 2010). Long-term climate policy goals, targets and commitments can align policy and investment timescales, and a clear and legally binding framework will build confidence in investment conditions (OECD, forthcoming 2012a).

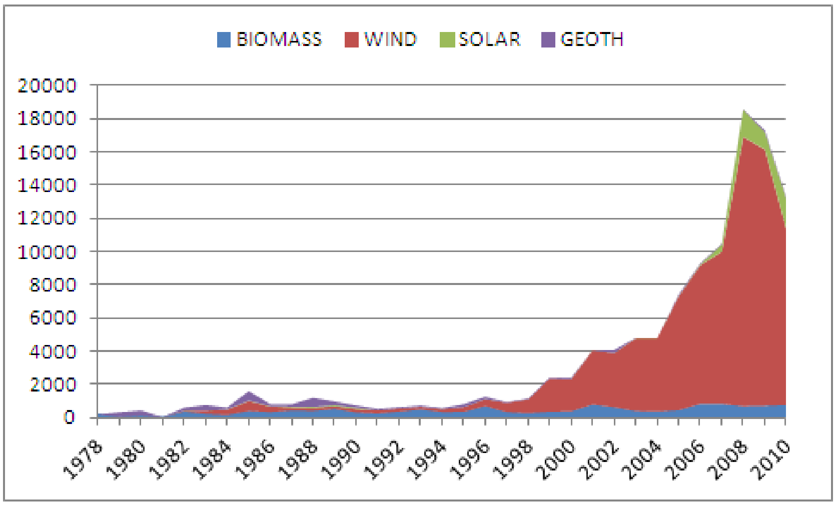
- *Failure to fully internalise the external value of climate benefits and other public goods*: For example, carbon pricing and support for innovation may not be enough to ensure all energy efficiency options are adopted or accessible. Regulatory instruments (e.g. building efficiency standards) and direct financial support may also be required.
- *Lack of technical capacity in governments and companies*: To unlock opportunities in LCCR investment, public action will need to target capacity building, information provision and technical assistance across a wide range of areas, *including monitoring and assessment, enforcement and human resource development.*

Fully integrating action on climate change into broader enabling policies and conditions for business and investment can be an important step to achieving a large scale shift of private capital into LCCR growth (OECD, forthcoming 2012b).

Provide targeted public support to accelerate clean investment

An example of policy intervention to address market barriers to clean technology can be seen in the area of renewable energy. In recent years OECD governments have intervened directly in energy markets to promote increased investment in low-emission technologies, such as renewable energy, with some success. Figure 3 shows installed renewable energy capacity for 1978-2008. The increasing trend for investment in renewable energy power facilities coincides with the agreement and implementation of the Kyoto Protocol. In this period, developed country governments have provided targeted support for renewable energy investment, which can be justified by the relative immaturity of these technologies. This immaturity makes it more difficult for lenders to accurately price relative risk of investments in "clean" energy, and thus for investors in the sector to obtain financing at reasonable cost. Moreover, in some cases there can be important learning and demonstration effects, which will not be realised in the absence of initial policy support since the returns on investment will be too low (Kalamova *et al,* 2010). At the same time, the rate of entry of coal and oil plants plummeted in these countries, although the entry for the least carbon-intensive fossil fuel (natural gas) has been increasing.

Figure 3. New plant entry (measured in installed generating capacity in MWs) by type of renewable energy in North America, Pacific and EU-15 regions



Note: Excludes hydro.

Source: Kalamova *et al*, 2010.

Predictability of government programmes is necessary if investors are to initiate a project in clean energy; however, predictability should not be mistaken for permanence. It is important to provide 'sunset clauses' for policies which support investment directly, since over time the financial markets will price risk efficiently and learning benefits will be exhausted.

Furthermore, international collaboration on technology research, e.g. through the International Energy Agency's "Implementing Agreements" (IA), can significantly increase co-invention of clean technologies (Kahrobaie *et al,* 2011). Countries such as India, China, Brazil and South Africa have started to play increasingly important roles in IAs and related research partnerships, and thus also in the development of climate mitigation technologies. These results highlight the potential for international collaboration and research to build technical capacity and boost innovation to deliver timely results.

Develop appropriate investment instruments to incentivise large private pools of capital to invest in LCCR infrastructure

In the absence of positive incentives and strong regulatory frameworks, barriers and risks constrain investments by institutional investors (such as pension funds) into infrastructure and constrain international investment flows to low-carbon options (Della Croce et al, 2011). Investment incentives for these large pools of capital can be enhanced in a number of ways. For example, judging by the risk-adjusted financial success of infrastructure investment funds, tax incentives can be a very powerful instrument.

In 2009 institutional investors held over USD 65 trillion in assets under management in OECD countries alone, and these assets have been steadily growing over the past decades. The OECD is working with a group of Pension Fund Regulators from 60 countries worldwide[2] to see what role pension funds – and other institutional investors - can play in financing green growth initiatives. Pension funds currently receive annual contribution inflows of around USD 850 billion and manage USD 28 trillion in assets. OECD research shows that less than 1% of this is allocated to infrastructure projects, and an even smaller slice goes to green infrastructure (Della Croce *et al*, 2011; IOPS, 2011; Inderst, 2010).

Despite the fact that infrastructure projects (including LCCR projects) can potentially offer the stable, inflation-adjusted, low correlation (*i.e.* safer) returns, which institutional investors with fiduciary responsibilities are seeking, uncertainty and risks in many areas limit investment. In particular, key investment barriers relate to lack of clarity about environmental policies, new financial regulations and capital requirements and the lack of appropriate, scaled and liquid investment vehicles.

To tap into institutional pools of capital, governments and the financial industry need to ensure that attractive LCCR infrastructure opportunities come through the pipeline– for example though providing risk mitigation tools such as so-called "public financing mechanisms"[3] to cover regulatory uncertainty, issuing financing vehicles such as green bonds or setting up green banks. The UK government, for example, is launching the Green Investment Bank in 2012. It will help to structure the demand for capital into a form – for instance energy efficiency-backed bonds - that investors can then invest in (OECD 2011g; Della Croce *et al*, 2011).

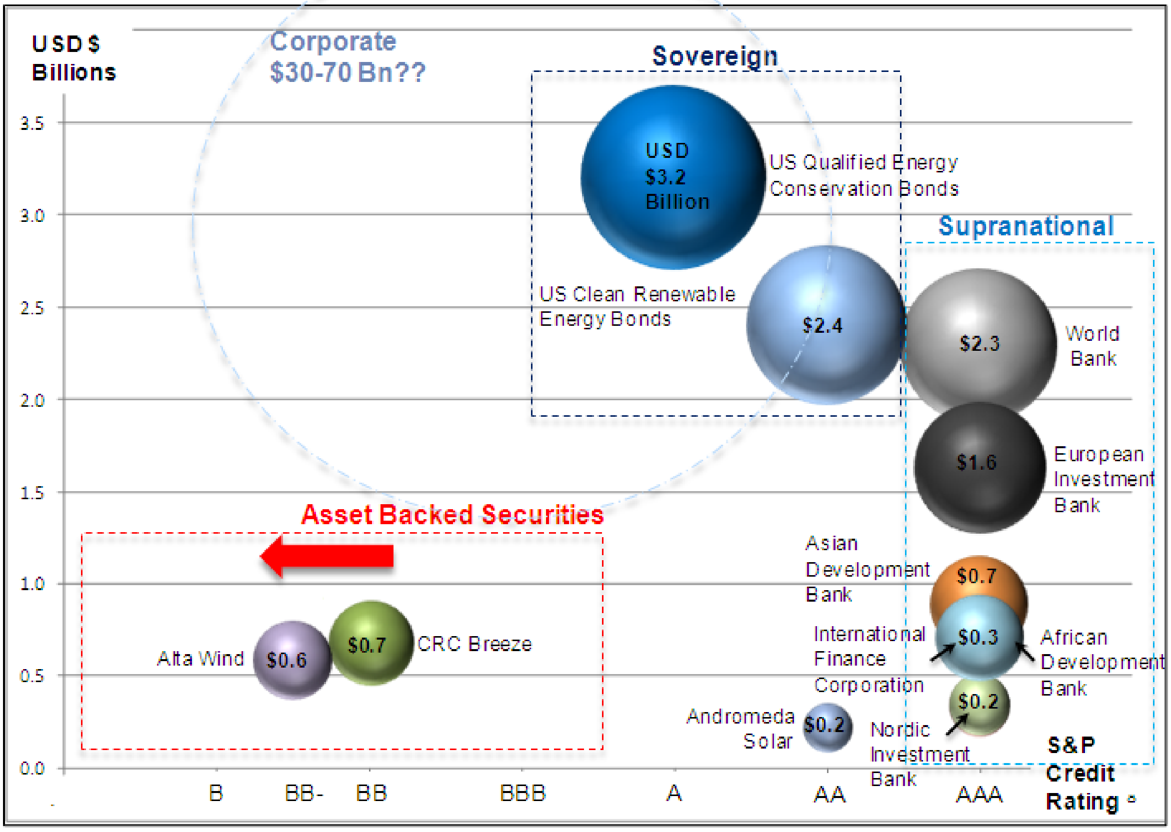
Though still small, the market for green investments is starting to grow. Alongside more developed equity products, fixed-income instruments are also being launched. The OECD estimates that the nascent market for green bonds has now grown to around USD 16 billion dollars since the first issuances in 2008, a tiny fraction (just 0.017%) of the capital held in global bond markets valued at USD 95 trillion in 2010 (Figure 4).[4] To date, the largest green bond issuances have been issued primarily by AAA credit-rated multilateral development banks (MDBs). Such issuances may have peaked due to stringent MDB loan to capital requirements and MDB project lending pipeline size.

[2] International Organisation of Pension Supervisors http://www.iopsweb.org/pages/0,3417,en_35030657_35030263_1_1_1_1_1,00.html

[3] See for instance http://www.sefi.unep.org/fileadmin/media/sefi/docs/UNEP_Public_Finance_Report.pdf

[4] Note: does not include "green" corporate bonds valued at over USD 70 billion (Della Croce, R., C. Kaminker and F. Stewart, 2011).

Figure 4. Selected large issuances in the green bond market



Source: OECD analysis based on Climate Bonds Initiative Database, Daiwa research, Bloomberg New Energy Finance, Energy Hedge Magazine; Della Croce, *et al*, 2011.

Standardising and rating green bonds will help investors evaluate green bonds against other assets. As a first step, a standardised definition of what is "green" investment would be useful. In this respect, governments could support the setting up of a rating agency or standard setter to rate and certify green projects and bonds.

Support good corporate governance, accountability and transparency

Climate change creates new risks and opportunities, and a number of companies are already changing the way they do business to respond. The trend towards increased regulation of GHG emissions is putting pressure on carbon-intensive companies, which raises the financial liability of investment in emission-intensive processes or technologies. The expectation that policies to price carbon will become more common and more stringent diminishes the value of companies that are not forward looking to anticipate future regulation. Increasingly, investors and other stakeholders are calling for greater transparency and corporate disclosure about the GHG emission performance and also about vulnerability to climate change (OECD, 2011e). Yet the lack of convergence in internationally-agreed standards for GHG emission and climate risk reporting at company level – resulting in variations in methodologies, scope and boundaries of reported information – limits the comparability of corporate information. This raises questions about the quality and reliability of information reported by companies and increases the costs of GHG reporting. Increased harmonisation of corporate climate change accounting and reporting methodologies could lower costs and improve the quality of information reported by companies, improving the transparency and accountability of corporations to their shareholders (OECD, 2010b).

Target Adaptation and REDD+

Financial and technology support for climate change adaptation in developing countries is an essential ingredient for a successful response to climate change

Developing countries will be hit hardest by climate change and are least able to pay the bill. Enabling increased capacity in developing countries to identify and deliver timely policy reforms will be essential to ensure that economic development is climate-proofed and contributes to low-carbon growth. Financial and technological support are also needed to help the most vulnerable countries, and the most impoverished communities, to adapt to climate change in a timely manner.

On adaptation, practical ways for donors to support developing country partners in their efforts to reduce their vulnerability to climate change need to be identified, integrating adaptation to climate change into all development activities (OECD, 2009a). Given that failure to adapt could stall development, particularly in the poorest countries and communities, it is essential to have robust risk screening tools as well as monitoring and evaluation of adaptation interventions in place. The OECD's Development Assistance Committee and Environment Policy Committee have collaborated to publish an overview of current approaches to risk screening (Hammill and Tanner, 2011). In addition, a recent OECD working paper (Lamhauge *et al*, 2011) has brought together examples of emerging good practice in this area.

Ongoing efforts at OECD focus on tracking climate change adaptation-related aid (see also the work described in the following section "Track Flows and Assess Progress"). In December 2009 the DAC members approved a new marker to track aid in support of climate change adaptation. This new adaptation marker complements the existing climate change mitigation marker, and thus allows presentation of a more complete picture of aid in support of developing countries' efforts to address climate change.

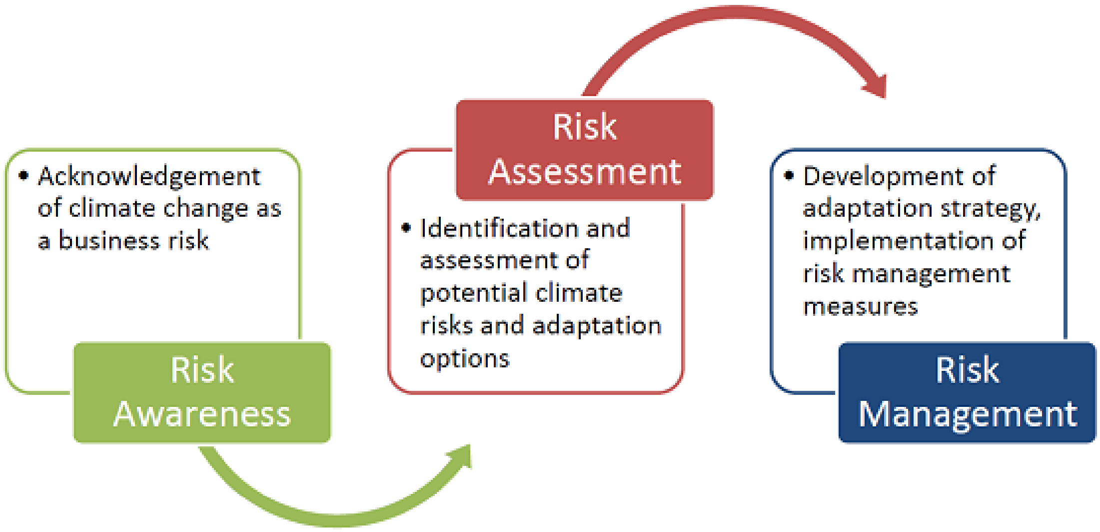
The private sector has a key role to play in financing adaptation activities

Ongoing work at the OECD is also examining the role of the private sector in promoting adaptation in developed and developing countries, including the role that public policy may play in furthering private sector engagement in adaptation. For example, increasing access to risk-sharing instruments is an important strand of comprehensive adaptation strategies that will help to engage private sector actors in adaptation, especially since extreme events will become more frequent as a result of climate change. OECD work shows there have already been some promising applications of innovative mechanisms such as index-linked insurance and weather derivatives. The Caribbean Catastrophe Risk Insurance Facility, for instance, is an example of combining index insurance with risk pooling (OECD, 2008a).

A new paper (OECD, 2011e) provides new insights into how companies are already beginning to invest in their own resilience to climate change and to respond to new opportunities (Figure 5). Consistent with previous surveys, the study finds high levels of awareness of climate change, but lower levels of action to manage the resulting risks. It finds that the private sector is already taking action on adaptation, with some examples of how the public sector can facilitate this, such as by forming partnerships with the private sector to help provide companies with robust information on climate risks and by building regulatory frameworks which encourage adaptation.

At the local level, analysis of microfinance (Agrawala and Carraro, 2010) in Bangladesh found that 70% of existing portfolios of the microfinance lenders analysed supported climate change adaptation. In the longer-term these instruments have the potential to be self-sustaining, but there is a need for public funding to pilot new methods and initiate new projects in the near term.

Figure 5. Framework for assessing companies'engagement in adaptation



Source: OECD, 2011e.

Develop capacity building and experience to reduce emissions from deforestation and forest degradation in developing countries

Finance for reducing emissions from deforestation and forest degradation (REDD+) in developing countries will be needed both for capacity building (*e.g.*, institutional and monitoring capacities) and for emission reductions directly. Emissions from deforestation are substantial, particularly in developing countries, amounting to as much as 17% of global GHG emissions. REDD+ can be achieved relatively cheaply, and could potentially reduce the overall cost of global mitigation action by 40% (OECD, 2009a). A well-designed mechanism could also provide co-benefits for biodiversity and poverty reduction (Karousakis, 2009). Mechanisms to support "REDD plus," which refers also to conservation, sustainable forest management, and enhancement of carbon stocks, will be essential as part of a cost-effective and comprehensive post-2012 agreement. Four key features critical to an effective REDD+ financing mechanism are: (i) establishing clear goals and objectives; (ii) ensuring sufficient and long-term sources of finance; (iii) developing eligibility and prioritisation criteria; and (iv) ensuring accurate and consistent monitoring and performance evaluation. Ultimately, market-based approaches to finance REDD are likely to generate significantly larger, more sustainable finance, than fund-based approaches (Karousakis & Corfee-Morlot, 2007).

Track Flows and Assess Progress

Building on existing systems to track financial flows

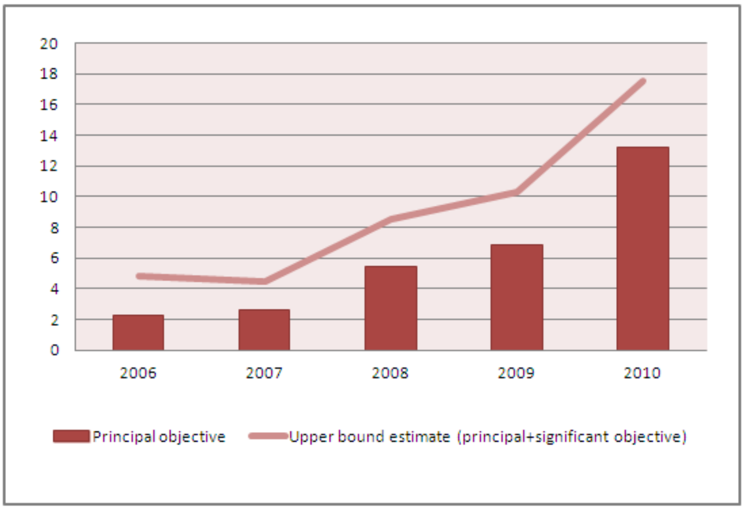
At the international level, current systems to measure, report and verify (MRV) financial support are limited, and no single system provides a complete picture of climate finance flows. Tracking climate finance is difficult, as flows come from different sources (national and international, public and private), are provided via different channels (bilateral or multilateral) and have different aims (Buchner *et al,* 2011b). Further, accurately tracking climate finance flows is complicated for both "political" reasons (there is no international agreement as to what should be counted), as well as "technical" ones (there are several different flows that could be relevant and may need to be dis-entangled). Issues relating to confidentiality of data can also impede accurate tracking of export credits and private-sector flows. There are also differing views in the negotiations on what is meant by "new and additional" finance. Developing a more comprehensive framework for MRV of climate change support in future may usefully build on the UNFCCC National Communications and review process, as well as the statistical systems of the OECD's Development Assistance Committee (DAC) (Ellis *et al,* 2011). Increased use of standardised reporting formats would also help to improve the consistency and transparency of information provided (Ellis *et al*, 2011).

The OECD-DAC has a robust system for measuring climate change-related aid, the Rio Markers on Climate Change Mitigation and Adaptation; the system ihas been designed based on input from aid providers in consultation with the UNFCCC secretariat and other users of the system. The Rio Markers are based on activity-level reporting to the DAC's Creditor Reporting System (CRS), which covers over 90% of all aid flows from OECD countries and multilateral organisations (OECD, 2011d).

The CRS system for measuring climate change-related aid is to mark each aid activity that serves climate objectives as either principally or significantly targeted at mitigation or adaptation. Data on mitigation-related aid have been collected since 1998. The adaptation marker is newer (agreed at the end of 2009); data using this marker has been collected from 2010. In 2011, DAC members also agreed to extend the application of the mitigation and adaptation markers to non-concessional development loans. Finance also flows through the multilateral system, and the DAC Secretariat is working with multilateral development banks to provide a more complete picture of total donors support.

Figure 6. Trends in climate change mitigation-related aid

Bilateral commitments, USD billion, constant 2009 prices



Source: OECD DAC CRS system.

The latest data (Figure 6) show an increasing trend in mitigation-related aid, with over USD 13 billion in 2010 bilateral commitments with climate change mitigation as the principal objective. Counting both flows with climate change mitigation as a principal and significant objective, the data show an upper bound of USD 18 billion (OECD, 2011h).

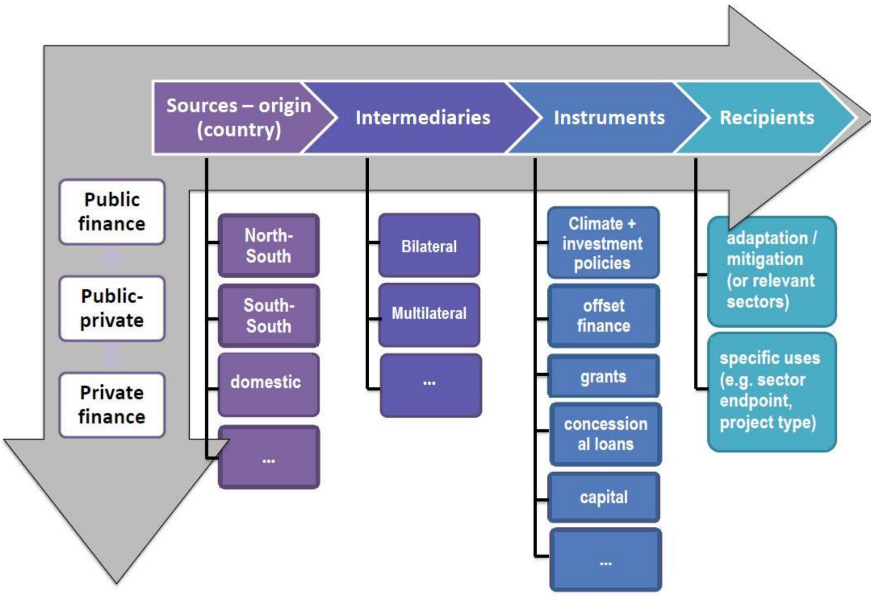
For adaptation, the preliminary data on the marker for 2010 show USD 3 billion with adaptation as a principal objective, with an upper bound of USD 9 billion (OECD, 2011h). Total bilateral aid for mitigation and adaptation in 2010 is estimated to be USD 23 billion (upper-bound estimate with adjustments for overlap).

The Cancún Agreements explicitly acknowledge the role of private finance to contribute to climate goals. Yet today, there is limited understanding of the baseline of private financing that flows to low-carbon, climate-resilient projects and programmes, and better monitoring tools are needed to assess progress (Buchner *et al,* 2011b). The system of MRV could be extended to include some private climate-specific flows, such as those related to primary transactions under the CDM and/or to the leveraging ratios of international public finance (concessional and non-concessional) (Buchner *et al,* 2011b).

Foreign direct investment (FDI) is a key financing vector and can play an important role in support of the diffusion of low-carbon technologies. Until recently, however, the potentially important role of FDI has received little systematic attention in the climate change debate. In partnership with others, the OECD is working on how to define and measure green FDI, with a view to promoting a better understanding of the contribution FDI can make to the shift to a low-carbon, climate-resilient economy and the role policies may play in the greening of FDI (Golub *et al*, 2011).

A broad framework for MRV of climate-related financing could build on the OECD CRS system and provide information not only on the source country or fund, but also the destination, purpose (*i.e.* capacity building, mitigation and/or adaptation outcomes) and the targeted sector. As stipulated in the Cancun Agreements, such a framework would ideally include reporting from both developed countries and developing countries to provide information on support provided and received (Buchner *et al,* 2011b) (Figure 7). There is also a need for methodological work on how to measure and assess the effectiveness of financial support, particularly in the case of adaptation where there is an issue of how to assess progress. OECD work is also underway in this area.

Figure 7. The Dimensions of Climate Finance



Source: Buchner *et al*, 2011.

Improving the effectiveness of international financial support

Mobilising public finance is essential, but once available these funds will have to be managed efficiently and channelled towards the most effective investments and activities. Some co-ordination across different funds or delivery channels could be valuable to ensure the strategic goals of the international community are met including the geographical distribution of funds, and the balance of funding between mitigation and adaptation. Delivery channels will also need to be designed to reach the poor who are also often most vulnerable to the impacts of climate change. For example, for adaptation financing, working at the sub-national level will be important and mechanisms like microfinance merit a closer look (Agrawala & Carraro, 2010).

Lessons learnt from bilateral and multilateral development assistance activities and global funds for development will be important in informing future climate financing mechanisms (OECD 2010d). These lessons include the need to ensure that developing country partners exercise full ownership of climate change funding and integrate it within their own financial allocation mechanisms. Recording these resources in the national budget will help ensure that their use is subject to scrutiny by parliaments, civil society organisations and other domestic accountability institutions. In other words, activities undertaken in response to climate change should be country-driven and clearly based on the needs, views and priorities of partner countries (CDDEF, 2010a, b).

More broadly, the OECD also assesses donors' progress in achieving the targets included in the Paris Declaration on Aid Effectiveness. The monitoring survey used to assess donor progress does not currently include climate change finance; it can however provide a valuable model for future efforts to monitor whether climate change finance is being effectively delivered in line with the principles of development effectiveness.

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