Old, new and future funding for environment and climate change – the role of development cooperation

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Executive summary

The current loss of ecosystems, degradation of ecosystems, air and water pollution and climate change are key environmental challenges that need action. The available funding for addressing climate change and other environmental issues is but a fraction of what is needed.

The current debate on financing distinguishes between different funding purposes. This report will therefore consistently refer to adaptation, mitigation and other environmental issues respectively even though climate change is a subset of environmental change. The discussion on how to best mobilize and make efficient use of public and private international financial flows to respond to the challenges is not new. What is new is the level of political attention, the scale of expected financial flows, the focus on adaptation and mitigation and the opportunity to link financial flows to key national planning processes and systems.

The purpose of this paper is to inform the discussion that feeds into the development of a new environment and climate change policy for Swedish development cooperation. The paper seeks to discuss how Swedish development cooperation can contribute to an adequate and equitable supply of financing and how development cooperation can best reduce bottlenecks that may prevent necessary financial transfers.

While most agree that public and private financing is necessary, there are different views on the ability of the carbon market to generate sufficient resources and how to best ensure that vulnerable countries receive a fair share. Public resources and policy instruments are typically needed to correct market failures. Public financing can i) leverage private financing by helping to create markets for climate action, build trust in regulations and reduce risks, ii) develop necessary capacity to strategically assess needs and opportunities for environment (including climate change) financing and capacity to apply for financing and comply with requirements, and iii) be invested in programs and projects.

Despite urgent needs, developing countries with weak administrative capacity and inadequate governance systems risk being at a disadvantage in terms of attracting both private and public financing. Past experience with environmental financial mechanisms highlights difficulties of aligning separate financing procedures with country priorities and systems. There is thus a need to both strengthen vulnerable countries' capacity to apply for and comply with environment and climate change financing requirements and to adjust the criteria for financing. The Paris Declaration on Aid Effectiveness provides important guidance.

This report argues that the most important role for development cooperation in relation to environment finance in general and climate change finance specifically is to reduce the bottlenecks that inhibit financial flows and effective delivery. This will be done mainly through continued support in areas that are important regardless of the state of ecosystems or climate change impacts but without which only limited financial flows can efficiently be attracted and used. Examples include democratic governance, improved public financial management, decentralization reform and private sector development.

While underlining the importance of fast track financing and a flexible approach adapted to a country context, the tentative recommendations for Swedish development cooperation are:

Mobilizing supply: i) Promote Paris principles and a pro-poor perspective in environment and climate change finance, ii) Work with multilateral financial institutions

Reducing bottlenecks: i) Strengthen development partner country governance systems, ii) Strengthen tenure systems (private or communal, owner or user rights), capital markets, and improve the business environment, iii) Support strategic capacity to assess needs and opportunities and apply for environment and climate change financing

Stimulating demand: Promote institutional ownership of environment and climate change issues at the highest level.

1. Introduction

1.1.Background

The current loss of ecosystems, degradation of ecosystems, air and water pollution and climate change are key environmental challenges that need action. The drivers of environmental change, including climate change, and responses needed are interrelated and basically the same. Substantial investments are needed in natural capital, physical capital and human capital. Risks and opportunities are best addressed within sectors such as energy, transport, agriculture, disaster risk reduction and water with interventions like capacity development, policy changes, or investments. Promotion of green growth, making national development plans green and climate resilient, and promotion of Strategic Environmental Assessments are efforts aimed at mainstreaming the issues at a strategic level. To complement the integration of climate change and other environmental issues across sectors, there is also a need to strengthen institutions responsible for development of policies, coordination and monitoring with a bearing on climate change and other environmental issues. These include centrally placed government ministries (Ministry Planning/Finance) and sector ministries like environment and natural disaster (where appropriate).

Almost weekly there is a new major report on climate financing or the costs of adaptation and mitigation. Financial architectural issues are discussed, costs are estimated, and proposals on how to share the burdens are ventilated. To reach the 450 ppm target, mitigation costs in developing countries have been estimated to be in the range of $140 billion to $175 billion per year by 2030. Similarly, adaptation costs in developing countries are estimated to be in the order of $30 billion to $100 billion per year (World Bank, 2009a). The financing needed in the short term will be even higher as low carbon technologies, energy efficiency measures often result in high investment costs and lower operating costs. There are few estimates of costs for protected areas in developing countries. A high range estimate suggests $12-13 billion per year over ten years (Bruner et al., 2003) and achieving the MDGs for water and sanitation requires an additional $ 9 billion annually (OECD, 2009d).

The available international funding for adaptation and mitigation is far from matching the need, roughly $ 10 billion. However, many new opportunities for mobilizing resources are discussed in ways that would have been unthinkable only some years back. Emerging carbon markets and mechanisms such as the European ETS and the Clean Development Mechanism under the UNFCCC are among the leading examples of this. While the public finance is crucial, achieving necessary financial flows to meet environment and climate change objectives in developing countries will require substantial private finance in the future. Public policy and finance will have a key role in incentivizing the mobilization of private finance.

Being overshadowed by climate change, there are fewer assessments or financial needs related to other environmental challenges. However, the major initiative on The Economics of Ecosystems and Biodiversity (TEEB) will bring a new analysis on the issue. Its latest output highlighted the links between climate change and ecosystems and development.

International financial flows to respond to the challenges of ecosystem degradation and climate change are not new. A majority of the disbursements under the Rio conventions (biodiversity, desertification, climate change) so far have been made outside of key national planning processes and budget systems.

What is new is the level of political attention, the scale of expected financial flows, the focus on adaptation and mitigation, and the opportunity to link financial flows to key national planning processes and systems.

Resource mobilization is essential but how resources are managed and allocated are also of fundamental importance. Experiences from development cooperation and global funds for health can provide important lessons.

It is against this backdrop that the present paper seeks to discuss the role of development cooperation in relation to existing and new funding for climate change and other environmental challenges.

1.2. Purpose and scope

The purpose of this paper is to inform the discussion feeding into the development of a new environment and climate change policy for Swedish development cooperation. It focuses on environment, including climate change, finance in relation to development cooperation and seeks to answer the following questions:

- What is the Swedish development cooperation's role in mobilizing a supply of international funding that is adequate, additional, predictable, transparent, politically feasible, and respectful of the principle of common but differentiated responsibilities?
- What is the Swedish development cooperation's role in promoting developing country ownership and alignment with national systems?
- What is the Swedish development cooperation's role in reducing bottlenecks that may prevent necessary financial transfers to partner countries?

This report focuses on the role of development cooperation in relation to other forms and providers of international financing related to environment and climate change. Additional questions relate to the role of the private sector and how existing flows to other non climatic financial flows impact on Sida's work.

The report starts with an overview of various kinds of international financial flows for development and existing instruments for climate change and other environmental financing. Then follows a section on future financing, where climate-related financing is expected to steeply increase, the role of various actors (private and public), and important aspects for successful delivery of resources. The last section includes a discussion on the role of Swedish development cooperation and tentative recommendations.

Climate change and other environmental finance constitutes a small portion of total investments in developing countries. However, environment and climate change outcomes are highly dependent on the extent to which these complementary sources of finance factor in environment and climate change risks and opportunities. An extensive discussion of these important aspects is beyond the scope of this report and so is a description of general water or energy sector financing opportunities.

The report is not intended to be an input to the negotiations in Copenhagen or to provide recommendations on specific funding arrangements. It is intended to be useful regardless of the outcomes of the negotiations. The report draws heavily on "World Development Report 2010", an OECD consultation draft for development perspectives for a post Copenhagen Climate financing Architecture, "Closing the Gaps " by the Commission on climate change and development and "Adaptation Finance under a Copenhagen Agreed Outcome" by SEI.

1.3. Development, environment, climate change adaptation and mitigation

The current debate on environment and climate change financing distinguishes between different funding purposes. This report will therefore refer to adaptation, mitigation, and other environmental challenges respectively even though climate change is a subset of environmental change and is caused by environmental factors. In the report, the following definitions for the financial flows are used:

Adaptation – financing of adjustments in human and natural systems, in response to actual or expected climate stimuli or their effects, that moderate harm or exploit beneficial opportunities.

Mitigation – financing of activities aimed to reduce GHG emissions, directly or indirectly, by avoiding or capturing GHGs before they are emitted into the atmosphere or sequestering those already in the atmosphere by enhancing "sinks" such as forests. Such activities may entail e.g. changes in behavioral patterns or technology development and diffusion.

Other environmental challenges – financing of activities aimed to improve management of ecosystems and their services that are not included under mitigation. This includes activities on biodiversity, air and water pollution and strengthening of institutions for management of ecosystems and natural resources. Institutional strengthening activities may be specific to environmental agencies or capacity within other ministries.

The term "environment and climate change finance" is used when speaking of the streams of finance for adaptation, mitigation or other environmental challenges. There are large overlaps between the different concepts. The Millennium Development Goals manifest the interdependency between environmental sustainability and poverty reduction. Degradation of ecosystems and climate change impacts are constraints to poverty reduction and economic growth. Improved management of ecosystems, such as mangroves or rural electrification using renewable energy sources from renewables has benefits for both adaptation and mitigation and thus development. Mitigation action that reduces air pollution contributes to sustaining healthy ecosystems and improves public health. But there may also be conflicts of interest. One example is conflicts between carbon sequestration objectives and protection of biodiversity and/or indigenous peoples' rights/livelihoods. There may also be conflicts between adaptation and development (maladaptation) where resources are used inefficiently. With a few exceptions, it is very difficult to draw a line between development and climate change adaptation.

The OECD calls for exploring all the possibilities of synergies between climate change and the Rio conventions on biological diversity and desertification as well as the Hyogo Framework for Action on disaster risk reduction (OECD, 2009a).

1.4. Challenges for environment and climate change financing

A number of factors contribute to making environment and climate change financing extremely difficult and politically sensitive. In the complex case of climate change, these difficulties include but are not limited to dealing with a global public good, a delink between those causing the problem and those who suffer the most from its impacts, the long duration of stay for green house gases, the scale of investments needed and mistrust. The failure of rich countries to honor long-standing commitments on international support in areas of financial resources, technological know-how and institutional capacity remains the single biggest obstacle to ensuring developing country participation in low carbon development and emission reductions (UN DESA, 2009).

Many developing countries currently need to strengthen their capacity to effectively carry out adaptation measures. Industrialized countries urgently need to simultaneously scale up financing and support the capacity of developing countries to make the best use of funds (Müller, 2008). Fundamental questions related to both climate change and the environment that will have to be

answered include: Who pays? What are the channels for delivery of finance? Who is eligible for support? Who will control the money? Despite the agreed principle of "common but differentiated responsibility," there are many different perceptions of what constitutes fairness in how burdens are shared among and within countries and over time.

A final challenge is how to avoid that separate sources of financing aimed at specific but often overlapping purposes create inefficiencies and confusion and delay the achievement of the Millennium Development Goals.

2. Environment and climate change financing

2.1. Overview of financial flows

Financial capital complements human capital, social capital and natural capital as important production factors for poverty reduction and economic growth. Financial capital comes from domestic and international sources, either from private or public funds (i.e. tax generated).

There are fundamental differences among different developing countries with respect to dependency on ODA, remittances, foreign direct investments and loans, specific environment and climate change financing and ODA contributions to selected sectors. A large majority of foreign direct investments in developing countries is concentrated to a few countries and sectors (e.g. extractive industries). The links between foreign direct investment and growth are not clear. Positive effects have been found for FDI inflows in countries with stronger rule of law, lack of political violence and better governance efficiency (Strand, 2009).

Private investments in developing countries are typically hampered by the lack of transparency in business transactions and uncertainty in recovering loans and equity investments. Return of investments is uncertain due to unclear ownership policies, pricing and contract enforceability. Reforms needed to increase investments include increased transparency and stronger rule of law. Furthermore, private firms may be hesitant to increase investments since knowledge spillovers may prevent them from fully benefiting from their innovations.

The market for Clean Development Mechanism illustrates this problem. Countries with relatively strong institutions have attracted virtually all investments, leaving low income countries with about 3% of carbon revenues. In contrast, China and India alone have attracted more than 2/3 of carbon revenues.

Table 1 illustrates selected financial flows to countries with different characteristics and with whom Sweden has bilateral development cooperation.

Table 1 Selected annual financial flows for development 2008 (Million USD)

	Afghanistan	Bolivia	India	Mali	Ukraine	Developing country total
Foreign Direct Investments (inflow)	300	513	41,554	127	10,693	731,000
-FDI Share of capital formation	17	18	10	7	22	
Remittances	n/a	1,144	51,581	344	5,769	338,000
ODA						
-total	4,387	813	5,824	1,352	573	125,000
-agriculture	354	96	507	299	1,6	5,702
-energy	264	1	468	0.7	206	6,322
-fishing	n/a	0.2	0.3	0	n/a	291
-forestry	1	3	215	2	0.9	611
-general environmental protection	27	24	17	9	2.1	2,781
-transport and storage	623	141	191	238	2.6	7,645
-water and sanitation	28	49	913	24	0.1	6,464
-biodiversity	2.3	59	423	1.3	0	1,958
-climate change	1.2	0.5	154	0.8	0	1,805
-desertification	n/a	0.6	2	16	n/a	179
Funding for adaptation and mitigation (WDR 2010)						10,000

Sources: OECD DAC CRS system (ODA), UNCTAD (FDI), World Bank (Remittances).

To date, ODA financing for environment and climate change under the UN Conventions for Biodiversity, Desertification and Climate change has been relatively modest. However, there are indications of a substantial increase in climate change financing during the last two years. The 2005-2007 average allocation of biodiversity-related aid was $ 2.9 billion compared to $ 4.3 billion for climate change and $1.5 billion for desertification (OECD, 2009b). However, as an activity can target more than one convention, the total allocation is smaller than reported for the individual conventions. Current environment and climate change ODA financing can be compared with the Clean Development Mechanism that is expected to raise in the order of $ 18 billion in total for the period 2001-2012 or with the developing country investments in sustainable energy of $ 80 billion (2002-2008). (WB, 2009).[1] In 2007, total international grants from US foundations targeting the environment sector was in the order of $ 500 Million (Foundation Center, 2009).

Total public resources currently dedicated to climate change mitigation and adaptation in developing countries are estimated at $ 9-10 billion per year, of which about 40% are ODA marked for mitigation (Bosch, 2009).

[1] The CDM is a financial mechanism to offset emissions from Annex 1 countries (developed country signatories to the Kyoto protocol). It does not provide financing for additional mitigation activities in developing countries. The financial revenues from CDM depend on the amount of credited emission reduction and the price of carbon. World Bank estimates range from $ 15 to 24 billion in direct carbon revenues.

Funding for biodiversity has been estimated to be in the order of $ 4-5 billion, of which a little less than half is ODA, 1/5 is not for profit/charity and the rest comes from business and market based sources. Between 30-50% were expected to be spent on biodiversity conservation and 50-70% for sustainable use and equitable sharing (Gutman, 2009). Financing leveraged through payment for ecosystem services is limited. For an overview of GEF financing for biodiversity and desertification, see Annex 2.

There are currently multiple instruments for environment and climate change finance including market based instruments, grants or concessional finance and fiscal instruments; see Table 2.

Table 2 Existing instruments of climate change and other environmental finance

Type of instrument	Adaptation	Mitigation	Other environmental challenges
Market based instruments	Insurance (pools, indexes, weather derivatives, catastrophe bonds), payments for ecosystem services	Emissions trading (CDM, JI, voluntary), tradeable renewable energy certificates, debt bonds	Payment for ecosystem services
Grant resources and concessional finance (levies and contributions including ODA and philanthropy) to pilot new tools, scale up and catalyse action and act as seed money to leverage the private sector.	Adaptation fund, GEF, LDCF, SCCF, PPCR and other bilateral and multilateral funds.	GEF, CTF UN REDD, FIP, FCPF	GEF, Global Mechanism, and other bilateral and multilateral funds.
Other instruments	Fiscal incentives (tax benefits on investments, subsidized loans, targeted tax or subsidies, export credits) norms and standards (including labels) inducement prizes and advanced market commitments, and trade and technology agreements.		

Source: After World Development Report 2010 with a column added on Environment.

2.2. Future financial flows for environment and climate change

Different estimates are made for the level needed for climate change mitigation ranging from $140 billion to $175 billion per year by 2030, and for adaptation needs in developing countries in the order of $30 billion-$100 billion per year (World Bank, 2009a). The European Commission recently presented lower estimates: “finance requirements for adaptation and mitigation actions in developing countries could reach roughly € 100 billion per year by 2020” (EC, 2009).

According to World Development Report 2010, “existing financing instruments have clear limits and inefficiencies. Contributions from high-income country governments are affected by fragmentation and the vagaries of political and fiscal cycles. The Clean Development Mechanism (CDM), the main source of mitigation finance to date for developing countries[2], has design shortcomings and

operational and administrative limits. The scope for raising adaptation funding through the CDM, now the main source of income for the Adaptation Fund, is thus also limited."

The last couple of years has seen a proliferation of funds for both adaptation and mitigation; see Table 3. This can partly be interpreted as a frustration with existing frameworks for technology transfer and investment (Bird and Peskett, 2008). Capacity development and efforts to pave the way for future climate financing (i.a. CDM and REDD readiness[3]) and technology transfer dominate. Current sources only represent about 5% of funding needs. Delivery of adaptation finance from United Nations Framework Convention on Climate Change (UNFCCC) and Global Environment Facility (GEF) funds as well as from official development assistance (ODA) funds has primarily focused on adaptation assessment, planning and capacity development, although the yet to become operational Kyoto Protocol Adaptation Fund should focus more on implementation of concrete adaptation projects (Persson et al., 2009).

A range of opportunities for mobilizing private and public resources for climate change adaptation and mitigation have been suggested, including a levy on e.g. international air travel, bunker fuels, CDM and Joint Implementation, auctioning of AAU; see Table 4.

Table 3 New bilateral and multilateral climate funds (from World Development Report 2010)

Fund	Total amount ($ millions)	Period
Funding under UNFCCC		
Strategic Priority on Adaptation	50 (A)	GEF 3-GEF 4
Least Developed Country Fund	172 (A)	As of October 2008
Special Climate Change Fund	91 (A)	As of October 2008
Adaptation Fund	300–600 (A)	2008–12
Bilateral initiatives		
Cool Earth Partnership (Japan)	10,000 (A+M)	2008–12
ETF-IW (United Kingdom)	1,182 (A+M)	2008–12
Climate and Forest Initiative (Norway)	2,250	
UNDP-Spain MDG Achievement Fund	22 (A) / 92 (M)	2007–10
GCCA (European Commission)	84 (A) / 76 (M)	2008–10
International Climate Initiative (Germany)	200 (A) / 564 (M)	2008–12
IFCI (Australia)	160 (M)	2007–12
Multilateral initiatives		
GFDRR	15 (A) (of $83 million in pledges)	2007–08
UN-REDD	35 (M)	
Carbon Partnership Facility (World Bank)	500 (M) (140 committed)	
Forest Carbon Partnership Facility (World Bank)	385 (M) (160 committed)	2008–20
Climate Investment Funds, includes	6,200 (A+M)	2009–12
Clean Technology Fund	4,800 (M)	
Strategic Climate Fund, including	1,400 (A+M)	
Forest Investment Programme	350 (M)	
Scaling up renewable energy	200 (M)	
Pilot Program for Climate Resilience	600 (A)	

Source: UNFCCC 2008a plus updates by authors.

Note: For a number of bilateral initiatives, part of the funds will be distributed through multilateral initiatives (for example, some pledges to the Climate Investment Funds or the Forest Carbon Partnership Facility). This leads to some double counting and makes it difficult to draw an accurate picture of upcoming climate change resources in developing countries. The Climate Investment Funds are managed by the World Bank and implemented by all multilateral development banks. All data for the Climate Investment Funds are as of July 2009—$250 million of the Strategic Climate Fund was unallocated at that time, and the Scaling up Renewable Energy fund will require minimum pledges of $250 million before it becomes operational. A = funding devoted to adaptation; M = funding devoted to mitigation; ETF-IW = Environmental Transformation Fund-International Window; GCCA = Global Climate Change Alliance; IFCI = International Forest Carbon Initiative; UN-REDD = UN Collaborative Program on Reduced Emissions from Deforestation and forest Degradation; GFDRR = Global

[3] Reducing Emissions from Deforestation and Degradation (REDD) emerged from the UN climate negotiations in December 2007 as a likely new tool to enable tropical nations to participate in the new climate treaty. REDD offers the potential of economic incentives to support developing countries in valuing forests and avoiding greenhouse gas emissions from the destruction and degradation of forests. REDD readiness aims to develop capacity to benefit from REDD. For more information on REDD, CDM and NAMAs, see Annex 3.

Table 4 Potential sources of mitigation and adaptation finance (from World Development Report 2010)

Proposal	Source of funding	Note	Annual funding ($ billions)
Group of 77 and China	0.25–0.5 percent of gross national product of Annex I Parties	Calculated for 2007 gross domestic product	201–402
Switzerland	$2 a ton of CO_2 with a basic tax exemption of 1.5 ton CO_2e per inhabitant	Annually (based on 2012 projections)	18.4
Norway	2 percent auctioning of AAUs	Annually	15–25
Mexico	Contributions based on GDP, greenhouse gases, and population and possibly auctioning permits in developed countries	Annually, scaling up as GDP and emissions rise	10
European Union	Continue 2 percent levy on share of proceeds from CDM	Ranging from low to high demand in 2020	0.2–0.68
Bangladesh, Pakistan	3–5 percent levy on share of proceeds from CDM	Ranging from low to high demand in 2020	0.3-1.7
Colombia, least developed countries	2 percent levy on share of proceeds from Joint Implementation and emissions trading	Annually, after 2012	0.03–2.25
Least developed countries	Levy on international air travel (IATAL)	Annually	4–10
Least developed countries	Levy on bunker fuels (IMERS)	Annually	4–15
Tuvalu	Auction of allowances for international aviation and marine emissions	Annually	28

Source: UNFCCC 2008a.

Note: AAU: assigned amount unit; IATAL: international air travel adaptation levy; IMERS: international maritime emission reduction scheme. Annex I Parties include the high-income countries that were members of the OECD in 1992, plus countries with economies in transition. Annex I countries have committed themselves specifically to the aim of returning individually or jointly.

All alternatives have advantages and disadvantages. The Commission on Climate Change underlines that funding for adaptation should meet the criteria of additionality, adequacy, predictability and political feasibility. According to World Development Report 2010, mitigation and adaptation finance should come from a combination of sources and provide a secure, steady and predictable stream of revenue of sufficient size. The establishment of a long-term, predictable and adequate carbon price is necessary for effective mitigation (WB, 2009a).

The appropriateness, equity, adequacy, predictability and feasibility aspects of the various proposals in Table 4 have been rated by Persson et al., 2009. The international air passenger levy and the international allowance values are judged to be the most promising with respect to the full set of criteria. See also Annex 4.

3. Who should finance environment and climate change action?

3.1. The role of the public sector and private sector

Both public and private financing are necessary for successful environment and climate change outcomes. Public resources and policy instruments are typically needed to correct market failures. Local or global public goods tend to be overexploited (forests, fish stocks, atmosphere) and give rise to negative externalities (air or water pollution, climate change). Other market failures relate to innovation and technology that can stem from protecting the private benefits of innovation research and finance market failures that include assymetric information between borrowers and lenders and high transaction costs (Stern, 2009).

Public policy thus needs to create incentives to stimulate climate action and sound management of ecosystems (improved tenure, taxes, caps, regulations, building norms, subsidies and procurement). Another key role of public policy is to improve the credibility of regulations (including carbon markets, environmental policies on pollution control, fishing quotas etc.) to reduce risks and pave the

way for private financing, including new businesses. Building credibility will take time and require public financing, i.a. upscaling of carbon markets. Ideally, international support provided for developing country GHG mitigation actions should supplement – but not replace – any funding provided by the developing country government, and should also focus on actions that are not supported by the carbon market. (OECD, 2009c)

Mitigation action is expected to mobilize much more private, transferable, resources than adaptation. Nevertheless, private agents such as farmers and businesses will bear much of the adaptation burden. Examples include switching crops, protecting property against sea level rise, and relocating due to new circumstances. Many adaptation actions have the characteristics of a public good. For example, most residents will enjoy the benefits of coastal protection and most farmers will benefit from better weather forecasting. For governments, the challenge of involving the private sector in adaptation finance is threefold: getting private players to adapt; sharing the cost of adapting public infrastructure (user charges, energy, water roads) and leveraging private funds dedicated for adaptation investments.

According to Reed et al., (2009), "International public funds for climate change will be of critical importance to pay for: i) adaptation costs, particularly in most vulnerable and less developed countries; ii) some stages of technology cooperation; iii) in the start-up phase of mitigation efforts in most developing countries including the preparatory and capacity building stage of Nationally Appropriate Mitigation Action[4]s; and iv) in all phases of mitigation implementation efforts in the cases of least developed countries, including those relevant for REDD.

Domestic public funds will be an important source of mitigation funding especially in middle-income countries with high greenhouse gas (GHG) emitting economies; and carbon markets and other forms of private funding will become increasingly important and eclipse public funding as financial mechanisms mature and expand, and as developing countries are able to market successful mitigation programs."

Table 5 provides a quick overview of the different uses of public and private finance.

[4] For more information on NAMA, see Annex 3.

Table 5 Who pays what?

	Private resources International/Domestic	Public resources International/domestic
Adaptation	Protection of privately owned assets (houses, lands) Insurance (crop etc.) Research and development of better products and services Bear costs of lost livelihoods in case of drought, flooding etc	Research on crops, Weather forecasting Protection of public infrastructure (i.a. coastal protection) Reduce Least Developed Country business risk Facilitate non-public financial flows i.a. catalyze market for insurance, establish building norms Capacity development, Information, Extension services Humanitarian relief and food aid in case of drought, natural disasters
Mitigation	Research, investments, innovation Clean technologies (new equipment, energy efficiency programs, light bulbs) Carbon markets (CDM, REDD etc.) Climate bonds	Research, demonstration Some stages of technology cooperation Lower risks, offer credits, for technology development Reduce Least Developed Country business risks Catalize carbon markets and non-public financial flows Start up phase and capacity development of NAMAs All phases of mitigation implementation for least developed countries, including REDD Public funded investments such as large infrastructure projects (energy, transportation)
Other environmental challenges	Maintenance and improvement of owned (property rights or user rights) assets such as soils, forests, and grazing lands. Investments in soil and water conservation. Environmental taxes Research Cleaner technologies to reduce emissions to air and water	Compensation for local or global public goods Some stages of technology cooperation Catalyzing creation of markets Catalyzing Strategic financial planning[5] in a sector like water and sanitation Capacity development Research, technology innovation, demonstration Public funded investments such as large infrastructure projects (irrigation, sanitation, waste water treatment) Investments in soil and water conservation

There is agreement that public funding will dominate in the short term before the establishment of carbon markets. There are different views on how resources best are mobilized in the longer term. The European Commission have estimated that domestic private and public finance could deliver 20-40 % of the financial requirements for adaptation and mitigation, the carbon market could deliver up to around 40 %, and international public finance could cover the remainder (EC, 2009). Similarly the World Bank puts large emphasis on carbon markets whereas the UNDESA, many developing countries and others are less optimistic of the ability of carbon markets and stress the role of the public sector to deliver adaptation finance and favor public financial contributions (UN DESA, 2009; Persson et al., 2009). Developed countries share of adaptation and mitigation finance will decrease over time (UN DESA, 2009). See Annex 5.

[5] Strategic financial planning entails taking a long-term perspective of the financial needs of the sector, the factors affecting them, the main sources of funds and the balance between them, and how needs can be reconciled with potential resources. Actors include the sector ministry, ministry of finance, donor agencies, and the private sector, and the process entails substantial dialogue and consultation (OECD, 2009d).

Given the overlap between development and adaptation, Ayers and Huq (2008) consider that ODA must have a role in financing adaptation, independent but supportive of the UNFCCC. Development could for instance be used for vulnerability reduction activities or "climate resilient development" that falls outside of the definitions in the convention. This would pave the way for more effective adaptation action under the convention. Development assistance also has an important role in facilitating the mainstreaming of climate change into partner country development plans and processes (Ayers and Huq, 2008). See also Annex 6.

As previously stated, developing cooperation agencies are incorporating environment and climate change aspects in their operations i.e. as dialogue partners, analysts and financiers. The question of mainstreaming adaptation though ODA raises three concerns; first, that scarce funds for adaptation risk being diverted into general development activities, second that ODA is diverted from other pressing development issues and third that Annex 1 countries could view mainstreaming as an opportunity to absolve their UNFCCC requirement to provide new and additional financial resources. Furthermore, integration in practice involves some sort of negotiation and affects country ownership and priorities (Persson and Klein, 2009).

The Commission on climate change and development urge donors to honor their ODA commitment of 0.7% of GNI, ODA should be used for urgent needs and to kick-start other forms of finance. In the long run, however, resources for adaptation should be a blend of ODA and non-ODA resources. The additionality of adaptation resources in relation to ODA would be best addressed during the generation of resources (Commission on Climate Change, 2009). OECD is currently developing definitions for adaptation markers for ODA. Others argue that the use of ODA is wrong altogether and that no such definition should be made (Oxfam, 2009).

The Swedish ODA is above the 0.7 % target agreed in Monterrey 2003. The Swedish position is to not separate climate financing from development financing since environment and climate change aspects are inseparable parts of sustainable development.[6]

In addition to financial mechanisms, public policy needs to create a policy environment conducive to healthy ecosystems, climate resilience and low carbon investments including carbon markets. Over time, it will become necessary for all countries to promote sustainable development through policies and budgets.

3.2. The role of the financial market

Access to credit, including micro finance, is important as it creates opportunities for investments in e.g. energy efficient stoves and more sustainable agricultural technologies. With improved incentives, financial markets could become better at promoting greater investments in cleaner technologies, energy efficiency etc. Creation of markets for environmental bads, such as green house gas emissions, and increased access to venture capital for clean technologies can increase efficiency and lower costs. Furthermore, financial markets can cut costs of adaptation by reallocating capital to newly productive sectors and regions and by hedging weather-related risks (Mills, 2008).

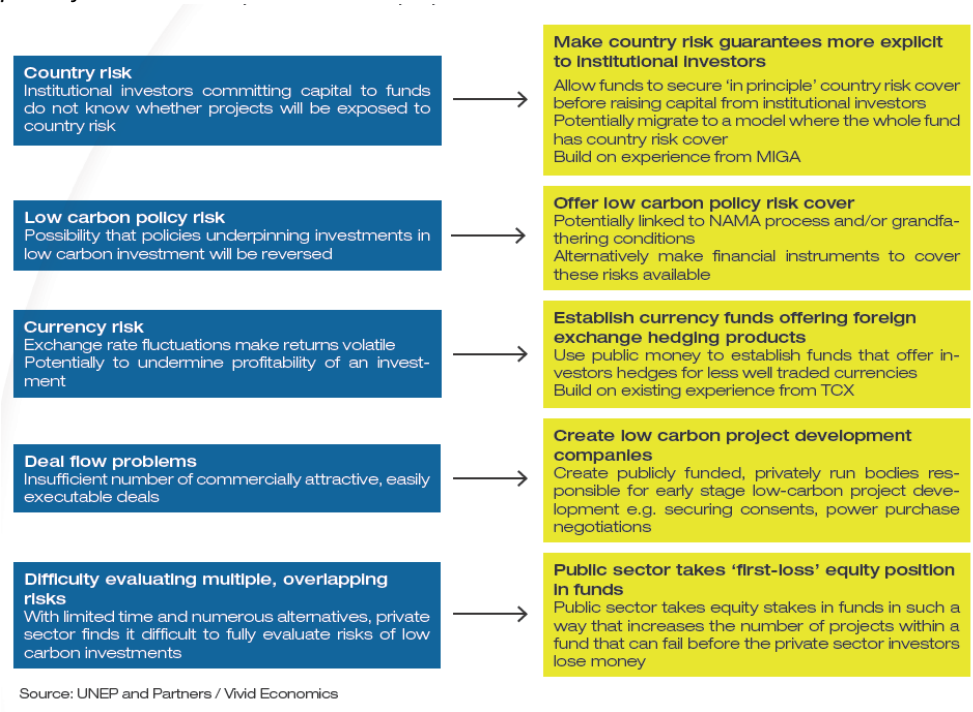
The development of these markets is dependent on a conducive policy environment. Removal of energy subsidies, international standards for carbon trade, improved national policies, enforcement of legislation and greater awareness of environment and climate change risks and opportunities could all stimulate the development of such markets. Donors and international finance institutions can contribute by providing funding and risk instruments to leverage private financial sector involvement.

[6] "The EU Member States should respect their individual ODA commitments and the EU should reach its collective ODA commitment of 0.7 % of GNI by 2015. Climate change imposes an additional burden on developing countries. The EU and its Member States should contribute their fair share of public financing for adaption and mitigation and should contribute to fast-start financing for the first three years following an ambitious agreement in Copenhagen."(EC, 2009b)

This could also include technical assistance to financial institutions and systems in order to improve their capacity of assessing risks, opportunities and potential financial products related to environment and climate change financing. Development cooperation agencies and international financial institutions should also strive to harmonize requirements and funding procedures to increase efficiency and improve access to developing countries (KFW, 2008).

Similarly, UNEPs Finance Initiative has identified five major constraints to private sector engagement in low carbon growth, and how public financial mechanisms can be used to leverage private funding; see Figure 1.

Figure 1 Five constraints to private sector engagement matched with five operational proposals for public financial mechanism



Better public-private dialogue on how public financing can be used to leverage private investments is important. According to Stern (2009), some ideas, the energy efficiency and green bonds proposals in particular, could be very powerful instruments for developing countries themselves to raise funds in global capital markets. Annex 7 provides a comprehensive overview of financial instruments that could be used to raise public finance to leverage private investment.

3.4. The management, allocation and delivery of finance

Although inadequate funding is considered the most pressing problem, mobilizing adequate and predictable resources is not sufficient. The challenges associated with the management, allocation and delivery of finance are critical.

Management of public finance

The majority of all public sector-type funding for environment and climate change activities has been carried out under a model where projects and programs are assessed by donor agencies or multilateral

funds in combination with multilateral implementing agencies. The current financial instruments under the multilateral environmental agreements are criticized for failing to promote country ownership, for being complex and inaccessible, and for having questionable governance structures (Möhner and Klein, 2007; Oxfam, 2009; Sharma, 2009).

Furthermore, the current systems make it difficult to ensure that eligible countries receive their fair share of adaptation finance, do not allow countries to create synergies between adaptation objectives and other priorities, and hinder the assessment of developed countries' compliance with their financial commitments (Persson et al., 2009). These general comments on adaptation finance seem to resonate well with experiences of other kinds of environment and climate change financing.

In recent years there has been a proliferation of new climate funds that partly seek to address shortcomings in previous financial mechanisms (scale, focus, procedures) and that partly are motivated by the urgency of funding needs and domestic politics. Yet, there is broad agreement that the current fragmentation of funding creates problems of coherence and puts pressure on partner country management capacity, and should be minimized or stopped (World Bank, 2009a; Commission on Climate Change and Development, 2009; Persson et al., 2009; OECD, 2009a, c; Bird and Peskett, 2008; UNDESA, 2009; Oxfam, 2009).

While there is no shortage of institutions available to channel needed funding, there is disagreement on who is best placed and how issues like transparency and accountability could be solved. Most developing countries see climate change-induced costs as debts by industrialized countries and therefore reject donor dominated governance structures (Müller, 2008). Group of 77 and China favor an adaptation fund governed by UNFCC rather than an international financial institution. The Adaptation Fund under the Kyoto Protocol is financed through a 2 % levy on CDM and gives majority vote to developing country representatives. The fund is a promising opportunity that helps include necessary ownership for successful mainstreaming adaptation into development policies (Müller (2008) and could also channel funds from other public and private resources (Reed et al., 2009).

Funding mechanisms on adaptation should meet the following criteria: transparent and balanced governance; accountability of industrial and developing countries; demand driven, with involvements of recipients during identification, definition and implementation of programs; management devolved to the lowest level of effective governance; and independent evaluation and oversight (Commission on Climate Change, 2009). The same criteria should be relevant for other non-market financing mechanisms for environment and climate funding as well.

Allocation of finance

Resources are likely to be scarce and transparent criteria are needed for their allocation. Financing for adaptation, non market-based mitigation and other environmental purposes in developing countries share many similar criteria. These include well-functioning legal systems and institutional capacity, but also factor in poverty levels and specific requirements (i.a. potential to generate global environmental benefits, climate sensitivity, exposure to climate risks, potential to leverage public capital, and cost effectiveness).

Many existing funds, particularly bilateral ones, allocate their resources based on a "first come, first served" principle. This approach has been criticized for weaknesses such as unfairness, limited access to funds and ineffectiveness of support (ODI, 2005).

There is an obvious risk that post-conflict states and other countries with low institutional capacity and rule of law will find it difficult to comply with the requirements. Some publicly financed funds therefore specifically target the Least Developed Countries or include provisions stating that a certain percentage should be allocated to these countries.

Carbon markets will allocate resources to where emission reductions can be achieved at the lowest cost. It is not unlikely that the future carbon market, including REDD, will largely mirror the CDM market. If so, then middle-income countries with relatively robust public financial management, governance systems and growing economies will attract the most funding.

Delivery of finance

Common for all kinds of non-market based environment and climate change finance is the need to promote country ownership. A recent review found that the most important success factor for funding under the Rio conventions is genuine country ownership of plans and strategies (Sharma, 2009). Inflexible requirements and failure to seek alignment with country demands and systems have limited the impacts of interventions under the Rio Conventions such as the development of national action plans that are motivated from a convention obligation. Many priority interventions outlined in the National Adaptation Programme of Action (NAPAs) remain unfinanced despite relatively modest costs and promises made by richer countries. Failure to fund NAPAs slows down global cooperation on climate change, and developed countries are urged to step up their financing (UN DESA, 2009; Commission on Climate Change and Development, 2009).

According to the review of Rio Conventions, the environment community has been slow to recognize the need to promote ownership, alignment and mutual accountability and to move from individual project support.

These observations mirror the aid effectiveness agenda (Paris Declaration on Aid Effectiveness and the Accra Agenda for Action). A number of lessons from development cooperation are relevant for new and additional environment and climate change finance. (This section is a shortened excerpt of Mitchell et al., 2009.)

- Country-led approaches that provide a clear national strategy are more likely to be effective in strengthening governance systems and achieving results on the ground.
- Program-based approaches are more effective than project-based approaches. However, not all countries meet international standards on public financial management and project-based approaches might therefore be necessary.
- Fragmentation and proliferation of funding delivery mechanisms at the national level continue and are detracting from core development objectives. This means more time spent learning rules, brokering relationships and reporting. To counter this, much more effort must be placed on harmonising donor activity at the country-level.
- Strong national monitoring and evaluation (M&E) structures are a critical part of effective governance, of learning and of promoting efficiency and accountability in programmatic delivery mechanisms. The development of M&E structures should be country-led. Civil society organisations should be closely involved in devising M&E structure and in setting national strategic priorities.
- Blueprint approaches are not effective. Where the state is not functioning effectively, a blend of delivery mechanisms should be favored. Delivery may involve civil society, and regional and UN organizations, while simultaneously developing state capacity. Additionally, while "effective" states may pursue policies designed to deliver assistance to the poorest and most vulnerable people, in many cases people are poor and vulnerable because they are excluded from accessing state resources based on their political or religious beliefs or for other social reasons. In such cases, rights or needs-based delivery mechanisms may supplement support to the state.
- "Vertical funds", which focus on a single issue (such as HIV/AIDS), have the potential to undermine country ownership and systems by bypassing national planning processes, and can have heavier transaction costs than integrated approaches.

Oxfam, on the other hand, sees the Global Fund AIDS, Tuberculosis and Malaria as a role model for climate funding and considers that shared principles of equity, subsidiarity, transparency, and accountability have helped bring donor and recipient countries together in a joint endeavour. The commitment to the participation of civil society has also been an important factor (Oxfam, 2009).

For the benefits expressed above, there seems to be a trend that climate finance is moving from funding of individual projects to funding of larger programs or strategies. The OECD policy guidance "Integrating climate change into development cooperation" stresses that co-ordination of adaptation should be headed by powerful central bodies such as the office of the president or prime minister or planning agencies. The guidance also promotes the idea of a horizontal fund under the national budget from which sectoral ministries could draw to meet additional costs of integrating climate risks in their planned activities or investments. The UK suggests a similar kind of fund, a compact that would address both adaptation and mitigation. More concrete steps in this direction are already being taken. Bangladesh and Indonesia are at different stages of seeking finance for broad climate strategies that will allow international funds to be delivered across a range of sectors and in line with the national budget.

Analyses of environment, budget support and medium-term expenditure frameworks suggest that donors' direct financing of ministries of environment weaken environmental institutions by distorting their work programs from key functions (monitoring, enforcement, information etc.) to fragmented projects and reduced interaction with coordinating ministries (Lawson and Bird, 2009). Transparency and increased donor funding through central government systems and strengthened capacity of environmental ministries to apply for recurrent funding through the national budget can make environmental institutions stronger and more aligned with national priorities (Bird and Petkova, 2009). This underlines the importance of transparency and coordination when additional financing opportunities, coupled with urgent needs, can be expected to generate a large increase of proposals and projects.

Ideally, environment and climate change risks, opportunities, and financing needs should be fully integrated into country-owned national development plans, medium-term expenditure frameworks, budgets, and monitoring mechanisms. Such a solution would help solve problems of weak ownership and high transaction costs but not entirely the issue of international accountability risks or additionalility. The challenge to serve vulnerable groups at the local level may remain even under a coordinated national program. Strengthening of local government capacity, for instance by including ministries and authorities with strong local presence, could help ensure better local implementation (Commission on Climate Change and Development, 2009). Reed et al. (2009) find it unrealistic to suggest that the diverse sets of funding sources (private, public, international, domestic) and their different focuses (adaptation, mitigation) can or should be pooled into one fund or be centrally managed under the Conference of the Parties.

4. Discussion on the role of development cooperation in relation to climate change and other environment financing

Development cooperation will be affected by future environment and climate change financial flows to developing counties and may also affect the *size* of these financial flows, *who* gets them, their *governance* systems, and the quality of *delivery*.

The tentative roles and activities of development cooperation can be grouped into three categories:

1. Mobilizing the supply of financing – e.g. bring experiences from development cooperation and a pro-poor perspective into important policy processes, promote donor harmonization and provide public funds to catalyze private investments.

2. Reducing bottlenecks that inhibit financial flows – e.g. strengthen governance systems, contribute to an enabling business environment, and support decentralization reforms and capacity to analyze opportunities for environment and climate change financing.

3. Stimulating demand for financing, e.g. supporting developing country governments and civil society participation in negotiations on financing and undertaking high-level dialogue on the environment and climate change.

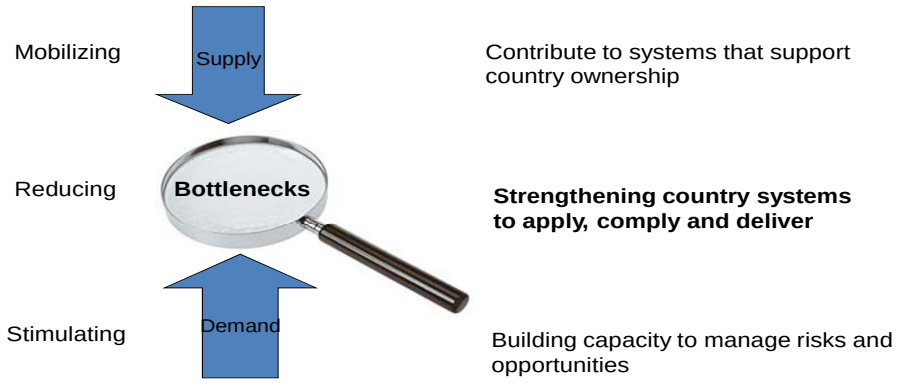


Figure 2 Three tentative roles of development cooperation – mobilizing the supply, stimulating demand and reducing bottlenecks

By and large, ODA funds should over time play only a marginal role in provision of new and additional environment and climate change specific finance. But development cooperation modalities and staff may also be used to channel additional flows of environment and climate finance. This requires that the advantages of e.g. lower transaction costs and established systems outweigh the disadvantages, e.g. dual roles and the notion of aid instead of compensation. Already today, a pro-poor perspective and experiences from development cooperation could make an important, non-financial, contribution by informing the design and focus of various financial mechanisms. Similarly, development cooperation can play an important role by stimulating the demand for finance through high-level dialogue and strategic capacity development.

Nevertheless, it is likely that the most important role of development cooperation agencies in relation to environment and climate change finance is to reduce the bottlenecks that inhibit financial flows and efficient delivery of targeted activities (magnifying glass in Figure 2). An overview of tentative objectives and activities of development cooperation under the three entry points is presented in the next section.

4.1 Mobilizing supply of financing

Many argue that public finance including ODA is needed to kick-start other sources of finance. Guiding principles for development cooperation (ownership, harmonization, alignment, results and mutual accountability) are also important points of reference and should be considered when

developing systems. Continued support of traditional ODA-financed activities such as water and sanitation, urban development, and energy infrastructure remains important.

Examples of objectives and activities of development cooperation to mobilize the supply of financing are shown in the table below.

Objectives	Activities
Promote developing country ownership and mechanisms that are supportive of existing country planning, budgeting and follow up systems	-Bring knowledge and the perspective of the Paris Declaration on Aid Effectiveness into important policy processes (negotiations, development of financial architecture etc.) - Undertake dialogue with multilateral development banks to promote improved efficiency, transparency and accessibility of governed funds. Encourage multilateral development banks and UNEP to engage with the private sector to find ways to leverage private financing
Provide ODA in accordance with Paris Declaration on Aid Effectiveness and the Monterey Consenus	-Support country-owned strategies and programs; not projects -Promote harmonization, transparency of supported activities vis-a-vis sector ministries and ministry of finance and seek to channel financing through central government systems where possible -Support relevant existing funds for adaptation, mitigation and the environment -Catalyze activities that can pave the way for private financing (including public/ private partnerships), geographical areas where vulnerable groups are at risks, or where complexity is high and potential benefits are great (i.a. REDD+). -Support areas where private financing is unlikely to emerge -Support NAPAs and NAMAs and Low Carbon Development Plans -Support integrated water resources management, agriculture, sustainable land management, urban planning, rural electrification, energy efficiency, environmental institutions, and capacity development on environment and climate change
Promote policy coherence	-Ensure that developing partner perspectives are considered in designing of policies for trade, energy, agriculture, climate change etc. with impacts on environment and climate change financing (at both the domestic and EU levels). This could include Swedish government discussions with institutional investors to identify opportunities to leverage private financing.

4.2. Reducing bottlenecks that inhibit financial flows

International development cooperation is active in most of the areas listed below irrespective of their co-benefits of reducing bottlenecks for environment and climate change financing. Nevertheless, some bottlenecks are context specific, e.g. limited capacity to apply for financing (on CDM markets, REDD etc.) and low accessibility or inappropriate financial mechanisms and high financial risks.

Examples of objectives and activities of development cooperation to reduce the bottlenecks are shown in the table on the next page.

Objectives	Activities
Development of capacity to comply with requirement for environment and climate change finance	-Support improved governance and public financial management systems -Support improved tenure (common and private user and property rights) while protecting the interests of poor men and women -Support improved access to credit and stronger domestic capital markets and systems (in general but also in relation to the environment and climate change) -Support improvement and simplification of GEF guidelines (facilitate access) -Support democratic governance, anti-corruption, and improved business environment -Support decentralization and local governments' capacity for policy implementation
Development of capacity to apply for environment and climate change finance	-Support capacity to assess and prioritize environment and climate change financing options (including REDD, CDM etc.) -Support capacity of key central ministries to apply for funding in close cooperation with relevant ministries and private sector
Reduce financial risks to leverage public and private financing	-Provide soft loans or guarantees to leverage other public or private financing for green growth (by reducing risks)

4.3. Stimulating demand for financing

Although there has long been a demand for environment and climate change finance, it is not until recently that the issues have been discussed among key policy makers. In many countries, there are still gaps between environment and climate change experts, mandated ministries, and key coordination ministries such as finance or planning. Development cooperation partners can help strengthen not only coordination capacity but also negotiation capacity and civil society awareness.

In the table below, examples of objectives and activities of development cooperation to stimulate the demand for financing are shown.

Objectives	Activities
Strengthen negotiation capacity and coordination	-Undertake high-level dialogue on climate change to promote ownership of government and an active role of Min Planning/Finance -Support partner country representation in international negotiations -Support civil society organizations and non-governmental organizations that can articulate the need for financial support and awareness
Develop capacity and application of tools to high light risks and opportunities	-Support capacity for analysis and information on environment and climate change risks and opportunities in relation to country-owned objectives (e.g. Strategic Environmental Assessment, cost adaptation studies, and cost of climate change studies) -Dialogue and follow-up with multilateral development banks to ensure that they have the right capacity to integrate the environment and climate change in mainstream lending, including using an assessment of the social cost of carbon in all investment decisions -Support development of NAMA s and Low Carbon Development Plans -Identify options of using policy instruments that reduce degradation of ecosystems and the costs of adaptation and mitigation (e.g. removal of subsidies,

regulation, information, taxes, cap and trade)

5. Recommendations for Swedish development cooperation

The recommendations are given in the context of environment and climate change finance and do not refer to equally important general efforts to fully integrate environment and climate change aspects into development cooperation. As argued above, the main role of Swedish development cooperation is to reduce bottlenecks that limit partners' ability to benefit from environment and climate change financing, while at the same time seeking to influence the systems for environment and climate change financing in ways that are supportive of the principles of the Paris Declaration on Aid Effectiveness and the Accra Agenda for Action. In some countries, stimulating demand may be an important step.

Activities to support the reduction of bottlenecks will mainly be undertaken at the country level through bilateral cooperation. Input regarding policy coherence[7] and the design and evaluation of financial architecture and systems in line with the Swedish policy for global development will on the other hand be undertaken at the policy level as a co-operation between the Ministry of Foreign Affairs and Sida. The Nordic Baltic representation at the World Bank will be an important entry point.

Swedish development cooperation has different roles to play in different country contexts, which are manifested in the respective cooperation strategies. Country context will also determine the kinds of support to be provided in relation to environment and climate change finance. See Annex 6.

Mobilizing supply

Promote the Paris principles and a pro-poor perspective in environment and climate change finance

The combination of lack of ownership and high transaction costs has reduced the impacts of historic environment and climate change finance. The proliferation of funds and projectified approach risk cementing parallel systems that undermine country systems. In addition, the urgency of climate action and efficiency gains of carbon trade could contribute to situations where poor countries and the rights of the poor in developing countries are negatively affected. While acknowledging that the purpose of certain financial mechanisms is first and foremost emission reduction, it is also important that social impacts are understood and adequately managed. Recommendations:

- Sweden should promote country ownership and a programmatic approach to environment and climate change financing. Project financing should only be used where opportunities for programmatic support are lacking;
- Sweden should advocate against creation of new vertical funds and instead build on existing systems, e.g. by ensuring that relevant ministries are actively engaged;
- Sweden can strengthen transparency and support civil society to help ensure protection of the interests of vulnerable groups when international frameworks and mechanisms are designed;
- Sweden can promote transparency of environment and climate change financing and the use of central government systems for programs and projects to ensure that coordinating ministries are informed;
- Sweden should provide fast track financing that can catalyse additional private and public funding.

Work with multilateral financial institutions

Multilateral financial institutions play key roles as i) financiers of infrastructure, energy etc., ii) developers of markets for environment and climate change finance, and iii) advisors to partner countries. Working closely with the multilateral financial institutions through the Nordic-Baltic

[7] Swedish/European energy, trade, and agricultural policies are examples of areas where policy coherence is of particular interest to a global sustainable development.

representation of the World Bank, while at the same time maintaining sufficient capacity on environment and climate change finances within the Swedish resource base, is suggested. Recommendations:

- Sweden should seek to ensure that MFIs develop their capacity to integrate environment and climate change aspects into their portfolios, including using a relevant price on carbon in all projects;
- Sweden should channel funds through relevant multilateral funds while promoting that MFIs, and the funds they administer, are increasingly aligned with the Paris principles (ownership, harmonization, alignment, results and mutual accountability) and that funds become more transparent and accessible for Least Developed Countries. Evaluation and learning are of particular importance;
- Sweden should encourage MFIs to improve dialogue with private financial institutions on how public finance can help leverage private investments and technology transfer;
- Sweden could offer loans and guarantees to help leverage investments in clean technologies and low carbon development. Sida should seek to play a catalytic role and work closely with existing financial institutions.

Reducing bottlenecks

Strengthen governance systems of development partner countries

The availability of environment and climate finance makes it even more important to support efforts to strengthen governance systems (legal, public financial management, democratic accountability, freedom of the press, decentralisation). The current shortcomings in these areas represent important bottlenecks for new and additional financing from both private and public sources. Recommendations:

- Sweden should continue to strengthen governance systems;
- Policies and regulations are designed at the national level but the implementation is local. Decentralisation reforms and efforts to strengthen local capacity are therefore critical. This could for instance include working through ministries with strong presence at the local level.

Strengthen tenure systems (private or communal, owner or user rights) and capital markets, and improve the business environment

Secure tenure helps improve investment in natural capital and will be important for emerging carbon finance for emission reductions from forests and agriculture. Tenure reforms that give particular attention to vulnerable groups improve the chances of participation in various financing schemes. Perhaps more importantly, they can reduce risks of being forced off the land. An unstable business environment increases business risks and limits the opportunity for participation in carbon markets, technology transfer, and development of new businesses. Recommendations:

- Sweden should promote stronger local capital markets directly by targeting actions to capacity development and indirectly by channelling ODA through local systems;
- Sweden should support tenure reforms and private sector development where appropriate.

Support strategic capacity to assess needs and opportunities and apply for environment and climate change financing

Scarce administrative resources in many developing countries call for focused efforts. The country context (e.g. economic base, social and technical capacity) determines which types of environment and climate change financing are best suited for the particular country's needs. As a first step, countries need capacity to assess and prioritize between various opportunities at the strategic level (such as CDM, REDD, and NAMA). As a second step, there might be a need for specific capacity for CDM, REDD or similar financing opportunities. South-South learning could increase efficiency of capacity development activities. Recommendations:

- Sweden could support development of capacity to strategically assess needs and opportunities;
- Sweden could support development of capacity related to the application for and compliance with specific mechanisms e.g. by supporting technical advice and facilitate South-South

learning. Support to international funds such as UN REDD and Forest Carbon Partnership Facility might be preferred to small-scale national programs with unclear ownership.

Stimulating demand

Promote institutional ownership of environment and climate change issues at the highest level

Centrally placed ministries with coordinating roles such as Ministry of Finance and Planning need sufficient capacity to actively integrate environment and climate change risks and opportunities (including financing) into key planning processes, policies, budgets, and follow-up systems. Cooperation among sector ministries, cross cutting ministries like Environment and Natural Disasters (where appropriate) and coordinating central ministries should be strengthened. Recommendations:

- Sweden should promote high level dialogue on environment and climate change financing and challenges, and respond to demands for capacity development (e.g. analysis of risks and opportunities related to climate change and environmental degradation as constraints to achieve key development objectives). This should include discussions on how to avoid risks of overemphasis on climate change risks that do not succeed in reducing vulnerability but increases it instead (maladaptation).

References

Ayers, J. Huq, S, 2008, Supporting adaptation to climate change: What assistance? Presented at the DSA Annual conference 2008, IIED

Bosch, E., 2009, Consultation draft Development Perspectives for a post-Copenhagen Climate Financing Architecture, OECD

Bruner, A., 2003, How much will effective protected area systems cost? Conservation International, Washington DC

Bird, N. Preskett, L. 2008, Recent bilateral initiatives for climate financing: Are they moving in the right direction? ODI

Bird, N. and Petkova, N. 2009, Public environmental expenditure within multi-year budgetary frameworks, OECD

Capoor, K., Ambrosi, P., 2009, State and trends of the carbon market 2009, World Bank

Commission on Climate Change and Development, 2009, Closing the gaps

European Commission, 2009a, Stepping up international climate finance: A European blueprint for the Copenhagen deal, Brussels

European Commission, 2009b, Climate change and development, joint paper SEC 1426, BrusselsThe Foundation Center, 2009,
http://foundationcenter.org/findfunders/statistics/pdf/03_fund_geo/2007/int_sub_021.pdf

Independent Evaluation Group, 2008, Supporting environmental sustainability- An evaluation of World Bank Group experiences, 1990-2007, World Bank

Gutman, P., 2009, Presentation at OECD WGEAB Experts' Workshop on Innovative Financing to Support Biodiversity Protection and Sustainable Use on July 2nd 2009

KFW, 2008, Greening the financial sector- How to mainstream environmental finance in developing countries?, Workshop proceedings 4-5 december 2008

Kim, J.A., et al, 2009, Matching mitigation actions with support: key issues for channelling support, Draft for review 1st September 2009, OECD-IEA

Lawson, A and Bird, N. 2009, Environmental funding- How to increase the effectiveness of public expenditure in developing countries

Lihmén, H, 2009, Deforestation and forest degradation – the REDD initiative - Interparliamentary conference Stockholm 27–28 September, 2009, Swedish EU presidency

Mills, P., 2008, The greening of markets – financial markets can play a valuable role in addressing climate change, Finance and development , March 2008, pp.32-36

Mitchell, T. et al, 2008, Principles for delivering adaptation finance, Institute for Development Studies

Müller, B. 2008, International adaptation finance – the need for an innovative and strategic approach, Oxford Institute for Energy Studies

Möhner, A., Klein, R.J.T, 2007, The Global Environment Facility:Funding for adaptation or adapting to funds?, SEI

OECD, 2009a, Policy guidance- Integrating climate change into development co-operation, Paris

OECD, 2009b, Measuring aid targeting the objectives of the Rio conventions

OECD, 2009c, Climate change and development- key facts to inform climate financing, April 2009

OECD, 2009d, Strategic Financial Planning for Water Supply and Sanitation, OECD, Paris

Persson, Å., et al, 2009, Adaptation finance under a Copenhagen agreed outcome, SEI

Persson, Å. and R.J.T. Klein, 2009: Mainstreaming adaptation to climate change into official development assistance: challenges to foreign policy integration. In: Climate Change and Foreign Policy: Case Studies from East to West, P. Harris (ed.), Routledge, London, UK, pp. 162-177.

Reed, D., et al, 2009, The institutional architecture for financing a global climate change deal:an options paper, The Technical Working Group on the Institutional Architecture for Climate Finance

Robinson, E. Lokina, R.B, 2009, Determinants of successful participatory forest management in Tanzania, EfD policy brief

Sharma. A, 2009, Planning to deliver: making the Rio conventions more effective on the ground, GTZ

Stern, N. et al, 2009, Meeting the Climate Challenge: Using Public Funds to Leverage Private Investment in Developing Countries, London

Strand, J., 2009, « Revenue management « , effects related to financial flows generated by climate policy, Policy research working paper no 5053, World Bank

UNFCCC, 2008, TP/2008/7, Investments and financial flows to address climate change: an update

UNCTAD, 2009, Trade and development Report 2009-Responding to the global crisis, climate change mitigation and development

UNDESA, 2009, World economic and social survey 2009- Promoting development, saving the planet

UNEP Finance Initiative Climate change working group, 2009a, Financing a global deal on climate change, UNEP

UNEP and partners, 2009, Catalysing low carbon growth in developing economies- public finance mechanisms to scale up private sector investments in climate solutions

Wara, M. 2008, Measuring the Clean development mechanism's performance and potential, Stanford University

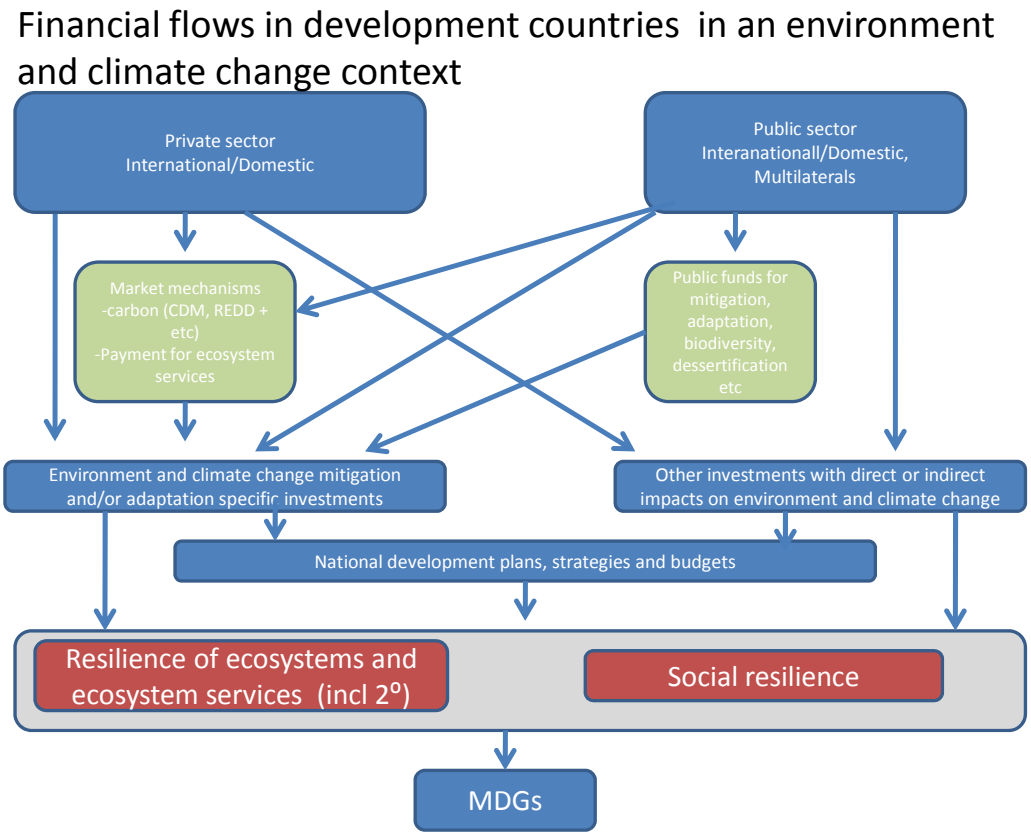
World Bank, 2009, World development report- Development and climate change, Washington D.C.

Winpenny, J. 2003, Financing water for all, Report of the World panel on financing water infratructure

World Bank, 2009b, Migration and Development Brief 11: A better-than-expected outcome for migration and remittance flows in 2009, but significant risks ahead

Interviews with
Elin Carlsson, Sida
Jan Cedergren, Swedish Ministry of Foreign Affairs and Chairman of the Adaptation Fund under the UNFCCC
Roger Garman, Sida
Angela Kallhauge, Swedish Energy Agency
Tara Shine, Irish Aid
Calle Svensson, Sida

Annex 1 Financial flows in development countries in an environment and climate change context



Annex 2 GEF funding for CBD and CCD

GEF funding to the Convention on Biological Diversity

As the financial mechanism of the Convention on Biological Diversity (CBD), the Global Environment Facility (GEF) helps developing countries and countries with economies in transition to achieve the objectives of the CBD and generate global environmental benefits in the area of biodiversity.[8] The goal of GEF's biodiversity program is to attain conservation and sustainable use of biodiversity, maintenance of the ecosystem goods and services that biodiversity provides to society, and fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

Biodiversity projects constitute the largest percentage of GEF's portfolio (36 percent of total GEF grants). To date, the GEF has invested $2.8 billion, leveraging $7.6 billion in co-financing, for 790 projects for biodiversity conservation and sustainability in more than 155 countries. Prioritized areas and projects include (i) Protected areas, (ii) Conservation Trust Funds, (iii) the Small Grants Programme and (iv) National Biosafety Frameworks (see Table 1). Other prioritized areas and projects are the Critical Ecosystem Partnership Fund, which has supported more than 1,000 civil society groups in 33 countries, the GEF support to Mainstreaming Biodiversity into Production Landscapes and Seascapes, and the GEF's biodiversity mainstreaming portfolio, which includes more than 30 projects that all apply the mechanism of Payment for Ecosystem Services.[9]

GEF funding to the United Nations Convention to Combat Desertification

In 2002, the GEF's mandate was expanded to include the fight against land degradation, primarily desertification and deforestation, in its support of the United Nations Convention to Combat Desertification (UNFCCD). The GEF's program on promoting sustainable land management (SLM) focuses on integrated approaches to natural resources management, covering all the major land use systems, i.e., agriculture, rangeland, and forestry. To date, the GEF has invested over $ 300 million in 88 projects and programs supporting SLM, and over $ 2.4 billion has been leveraged in co-financing.[10] (See Table 1.)

Table 1. GEF Funding to biodiversity and land degradation[11]

GEF funding	Total amount ($millions)	Cofinancing ($millions)	Period
GEF funding to CBD	**2800**	**7600**	**1991-2009**
Protected areas	1600	4200	1991-2009
Conservation Trust Fund	300	-	1991-2009
Small Grants Programme	117	166*	1991-2009
National Biosafety Frameworks	91.5	67	1991-2009
GEF funding to CCD	332	2400	2002-2009

*$ 81 million in cash co-financing and $ 85 million in in-kind contributions

Comparing the GEF supports among the three different focal areas (biodiversity, land degradation and climate change) from 2005 to 2008, it is clear that the GEF does not provide as much support to land degradation projects (18% of total funding) as it does to biodiversity (41%) and climate change (41%).

[8] www.gefweb.org

[9] GEF, 2009a.

[10] GEF, 2009b.

[11] GEF, 2009a, and GEF, 2009b.

In general, the GEF's work on land degradation complements the efforts of the Global Mechanism for the UNFCCD, which locates co-financing for project elements outside the GEF's mandate.[12]

The Global Mechanism

The Global Mechanism (GM) provides advisory services on finance to developing country Parties to the Convention (COP) to assist them in up-scaling public finance and private sector investments in sustainable land management (SLM) and rural development activities.[13] The GM is designed to rationalize the allocation of existing aid to combat land degradation and mobilize additional funding for UNCCD implementation. In response to the multisectoral dimensions of the CCD, the GM acts as a broker and a catalyst, drawing on and adding value to the interventions of development partners by (i) promoting cooperation and coordination, (ii) providing technical assistance and analysis upon request, (iii) mobilizing and channelling financial resources and (iv) collecting and disseminating information. The GM is hosted by the International Fund for Agricultural Development (IFAD).[14]

The GEF financing mechanism for the UNCCD is recognized as a major partner of the GM. Since 2006, the GM and the GEF have been working closely to develop a pipeline of 20 projects addressing land degradation in Africa, Asia and Latin America, for which the envisaged financing exceeds USD 3 billion over ten years. The GM has supported these projects with a range of services, including (i) co-financing of or contributing to programme/project design and development; (ii) integration of the GEF into GM-initiated country and sub-regional UNCCD implementation processes; and (iii) facilitation of the mobilization of co-financing by including GEF initiatives in GM strategic partnerships.[15]

References:

GEF, 2009a. *GEF Focal Area: Biodiversity*, Global Environmental Facility

GEF, 2009b. *GEF Focal Area: Land degradation*, Global Environmental Facility

Ortiz, E. F., and Tadanori, I., 2009. *Assessment of the Global Mechanism of the United Nations Convention to Combat Desertification*, Joint Inspection Unit, United Nations, Geneva

Internet

www.fao.org (available 2009-11-11)
www.gefweb.org (available 2009-11-11)
www.global-mechanism.org (available 2009-11-11)

[12] www.gefweb.org

[13] www.global-mechanism.org

[14] www.fao.org

[15] www.global-mechanism.org

Annex 3 REDD, NAMA, and CDM

Specific issues

This section provides quick information on three specific issues: REDD, NAMA and CDM. These themes are interrelated, will be important during COP 15, and will affect future financial flows. The demand for South-South learning on these issues can be expected to grow as it often provides opportunities for enhanced learning and experience sharing.

Reduced emissions from deforestation and forest degradation (REDD)[1]

Success of REDD will largely depend on the engagement of forest-dependent communities including protection of the rights of indigenous peoples.

According to the IPCC in its Fourth Assessment Report, reducing and/or preventing deforestation is the mitigation option with the largest and most immediate carbon stock impact in the short term. The REDD initiative – *Reducing Emissions from Deforestation and Forest Degradation* – has the potential to include developing countries more actively in international greenhouse gas mitigation derived from tropical deforestation. Currently, the discussions focus on REDD+, which includes conservation, sustainable forest management and enhanced carbon sinks in addition to reduced deforestation and forest degradation. Some also argue for the inclusion of agricultural activities, referred to as REDD++. However, the scope of activities to be included in a final REDD agreement is still subject to much debate. Other key challenges include governance issues, protection of the rights of current forest users and verification of reduced emissions and funding. The risk of leakage must be considered. This phenomenon often appears when protection of one forest comes at the expense of increased degradation of neighboring forests. Users of forest goods largely substitute services from a protected forest by accessing an unprotected forest (Robinson and Lokina, 2008).

The main dividing line on the issue of funding stands between a market-based and a fund-based approach. Funding mechanisms for REDD can be divided into four main categories: (i) market-based solutions; (ii) market-linked mechanisms; (iii) development assistance; and (iv) funds.

(i) *Market-based solutions - emissions trading*[2]: Entails including the conservation of forests in global emissions trading. Forest credits could be traded between countries in the same way as emission allowances. Trading could take place within the framework of a system resembling the CDM (*Clean Development Mechanism*).
(ii) *Market-linked mechanisms*. Examples of these are auctions of emission rights.
(iii) *Development assistance*. Development assistance in the introductory phase could encourage initiatives such as pilot projects.
(iv) *Funds*. Different types of funds can contribute to the funding of REDD projects. An example of funds is the *FCPF* (Forest Carbon Partnership Facility), a World Bank fund that supports national pilot projects with the aim of reducing deforestation.

There are advantages and disadvantages with the various financing instruments. For example, the criticisms towards market mechanisms include that it could become a cheap alternative to reducing domestic emissions caused by for example burning fossil fuels, thereby reducing its climate benefit.

[1] This section builds on the *Deforestation and forest degradation – the REDD initiative - Interparliamentary conference, Stockholm, 27–28 September, 2009*

[2] This is based on the fact that it is cheaper to implement emission reductions in developing countries than in developed countries. Trading could take place within the framework of a system resembling the CDM (*Clean Development Mechanism*) but at the national level or by means of setting up a new system exclusively for forest credits. The advantage of the system is that it should be able to generate large economic resources relatively rapidly and be a cost effective system for reducing climate impact. The system would also mean that those who pollute the most also pay the most.

There is also a concern in developing countries that they could lose their sovereignty when other parties have strong views as to how to minimize deforestation. Furthermore, a costly administrative machine will be needed to ensure that money invested is actually used to reduce climate impact and market-based REDD initiatives are difficult to forecast in the longer term, which may reduce the chances of long-term planning in the concerned countries. There is also a risk that REDD's potential synergy effects may not be realized since market-based solution is based on lower carbon dioxide emissions linked to deforestation and not to other values such as biodiversity.

A major criticism of the fund-based approach is that it is unlikely to mobilize sufficient funds for a comprehensive REDD mechanism. It is necessary to decide what countries are to be compensated for. Various proposals regarding different grounds for compensation include calculating value based on: (i) the value of the quantity of carbon a forest absorbs based on a globally agreed price of carbon dioxide emissions; (ii) the value of the revenues that might be generated by deforestation such as employment opportunities, export revenues etc.

A phased approach to REDD, starting with a "readiness" phase to prepare countries and then moving into implementation is gaining support in the negotiations. Some argue that REDD for some countries could be considered as NAMA as REDD may be the primary means to achieve emission reductions, other express fears that this could delay the process of agreeing on a framework for REDD.

Nationally appropriate mitigation action (NAMA)[16]

NAMA is used here to encompass GHG mitigation actions in developing countries. NAMAs include actions targeting GHG mitigation directly (climate-specific) as well as actions that are climate-relevant, such as policy reforms. NAMAs may occur at different levels, i.e. at the project level, sector level, programmatic or national level. NAMAs can also take various forms such as regulatory or fiscal measures, institutional reforms or R&D support.

Ideally, international support provided for developing country GHG mitigation actions should supplement – but not replace – any funding provided by the developing country government, and should also focus on actions that are not supported by the carbon market.

For example, finance, technology, and capacity building support for NAMAs could be directed towards areas where the CDM has not been active. This could include sectors where technology has demonstrated potential, but has not yet been commercialized, such as the high-cost (but also high-mitigation potential) area of carbon capture and storage from power generation. It could also include sectors where there are barriers to implementing mitigation projects, such as energy efficiency demand-side management.

Consideration will also need to be given to the roles of the public and private sectors, as they could focus on different categories of NAMAs. For example, international private sector involvement (and associated support) is likely to focus on areas where there are direct economic incentives for such involvement, such as carbon credits or markets for technology. Donor country governments will also need to balance their support for developing country GHG mitigation actions with support for other activities (such as monitoring and reporting), which may not have a direct impact on GHG emissions.

One way of trying to ensure that support for GHG mitigation actions is used efficiently is to develop a Low-Carbon Development Strategy (LCDS) or a Low-Emissions Development Strategy (LEDS) (henceforth referred to as LCDS), and indicate where the supported action fits within this strategy. A

[16] This section is taken from Matching mitigation actions with support: key issues for channeling support (OECD/IEA, 2009)

number of country submissions in the UNFCCC process are increasingly pointing towards the utility of an LCDS (UNFCCC, 2009b).

Clean development mechanism (CDM)

The CDM is an arrangement under the Kyoto Protocol allowing industrialized countries committed to reducing emissions to invest in projects that reduce emissions in developing countries as a more cost-effective alternative to investments in emission reductions in their own countries. The CDM has grown beyond initial expectations and the size of CDM delivery is estimated to $ 18 billion by 2012. The CDM market has attracted broad interest within the private sector, which in several countries has led to improved contacts between business and authorities. Criticism of the current system includes questionable environmental integrity, insufficient contribution to sustainable development, weak governance, inefficient operation and limited scope (only 3% of projects have been registered in Least Developed Countries) (World Bank, 2009a). The countries that have been most active in the market are those whose efforts are needed the most (China, India) to help resolve the global problem. At the same time, this has started a debate in some developed countries on whether it is reasonable to subsidize fast growing competitors (Wara, 2008). Improvements of CDM are being discussed, including a move from project CDM to also allow programmatic CDM and methods to improve accessibility for LDCs. Only incremental changes are expected at COP 15. A 2 % levy on issued Certified Emission Rights is channeled to the Adaptation Fund under the UNFCCC.

Annex 4 Comparing proposed options for raising carbon financing

Table 6.2: Summary comparison of options against criteria

		Appropriate-ness	Equity	Adequacy	Predicta-bility	Feasi-bility
Levy on offset issuance (CDM and JI)	Continuation/ increase of current levy	Low	Medium	Low	Low	High
	Extension to JI	Medium	High	Very Low	Low	Medium
	Carbon bank/auction of issuance rights	Medium	Medium	High	Low	Low
International allowance value		Medium	Medium	High	Low	Medium
Domestic ETS allowance value		Medium	Medium	Medium	Low	Medium
International aviation levy		High	High	High	High	Medium
International marine levy		Medium	Medium	Medium	Medium	Medium
Global carbon tax		Medium	Medium	High	High	Low

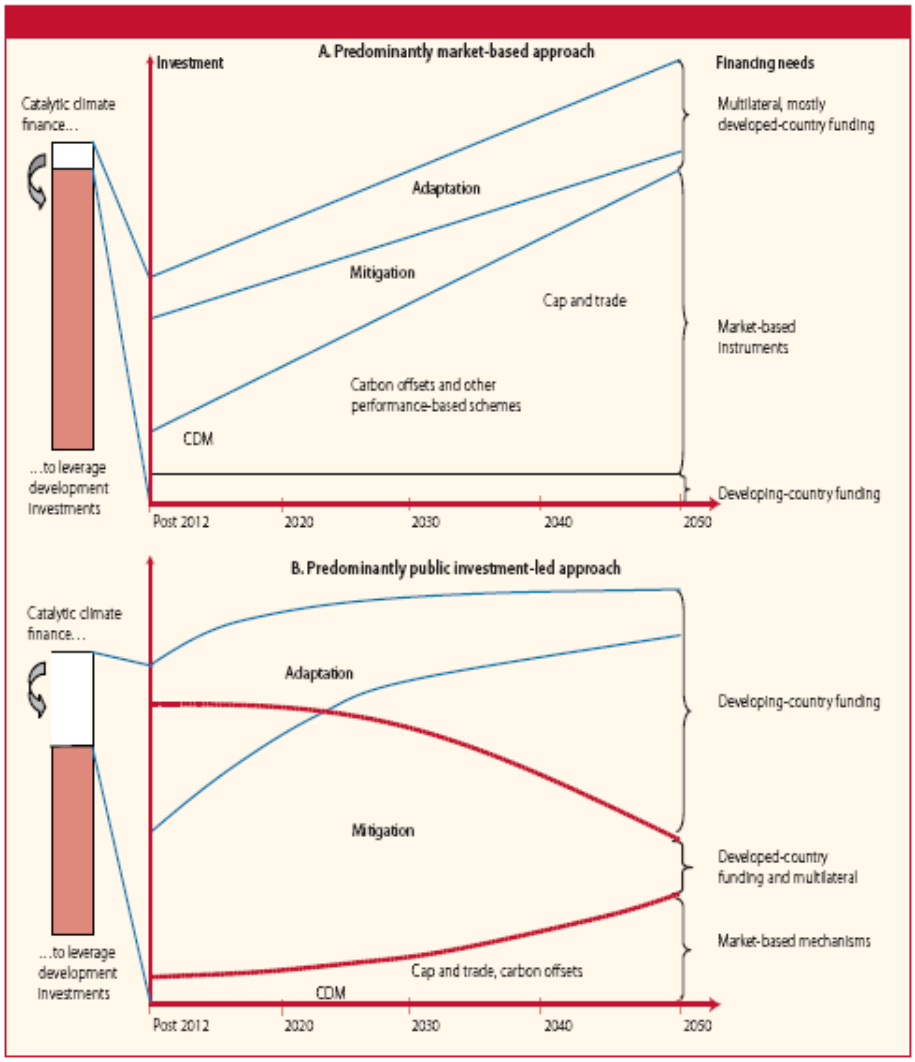
(Persson et al., 2009)

Annex 5 Different views of the share of public and private, domestic and international financing mechanisms (UN DESA, 2009)

The figure below depicts various mechanisms for covering the estimated cost of the climate challenge and their evolution over time. Figure A, derived from a World Bank study (World Bank, 2009), depicts a rapidly growing role, albeit tentative for market-based mechanisms, complemented by a more measured increase in multilateral funding. Together, market-based mechanisms and multilateral funding would quickly establish the right climate for private investment.

As depicted in Figure B, UN DESA (2009) argues that the required reductions in greenhouse gas emissions will require large-scale upfront investments to generate a non-marginal push in the desired direction, led by public investments and strong shifts in incentives to crowd in private investments.

Strategic investment and financing mechanisms for developing countries



Sources: World Bank (2009), for figure VI.1A; and United Nations, Department of Economic and Social Affairs, for figure VI.1B.

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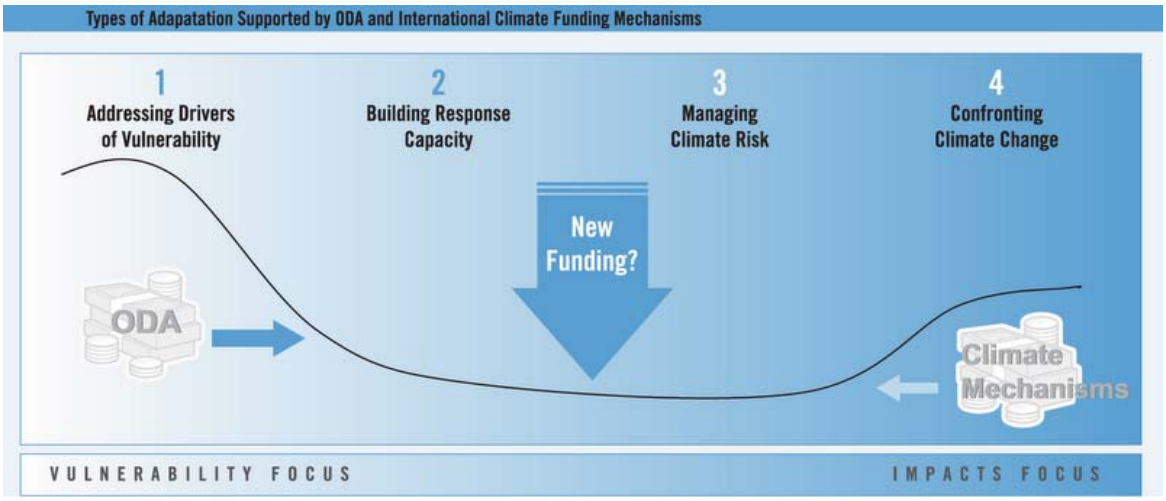
Annex 6 Complementary roles of ODA and international climate funding mechanisms



This figure indicates the funding focus of Official Development Assistance (ODA) and the dedicated adaptation funds, and suggests how they may be better deployed in the adaptation effort. To date, the dedicated adaptation funds have largely supported activities on the climate-specific side of the adaptation continuum, while ODA has dominantly focused on the development side.

As the mainstreaming of climate change into development gains ground, ODA-funded activities will increasingly gain—and deserve—the label "adaptation." This process is represented in the figure by the arrow pushing ODA from Zone 1 on the continuum toward Zones 2 and 3. However, this movement is limited by the finite level of ODA funding and, in particular, by the reluctance of recipient countries to see ODA diverted from existing priorities. The limitation of ODA in this context is that it is not driven by the imperative for increased funding in response to climate change. http://earthtrendsdelivered.org/node/166

Annex 7 Overveiw of financial instruments that could be used to leverage private investment in developing countries

		Criteria			
Instruments	**Instrument description**	**Appropriate risk allocation**	**Alignment of incentives**	**Scale, scope and usability**	**Political acceptability**
Traditional government bonds	• Money raised through general borrowing from governments • Sovereign guarantee hence higher rating • Standard characteristics (duration, coupons, etc.) to appeal to institutional investors. • Treated as traditional government borrowing, budgets used directly to support developing countries' projects	• Government bears risks related to projects financed by the bonds • No formal link between risk and specific management of the regulatory framework on emissions	• No additional incentive for governments to deliver on the regulatory framework (e.g. incentive to create a carbon market)	• Ideal for raising large investments through institutional investors. However, limited by current concerns about borrowing • No effect in terms of pushing large policy changes. • Administrative simplicity	• As hard as any government debt issuing at this stage
Bonds linked to specific investments (green bonds)	• Issued by a government institution with sovereign guarantee (similar to the World Bank green bonds, with stronger link between bonds and investment) • Raised money used specifically to co-invest with the private sector in emission reduction projects in the developing world • Returns from investment (both carbon market revenues and additional revenues) would pay for bonds' coupons and	• Risk remains with government • Returns from projects that governments invest in are dependent not only on the ability of governments to implement regulatory framework but also on other factors (e.g. evolution of global carbon markets)	• Both public and private sectors have similar incentives to ensure maximum returns from the projects • As a result, greater incentive for governments to implement an efficient regulatory framework.	• Potential for large investments from institutional investors if bonds have sovereign guarantee and standard characteristics • Bonds could be administratively easy to develop, but institutional set-up could be complex	• Impact on budget similar to traditional bonds (perhaps slightly different depending on the nature of the assets financed with the revenues). Bonds could be marketed successfully as specific 'green instruments', hence increasing their political acceptability

		Criteria			
Instruments	**Instrument description**	**Appropriate risk allocation**	**Alignment of incentives**	**Scale, scope and usability**	**Political acceptability**
	interest				
Indexed bonds	• Could be combined with traditional bonds or green bonds • Payments of coupons/interest on bonds indexed to carbon prices or national emission reductions to provide an incentive for governments to deliver an effective regulatory framework to reduce emissions (if carbon prices too low or emission reduction targets are not met, bonds would pay higher interest) • Could serve as a hedging instrument for companies investing in renewable energy or emission reduction business	• Government has only indirect control over risks associated with returns (e.g. risk relating to the regulatory framework) • Bond buyers would face the risk of lower returns if the government achieves its objectives fully: hence it should be treated as a good hedging instrument only	• Aligns incentives between financiers in emission reduction projects and the government, as both would want higher carbon prices or emission targets to be met (depending on indexing) • Bond buyers would have opposite incentives. However, because it is a hedging instrument, bond buyers are likely to be the same agents as financiers in emission reduction projects	• Niche product, because only attractive as a hedging instrument • Indexed bonds set the right policy incentives, but not as powerful as other instruments in creating radical policy change	• Potentially hard in current context because of burden it creates on public budgets • Risk would need to be limited by putting a ceiling on returns • Treating this as a niche product could make it more acceptable.
Long-term option contracts for carbon emissions	• Put options provide the buyer with the right to sell a carbon emission permit at a specified price/date. The option seller is obliged to purchase the carbon asset if the option is exercised by the buyer • Source of upfront finance for governments issuing options. Buyers would	• Governments issuing put options would face the risk of carbon prices lower than the option's exercise price • Appropriate alignment of risks, as with indexed bonds	• Sale of put options by governments would demonstrate commitment to a carbon price floor and would provide upfront finance • Governments could differentiate price of put options according to the investors (e.g. charging	• Mostly hedging instruments, as indexed bonds • Provides an instrument to limit the carbon price risk and reach substantial scale. • Characteristics of options could be determined according to governments' policy priorities on different technologies	• If issued at scale, the burden on the public purse could be substantial

		Criteria			
Instruments	**Instrument description**	**Appropriate risk allocation**	**Alignment of incentives**	**Scale, scope and usability**	**Political acceptability**
	then be businesses hedging the risk of investment returns linked to the carbon price		a lower price to CCS investors) • Safe hedging instrument for companies investing in emissions reductions, while increasing government's incentive to minimise policy and regulatory risks	• Does not require a fully functioning option market to price the option contracts	
Energy Efficiency Bonds	• Municipal financing district issues bonds to raise capital for loans used to finance energy efficiency measures • Currently proposed in the US and called Property Assessed Clean Energy (PACE) bonds. Property owners borrow money from a "municipal financing district" to finance efficiency measures and micro renewable energy, and repay over 20 years through an annual special tax on property tax bill	• Limited risk of capital impairment for the lenders, given property tax liens are senior to first mortgage debt • Individual households do run the risk that their energy efficiency improvements are not large enough to be repaid through the 20 years loan, although this risk is minimal	• Aligned incentives between lenders and households. Lenders need to ensure households are in a position to repay loans through the property tax surcharge, and hence want to ensure large energy savings. Similarly, households want to get the maximum savings from their investment	• In the US, the market for municipal bonds is relatively small (around $6bn) • Given low risk and debt seniority, could be viewed as treasury bond surrogates, thus receiving federal guarantee, implying a significantly larger market (US treasury bond markets currently over $500bn)	• Political acceptability would be quite high, as no added risk compared to normal debt issuing, while focus on delivery of energy efficiency by governments
Increased use of emissions offsets	• Regulated entities required to cover their emission liabilities through a large number of offsets generated in developing countries, thus	• Although no financial risk to governments, there is a strong environmental effectiveness	• Governments would have to take on the responsibility of ensuring that emissions reductions paid for upfront by	• Potential scale of offsets purchased by regulated entities is substantial (especially in Europe and even more so in the	• No additional financial liability for governments • Could be very difficult for governments to guarantee the

		Criteria			
Instruments	**Instrument description**	**Appropriate risk allocation**	**Alignment of incentives**	**Scale, scope and usability**	**Political acceptability**
	creating high and early financial flows to developing countries • This money could then be used to support and finance projects in developing countries	risk, as effectiveness of early emission reductions investments in developing countries may be questionable • Potential to access larger amounts of cheap abatement opportunities early on	regulated entities are actually achieved	US), hence creating a large pot of money available for investments in developing countries in the short-term • Administratively simple, but potential negative effect on domestic investments to reduce emissions	environmental effectiveness of the measure, hence creating potential political liability

Annex 8 Adapt the approach to country context

It is clear that Swedish development cooperation has different roles to play in different country contexts depending on level of economic development, quality of institutions, exposure to environment and climate change risks and opportunities, and type of cooperation as decided by the Swedish government.

One example is the Sweden-India collaboration, which follows the principle of actor-driven cooperation with a focus on the environment and climate change, and another is Afghanistan, a fragile state where private international financing is negligible and Swedish development cooperation focuses on stability, security and women's rights. As argued in the report, a harmonized and transparent approach that responds to partner country priorities and makes use of country systems and established institutions and financial mechanisms is preferred.

To fuel a discussion, the table gives a rough overview of indicative focuses in different country contexts.

Tentative Sida activities with respect to the individual countries	Mali/Bolivia	Afghanistan	India	Ukraine
Mobilizing supply				
-Loans and guarantees to leverage other forms of financing	X		X	X
-Indirectly through existing international funds to which Sweden has contributed	X	X	X	X
Reducing bottlenecks				
-Strengthen governance	X	X		
-Decentralisation	X			
-Improved tenure and capital markets	X			
-Capacity to apply for CDM/REDD or similar	X		X	X
Stimulating demand				
-high level dialogue	X			
-capacity development at strategic level	X	X		
-strategic financial planning[17] in selected sectors	X			
Other				
-Catalytic, innovative pilot programs/projects	X	X	X	X
-Research and technology transfer	X		X	

The table illustrates that countries with whom Sweden has a long-term cooperation and that are not in a post-conflict situation provide the largest selection of entry points.

[17] Strategic financial planning can be undertaken on the national or regional level and seeks to bring together stakeholders in a sector (e.g. water, energy) to assess needs and identify how to make the best use of complementary financing sources (OECD, 2009d).