



Economic Commission
for Africa

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African Climate Policy Centre

United Nations Economic Commission for Africa
African Climate Policy Centre

Working Paper 16

Climate Financing: Global Imperatives and Implications for Sustainable Climate Resilient Development in Africa

United Nations Economic Commission for Africa

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**CLIMATE FINANCING: GLOBAL IMPERATIVES AND
IMPLICATIONS FOR SUSTAINABLE CLIMATE RESILIENT
DEVELOPMENT IN AFRICA**

November 2011

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COMMON ACRONYMS

AF	Adaptation Fund
CDM	Clean Development Mechanism
CERs	Certified Emissions Reductions
CIFs	Climate Investment Funds
COP	Conference of the Parties
CTF	Clean Technology Fund
FIP	Forest Investment Programme
GEF	General Environmental Facility
GHG	Greenhouse Gases
LDCF	Least Developed Countries Fund
LDCs	Least Developed Countries
MDGs	Millennium Development Goals
NAMAs	Nationally Appropriate Mitigation Actions
NAPAs	National Adaptation Programmes of Action
ODA	Official Development Assistance
PPCR	Pilot Program for Climate Resilience
SCCF	Special Climate Change Fund
SCF	Strategic Climate Fund
SIDS	Small Island Developing States
SPCR	Strategic Program for Climate Resilience
SREP	Scaling Up Renewable Energy Program
UNFCCC	United Nations Framework Convention on Climate Change

ABSTRACT

Financial support to developing countries for mitigation, adaptation, technology development and transfer, and capacity building is critical to ensure the near universal contribution and participation required to effectively address challenges of climate change. Estimates put the required financial support in tens of billions of dollars. Mobilization of this sum is challenging by itself. But proliferation of climate funds (UNFCCC funds, multilateral and bilateral funds, and carbon markets) provides an opportunity to mobilize more resources, with a view to bridging the current financial gap. While mobilizing finance is vital for adaptation to and mitigation of climate change, it is also imperative to examine the supply and demand side factors that may constitute barriers to access. The paper outlines the major sources of international climate finance. It examines, to the extent that information is available, the level of finance that goes into supporting climate change activities in Africa. The paper provides a general assessment of existing financial mechanisms with a view to drawing lessons. Finally, it discusses questions of needs and vulnerability assessment in relation to climate change and financial support in Africa. It concludes that, while there are governance constraints at the global level, African countries need to work, with the support of developed countries, towards stimulating effective domestic demand for climate adaptation and mitigation funds and improving the absorptive capacity of African countries to effectively deploy climate funds. African countries should also put in place appropriate legal and institutional frameworks that would attract private (international and local) finance into climate change activities.

1. INTRODUCTION

Fighting climate change is described as not only the biggest challenge but also ‘an altogether different kind to the day-to-day business of intervention in the economy to correct market failures’ (Helm, 2003), partly because of the near universal contribution and participation it requires from both developed and developing countries. Financial support to developing countries for mitigation, adaptation, technology development and transfer, and capacity building is critical to ensure such participation. Although there is no unanimity of view regarding the size of required financial transfer, the lowest estimate runs in billions of dollars annually. Developed countries made a collective commitment to mobilize US\$ 100 billion annually by 2020. A report, by the UN Secretary-General’s High-level Advisory Group on Climate Change Financing, highlighted that mobilizing this sum is challenging but feasible in the long term. However, while mobilising finance is vital for adaptation to and mitigation of climate change, it is also imperative to examine the supply and demand side factors that may constitute barriers to climate resilient development both in Africa and elsewhere. For sustainable climate financing, many demand and supply side factors are as important as surmounting the challenges of fund mobilization.

In the African context, questions arise regarding the following issues that are yet to be fully addressed: (i) the need to stimulate effective domestic demand for climate adaptation and mitigation funds; (ii) the need to improve the absorptive capacity of African countries to effectively deploy climate funds; (iii) the need to strengthen and/or create financial frameworks to absorb funds from external sources and create enabling environments for private sector investment in Africa. These need to be urgently addressed considering Africa’s paradoxical position of weak financial and governance frameworks in an environment where climate-resilient investments are greatly needed. The objective of the paper is to explore options and opportunities to attract international financial flows to African countries. The paper will also assess existing funding mechanisms with a view to providing a critical assessment of the strengths, weaknesses, opportunities and threats of these facilities in their current state for a sustainable and effective response to climate challenges in Africa. Greater focus will be placed on highlighting the key elements of interest to African development. The paper does not aim to comprehensively address all issues around climate financing and their implications for Africa. Instead it aims to contribute to the current debate and initiate broader consultation on the future of climate finance in Africa.

The paper is structured as follows. Section 2 provides an overview of the existing funding mechanisms for climate change. It will outline the rationale for transfer of financial resources by developed to developing countries; provide an outline of the discussion on the size of the financial transfer required; and existing bilateral and multilateral sources of climate finance. Section 3 discusses the opportunities and weaknesses of existing financial sources, including the fast-start finance mechanism established and the Clean Development Mechanism. Section 4 provides a critical discussion of the financial needs and vulnerability assessment in Africa. Section 5 concludes the paper by providing lists of recommendations.

2. FUNDING MECHANISMS FOR CLIMATE CHANGE: AN OVERVIEW

2.1. Climate Finance: Why and How Much?

Climate financing has become imperative as a means of achieving major reductions of greenhouse gases (GHG) emissions in developing and developed countries, securing a low carbon development future without sacrificing urgently needed development, and developing climate resilient economic and social systems. The demand for climate financing highly exceeds the existing flows from

multilateral and bilateral financial sources. According to Stewart et al (2009), climate financing is driven, among others, by key findings from climate science, and economics of mitigation and development needs and opportunities; and domestic and international political economy.

The United Nations Framework Convention on Climate Change (UNFCCC) aims to stabilize concentration of GHG at a level that would prevent dangerous anthropogenic climate change. It is generally accepted among scientists that, in order to avoid dangerous climate change, it will be necessary to stabilize atmospheric GHG concentrations below 450 parts per million (ppm) carbon dioxide equivalent (CO₂e) as compared to the current level of 385 ppm (IPCC, 2007). Stabilizing concentrations at this level by the end of the century will give humanity between 40 and 60% chance of containing the average temperature increase below 2°C above pre-industrial levels. This requires global GHG emissions to start declining no later than 2015 and fall to 50% below 1990 levels by 2050. According to Project Catalyst (an initiative of the Climate Works Foundation), for the period ending in 2020, this translates into a global emissions reduction of 17 Gt CO₂e relative to business as usual (BAU) by 2020 and 35 Gt CO₂e by 2030 (Project Catalyst, 2009 and Pendleton and Retallack, 2009). The question is: where should these reductions occur?

The place where emissions of GHG are reduced is not ecologically important. From the perspective of ensuring cost-effectiveness, however, geographical as well as sectoral distribution is important, since the same amount of emissions can be reduced at a lesser cost in one place and/or sector than another. It is to be noted that the UNFCCC incorporates the principle of cost-effectiveness; Article 3(3) reads in part: “The Parties should take precautionary measures...taking into account that policies and measures to deal with climate change should be cost-effective as to ensure global benefits at the lowest possible cost”. The greatest cost-effective mitigation potential lies in developing countries. Project Catalyst (2009) states that, of the 17 Gt of emissions reductions required by 2020, about 70% is attainable in developing countries. This comparative cost advantage can be explained by two principal factors (Wolf, 2011). First, many of these countries are not locked into carbon intensive path, at least not to the extent that developed countries are, and hence can leapfrog into low carbon pathway with relative ease. The second reason has to do with the fact that the forestry sector could provide huge low cost mitigation opportunity, out of which 90% is located in developing countries (Project Catalyst, 2009).

However, developing countries in general and Africa in particular lack the requisite capacity (institutional, financial and technical) for realising their considerable comparative advantage in low-cost mitigation potential. A recent analysis shows that the scientific and technological skills on the African continent still trail behind the rest of the world (Urama *et al*, 2010). Second, it is not only Africa in particular or developing countries in general who will benefit from the realisation of this mitigation potential; the benefit is global. Stabilization of GHG at a ‘safe’ level is a public good in that once it is achieved no single country may be excluded from its benefits. Consequently, developed countries should contribute to the costs of carrying out mitigation actions in developing countries. Third, the very need to reduce such emissions (at least now, if not at all) derives from the fact that developed countries have already undermined the absorptive capacity of the atmosphere. An argument by developed countries that much of the historical emissions had occurred at the time when not enough is known about the adverse effects of GHG—an argument designed to downplay their responsibility by linking it to knowledge—can be countered by the fact that these countries have in fact benefited from the path of development which they followed (and which is now foreclosed to developing countries) and hence should take up the greater share of the responsibility. In addition, an attempt to tie together responsibility and knowledge or moral blameworthiness is to unwarrantedly adopt a narrower conception of responsibility. It is a conclusion derived from equity concept that at times actors should be responsible for the outcome of their actions, even though at

the relevant time they may not have been aware of the nature and consequences of their actions. Importantly, this argument, even if accepted, would not completely absolve them of any responsibility for their continued and in some cases growing emissions of GHG, particularly after the attention of the world is brought to the problem. Fourth, it is to be noted that it is the principle of cost-effectiveness which directs the finding of mitigation potential in developing countries. It is only fair, therefore, that the same or related principle should be used to determine who should shoulder the financial burden. Efficiency (a blood brother of cost-effectiveness) and equity require that responsibility (financial in this case) should be placed where it can be minimized at a lesser cost, where it will disrupt other priorities the least or where it can be absorbed with minimal shock. The technological and financial capability of developed countries implies that they can carry the financial burden of mitigation with lesser adverse consequences. This is strengthened by the fact that developing countries have other priorities such as reduction of poverty and accelerating the growth of their economies, a fact acknowledged in the UNFCCC. Fifth, what is required is reduction of emissions of GHG. Though part of such emissions emanates from the production of goods in developing countries, a great deal of it is also exported for consumers in developed countries. Therefore, in order to attain GHG reductions and avert the crisis while securing a low carbon economy for the future, it will be inevitable to support and leverage large flows of financial resources to developing countries.

Average global temperature has increased by almost 0.7° C above pre-industrial level. In Africa, the increase in temperature is more than the global average. Even if the global goal of arresting the increase in temperature at or below 2° C is achieved, this will nevertheless result in several serious adverse consequences for Africa. For example, temperature increases lead to reductions in agricultural production, and increased number of people exposed to diseases such as malaria and water stress, undermining the already fragile economies and livelihoods and eroding hard-earned development gains and progress toward achieving the Millennium Development Goals (MDGs). To minimize the consequences of such effects, countries should and will need to engage in adaptation measures, a fact necessitated because of a development path pursued by (and benefited) developed countries. Consequently, developed countries should pay for activities designed to minimize the physical and human costs of climate change and for damage caused which cannot be reversed or prevented.

The UNFCCC and the Kyoto Protocol stipulate for the provision of financial and technological assistance to enable developing countries cope with and manage climate variability and change. There is also general consensus that developed countries should provide financial resources to developing countries to cover the incremental costs of mitigation measures.

Article 4(3) (UNFCCC): The developed country Parties and other developed Parties included in Annex II shall provide *new and additional* financial resources to meet the agreed full costs incurred by developing country Parties in [preparation and reporting of national inventory of anthropogenic emissions by sources and removals by sinks of GHG and general description of steps taken or envisaged]...They shall also provide such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the agreed full *incremental costs* of implementing measures [to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHG]...The implementation of these commitments shall take into account the need for *adequacy and predictability* in the flow of funds and the importance of appropriate burden sharing among the developed country Parties.

Article 4(4) (UNFCCC): The developed country Parties and other developed Parties included in Annex II shall also assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.

Article 4(5) (UNFCCC): The developed country Parties and other developed Parties included in Annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention...

Article 4(7) (UNFCCC): The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology...

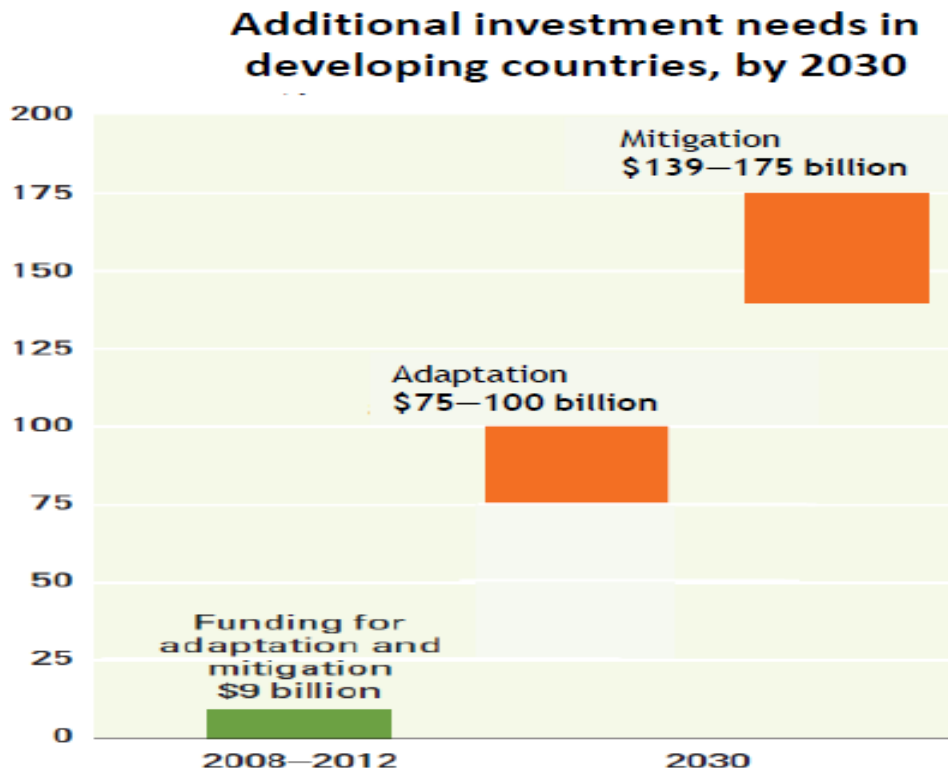
It is worth noting that the above provisions provide for not only a general commitment to provide financial resources but also some specific requirements (such as the requirements of new and additionality, adequacy and predictability) that such transfers should fulfil. However, consensus lacks on the exact size of the financial package required by developing countries and the mode of delivery to ensure that funds are adequate and sustainable. The available information only provides few estimates of the incremental investments required for mitigation and several estimates of the cost of adaptation in developing countries. The UNFCCC's report on *Investment and Financial Flows to address Climate Change* made some estimates of the incremental amounts of funding and investment required for mitigation and adaptation. The report estimates that, in 2030, additional investment flows of around US\$200-210 billion would be required globally to reduce global emissions by more than 30 Gt CO_{2e} of which about US\$75 billion is projected to be required in developing countries.

Estimating the costs of adaptation has been harder than mitigation due to the variability of adaptation impacts, and the robustness of the assumptions used for calculation of past, present and future impacts. The estimates provided range from US\$10 to over US\$100 billion per year based on several assumptions and differences (conceptualization, methodologies, time frames etc). The UNFCCC's estimate is about US\$49-171 billion globally in 2030, with US\$28-67 billion of this required in developing countries. This compares with US\$10 -40 billion in 2020, a figure by the World Bank (2006); US\$50 billion by Oxfam (2007) and about US\$86 billion per year in 2015 by UNDP (2007). The adaptation needs are expected to rise in several years to come as more climate change impacts materialize. Taken together, both mitigation and adaptation amounts are in their tens of billions of dollars annually. The Copenhagen Accord came up with an arbitrary figure of about US \$100 billion per year to be mobilized by developed countries by 2020. Although this figure is along the lines of the tens of billions of dollars required, it is arbitrary in that, it is based on neither need nor equity. However it is a useful start as advised by the Stern Review and The Economics of Ecosystems and Biodiversity (TEEB) where the cost of inaction could be worse (Stern 2006 and Sukhdev 2008).

2.2. Climate Finance: Overview of Sources and Mechanisms

The international community has begun mobilizing financial resources to meet their commitments and as a responsibility towards the management of climate change impacts to reduce or avoid costs on their economies, while at the same time to enable developing countries define a low carbon development pathway. This has driven the proliferation of different financial initiatives/funds and proposals for new financial instruments that include bilateral, multilateral, and market-based initiatives. These initiatives are major steps in stimulating greater cooperation in mobilization of resources. However, compared to the various estimates of financial resources required, a lot requires to be urgently done in mobilization and disbursement. Moreover, as far as tangible benefits to Africa are concerned, there are concerns on the effectiveness of these funds in addressing the core development goals, particularly because other funds that have been established to address

various MDG issues on poverty, disease, agriculture, health etc have been inadequate, fragmented, unpredictable and ineffective in addressing their core objectives in Africa. The following is an overview of existing funding mechanisms:



Source: World Bank, 2010

Figure 1: The Climate Finance Gap

The financial mechanism of the UNFCCC

The UNFCCC provides for financial transfers by developed to developing countries and establishes a financial mechanism, functioning under the guidance of and is accountable to the Conference of the Parties (COP). At COP-1 in 1995, the Global Environment Facility (GEF) was delegated to serve as an operating entity of the financial mechanism. The GEF, which is established in 1991 as a pilot program within the World Bank to assist in the protection of the global environment and to promote sustainable development, has become an independent organization (the World Bank becoming a trustee of the GEF Trust Fund) since 1994 serving as a financial mechanism for projects relating to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. The GEF covers only the ‘incremental costs’ of projects in developing countries.

178 developing and developed countries are members of the GEF. The organizational structure of the GEF consists of a Council, an Assembly, a Secretariat, Implementing and Executing Agencies, Scientific and Technical Advisory Panel and Evaluation Office. All members, irrespective of whether they are donors or recipients, participate in meetings of the Assembly. The Assembly adopts decisions by consensus. On the other hand, the Council, which is the main governing body, consists of 32 members representing member countries through regionally divided constituencies, developing and developed countries being represented equally. It operates on the basis of consensus. However, if consensus can not be obtained, decisions are adopted on the basis of a double-majority voting system that requires 60% of the members present and 60% of the members

that represent donors to vote for a decision. GEF Trust Fund’s replenishment occurs on a fixed four year cycle and follows a pre-defined burden-sharing formula. The GEF is now in its fifth replenishment cycle. The Fund has mainly focussed on mitigation efforts, with very limited success in Africa partly due to the cumbersome administrative and disbursement procedures. Implementing and Executing Agencies of GEF are responsible for developing and managing projects. Countries eligible for GEF funding can not directly submit applications and manage funded projects. Project developers need to, therefore, convince one of the Implementing Agencies of the GEF so that their projects is taken by the latter and presented for financial support.

Other funds that are managed by the GEF are the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF) which were established in 2001 by COP-7 in Marrakesh and are focussed on adaptation initiatives. The LDCF is intended to help LDCs adapt to climate change by supporting the design and implementation of National Adaptation Programmes of Action (NAPAs). The SCCF supports various climate change activities, adaptation activities being prioritized. Both are mainly based on voluntary pledges by donor countries. The voluntary nature of these funds has raised serious concerns around their predictability and sustainability in supporting climate change adaptation in developing countries, particularly during periods of economic recession when it will be increasingly difficult for developed countries to voluntarily support climate financing.

Table 1: GEF Project Funding by Fund (Million \$)

Fund	Pilot Phase	GEF-1	GEF-2	GEF-3	GEF-4	All Phases
GEF Trust Fund	726	1,228	1,857	2,784	1,996	8,590
LDCF	0	0	0	6	88	95
SCCF	0	0	0	14	72	87
Total	726	1,228	1,857	2,804	2,156	8,772

Source: GEF, 2010

Table 2: GEF Funding by Focal Area

Focal Area	Funding (Million \$)	%
Climate Change	2,743	31.9
Biodiversity	2,792	32.5
International waters	1,065	12.4
Ozone layer depletion	180	2.1
Persistent organic pollutants	358	4.2
Land degradation	339	3.9
Multifocal	1,114	13.0
All focal areas	8,592	100.0

Source: GEF, 2010

Despite the fact that GEF manages the LDCF and SCCF, it is the GEF Trust Fund which has been the primary source of funds for grants to environmental projects (GEF, 2010). Since its creation and including disbursements from LDCF and SCCF, the GEF provided about US\$8.77 billion (97.9% from the GEF Trust Fund and the remainder from the LDCF and the SCCF) to projects relating to biodiversity, climate change, and international waters and so on. It is very difficult to determine how much of this went to financing mitigation and adaptation projects in developing countries, as there are projects which are multifocal. But it can be said that the two areas attracting most of the finance are biodiversity and climate change, accounting for about two-third of GEF funding. In terms of numbers, biodiversity projects are the largest.

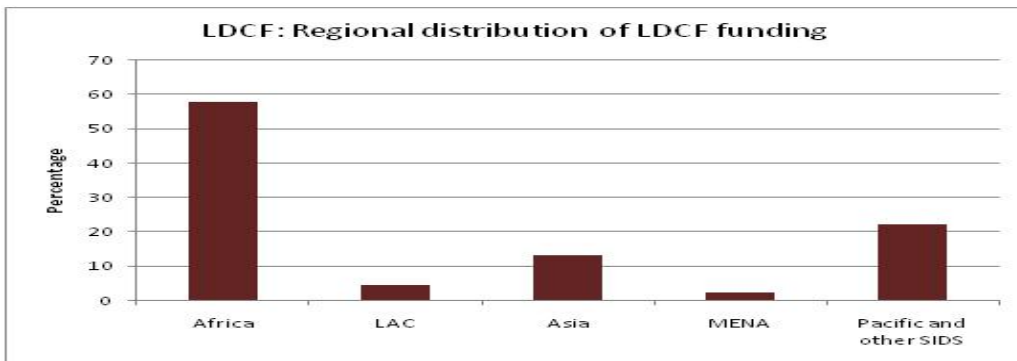


Figure 2: Regional Distribution of LDCF Funding

Source: <http://www.thegef.org/gef/LDCF>

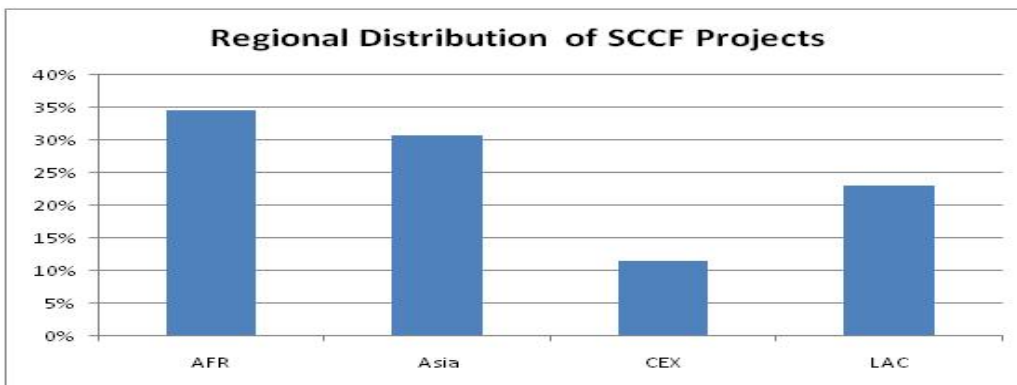


Figure 3: Regional Distribution of SCCF Funding

Source: <http://www.thegef.org/gef/SCCF>

It appears from the above figures that Africa has the largest share in the two funds managed by GEF. Figure 3 below also provides the share of Africa in the total GEF funding provided until the end of the fourth replenishment cycle of GEF, including the above two funds. From this figure it is not clear how much of the total climate finance went to support projects and programs in Africa.

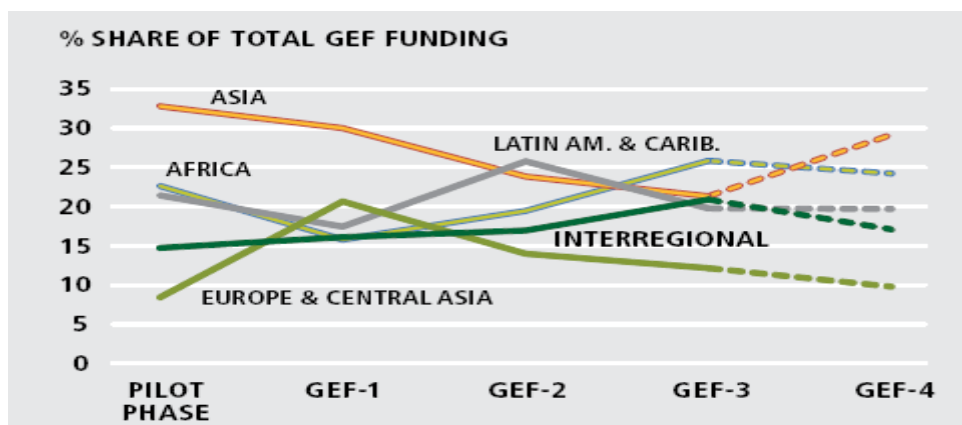


Figure 4: Regional Distribution of GEF Funding

Source: GEF, 2010

Generally speaking, the GEF finances three types of projects (GEF, 2010). The first set of activities supported is of enabling and foundational nature, activities involving reforms in national policies, agendas, and priorities. The second are demonstration activities, meant to demonstrate how new policies could result in improved environmental management. The third type of activities involves scaling-up of those demonstrated to be successful. Since its creation GEF's support to LDCs, and Small Island Developing States (SIDS) has not moved sufficiently into demonstration and scaling-up, indicating that Africa's share in the overall GEF funding and climate financing might be low and restricted to enabling and foundational activities (GEF, 2010).

Table 3: Projects Funded by Adaptation Fund

Country	Project	Implementing Entity	Approved Amount in USD	Amount Transferred in USD
Mongolia	Ecosystem based adaptation approach to maintaining water security in critical water catchments in Mongolia	UNDP	\$5,500,000	
Maldives	Increasing climate resilience through an integrated water resource management programme	UNDP	\$8,989,225	
Turkmenistan	Addressing climate change risks to farming systems in Turkmenistan at national and community level	UNDP	\$2,929,500	
Ecuador	Enhancing resilience of communities to the adverse effects of climate change on food security	WFP	\$7,449,468	\$2,647,029
Eritrea	Climate change adaptation programme in water and agriculture	UNDP	\$6,520,850	\$889,329
Solomon Islands	Enhancing resilience of communities to the effects of climate change in agriculture and food security	UNDP	\$5,533,500	\$925,827
Nicaragua	Reduction of risks and vulnerability based on flooding and droughts	UNDP	\$5,500,950	\$2,263,870
Pakistan	Reducing risks and vulnerabilities from glacier lake outburst floods	UNDP	\$3,906,000	\$1,697,324
Senegal	Adaptation to coastal erosion in vulnerable areas	CSE	\$8,619,000	\$2,924,000
Honduras	Addressing climate change risks on water resources: increased systemic resilience and reduced vulnerability of the urban poor	UNDP	\$5,620,300	\$987,702

Source: http://www.adaptation-fund.org/funded_projects

Another important fund within the UNFCCC framework is the Adaptation Fund (AF) created under the Kyoto Protocol. This fund is financed by 2 % levy on Certified Emission Reductions (CERs) issued for the Clean Development Mechanism (CDM) activities. The Adaptation Fund was

established to assist developing countries, which are parties to the protocol and which are particularly vulnerable to the adverse effects of climate change, meet the costs of concrete adaptation projects and programs. The operating entity of the Fund is the Adaptation Fund Board supported by the GEF as the secretariat and World Bank as a trustee (Haite, 2008). The Board consists of representatives from five regions of the UN and of the LDCs and SIDS.

As opposed to GEF managed funds where only approved implementing agencies could apply for financial support, the AF introduced the direct access modality where parties to the Kyoto Protocol can nominate, as implementing entities, domestic organizations, which could, after passing a process of accreditation, directly apply for funding to concrete adaptation projects and programs. To be accredited, entities nominated by parties to the Kyoto Protocol need to demonstrate that they meet fiduciary standards relating to financial integrity, requisite institutional capacity and transparency and self-investigative powers. The idea behind the direct access modality is to increase the level of country ownership and the level of harmonization with national systems, plans and priorities. From Africa, only Benin, Senegal and South African organizations are accredited as national implementing agencies. Of course, there are about six international organisations (including UNDP, UNEP, the World Bank) accredited as multilateral implementing agencies.

The major shortcoming of the AF is that it is highly dependent on the performance of the carbon market whose future remains unclear. The current term of the Kyoto Protocol ends in 2012 and its future post-2012 remains uncertain with countries such as Japan, Canada and Russia threatening to pull out of the scheme (Urama et al, 2011).

Multilateral funds

Other financial mechanisms include the multilateral funds with the commonest being the World Bank managed Climate Investment Funds (CIFs) which are mainly focussed on mitigation activities. CIFs consist of two funds: Clean Technology Fund (CTF) and Strategic Climate Fund (SCF). The CTF finances demonstration, deployment and transfer of low-carbon technologies with significant potential for long-term GHG emissions savings. The SCF provides financial resources to pilot new development approaches or to scale-up activities aimed at a specific climate change challenge or sectoral response through targeted programs. These programmes consist of the Forest Investment Program (FIP), the Pilot Program for Climate Resilience (PPCR) and the Program for Scaling-Up Renewable Energy in Low Income Countries (SREP). These funds are based on voluntary pledges mainly by the United Kingdom (UK), United States of America (USA) and Japan. The funds have an initial target of USD \$ 5 billion (Haite, 2008). The fund is administered mainly through the provision of concessional loans rather than through grants. This issue has raised a lot of scepticism on its legitimacy particularly among the civil society who have considered it as undermining the principle of 'common but differentiated responsibility', by its inappropriateness to provide loans for adaptation instead of additional funding (Goulven, 2008). There have also been criticisms on the unequal representation of partners which are skewed in favour of donor countries.

The CTF, has so far decided to finance projects worth close to US\$ 2 billion, Africa accounting about 48% of the sum. However, it is only three African countries (South Africa, Egypt and Morocco) which have so far managed to benefit from the CTF. The investment plan for Nigeria envisages allocation of US\$ 250 million in CTF funding, expected to leverage US\$ 722.3 million in related investments from multilateral development banks and an additional US\$ 344.5 million from other sources. However, there has not been a single Nigerian approved CTF project so far.

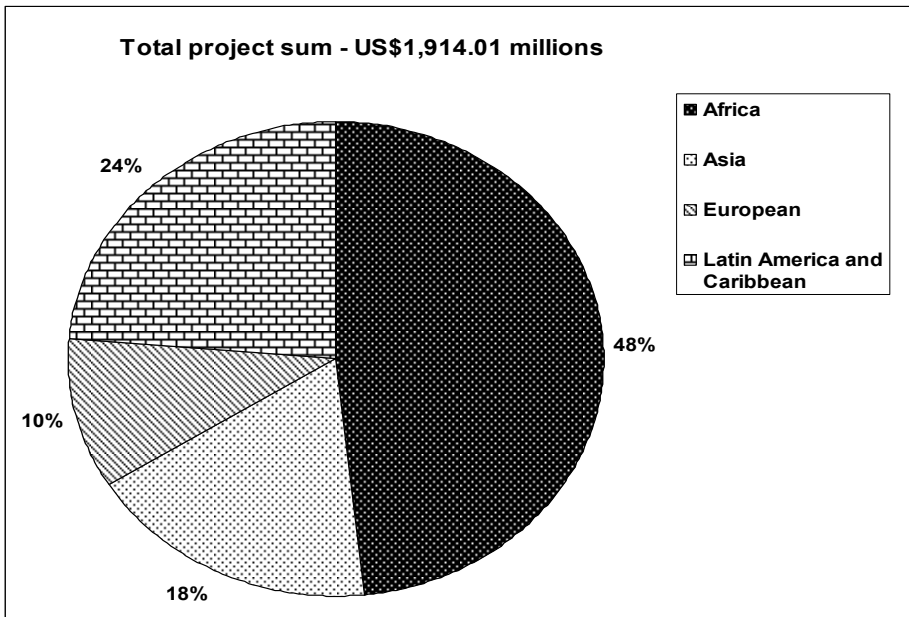


Figure 5: Regional Distribution of CTF Funding

(The figures for this figure are taken from:
<http://www.climateinvestmentfunds.org/cif/Country%20Investment%20Plans>)

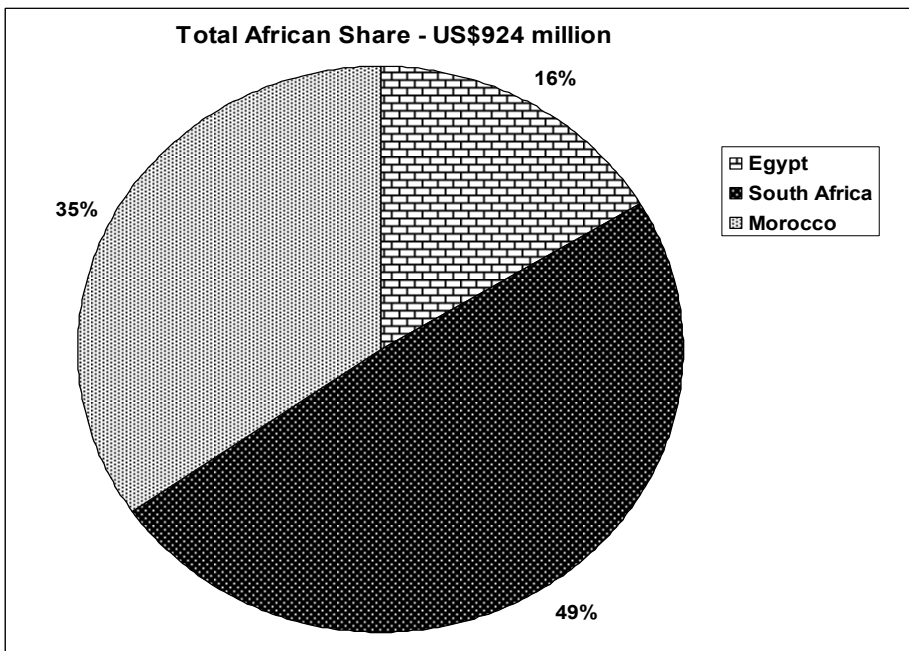


Figure 6: CTF Funding in Africa

(The figures for this figure are taken from:
<http://www.climateinvestmentfunds.org/cif/Country%20Investment%20Plans>)

The FIP supports the efforts (readiness reforms and programmatic activities) of developing countries to reduce emissions from deforestation and forest degradation and to improve sustainable management of forests. Based on specified criteria (including potential to lead to significantly reduced GHG emissions and country preparedness, ability and interest to undertake REDD initiatives), eight pilot countries (Brazil, Burkina Faso, Democratic Republic of Congo, Ghana, Indonesia, Laos, Mexico and Peru) have been selected for support. From the pledged amount of US\$ 577 million (US\$404 of which will be provided as a grant contribution and the remaining will

be provided as equity contribution), funding ranges were allocated for the pilot countries. In these pilot countries, with the support of the MDBs, the FIP supports preparation of investment plans which, among others, will identify specific projects and programs for financing. Such projects and programs will be identified based on climate change mitigation potential, demonstration potential at scale, cost-effectiveness, implementation potential, potential to yield co-benefits and safeguards. So far only the investment plans for Burkina Faso and Democratic Republic of Congo have been finalised. In these countries, work is already going on to develop fundable projects. In the other countries, the investment plans are being prepared. The financing under FIP takes several forms: grants, concessional finance, guarantees and equity.

Table 4: Projects and Programs under FIP

Countries	Projects and programs to be funded by FIP	FIP Financing in US\$ millions	Co-financing in US\$ millions
Burkina Faso	Decentralized Sustainable Forest Management	11.5	44
	Participatory Management and Protection of State Forest Reserves and Integrating Information Sharing and Lessons-Learning	11	6
	Forest product value added and marketing chains	6	30
	Integrating information sharing and lessons-learning	1.5	1
DRC	Addressing deforestation and forest degradation in the Kinshasa Supply Area Program	14	5.1
	Addressing deforestation and forest degradation in the Kananga and Mbuji-Mayi area program	12.1	5.7
	Addressing deforestation and forest degradation in the Kisangani Supply Area Program	10.2	7.0
	The program for engaging private sector in REDD+	18.4	18.2
	Small grants program supporting innovating initiatives with strong co-benefits	5	
Ghana	Investment plan under preparation, expected in November 2011		
Indonesia	Investment plan under preparation, expected in November 2011		
Laos	Investment plan under preparation, expected in November 2011		
Mexico	Investment plan under preparation, expected in September/October 2011		
Peru	Investment plan under preparation, expected in November 2011		
Brazil	Investment plan under preparation, expected in November 2012		

Source: <http://www.climateinvestmentfunds.org/cif/node/5>

The PPCR finances pilot activities that demonstrate integration climate risk and resilience into development planning. As of March 31, 2011, US\$987 million (out of which \$615 will be provided as grant contributions and 372 will be provided as capital contributions) has been pledged. 18 pilot countries, including Mozambique, Niger, and Zambia, are selected. In all of the pilot countries, Strategic Programs for Climate Resilience (SPCR) are or are being prepared. The SPCR will, among others, identify priority projects and programs for financing by the PPCR. The following table provides priority projects and programs identified in the SPCR of the three African countries participating in the PPCR and the sum allocated for each of the priority area. At this point in time, financial resources are allocated by the PPCR for the development of these priority projects and programs.

Table 5: Projects and Programs Funded by PPCR in Africa

Country	Projects and Programs	PPCR Funding (in US\$ million)	Co-financing (in US\$ million)
Mozambique	SPCR prepared and approved	50 in grant funding and 52 in other concessional resources	
	Introducing climate-resilience into the design and management of Mozambique's unpaved roads	20	15
	Coastal cities and climate change	20	40
	Climate-resilient water enables growth: transforming the hydro-meteorological services	10	5
	Sustainable land and water resources management	20	20
	Enhancing climate resilience agricultural production and food security	20	25
	Developing climate resilience in the agricultural and peri-urban water sectors through provision of credit lines from Mozambican banks	5	5
	Developing community resilience through private sector engagement in forest management, sustainable timber harvesting and/or tourism. Options include forest areas in Niassa, Gorongosa and central Mozambique	5	19
	Program management and technical assistance	2	1.5
	Climate change policy lending		100 million
Niger	SPCR prepared and approved	50 in grant resources and 60 in concessional	

		loans	
	Improvement of climate forecasting systems and operationalization of early warning systems	25	31.50
	Sustainable management and control of water resources	15	59
	Community action project for climate resilience	70	34.67
Zambia	SPCR prepared and approved	50 in grant funding and 60 in other concessional resources	
	Strengthening climate resilience in Zambia/Barotse	50	105
	Strengthening climate resilience in Kafue River Basin	45	171.8
	Private sector support to climate resilience	15	40.5

Source: <http://www.climateinvestmentfunds.org/cif/ppcr>

The SREP finances activities that demonstrate the social, economic, and environmental viability of low carbon pathways in the energy sector. The SREP operates in six pilot countries, three (Ethiopia, Kenya and Mali) of which are in Africa. The procedure for financing in SREP is the same as CTF or FIP. First, the fund will finance the preparation of investment plans in the pilot countries. The preparation of the investment plans for Ethiopia and Mali is underway. Kenya's investment plan is completed and approved. The investment plans, among others, will identify priority areas for financing by the fund. SREP allocates financial resources for further development and implementation of these priority projects.

Outside of the UNFCCC but within the UN system, the UNDP runs the Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing countries (UN-REDD Programme). This is a collaborative program between FAO, UNDP and UNEP with the aim of generating the appropriate flow of resources to significantly reduce emissions from deforestation and forest degradation. An initiative was started in Tanzania in 2009 of about \$ 2 million to strengthen capacity at national level for REDD. Zambia and the Democratic Republic of Congo are the other two partner African countries. Much of the fund is funded by Norway which has been about \$ 83 million between 2008 and 2010. Other donors are Denmark and Spain with commitments of \$ 8 million and \$ 1.4 million, respectively.

Bilateral funds

There are also bilateral funding mechanisms administered between cooperation of two countries. Examples include Cool Earth Partnerships (Japan), and International Climate Initiative (Germany). The International Climate Protection Initiative is an example of a bilateral fund created in 2007 by the German Ministry of Environment. The main idea is to use some of the revenue raised from auctioning allowances for its domestic emissions trading scheme for national and international climate initiatives. The international component has a budget of €120m in 2008 that is reduced in subsequent years. Half of this amount will be used to fund sustainable energy supply projects while the other half will support climate change adaptation and conservation measures administered mainly through bilateral projects (Haite, 2008).

Table 6: Sources of International Finance for Mitigation and Adaptation

Sources	Implementer	Amount Pledged (USD billion)	Amount Delivered By
Mitigation			
UNFCCC			
Clean Development Mechanism		18	Potential delivery by 2012
GEF Trust Fund	GEF	2.4	Disbursed
Multilateral			
Climate Investment Funds	World Bank	5.6	Pledged 2009-2012
Forest Carbon Partnership Facility	World Bank	0.4	USD 160m disbursed
Carbon Partnership Facility	World Bank	0.5	USD 140m disbursed
Bilateral			
Cool Earth Partnership	Japan	8	
Climate and Forest Initiative	Norway	2.3	
International Climate Initiative	Germany	0.6	USD 347m disbursed
International Forest Carbon Initiative	Australia	0.2	Pledged 2007-2012
Total Mitigation		38	
Adaptation			
UNFCCC			
GEF	GEF	0.4	USD 130m disbursed
Adaptation Fund	AFB	0.3-0.6	Estimated 2008-2012
Multilateral			
Pilot Program for Climate Resilience (under the Climate Investment Funds)	World Bank	0.6	Pledged
Bilateral			
Cool Earth Partnership	Japan	2	Pledged 2008-2012
International Climate Initiative	Germany	0.2	
Total Adaptation		3.8	
Total Mitigation and Adaptation		41.8	

Source: Parker et al. 2009

Table 1 above provides an indication of the international financing consisting of both pledges and disbursed amounts from the different financing sources. However, it is noteworthy that exact amounts provided to developing countries through the different channels cannot be determined accurately due to limited data. The limited data available shows that the climate related financial resources for mitigation are about US\$ 38 billion per year, which are mostly through the purchase of CDM credits and bilateral assistance. Generally, adaptation financing to developing countries is largely underfunded. As of end of 2009, total pledges amounted to US\$ 3.8 billion of which only about US\$ 130 million has been disbursed (Parker, et al, 2009).

2.3. New Agreements: Fast-start Finance

To address the financial deficits, the Bali Action Plan recognised the need for “enhanced action on the provision of financial resources and investments to support action on mitigation and adaptation

including improved access to adequate, predictable and sustainable financial resources”. The Bali Action Plan established the Ad Hoc Working group on Long Term Cooperative Action to, among others, enhance action towards improved access to adequate, predictable and sustainable financial resources. The idea was to adopt at COP-15 in Copenhagen ‘agreed outcomes’ which would include a shared long-term vision (including long-term global goal for emission reductions), mitigation commitments by developed countries, nationally appropriate mitigation actions by developing countries, financial arrangements, measures to address adaptation and technology transfer, REDD+, and a system of measurement, reporting and verification.

COP-15 took place in Copenhagen in December 2009. There was huge, perhaps unjustified, sense of expectation surrounding this conference. It was unjustified because it was clear before the start of the conference that a legally binding outcome was difficult to achieve and little progress was made on several of aspects of the work programme formulated in Bali. The COP adopted decisions which, among others, take note of a text, which was developed by a group of more than 25 countries and known as the Copenhagen Accord. Since then, however, a number of countries have expressed their intention to associate themselves with the accord, elevating the political status of the document.

The Copenhagen Accord, among others, committed developed countries to provide fast-start finance approaching US \$30 billion for the period 2010-2012, to support immediate action on climate change in developing countries. In addition, it requires that fast-start resources should satisfy specified requirements:

- Such resources should be new and additional;
- Allocation should be balanced between adaptation and mitigation; and
- Adaptation allocation should be prioritized for the most vulnerable developing countries, particularly the LDCs, SIDS and Africa;

COP-16 took place in Cancun, Mexico from 29 November to 10 December 2010. The conference adopted a series of decisions, a group of some of which is known as the Cancun Agreements which built up on and strengthened the Copenhagen Accord. Decisions have been reached on climate finance, among others. The Cancun Agreements reaffirmed the politically binding commitments of the Copenhagen Accord.

The requirement of *new and additionality* is not something introduced by the Copenhagen Accord. The 1972 Stockholm Declaration recognised the need to provide additional international technical and financial assistance to developing countries. At the Earth Summit in 1992, the UNFCCC repeated the commitment of new and additional finance. This is also mentioned in the Kyoto Protocol. Since the Earth Summit, the requirement of new and additional money is meant to convey the concern of developing countries that climate finance should not be relabelled ODA, that it should be additional to ODA. The question on which there lacks unanimity of responses is: what is the baseline for assessment of additionality of fast-start finance? There are countries such as Norway and the Netherlands which argue that “any finance that goes towards climate change should be in addition to, that is over and above, this 0.7% [gross national index] GNI commitment, which was made in the context of developing countries’ needs before climate change was recognised and therefore does not factor in the additional finance necessary to address climate change” (Brown et al, 2010). However, some consider that this definition of additionality is not viable for two reasons (Stadelmann et al, 2010). First, many of the developed countries have never fulfilled the 0.7% aspirational goal and hence would not consent to this definition. Second, there is a risk that those countries which exceed the goal such as Sweden and Denmark might label existing ODA commitments as new and additional climate finance. Another possibility, one which is

supported by Germany, is to take the 2009 ODA level as the baseline and consider anything above that as new and additional climate finance (Brown et al, 2010). For other definitions of additionality, see the table below.

Table 7: The Four Definitions of Climate Finance Additionality

Definition	Technical considerations	Political considerations
1 Aid that is additional to (over and above) the 0.7 ODA target	Easy to track given that it is measuring an increase at disbursement level and technically feasible but raises same questions around the validity of the ODA tracking system and what gets counted as climate finance	Most countries have difficulty reaching the 0.7% target in the first place, so politically challenging to raise the target. Supported by international development community.
2 Increase in climate finance on 2009 ODA levels directed at climate change activities	Easy to track given that it is measuring an increase at disbursement level and technically feasible but current issues with ODA tracking There will be no diversion from development objectives for donors who have already met their 0.7%, but may not be the case for those who have not	Some issues with setting 2009 as financial baseline—implies different things depending on if donor has met the 0.7% target or not. Those donors who have not given ODA-related climate finance before 2009 will have a lower baseline compared to those who have, implying equity issues
3 Rising Official Development Assistance (ODA) which includes climate change finance but limited (e.g. to X%)	Aid diverted to climate finance causes changing the composition of finance if overall levels of ODA are not raised sufficiently Issues around how to know what percentage is the right level—and should ideally only apply to governments who have already met their 0.7% so that the percentage of ODA spending going to climate change is above the 0.7% for development related efforts. Still need to secure additional channels of funding over and above a percentage of ODA, especially if limited to only 10% as is the case with UK proposal	Countries which have already met their 0.7% will not want those who have not to sacrifice this original goal for climate change objectives. It signifies a diversion in priorities. Setting the percentage in relation to ODA spending means funding is based on a country's current contributions, even if they are insufficient. Contributions are therefore not based on ability to pay, unlike one set on percentage of GNI.
4 Complete separation between ODA and CC financing	Emphasis on separation of funds at source Need to ensure that new sources of finance are mainstreamed with existing ODA flows-technically challenging	Would allow concerns regarding diversion of ODA funds away from development goals to be allayed Politically challenging to agree what a new financial mechanism would look like, who should be in charge of the tracking, and how it will be tracked.

Source: Brown et al, 2010

It is clear from the ambiguity of the requirement of additionality (and the consequential differentiated understanding of it) that for a meaningful monitoring of whether developed countries have individually and collectively fulfilled their fast-start commitment, a clear baseline and definition is required. Otherwise, the requirement would not be able to achieve the target that it is

meant to achieve. At any rate, it may be remarked that an allocation of finance to a project which has started before the Copenhagen COP should not be regarded as new money. However, some developed countries have not followed this principle when they report on transfer of financial resources during the first year of the fast-start period. The following table is an extract from the report by the European Commission on behalf of itself and the member states, illustrating this anxiety raised by developing country Parties.

Table 8: An Extract from the EU's Report on Fast-start Finance

Donor	Beneficiary	Programme or Project Title	Implementation Period	Contribution (in euro millions)
Austria	ETC region	EBRD Energy Efficiency Program for Early Transition Countries	2009-2011	2 in grant
Italy	Bolivia	Renewable hydraulic energy supply through the construction of micro hydropower stations	2008-2010	0.28 in grant
Italy	Bolivia	Creating a regional system of protected areas, indigenous lands and forests and integrated sustainable management of the Amazon Bolivia	2008-2010	0.18 in grant

Source: http://unfccc.int/files/adaptation/application/pdf/inf_fsf.pdf

It is clear that so far allocation of existing climate finance resources favours to large extent mitigation activities. It is with this background that some parties have suggested that the balance of financial resource allocation between mitigation and adaptation activities needs to be redressed. This means that when it comes to allocation for adaptation activities, it also requires that the most vulnerable countries such as the LDCs, SIDS and Africa should be given the priority. The challenge in fulfilling these requirements of the fast-start finance emanates from the fragmented nature of climate finance, which lacks effective and transparent coordination among the various multilateral and bilateral sources.

2.4. New Agreements: Long-term Finance

The Copenhagen Accord also resolved to establish a Green Climate Fund as an operating entity of the financial mechanism of the Convention to support projects, programme, policies and other activities in developing countries related to mitigation including REDD+, adaptation, capacity-building, technology development and transfer. It has also included a commitment by developed countries to mobilise US\$100 billion by 2020, a significant part of which is expected to be channelled through the Green Climate Fund. The main purpose is to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation. The finances are expected to come from various sources: public and private, bilateral and multilateral, and other alternative sources of finance. The Cancun Agreements finally established the Green Climate Fund.

This process has been deemed promising but on the part of African countries, the lack of substantial details on how the Green Climate Fund will be effectively operationalized, particularly to learn from the shortcomings of the GEF and other funds such as ODA, raises serious concerns on the fund's effectiveness in addressing adaptation and development issues in Africa.

The long-term finance in the Green Climate Fund prioritizes particularly the ‘vulnerable countries’, which has not been defined in the Cancun Agreements. It also provides for improved access to financial mechanisms and initiatives. African negotiators should question this classification so as to ascertain how many countries in the region fall into this category. In addition, the governance for the fund stipulates that a 24 member board will govern the Fund, made up of equal representation between developing and developed countries. With 80% of the world’s population residing in developing countries, a 50-50 split does not present an equitable share. The implication of this arrangement on Africa needs to be closely monitored by the continent’s policy makers with a view to ensure that the continent’s concerns with regards to climate change are well represented and addressed. This implies better networking and communication with the full membership of the board.

3. EXISTING CLIMATE FINANCE MECHANISMS OPPORTUNITIES, WEAKNESSES AND LESSONS LEARNED

3.1. The Needs to Look Backward

The political will in support for climate financing by the international community is clear as exemplified by the proliferation of many funds for supporting mitigation, adaptation and technology transfer to developing countries. It is also well recognised that for the future, long term cooperation and a common goal in the fight against climate change, is of outmost importance. To achieve these, developing countries will require considerable financial assistance for mitigation, adaptation, capacity building and technology development and transfer. Unfortunately, in reference to previous funding mechanisms, there has been major mistrust among developed and developing countries. This lack of trust reflects not only a lack of appreciation of each other’s domestic political commitments and constraints, but also a history of bad faith in the formulation and implementation of global commitments on development, climate and also on institutional reforms (Ghosh and Woods, 2009).

Though climate funds have only had a limited history to offer credible lessons, it is still worthwhile to provide an assessment of the strengths and weaknesses of the current financing architecture in informing future improvements, particularly of the proposed Green Climate Fund and its implications on Africa going forward.

3.2. Opportunities of the Existing Climate Finance Mechanisms

The proliferation of funds is a great step in moving towards the mobilization of larger climate finances and it is also a demonstration of political will by developed countries in managing climate change, at least with respect to mitigation. The Cancun COP was particularly considered to be a success by the UNFCCC, for having set all governments more firmly on the path towards a low emissions future and to support enhanced action on climate change in the developing world (UNFCCC, 2010). Developed countries have the opportunity to leverage their technical and financial muscle by investing in cost-effective mitigation measures in developing countries. Though the financial requirements are estimated to be around tens of billions of dollars per year, this translates to only 0.2 - 0.8% of global investment flows or about 0.06 - 0.21 per cent of projected global GDP in 2030 (Schipper and Merlyn, 2008) and as reported by Stern (2006) and Sukhdev (2008) inaction will supposedly cost more in the long run.

There are a number of different options for financial instruments that can be pursued to mobilize resources in cost-effective ways and leverage more financing. Although so far there is no

framework that has been adopted for the implementation of these diverse options, there are opportunities to leverage large funding as summarised by Haites, (2008) and Parker et al. (2009) as follows:

- Mobilization of more financial resources under the financial mechanism of the Convention. The replenishment of the GEF Trust Fund occurs on a fixed four year cycle and follows a pre-defined burden sharing formula.
- Application of more stringent commitments for developed countries under the Kyoto Protocol to generate additional demand for credits from CDM and other mechanisms.
- Adoption of new sources of funds for mitigation, adaptation and technology transfer. Several proposals have been put forward with few examples highlighted as follows:
 - Expanding the 2% levy on CERs under the CDM as a contribution to the Adaptation Fund to include other market mechanisms, the joint implementation and emissions trading mechanisms.
 - Provision for an international air travel adaptation levy.
 - Access to renewable energy programs in developed countries.
 - Establish Debt for clean energy swaps.

The financial component of the Bali Action Plan also provides opportunities for mobilization of large funding to developing countries. To attain this, the following proposals may be considered (Haites, 2008):

- Improved access to adequate, predictable and sustainable financial resources and the provision of new and additional funding for developing countries.
- Positive incentives for developing countries for enhanced implementation of national mitigation strategies and adaptation action.
- Innovative means of funding to assist developing countries in meeting their cost of adaptation.
- Incentives to implement adaptation actions on the basis of sustainable development policies.
- Mobilization of public- private sector (PPP) funding and investment.
- Financial and technical support for capacity building in the assessments of costs of adaptation in developing countries.

Gomez-Echeverri (2009) writes that the existing three layered (the UNFCCC financial mechanism, multilateral funds and the carbon market) structure of international climate finance provides an opportunity for further improvement without fundamental restructuring. Another opportunity as identified by Dubash (2009) would be the adoption of a bottom-up approach for developing countries to benefit from pursuing mitigation objectives that are in line with their development priorities. Potentially, bottom-up approaches promise larger and earlier action as opposed to top-down measures for developing countries which may promote counter-productive incentives such as avoiding early action in order to receive greater financing later. Dubash (2009) asserts that bottom-up mitigation actions, forged in the crucible of domestic political debate, are more likely to ensure institutional commitment to carbon reduction goals (which has been elusive) and even promote institutional changes than the top-down mitigation commitments.

3.3. Weaknesses of the Existing Climate Finance Mechanisms

Developing countries are sceptical about climate financing due to the repeated failures that have characterised the fulfilment of previous commitments and pledges by developed countries. Even

where specified conditions have been met by recipient countries, donors have been known to reduce funding or alter conditions on several occasions (Ghosh and Woods, 2009). Generally the funding has been volatile and unpredictable with the following limitations:

Governance and institutional constraints

Governance is defined as the interactions among structures, processes and traditions that determine how power and responsibilities are exercised, decisions are taken and citizens voice their opinions (Graham et al. 2003). Climate governance plays out at multiple levels from the international, national to the local level, since climate change is a global issue and has local impacts. At the global level, climate change is an issue of relationship between states in seeking lasting solutions to address climate change among the different states. At the national level, the governments need to ensure that adaptation and mitigation mechanisms are well defined, facilitated (providing a favourable environment and mobilization of requisite resources) and implemented to enhance the resilience of their citizens in the face of climate change and other developmental challenges. At the local level, communities need to be able to harness appropriate technologies and adaptation tools in order to build their resilience and secure their rights to sustainable development.

Climate governance has been considered to fall short of reflecting internationally agreed principles of good governance. While it is clear that GHG come disproportionately from industrialised nations and that harmful impacts will hit the poorer nations harder, there are still tussles on issues of equity, and taking full responsibilities in managing the menace. In most negotiations, the most vulnerable countries tend to be the least able to make their voices heard or even assess the implications of any outcome on their situation. Grouping of countries into developed and developing countries or emerging and least developed has created struggles and undermined climate governance.

Existing climate funds have different governance structures and systems, in terms of rules and procedures, equity in representation, transparency and accountability. Many developed countries favour the World Bank as a financing and disbursement mechanism, while developing countries have expressed great dissatisfaction with their under-representation within the Bank (Ghosh and Woods, 2009). Also the GEF is considered lacking in legitimacy among developing countries because its governance structures give more weight to the influence of developed countries (Streck, 2001 and ActionAid 2007). It is to be noted that decisions by the GEF are taken by consensus of all parties to the UNFCCC and when no unanimity is available, it will be taken by majority, of countries weighted by donation.

The Adaptation Fund, which is governed by the Adaptation Fund Board under the authority of the COP, is the preferred mechanism of developing countries as it has greater representation from developing countries. The Adaptation Fund Board consists of representatives from the five UN regions and of LDCs and Small Island Developing States. In addition, parties to the Kyoto Protocol can directly apply for funding, in marked contrast to GEF funds where submissions for funding need to be lodged by approved implementing agencies. This direct access modality of the Adaptation Fund is hoped to overcome or minimise problems of accessibility identified in relation to GEF funds and ensure local ownership of financed projects and programs. However, the fact that agencies from only a very few countries (only Senegal, Benin and South Africa in the case of Africa) are so far accredited to directly access this fund suggests the need to closely study and remedy obstacles in the process (Brown et al, 2010).

Equitable participation in the governing of funds is critical, particularly with reference to African countries, in informing effective strategic and policy decision in funds' administration. Schalatek and Bird (2010) provided a minimum guiding framework for climate finance in the mobilisation,

administration, governance and disbursement of funds (Table 8) which they derived from the principles laid out by the Convention, the Kyoto Protocol and subsequent decisions by the COP.

Table 9: A Normative Framework for Climate Finance

DELIVERY PHASE	PRINCIPLE	CRITERIA
Fund Mobilization	Transparency and Accountability	Financial contributions, their composition and sources are disclosed publicly and timely.
	The Polluter Pays	Financial contributions are relative to the quantity of (historic) emissions produced.
	Respective Capability	Financial contributions are correlated with (existing) national wealth and (future) development needs.
	Additionality	Funds provided are more than the existing national ODA commitments.
	Adequacy and Precaution	Amount of funding is sufficient to deal with the task of maintaining global temperature rise below 2°C
	Predictability	Funding is known and secure over a multi-year, medium-term funding cycle
Fund Administration and Governance	Transparency and Accountability	Accurate and timely information on a mechanism's funding structure, its financial data, the board structure, description of its decision making process and the actual funding decisions made as well as the existence of a redress mechanism or process.
	Equitable Representation	Representation of stakeholders on the Board of a funding mechanism
Fund Disbursement and Delivery	Transparency and accountability	Disclosure of funding decisions according to publicly disclosed funding criteria and guidelines; duty to monitor and evaluate implementation of funding; existence of a redress mechanism or process
	Subsidiarity and National/Local Ownership	Funding decisions to be made at the lowest possible and appropriate political and institutional level
	Precaution and Timeliness	Absence of scientific certainty should not delay swift and immediate disbursement of funding when required
	Appropriateness	The funding modality should not impose an additional burden or injustice on the recipient country
	Do not Harm	Climate finance investment decisions should not imperil long-term sustainable development objectives of a country or violate basic human rights
	Direct Access of Vulnerability Focus	Financing, technology and capacity building to be made available to the most vulnerable countries as directly as possible (eliminating intermediary agencies where not needed)
	Gender Equality	Funding decisions and disbursement take into account the gender-differentiated capacities and needs of men and women through a dual gender-mainstreaming.

Institutional constraints

Although climate change is a global issue that requires effective international governance systems, the differential nature of impacts requires national and local governance systems with robust policies and legal frameworks. Lack of policies and legal frameworks may create barriers to the implementation of adaptation responses, and could also expose communities to more risks. A number of African countries have established institutional structures for coordinating climate change responses including coordination committees. The existing institutions are mainly involved in climate change adaptation in various capacities such as: guiding the development of national policies and implementation; undertaking research and knowledge brokerage; building the capacity of stakeholders; or facilitating the implementation of climate change initiatives (Madzwamuse, 2010). However, according to Madzwamuse (2010), what is found in most African countries is either a concentration of capacity at the national level and weaker capacity at the provincial and local levels, or multiple institutions with conflicting mandates and responsibilities. Government institutions particularly are faced with weak coordination issues resulting from conflicting and overlapping mandates, dysfunctional arrangements for inter-agency integration, overburden of external donor reporting requirements, lack of transparency and accountability and inadequate financing (Madzwamuse, 2010). The resources necessary to help Africa's adaptation and mitigation efforts, including adopting a low carbon development economy, are limited and scattered among many national priorities and competing agenda such as poverty reduction, and conflict resolution.

One of the major manifestations of Africa's engagement in the global frameworks for climate change is the submission of each country's Initial National Communication (INC), National Adaptation Programme of Action (NAPA) and Nationally Appropriate Mitigation Actions (NAMAs) to the UNFCCC. However the established institutional framework to support the development of mitigation and adaptation projects in Africa is generally weak. The INCs in many instances offer limited guidance as to the mitigation and adaptation priorities of each country. The ability of Africa to access these resources is constrained by the lack of capacity to develop fundable projects to generate sufficient funding.

The crosscutting nature of climate change impacts requires an integrated response by strong institutions at all levels, with accountable leadership and a critical mass of actors (policy makers, private sector, civil society), who are well coordinated to manage climate change. Disbursing adequate financial resources to Africa would assist the continent address adaptation needs, develop institutional capability, acquire and build capacity for applying technologies and promote long term investments.

Access, funds disbursement and accounting challenges

Access of funds by developing countries is highly constrained owing to complex administration procedures and often cumbersome conditionalities as well as the lack of effective capacity on the part of developing countries to generate fundable projects. The accounting and reporting procedures are too complex and most often have to fit the donors' own exigencies. Each donor applies their own different and unique reporting format that recipient countries have to abide by. Reporting in this manner has high transaction costs and creates a burden on developing countries and also does not support efforts within developing countries to streamline and make their own finances more transparent (Woods, 2009). For these reasons, the reporting structure of external financing could affect the long-term sustainability and accountability of policies, programs and projects.

Disbursement of funds, particularly of large amounts, raises several concerns and challenges in determining the following:

- How the funds will balance the allocation between adaptation and mitigation and in some cases technology transfer. Balanced allocation will be challenging in determining whether to designate funds for particular purpose and if this is the case how to ensure that surpluses in one fund are redistributed to areas with a deficit. Every allocation will have a spatial and temporal dimension where some trade-offs will be unavoidable. A case in point is where allocating funds for technology research will mean less funding for diffusion of available technologies where the fund is designated for technology development and transfer (Haïtes, 2008).
- Whether the funds are distributed for individual projects such as the GEF and CDM or for national programs. There have been concerns about project funding as they tend to incur higher transaction costs than programs. Projects are also limiting especially in circumstances of mainstreaming adaptation into development policies and strategies (Goulven, 2008). However, funding projects allows for proper and easier monitoring and evaluation than programs.

There is general dissatisfaction with disbursement of funds particularly in relation to Africa. The key concerns are mainly on timing of disbursement, credibility and legitimacy of the institutions charged with disbursement, effectiveness of disbursement and equity in disbursement based on need and priorities. In the case of adaptation funds, so far the disbursed funds have only been spent on assessment and planning mainly on preparation of NAPAs by LDCs and less on actions (Goulven, 2008).

Lack of an operational standard definition for adaptation

A major problem of financing adaptation is that of establishing a uniform operational definition of adaptation. The definition provided by IPCC is quite broad and regards adaptation as “any adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (Goulven, 2008). There are two distinct perspectives that influence how policymakers and practitioners approach the problem (Bapna and McGray, 2009). The first perspective stipulates that adaptation should aim at responding to specific impacts of climate change, while the second provides reduction of vulnerability and building of resilience to climate stresses as appropriate goals of adaptation. Activities which exclusively aim to reduce vulnerability can be regarded as ‘pure’ development activities. Those which aim to respond to specific impacts of climate change can be regarded as clear adaptation measures. The problem is there are many activities which are in between. There are suggestions that adaptation should not be understood in development versus adaptation manner. For example, Bapna and McGray (2009) provide adaptation as a continuum of goals: “At one end of the continuum, the most vulnerability-oriented adaptation efforts overlap almost completely with traditional development practice, where activities take little or no account of specific impacts associated with climate change. At the opposite end, activities are designed to target distinct climate change impacts, and fall outside the real of development as traditionally defined. In between lies a broad spectrum of activities with gradations of emphasis on vulnerability and impacts”. Whereas there is a need to ensure that climate financing including for adaptation be new and additional and hence the push to distinguish it from ODA, focusing on activities which aim to address specific impacts of climate change will leave activities which aim to reduce vulnerability underfunded (Bapna and McGray, 2009).

Complex procedures in mobilization, administration and disbursement of funds

The administration of UNFCCC funds has been complex and cumbersome and has disadvantaged the effective participation of developing countries particularly Africa. The complex eligibility conditions of these funds have created barriers and low participation of African countries. For instance, the GEF funds require that eligible activities should demonstrate global environmental benefits which should be 'additional', over and above the existing baseline scenario. However, Africa is mainly focussed on adaptation efforts to address the immediate impacts arising from climate variability and change. The demands by the GEF on supporting projects that meet the additionality requirement and that demonstrate global environment benefits is a limitation for supporting adaptation projects as most of the benefits from adaptation measures are local and the additional costs are difficult to estimate (Haite, 2008). In addition, even where a country is 'eligible' for the funds, they cannot access the GEF funds directly but require an approved implementing agency to do so on their behalf.

There are also major delays, in expending the funds, which have negative implications on the effectiveness of immediate adaptation needs. Often, the timelines for the disbursement of funds is determined by donors as influenced by their domestic requirements and priorities (Woods, 2009). The funds are disbursed either too fast or too slowly. This is partly explained by the bureaucracies in administration of funds. For instance, it took about 3 years for conventional funds to be made operational after their establishment in Marrakesh, 2001 (Schipper and Merylyn, 2008). The CDM process is also cumbersome, expensive and takes around a long time to be verified and approved. Africa's global market share stands at 7% as of 2009 as compared to China at about 72% of the global market share (Kossov and Ambrosi, 2010).

Mobilization of financial resources has not been adequate, predictable or sustainable. A case in point is that financial contributions under the Convention are mainly administered on a voluntary and ad hoc basis. There are no legal commitments to secure financial flows to developing countries. Other funds such as the Adaptation fund are reliant on the performance of the carbon market whose future is uncertain. Consequently, this has contributed to volatility, unpredictability and general mistrust about the credibility of the financial mechanism.

Lack of coordination

Lack of coordination has characterised most other development funds such as HIV/AIDs, agriculture, health etc. Climate funds are not any different and appear to be following a similar pattern. The sources for these multiple funds (under the convention, bilateral, multilateral and market driven) has not explicitly defined how these funds will be coordinated to control for duplication of activities, and mismanagement of funds. As most of the finances from the Cancun agreement are expected to flow through bilateral and multilateral funds and less through the convention, coordination will be of paramount importance for effective management of funds.

Lack of harmonisation

Both developed and developing countries have different views and perspectives on what should constitute international climate funding. Some developed countries consider climate finance to be a form of ODA which gives them discretion over the amount of funding to contribute and to define the purposes of the funds. On the other hand, developing countries consider climate funds to be different from ODA and should constitute the costs that have been incurred to implement adaptation and mitigation measures. This inconsistency, if not addressed, will negatively impact on the mobilisation, governance and effective use of these funds (OECD, not dated). Moreover, most donors tend to favour projects to programmes or funds for specialized purposes as they yield quick and measurable results. However, if these projects are not well aligned with national policies and

development goals, they can potentially distort national priorities and disrupt existing institutions and systems imposing additional administrative burdens on recipient countries (OECD, not dated).

Lack of local ownership and local implementation

According to Woods (2009), one major shortcoming that has contributed to failures of donor assistance and financing is the lack of local ownership and implementation. Donors assume that the use of structured incentives and conditionality are sufficient to ensure recipient countries adopt certain objectives or goals. While in reality local ownership is a major determinant of success of initiatives. This entails the misalignment of the proposed or intended actions with the country or community's own priorities and objectives. Important indicators of local ownership that can guide the process are to assess the participation of local communities in the origination of the project or policy, participation in the design, and in the implementation, monitoring and review of the project in order to promote credible local governance, transparency, accountability and increase the effectiveness of the proposed action.

Gomez-Echeverri (2009) summarizes the shortcomings of the funding mechanism as follows:

- Most of funding mechanisms are outside of the UNFCCC and mainly fund pilot projects rather than large scale ones. Each fund has its own rules of operations and governance structure and lack transparency and accountability. They are also characterised by immense transaction costs.
- The objectives of many of the funds neither respond to the demand or needs of developing countries nor engage them proactively.
- While the offset carbon finance market promised great potential for developing countries, only a few countries have benefited. Also few projects have supported sustainable development or transferred clean technologies as was initially intended.
- A majority of these funds prefer to fund projects to programs which have low scalability potential.
- Adaptation, which is a major priority of developing countries, is largely underfunded and difficult to attract funding and investment as it cannot be easily integrated in to the global carbon finance system.
- As currently constituted, the financial architecture neither creates the proper incentives for the transformation towards a low carbon economy.
- The level and scale of current funding is insignificant against the needs and magnitude of the efforts required to address and manage climate change.

3.4. Fast-start Finance

With a financial commitment of about US\$ 30 billion up to 2012 agreed upon during the Copenhagen conference, fast-start finances are meant for addressing immediate impacts arising from climate change. This is particularly important for the most vulnerable countries such as Africa to kick-start their adaptation efforts to be able to cope with the effects of climate change. Immediate responses are also critical in saving lives and averting major socio-economic losses. Project Catalyst has estimated the needs for climate finance for the period 2010-12 to be between \$21-54 billion. Going by these estimates, it means that if fast-start finances are fulfilled, this could be a good start towards low a carbon pathway. It could also send out positive signals in building trust between developed and developing countries towards greater commitments in addressing climate change collectively in future and to act as a vital bridge to the deployment of larger amounts of long term climate financing.

However, while the overarching need for these finances may be clear, uncertainties prevail on how to operationalize the finances in balancing allocation between adaptation and mitigation measures as spelt out by the Copenhagen Accord. It falls short of addressing the greater issues of vulnerability in its totality particularly in the context of vulnerability in Africa, where it is difficult to disentangle adaptation from development in general. There are also concerns in addressing issues of additionality which is spelt out in the Copenhagen Accord which states that funding should be 'new and additional'. The baseline to determine additionality has not yet been stated and going by the volatility of ODA funding and the lack of transparency on how countries define additionality and other measurement constraints, it will be difficult to provide an accurate assessment of additionality (Project Catalyst, 2010).

Since the actual needs are likely to be greater than the available funding, it is critical to prioritize the needs. Project catalyst proposes that the following questions would be useful in guiding allocation of funds:

- Is the specific project/program part of a broader national development strategy addressing low carbon growth or part of a NAMA in the developing country? (To address policy prioritization)
- Does the project result in emissions reductions incremental to those financed by carbon markets? (to address mitigation prioritization)
- Is the project a result of robust adaptation need analysis? (To address adaptation prioritization).
- Does the project have both adaptation and mitigation benefits? (To address synergy prioritization).
- Is the project designed in a way to leverage private sector funding? (To address private sector prioritization).
- Does the funding support the creation of NAMA/NAPA, institutional capacity building to allow for the participation of private sector and local communities for effective absorption of funds (To address capacity prioritization).

It is also essential to ensure that there is efficient disbursement of funds. The current fragmented donor funding has created access barriers for Africa's participation. There should be harmonization and simplification of the requirements by the major funding channels and assessment processes particularly the administrative procedures and performance assessment frameworks. There should also be clear definitions on what fast-start finance constitutes including grant equivalence guidelines and additionality requirements (Project catalyst, 2010). In addition to meeting these criteria, it is important to enhance transparency of fast start finance contributions. Submission of fast start fulfilment information to the UNFCCC secretariat should be strengthened to ensure it is well harmonised, timely, and transparent.

3.5. Lessons Learned From the Clean Development Mechanism

Under Kyoto Protocol, there is a range of policy instruments referred to as 'flexibility mechanisms' that would assist Annex I countries in achieving their targets by allowing emissions reductions at lower costs. The Clean Development Mechanism (CDM) is one of the flexibility mechanisms, the others being the Joint Implementation (JI) and International Emissions Trading (IET). CDM is a project based mechanism which provides a framework through which Annex I countries are able to reduce their GHG emissions (meet their emissions limitations and reductions commitments) in cost-effective ways by taking advantage of the low marginal abatement costs in non-Annex I countries while promoting sustainable development projects in non-Annex I countries. The latter

feature has been a pull factor for stimulating the participation of developing countries in order to forge sustainability in their economies without much socio-economic strain.

The CDM provides financial assistance for mitigation projects in non-Annex 1 countries by issuing CERs (Certified Emissions Reductions) credits for emission reductions achieved. On the whole, CDM has been considered to be an innovative mechanism that has managed to leverage great finances, and create awareness on climate change issues even among the private sector actors. In 2007 and 2008 alone, the CDM managed to mobilize US\$ 15 billion in primary transactions in Certified Emissions Reductions credits (CERs) compared to the GEF which has received US\$ 3.13 billion in August 2006 from 32 donor governments for its operations between 2006 and 2010 (Streck, 2009). Streck (2009) argues that the mechanism has managed to fulfil the set objectives of assisting non-Annex I Parties to achieve sustainable development and contribute to the ultimate objective of the Convention and also assisting Annex I Parties compliance with quantified emission cuts and reduction commitments under Article 3 of the Kyoto Protocol. However, some operational and governance constraints, that have consequently impeded the participation of smaller developing economies such as Africa, are acknowledged.

China currently dominates the market because of the presence of large scale mainly industrial projects with high mitigation capacity. Projects of this type include: emission saving technologies that may involve refitting factories to capture and destroy gases such as HFC-23 or large scale hydroelectricity projects that replace electricity generated by fossil fuels. By 2009, the projects represented about 72% of the total projected emissions reductions. Africa has had very limited share which is now at about 7% of the global market. This is in spite of its enormous mitigation potential. The low state of development in most African economies means the economic activities have lower emissions and are smaller in scale as compared to similar activities in other countries. There are also cumbersome methodological requirements and access barriers that have resulted in huge transactions costs and time lags before the funds are delivered. The procedure is such that the CDM Executive Board has to supervise projects before CERs can be issued and this can only happen after the emissions reductions achieved have been verified and certified by an accredited Designated Operation Entity (DOE). This process tends to take a long time before completion and could delay important and urgent projects. However, if mitigation measures are not adopted early enough in Africa, the potential for GHG emissions will be quite high in future.

There are also major uncertainties as regards to the future of the market, which has forced developing countries to absorb the risks by meeting about half of the total investments before the CERs are sold (Haïtes, 2008). Essentially, this disadvantages the effective participation of African countries. The proposed reforms to overcome the shortcomings of CDM with a view to making it an effective climate financing tool especially for Africa include changes to its governance structure, strengthened administrative capacities, mechanisms to promote accountability to non-state actors, steps to enhance the environmental and sustainable development integrity of CDM credits, incorporation of programmatic (aggregate of small and similar) projects, and addressing the incorporation of mitigation potential in forestry, agricultural, and land-use projects which is in abundance in Africa (Streck, 2009).

The funding provided to developing countries for CDM projects is driven by emission reductions. The credits issued for the emissions reductions achieved by each project is known and the market price of CERs is readily available, so it is possible to calculate the market value of the credits issued for each project. For instance, the market value of the CERs issued during the 12 months ending June 2010 was over 2 billion (CDM pipeline). However, there are times when the buyers often contract to purchase credits early in the project life, before the project is registered. In such

cases, the purchase price is less than the market price so the financial support received can differ both in timing and amount from the market value of the credits issued (OECD, not dated).

The Adaptation Fund is financed through a 2% share of proceeds from CDM projects. The revenue received for the Adaptation Fund, therefore, depends on the quantity of CERs issued and the corresponding prices of those CERs. The first commitment of Kyoto Protocol is finally coming to an end in 2012 and unless post-2012 commitments are agreed upon at COP-17 in Durban, the carbon market and further contributions to the Adaptation Fund will remain uncertain.

3.6. Lessons learned

The estimated mitigation and particularly adaptation costs far exceed the pledged amounts and these demands an expansion of the existing financial mechanisms. More options should be pursued in order to address the different financial needs in terms of mitigation, adaptation, capacity building and technology development and transfer. African policy makers will also need to carefully examine the emerging proposals taking into account the implications of the different approaches on their respective countries and how they stand to benefit. A framework should also be outlined to guide and coordinate these proposals.

UNFCCC has a traditional approach to financing that is driven mainly by voluntary donor contributions. The contributions by these funds have been limited even though the UN estimates that about tens of billions is required per year to support adaptation efforts in poor countries. The major shortcoming with this approach is that the funds or flow of revenues from developed countries are not predictable and are mainly dependent on the good will of developed countries. This negates the purpose of climate financing which is considered to be obligatory resulting from the damages caused to the atmosphere by developed countries rather than as a privilege to be extended to developing countries.

Definition of adaptation is important for financing to be targeted. The impossibility of disentangling adaptation from development has complicated efforts to estimate adaptation costs in developing countries. Climate financing is also important in building capacity and technology transfer to developing countries. However, for it to be effective it is important for African country policy makers to establish national policy instruments to absorb the finances and effectively deploy the funds.

The G-77 and China have proposed a financial mechanism that is accountable to the UNFCCC with balanced representation and direct access to demand driven funding (Ghosh and Woods, 2009). Also proposed is contribution of around 1% of the GDP to finance emissions reducing technology projects in developing countries. They also expect that the multilateral mechanisms cover both the full costs of preparing national communications and adaptation strategies and the full incremental costs for mitigation, technology transfers, research and development and building of strong institutions (Ghosh and Woods, 2009).

4. NEEDS ASSESSMENTS AND KEY QUESTIONS

4.1. Adaptation Costs in Africa

Knowledge of costs of adaptation to and mitigation of climate change in African countries in particular is important as it provides very useful information on what it takes to adapt to climate change as well as to mitigate the impacts of climate change. However, estimation of these costs is

not a simple exercise as there are conceptual, methodological and practical issues that need to be clearly addressed. The problem starts at the conceptual level as there is no single agreed definition of such costs, especially in the case of adaptation costs. Moreover, different concepts may be used in different estimates of costs. For example, adaptation costs are defined by the IPCC as costs of planning, preparing for, facilitating, and implementing adaptation measures, including transaction costs. However, it is difficult to implement this definition in practice (World Bank 2010a).

The UNFCCC acknowledges the difficulty in the estimation of adaptation costs and attributes it to the heterogeneity and widespread nature of climate change impacts (UNFCCC, 2007). Effective adaptation measures are highly dependent on specific, geographical, institutional, political, and financial and climate risk factors. However, in order guide resource mobilization for adaptation investments, certain estimations have been developed. It is necessary to continually and iteratively analyse the adaptation costs so as to support the development of an effective and appropriate international response to the adverse impacts of climate change.

Sources of differences in adaptation cost estimates, which could be due to conceptual, methodological or practical issues, include how much to adapt (whether it is full adaptation compared with the situation without climate change); whether to include soft (institutional and policy issues) or hard (capital intensive) adaptation measures; whether to include public (planned) or private (autonomous or spontaneous) adaptation; how to include benefits associated with climate change; how to handle uncertainty in climate projections, future technologies and prediction of impacts of climate change; and what aspects of adaptation costs to consider (World Bank 2010a).

One of the widely cited adaptation cost estimates is that of UNFCCC (2007) for 2030, about US\$ 49-171 billion per annum globally, of which \$ 27- 66 billion would accrue to developing countries. Parry et al (2009) conclude that the UNFCCC estimates are likely to be substantial under-estimates for the following reasons: (i) assessment of costs has not included some sectors such as ecosystems, energy, manufacturing, retailing, and tourism; (ii) some of the sectors included have only been partially covered; and (iii) in some cases additional adaptation costs have been calculated as 'climate mark-ups' against low levels of assumed investment. The World Bank (2006) estimates the costs of climate-proofing development investments in low-and middle-income countries to be between US\$10-40 billion annually. This figure has been criticized for not taking into account costs, for example, of climate proofing existing stock of development infrastructure, new investments specifically to deal with climate change, and household and local adaptation needs (ActionAid, 2007). The Oxfam (2007) estimate of US\$50 billion takes into account costs omitted by the World Bank (2006). This estimate is comparable to that by UNDP (2007) and Stern (2006). Reviews of these estimates suggest that they support each other and that there is convergence of evidence on adaptation costs. However, as Parry et al (2009) note, such conclusions would be misleading for the following three reasons: (i) none of these is a substantive study; (ii) the studies borrowed from each other heavily and hence are not independent; and (iii) they have not passed through the test of peer review in the scientific literature.

Global annual costs of adapting to 'median' climate change range from US\$ 4 billion to well over US\$ 100 billion; such a wide range is indicative of the poor state of knowledge and analytical difficulty of defining adaptation as well as the dearth of independent studies that use different estimation techniques (Parry et al. 2009). Parry et al. (2009) therefore suggested that "there is an urgent need for more detailed assessments of these costs, including case studies of costs of adaptation in specific places and sectors." An important reason for this is that these cost estimates have been used as the basis for discussion on investment needed for adaptation to climate change (Parry et al. 2009).

Table 10: Investment and Financial Flows to Cover Costs of Adaptation

UNFCCC estimate of additional annual investment and financial flow needed by 2030 to cover costs of adaptation to climate change			
<i>Sector</i>	<i>Global cost (\$ billion p.a in present day values)</i>	<i>Developed Countries</i>	<i>Developing Countries</i>
<i>Agriculture</i>	<i>14</i>	<i>7</i>	<i>7</i>
<i>Water</i>	<i>11</i>	<i>2</i>	<i>9</i>
<i>Human Health</i>	<i>5</i>	<i>Not estimated</i>	<i>5</i>
<i>Coastal zones</i>	<i>11</i>	<i>7</i>	<i>4</i>
<i>Infrastructure</i>	<i>8-130</i>	<i>6-88</i>	<i>2-41</i>
<i>TOTAL</i>	<i>49-171</i>	<i>22-105</i>	<i>27-66</i>

Source: UNFCCC, 2007

Table 11: Costs of Adaptation

Source	US \$ billion p.a
World Bank (2006)	9-41 in 2020
Stern (2006)	4-37
Oxfam (2007)	>50
UNDP (2007)	86-109 in 2015

Source: Agrawala and Fankhauser (2008)

Some estimates of adaptation costs for Africa put the figure at a minimum of US\$ 10 billion a year which increases to at least US\$ 30 billion a year by 2030 (PACJA 2009). Results of the UNEP commissioned study as part of the Adapt Cost study indicate that, though uncertain, the economic costs of climate change in Africa are equivalent to an annual GDP loss of 1.5 – 3% by 2030 under a business as usual scenario. One model also suggests that beyond 2030 the costs could rise reaching almost 10% of GDP lost by 2100 (UNEP 2010). However, the models used suggest that when only a 2⁰ C rise in temperature is assumed, the economic costs of climate change as percentage of GDP in Africa would fall from the 1.5 – 3% by 2030 to about 1% by 2030. The associated costs in 2100 would even be smaller going down from an estimated 10% to only 2.3% of GDP (PACJA 2009, UNEP 2010).

World Bank (2010a) estimated the total annual costs of adaptation for all sectors, by region for the period 2010-2050 (in 2005 US\$ billions, with no discounting). This study estimates that for the period between 2010 and 2050, costs of adapting to an approximately 2°C warmer world by 2050 for developing countries would be in the range of US\$ 70 billion to US\$ 100 billion per year. The foreign aid developed countries give to developing countries is the same order of magnitude as these estimates of adaptation costs and is about 0.17% of the GDP of developed countries. This study by the World Bank considers wettest and driest scenarios. The estimates for sub-Saharan Africa for wettest scenario (using results from National Centre for Atmospheric Research (NCAR))

range from 14.9 to 17.1 billion in 2005 US\$. The corresponding figures using the driest scenario (using results from Commonwealth Scientific and Industrial Research Organization (CSIRO)) range from 13.8 to 16.4 billion in 2005 US\$. The estimates suggest the driest scenario requires lower total adaptation costs than the wettest scenario mainly due to much lower costs for infrastructure outweighing the higher costs for water and flood management. Both scenarios show that infrastructure, coastal zones and water supply and flood protection contribute to the bulk of the costs. A comparison of adaptation costs across regions shows that East Asia and Pacific Region has the highest costs while the Middle East and North Africa have the lowest. In both scenarios, sub-Saharan Africa, Latin America and the Caribbean follow East Asia and Pacific. In terms of sectors, the highest costs for sub-Saharan Africa are water supply and flood protection and agriculture.

Cost estimates by the World Bank (2010a) show that while the costs increase over time, they fall as a percentage of GDP, suggesting less vulnerability of countries to climate change with growth of their economies. It is also interesting to note the considerable regional variation. In particular, mainly due to the lower GDP of the sub-Saharan Africa Region, adaptation costs as a percentage of GDP are considerably higher than in any other region. Higher costs of adaptation for water resources which is driven by changes in patterns of precipitation also contributes to the high costs relative to GDP in the Region.

The study by the World Bank (2010a) also includes seven country case studies including three African countries, viz., Ethiopia, Ghana and Mozambique. Selection of countries was based on overall vulnerability to major climate change impacts; differing environmental, social and economic conditions; adequate data as well as government interest. The three African countries selected were expected to represent nearly the full range of agricultural systems in Africa. While using broadly similar methods in the analysis for the three countries, the results indicate differences in the nature and extent of the adaptation costs of these countries suggesting the importance of conducting more detailed studies. We may also note that there are other studies which focus on the impacts of climate change on agriculture in Africa as well as country level studies using different methods (Cline 2007; Deressa and Hassan 2009; Dinar et al. 2008; Seo et al. 2009).

4.2. Mitigation Costs in Africa

Involvement of developing countries in mitigation of climate change is important partly because global mitigation costs would be reduced. For example, World Bank (2010b) notes that when comparing mitigation costs across countries, the middle range of low-cost mitigation options is predominantly in developing countries with many of these options being in agriculture and forestry. This difference in marginal mitigation costs between developed and developing countries creates incentives and space for negotiation on location and financing of mitigation actions while improving the welfare of all parties involved (World Bank 2010b). Estimates of abatement costs per ton of CO₂ equivalent for Africa are negative for a number of measures including efficiency improvements in lighting, appliances and motor systems; tillage and residue management and waste recycling. There are also a number of other mitigation measures with positive but relatively low cost. For example, for the year 2030, those with abatement cost of about US\$ 30 per ton of CO₂ equivalent or lower include reduced slash and burn agriculture conversion; grassland management; organic soil restoration; pastureland and cropland afforestation; reduced timber harvesting and degraded forest reforestation (Stern 2009).

Though the marginal costs of abatement are low for a number of actions in developing countries in general and Africa in particular, these countries need to be supported for taking such actions to the extent that they are taken to address climate change. This is because developing countries have

contributed much less to the problem than the developed countries and have limited capacity. Mitigation costs in constant 2005 US\$ in developing countries for the period until 2030 are estimated to be between US\$ 140 billion and US\$ 175 billion annually (World Bank 2010b). These are incremental mitigation costs relative to a business-as-usual scenario for a 2⁰ C trajectory. Estimates of financing needs for mitigation are higher, as savings from lower operating costs related to renewable energy and energy efficiency will in many cases materialize over time. For example, McKinsey estimates that compared with incremental mitigation costs of US\$ 175 billion in 2030, the upfront investment costs required for developing countries would be US\$ 563 billion over and above business-as-usual investment needs. In the long term, while mitigation costs are expected to increase, incomes will also grow. Thus, global mitigation costs until 2100 are expected to be well below 1% of GDP while the share of mitigation costs of developing countries in their GDP is expected to be as high as 1.2% (World Bank 2010b).

Estimates of mitigation costs for Africa by 2015 suggest the need for US\$ 9-12 billion per year for low-carbon growth (PACJA 2009; Stern 2009). These financing needs are estimated to increase to US\$ 31-41 billion per year up to around 2030. Stern (2009) notes that the majority of these investments should be on forestry, energy and urban infrastructure sectors. For the period between now and 2030, PACJA (2009) notes that Africa requires between US\$ 510-675 billion for low-carbon development.

4.3. Vulnerability Assessments and Capacity in African Countries

Vulnerability and adaptation have become urgent issues among many developing countries. There are many definitions for vulnerability dependent on context and scale. The IPCC, in its Second Assessment Report, defines vulnerability as ‘the extent to which climate change may damage or harm a system’. They have argued that vulnerability of a region depends to a great extent on its wealth and poverty plays a part in limiting adaptive capacities. They also add that vulnerability is highest where there is the greatest sensitivity to climate change and the least adaptability. Some scientists have regarded this definition to be limiting and have called for a broader definition that encompasses social vulnerability and risk assessments etc. Fussel (2009) explains that there are two most prominent interpretations of vulnerability in the context of climate change: contextual vulnerability and outcome vulnerability. These interpretations are based on different conceptual frameworks and they even propose different strategies for reducing vulnerability. The IPCC definition falls in the category of outcome vulnerability. Outcome vulnerability has climate change as the root problem and tends to focus on technological adaptation to minimize particular impacts of climate change. On the other hand, contextual vulnerability’s root problem is social vulnerability and it focuses on sustainable development strategies that increase the response capacity of human populations for dealing with a large variety of hazards (O’Brien et al. 2007).

In general, it is noted in the literature that Africa is one of the most vulnerable continents to climate change and climate variability (Collier et al. 2008). This is aggravated by the interaction of ‘multiple stresses’ that occur at various levels and the low adaptive capacity (Boko et al. 2007). The IPCC (2007) has shown that due to climate variability and change, agricultural production in Africa including access to food will be severely compromised. In some countries, yield reductions are expected to be 50% by 2020. The area suitable for agriculture, the length of growing seasons and yield potential mainly in the semi-arid and arid areas are also expected to decrease which will further exacerbating food insecurity and malnutrition in the region. Climate change is also expected to expose about 75 million and 250 million people to increased water stress in the continent.

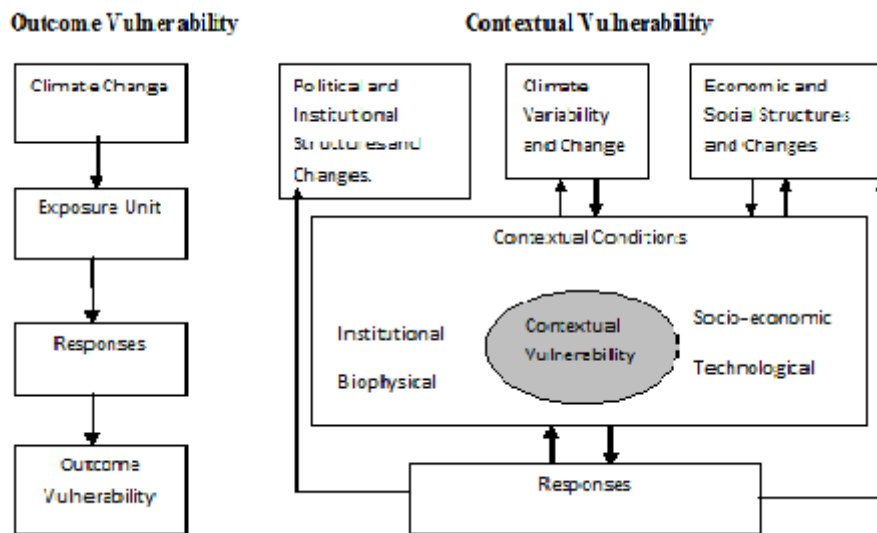


Figure 7: Frameworks depicting two interpretations of vulnerability to climate change: (a) outcome vulnerability; (b) contextual vulnerability

Source: O'Brien et al. (2007)

However, more detailed studies that assess vulnerability and (the local) capacity to conduct such studies (especially socio-economic studies) are limited (Elasha et al. 2006). A related issue is the capacity of African countries to utilize funds allocated to address climate change due to various factors including lack of appropriate institutions and lack of required plans and strategies.

An important point to be addressed in relation to vulnerability and capacity on the one hand and the limited availability of climate finance on the other is the need to use such finance effectively and efficiently, and allocate them in a transparent and equitable manner. Efficiency considerations are likely to be used as the most important criteria for allocation of mitigation funds although there may also be issues of equity in such fund allocations. On the other hand, allocation of adaptation funds raises issues of fairness though efficiency considerations are also important. While this issue has some similarities with allocation of aid, developing countries consider climate finance for adaptation as compensation for costs incurred due to a problem mainly caused by developed countries. Moreover, allocation of aid could be done using some information from past experience about appropriate models. What makes allocation of climate finance more difficult is that there is very limited knowledge about the right adaptation model unlike the much better experience with aid. In spite of this, it is argued that an empirical approach for allocation of adaptation finance that attempts to address issues of efficiency, transparency and equity is needed for at least three reasons: (i) if the allocation process does not include lobbying and negotiation, it could reduce transaction costs; (ii) the results agenda could be supported if the allocation process is based on empirical measures; and (iii) mutual accountability could be supported through transparency in allocations (World Bank 2010b).

World Bank (2010b) suggests that a measure of need for climate finance should be closely related to climate vulnerability as defined by IPCC and needs to consider the following factors: climate change exposure, climate sensitivity, lack of social capacity, absorptive capacity, central government performance, population weight and poverty weight. Such measures require information on vulnerability of developing countries which as noted above still needs more detailed work to come up with reasonable estimates. It is also important to make sure that some countries are not penalized due to measures developed for allocation of climate funds. Some attempts to use empirical approaches by the World Bank (2010b) suggest that countries with the highest

vulnerability are predominantly in sub-Saharan Africa. They also indicate that sub-Saharan Africa exhibits a combination of high impact and low capacity to adapt.

4.4. Strengthening Public Private Partnership

The substantial scale of funding required for both mitigation and adaptation and to limit global warming to 2⁰ C above 1990 levels requires massive investments from both the public and the private sector. Given the limits to bilateral and multilateral financing mechanisms, which is sourced mainly in developed countries, very large amounts of private capital must be mobilized to meet the shortfall. Project Catalyst estimates that between €10 – 20 billion annually of private capital might be available. However, unlike in developed countries where capital markets are efficient enough to attract private investors, developing countries require a conducive framework facilitated by the public sector for private investments to emerge, for only a few of such investments are inherently financially viable in developing countries (Brinkman, 2009). Private actors are presumed to respond appropriately to changing conditions depending on adequate information, appropriate incentives, and an economic environment conducive to investing in the required changes. For governments, main sources of investments that can help level the playing field for sustainable development include phasing out harmful and costly subsidies and promoting the useful subsidies, reforming policies, providing positive market incentives, strengthening market infrastructure and greening public procurement. Moreover, even where market-based incentives can operate in ways that facilitate environmental protection and green development, they often need to be complemented and supported by other measures. For example, Project Catalyst analysis points to positive economic returns on investments in energy efficiency, but the fact that many of these theoretically profitable investments are nonetheless not being made indicates the presence of powerful institutional, informational, principal-agent, and other barriers that markets by themselves cannot overcome. Overcoming these barriers in order to enable markets to function will require host governments to take regulatory, informational, capacity-building, and other measures that will in turn depend on climate financing and other support from developed country governments and multinational bodies.

In Africa, climate governance is dominated by the public sector that is generally constrained in terms of requisite resources and technical capacity to address climate change challenges fully. The institutional architecture in place generally seems to be rather incapable of effectively addressing climate change. This requires a detailed mapping of all the actors and their capacities, financial resources available, and governance that is necessary to appraise all potential options for effective and equitable future global climate governance architecture. Public-Private Partnerships (PPP) has been increasingly recognized as an effective and appropriate mechanism to manage the complexity of the development challenges and sharing of risks. With the successful negotiation and entry into force of the Kyoto Protocol, market mechanisms have become a cornerstone of the current climate governance architecture. Carbon trading markets generate commercially valuable credits for low carbon investments (Brinkman, 2009). In this case the private returns are aligned with provision of public goods. Therefore governments can make the economics of mitigation projects positive for investors which require assurances of climate revenues for mitigation through enforceable policies and measures despite changes in government leadership (Brinkman, 2009). This is especially because many mitigation technologies are capital intensive and have long investment horizon.

Potentially, the private sector in Africa, for example, is able to contribute in promoting and adopting green business principles by greening their transaction processes and also through their corporate social responsibilities and technology transfer. Within public-private partnership, the private sector can also be at the position of providing credible information and sources (related to

their activities) so that the government can better understand the vulnerability situation of the country (Brinkman, 2009). The major preoccupation of the private sector is to make sure that their investments are not at risk and in that context can help the state by contributing to the implementation of national/sectoral priorities. In addition private sector has a huge potential for being climate change stewards by adopting company green policies in various ways that include and not limited to business process re-engineering, and technological transfer.

5. CONCLUSIONS AND RECOMMENDATIONS

Financial support to developing countries for mitigation, adaptation, technology development and transfer, and capacity building is critical to ensure the near universal contribution and participation required to effectively address challenges of climate change. It is generally accepted that to achieve the ultimate objective of the UNFCCC, atmospheric concentrations of GHG must be stabilized at 450 ppm, requiring a dramatic reduction of emissions. For the period ending in 2020, this translates into a global emissions reduction of 17Gt CO₂ e relative to BAU by 2020 and 35Gt CO₂ e by 2030. Of this about 70% is attainable in developing countries, a point which is explained, in part, by the fact that developing countries are not locked into carbon intensive development path. For reasons discussed in the paper, developed countries should shoulder the responsibility to finance efforts to realise the mitigation opportunity available in developing countries. Even if the atmospheric concentrations of GHG is stabilized at a level required to achieve the ultimate objective of the convention by the end of the century, there will nevertheless be several serious adverse consequences for Africa, in terms of, for example, reductions in agricultural production, and increased number of people exposed to diseases such as malaria and water stress, eroding hard-earned development gains. African countries are already spending little money they have in adaptation measures. Developed countries should finance activities designed to minimize the physical and human costs of climate change and for damage which cannot be reversed or prevented.

This paper has reviewed the various estimates of the costs of mitigation and adaptation measures in developing countries. Although there are differences among the various studies because of, among others, methodological and conceptual differences, it can be said that the required financial transfer runs in tens of billions of dollars. There is, however, huge gap between the required amount and the amount which is currently in circulation in the various international climate finance mechanisms, implying that there is a need to scale-up mobilization of resources.

Compounding the problem of inadequacy are demand and supply side factors constraining the ability of African countries to effectively access and deploy such funds. The proliferation of climate finance funds with consequential, if not inevitable, differences in their rules of eligibility and reporting, the requirement of multilateral organizations serving as intermediaries, inadequate representation of the concerns and interests of developing countries in the governance of multilateral funds, and the transaction costs involved, among others, constrain the ability of African countries to access such funds. In addition, African countries did not put in place the required institutions and capacities to develop bankable projects, deploy funds, and attract private finance.

The commitment by developed countries, made in Copenhagen, to mobilize US\$ 30 billion from 2010-2012 in new and additional financial resources to support climate change activities in developing countries is not likely to repair the problem of trust derailing international negotiations. Problems of monitoring associated, among others, with the meaning of *new and additionality* indicate the need to have a robust and transparent framework for monitoring the performance of developed countries with respect to their financial commitments.

With fragmented mobilization and disbursement of funds, it is challenging to ensure that allocation of climate finance (1) is balanced between mitigation and adaptation; and (2) favours adaptation activities in countries particularly vulnerable to climate change. The establishment of the Green Climate Fund is a step in the right direction towards addressing this challenge, in particular if significant parts of finance are to pass through this. There is, however, a need to learn from the weaknesses of existing financial mechanisms. In particular, the Green Climate Fund needs to embody the direct access modality of the Adaptation Fund and equitable representation of the concerns and interests of developing countries in the governance of the fund.

One major innovation of the international climate finance regime, the Clean Development Mechanism of the Kyoto Protocol, has not delivered in Africa. A reform is needed to correct this failure. For example, a decision by the European Union to recognise new credits only from projects in LDCs is a step in the right direction. But most importantly, developed countries need to sign up to a more ambitious and enhanced second commitment period of the Kyoto Protocol.

The problem is not only in the structure and form of the existing international climate finance mechanisms but also in the failure of African countries to do so many of the things which are required to maximise their benefits. We can take, for example, the novel idea of direct access in the Adaptation Fund. Apparently this is what developing countries have been calling for all along. But when the time comes, only organisations from three African countries are found to be competent and trustworthy. African countries need to do their homework. They should identify and implement policies and institutions that will help in attractive private investments, particularly to realise its huge mitigation potential. They should build capacity to develop bankable projects and programmes. At their current shape, the NAMAs are merely grocery lists. Work needs to urgently start to transform these wish lists into bankable projects and programmes. They should embark, as a matter of urgency, in assessing their needs in terms of adaptation, mitigation and technology transfer.

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