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Harnessing Climate Finance for Climate Protection and Sustainable Development in Africa

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Foreword

The Ethiopian Development Research Institute (EDRI), School of Economics of Addis Ababa University, and the Environmental Economics Policy Forum for Ethiopia (EEPFE) Project have conducted in partnership desk review studies on three aspects of climate change, viz. “Climate Finance, Climate Conventions, Carbon Markets and Implication for Africa/Ethiopia”. The reports are produced in three separate volumes pertaining to each sub-theme. This volume is centered on ***“Harnessing Climate Finance for Climate Protection and Sustainable Development in Africa”***.

Two issues are key to the understanding of climate finance. First and foremost, developed countries must take the lead in combating climate change. They are largely responsible for greenhouse gas emissions. On the other hand, the developing world is a victim of climate change for which they cannot be held accountable. Mitigation efforts of the adverse consequences of climate change by the developed world alone can neither be effective nor efficient unless similar abatement efforts are exerted in the developing countries. The report argues that there is a need for an equitable approach to curbing global greenhouse gas emissions. In other words, financial flow from the developed to the developing countries is perceived as the most important vehicle to fulfilling funding requirements for mitigation, adaptation, capacity building, as well as technology development and transfer for combating climate change. The report throws light and shares thoughts on equitable climate finance in combating climate change at the global level. As Ethiopia is entering the phase of implementing its Climate Resilient Green Economy initiatives, the report hopefully contributes its share in our efforts to build a green economy.

I seize this moment to express my thanks to the researchers, i.e. Aseffa Seyoum, Zenebe Gebreegziabher, Alemu Mekonnen, and Adane Tufa. I also wish to acknowledge the financial assistance of the African Capacity Building Foundation (ACBF) and the Environmental Economics Policy Forum for Ethiopia (EEPFE) Project.

Newai Gebre-ab
Executive Director

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Acronyms

AGF	High Level Advisory Group on Climate Change Finance
BioCF	BioCarbon Fund
CDM	Clean Development Mechanism
CIFs	Climate Investment Funds
CO_2	Carbon dioxide
CTF	Clean Technology Fund
ETS	Emission Trading Scheme
FAO	Food and Agriculture Organization of the UN
FDI	Foreign Direct Investment
GEF	Global Environment Facility
GFDRR	Global Fund for Disaster Risk Reduction
GHG	Greenhouse Gases
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IPCC	Intergovernmental Panel for Climate Change
LDCF	Least Developed Country Fund
LUCF	Land Use Change and Forestry
LULUCF	Land Use and Land Use Change and Forestry
NAPA	National Adaptation Plan of Action
REDD	Reducing Emissions from Deforestation and Forest Degradation
UNFCCC	United Nations Framework Convention on Climate Change
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environment Program

Abstract

So far Africa has benefited little from climate finance as compared to other continents with emerging economies. Climate projects are distributed unevenly across regions as well as among developing countries. This is partly due to lack of trained manpower in some of these countries and too restrictive criteria of most of the climate fund projects and programs that are designed to the disadvantage of Africa. So far only about 3 percent of Clean Development Mechanism (CDM) projects UNFCCC accepted are under implementation in Africa and very few are in Sub-Saharan Africa. For instance, despite all the efforts there is only one CDM project in Ethiopia which reached implementation stage up to the year 2011. Africa has spoken loudly regarding some of these cases including explaining the shortcoming of CDM and other climate financing schemes. In response, from the Cancun meeting Africa has gained, among others, a decision that about 10 percent of the 'fast-start' finances have to be allocated to support agricultural adaptation projects in the most climate vulnerable countries. The recent climate financing targets of Global Environment Facility (GEF) also encompassed the development priorities of developing countries such as agriculture, forestry, and waste management. In addition, the High Level Advisory Group on Climate Change Financing has reported the possible sources of climate finance and states funding adaptation activities in Africa as one of the priorities, which can perhaps increase the share of Africa. Still, there is a need to harness climate finance in Africa, amidst the need for improving project criteria and institutional set up to enhance flexibility, effectiveness, and equity of the benefits distribution spatially across countries and along the chain. Furthermore, the climate finance criteria should be revisited to ensure the accountability and participation of local communities in decision making for sustainable climate protection.

Keywords: Climate finance; sustainable development; Ethiopia; Africa.

1. Introduction

Africa's growth is challenged by climate change because the economy of the continent is highly dependent on climate change sensitive rain-fed agriculture. Studies show that more than 95 percent of Africa's agriculture is rain-fed (APF 2008; APF 2007). Consequently, it is projected that agricultural yield reductions of up to 50 percent by 2020 will occur in some African countries (IPCC 2007).The effect of climate on availability of water resources, animal and human health, ecosystems, and biological diversity degradation worsens its impacts on livelihoods in Africa. For instance, it is anticipated that in Africa alone 75 to 250 million people could be subjected to water stress by 2020 due to climate change (IPCC 2007) Although climate change can potentially affect countries one way or the other, adaptation and mitigation costs may differ for different parts of the world.

The costs of adaptation to climate change in developing countries are estimated to vary from USD 70 billion to USD 100 billion a year between 2010 and 2050, at 2005 prices (World Bank 2010b). Africa is losing about 1 to 2 percent of its GDP per annum as a result of climate variability. This is mainly attributed to costs of coping with damage caused by extreme weather events. It is obvious that the costs of adaptation and mitigation vary not only spatially but also temporally. For instance, the IPCC report (2007) reveals that the cost of adaptation to climate change in coastal countries of Africa could be at least 5 to 10 percent of GDP. On the other hand, a few years ago it was estimated that USD 360 is required to remove a ton of Carbon by air capture, which may reduce to about USD 100 by 2050, which still costs about 0.5 percent of the global GDP assuming a 2.9 percent global GDP growth (Pielke 2009). Ethiopia is not an exception to this. A study of the World Bank revealed that due to climate change Ethiopia's GDP could be up to 9 percent lower between 2040 and 2049 compared to the level in 2010 (World Bank 2010b).

Nowadays, there tends to be an overwhelming consensus regarding the effects of climate change and options for adaptation and mitigation, however, sources of funding, transparency issues on management of such funds, and bases for equitable disbursement remain to be the challenges. In fact these were issues emphasized on climate financing deals at Copenhagen and Cancun summits. Climate change is becoming a growing development challenge for developing countries. Countries are already experiencing the impacts of climate change (increasing floods and droughts, erratic rainfall, increasing temperature, and so on) that put their growth and development at risk. The funding requirement for priority investments in the case of vulnerable countries—taking into account the increased financing for provision of improved disaster support instruments, the average adaptation cost for disaster management and resilience—is estimated to be about 10–20 billion Euro per annum (Bert 2009, 46).

Climate finance should target not only the reduction of greenhouse gas (GHG) emissions but also the promotion of green growth for developing countries. Climate finance is a critical element of global climate policy that has received much less attention than emissions limitations and climate regulatory instruments (Stewart et al. 2009). According to the World Bank report (2010c), climate change mitigation costs to developing countries could reach USD 140 to 175 billion per annum by 2030 while current mitigation finance flow is about USD 8 billion a year. The industrial countries understand such a huge financial demand for climate protection activities in developing countries, and pledged in the Copenhagen Climate Conference to provide USD 30 billion by 2012. The promised fund is expected to be generated from private and public sources and through various bilateral and multilateral agreements mainly for adaptation and mitigation. In addition, there is commitment to mobilize USD 100 billion per year

by 2020. Developing countries expect a considerable amount of climate fund to come through the Copenhagen Green Climate Fund in an efficient and effective way.

The different aspects of climate funds are still priority issues of discussion on different climate change forums among academia, politicians, and policy-makers. It remains to be top agenda of various international and high level meetings and gatherings. One of the outcomes of such high level meetings like the Copenhagen Conference are the willingness of developed countries to provide short-term as well as long-term climate finance to improve developing countries' resilience to climate change and to put developing countries on low-carbon development pathways. But the promises failed to discriminate between funds for climate financing from Foreign Direct Investments (FDI) and Clean Development Mechanism (CDM) of the Kyoto Protocol. Some of the mechanisms proposed for climate finance, such as carbon markets, are in favor of high-level carbon emitting countries. Moreover, there are concerns regarding equitability and fairness of disbursed climate funds; restrictive and demanding protocols to get climate projects funded; and whether the allocation of public and private funds are in line with the priorities of developing countries (Crooks 2009).

So far, Africa in general and Ethiopia in particular remain less benefited from climate funds for various reasons, even though the continent is considerably affected from the impacts of climate change. Among others, this is possibly due to the incompatibility of the targets of the various funds and their criteria with priorities to Africa; or because of lack of knowledge on the potential sources and purposes of climate finance, capacity, and related factors; or hurdles involved in CDM. The objective of this paper is to assess and document climate finances for adaptation, mitigation, capacity building, and technology development and transfer focusing on those issues that are at stake for Africa in general and Ethiopia in particular.

The paper is organized as follows. The next section addresses issues related to the rationale behind climate finance by developed countries and the sources of the finance. It discusses both the market-based and non-market-based sources of climate finance. Section three discusses the purpose of climate finance, the extent of finances pledged so far and the various funds meant for adaptation and mitigation of climate change. The issues of institutional setup, existing challenges in this regard, and their roles in effectiveness and efficiency of climate finance are discussed in section four. Finally, section five presents the conclusions and recommendations of the paper.

2. Rational and sources of climate finance

Climate change is attributed to various factors including high level of greenhouse gas emission such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6) (UN 1998). The level of greenhouse gas emission differs across continents and countries. Africa has the lowest average per capita emission of 2.4 tons (with South Africa having 9.1 tons per capita emission and 24 percent of the total African emission), while Asia and the Pacific region have an average per capita emission of 2.6 tons. Latin America and the Caribbean region have 4.6 tons average per capita emission. Eastern Europe and the former Soviet Union countries have an average per capita emission of 5.1 tones, which is considerably high compared to Africa (UNFCCC 2005). Table 2.1 shows the total and per capita emissions of GHGs in CO_2 equivalent, without land-use

change and forestry (LUCF), of selected countries and regions in 1994. Ethiopia is one of the least per capita carbon GHG emitters, 0.7 tons, while China and India emits about 3.3 and 1.3 tons of GHG per capita, respectively. On the other hand, countries that are least contributors to climate change such as Ethiopia are among the most affected as a result of climate change.

Table 2.1. Total and per capita emissions of GHGs of selected countries/regions (in 1994)

Country/region	**Total emissions (without LUCF)** (in Gg[a] CO_2 equivalent)	**Per capita emissions (without LUCF)** (tons)
Asia and the Pacific	7,929,690	2.6
Latin America and the Caribbean	2,058,600	4.6
Africa	1 612 904	2.4
Eastern Europe and former Soviet Union countries	134,244	5.1
China	4 057 306	3.3
India	1 214 248	1.3
Brazil	658 976	4.1
South Africa	379 837	9.1
Ethiopia	47 415	0.7

Source: UNFCCC (2005)
Note: [a] Gg stands for Gigagrams

Similarly, there is great variation across sectors. According to the sector-wise GHG analysis, energy supply accounts for about 26 percent of greenhouse gas emissions, industry makes 19 percent, land-use change and forestry-released greenhouse gas is about 17 percent, agricultural sectors contribute about 14 percent, the transport sector puts in about 13 percent, the share of residential, commercial, and service sectors is about 8 percent, while waste accounts for 3 percent of total GHG emission (Barker et al. 2007). It is predicted that the global average surface temperature will increases by 5.8 degree centigrade by 2100 as compared to the 1.4 degree centigrade level of 1990 (IPCC 2001). Recent reports of IPCC confirm that the consequence of climate damage might be more serious than one would expect unless immediate action is taken to reverse the situation. This makes efficient and effective climate change adaptation as well as mitigation financing mechanisms indispensable.

There are mechanisms put in place through which developed countries could finance resilience to climate change. Some of such fund raising mechanisms include the emission cap and trade, carbon taxes, Clean Development Mechanism (CDM) and carbon offset market, and special climate funds. In addition, the World Bank-supported instruments such as Climate Investment Funds (CIFs), Carbon Funds, Gas-flaring Reduction Initiative, Global Fund for Disaster Risk Reduction (GFDRR), and Adaptation Funds are some of the climate finance mechanisms (Bromhead 2010). The effectiveness and usefulness of the climate finance depend on its governance efficiency and how responsive it is to the needs of particularly vulnerable countries (Mace 2005). To be cost-effective and to ensure equity, it is also important to link climate change adaptation and mitigation activities to sustainable development of developing countries.

The sources and main purposes are different for the different climate finance programs. The climate finance can be generated from bilateral donors or multilateral agencies such as UN agencies, African Development Bank, European Union, and Norwegian Funding for Avoided Deforestation (Bromhead 2010). For instance, the Adaptation Fund is generated from a 2 percent tax on CDM and from voluntary contributions. However, in most cases, sources of climate finances are from the North while the South is the recipient of the finance. There is

considerable difference of interests regarding the amount of finance required, the criteria for selection of appropriate projects, disbursement of the finance, and particularly the right institutional setups or governance structures for managing the funding at international and national as well as at further lower levels. Developed countries give priority to mitigation finance to keep average global warming within 2 degrees Celsius and use the funds more to support mitigation activities, for instance, by supporting energy efficiency, renewable energy, new clean energy technology, and sustainable transport projects.

Climate finance, in general, falls under two categories based on their sources: public and private funds. Some institutions rely solely on either public or private sources while others can secure funds from both sources. In most cases the private sources of finance are market-based climate finances while the public sources of climate finance can be used to support adaption to climate change and to enable developing countries to pursue their development even in a changing environment. The private sources of climate fund can be carbon finance for carbon offset, carbon allowance—non-carbon finance, not based on carbon credit—, and a combination of carbon and non-carbon finance (Crooks 2009). Some studies justify that attracting private carbon finances is of importance given the large investment needed to cope with current climate changes that cannot be addressed with the public funds alone. In addition, they explain that the effectiveness of market-based mechanisms is a promising approach to help overcome current climate change related environmental problems (Crooks 2009). Although the second reason is arguable on the bases of externality problems in market-based interventions, the first reasoning seems to be sufficient to justify the importance of participation of private sectors in climate finance.

Sources of climate finances were among the issues of discussion on the Copenhagen Climate Conference as well. Accordingly, a team comprising higher officials from different countries—named as High Level Advisory Group on Climate Change Finance (AGF)—was assigned to identify various possible public as well as private sources of climate finance, and presented its report at Cancun 2010 (Table 2.2). The private sources of climate finance can be secured mostly through emission trade schemes (ETS). In the case of emission trading system, developed countries emphasize not only international trading but also domestic emission trading schemes. But there are concerns that the domestic trading system is not going to be feasible for developing countries, particularly in Africa.

The sources of funds for combating climate change need to be related to factors contributing to global environmental change. The climate finances can be justifiable and also effective in meeting its target only if in one way or another it is related to activities contributing to climate change. In fact some of the sources of climate funds suggested by AGF, such as financial transaction tax and direct budget contribution, may not be sustainable climate financing tools, as they are not related to factors underlying climate change.

Table 2.2. Potential sources of finance suggested by AGF

Sources of finance	Estimated revenue up to 2020 (USD billions)	
	Conservative estimation	Optimistic estimation
Emission trading Schemes	2-8	14-70
Offset levies	0-1	3-15
International transportation carbon related revenue		
Maritime	2-6	8-19
Aviation	1-2	3-6
Carbon tax	-	10
Wires Charge	-	5
Removal of fossil fuel subsidy	-	3-8
Reduction of fossil fuel royalties	-	10
Financial transaction tax	2	27
Direct budget contribution	200	400
Multilateral Development Bank instruments	25	35
Carbon marketing offsets	8-12	150
Private finance	20	24

Source: Report of high-level advisory group on climate change financing (UN 2010)

2.1. Market-based climate finance

Market-based climate change mitigation instruments involve carbon trading between developed and developing countries. The most common market-based climate financing includes accessing climate finance for CDM and emission reduction. The mechanisms create a new niche market for developed countries that need to trade carbon to meet their climate change mitigation regulation—such as GHG emission reduction targets through purchase of REDD credits. It is recognized that the market-based climate financing mechanisms would be more efficient, involve lower transaction costs, and are not prone to policy and governance failures (Kant 2010). But the level of effectiveness and equity depends on the nature of existing markets. It seems hardly possible to achieve greater equity in an imperfect market existing in the case of developing countries as compared to government policies.

The market-based mechanism of reducing emissions is developed as one of the mechanisms to meet the Kyoto protocol. The market mechanisms stated in the Protocol are emission trading (carbon trading), CDM (clean development mechanism), and JI (joint implementation). The country's compliance to the Kyoto Protocol depends on whether the country reduces GHG emissions either in the country or by trading assigned amount of units and creating reductions in other countries through joint implementation and the clean development mechanism (Crooks 2009). The JI mechanism allows countries to earn emission reduction units through projects in other developed countries (Annex 1), while the CDM allows certified emission reductions from projects in developing (non-Annex 1) countries (Landell-Mills 2002). Given its relevance to Africa in general and Ethiopia in particular, the CDM and carbon funds will be discussed further in the following sections.

2.1.1. Clean Development Mechanism (CDM)

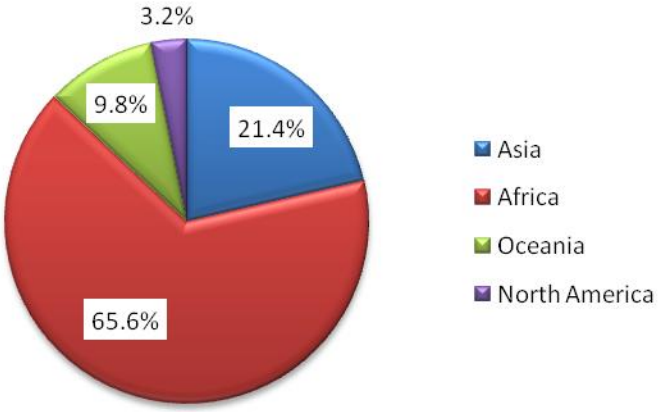
Clean Development Mechanism (CDM) represents one of the main market-based sources of climate change mitigation finance for developing countries. Although CDM is considered as a climate policy tool, it is also a means to sustainable development. It is one of the policy instruments that attract the private sectors of industrialized countries to support mitigation of climate change. There are two carbon certification entities to trade many tons to the CDM of UNFCCC. These are the compliance market for carbon dioxide sequestered and the Voluntary Carbon Standard (VCS) for the voluntary market. The main challenge regarding the compliance market is its administrative lag time, which requires a lengthy review process of two to five years. On the other hand, the voluntary standard demands a relatively shorter registration time of six months to two years and also can be in better facilitation of national environmental agencies. But, price fluctuation is common for both the compliance and voluntary markets.

Africa has benefited too little from the carbon trading and CDM projects (APF 2007). Under certified emissions reductions credit, the CDM raised about 15 billion USD in 2007 and 2008 alone. In 2009, there were about 1,500 CDM projects registered in different parts of the world that are anticipated to reduce GHG emission by 1.6 billion tons by 2013 (Streck 2009). But, CDM projects are not evenly distributed across all developing countries and regions. Although the primary target of CDM is to generate certified emission reduction in developing countries, little fund has been disbursed to least developing countries as compared to emerging economy countries such as China, India, Brazil, and Mexico. Despite the strong effort of African countries to benefit from the clean development mechanism, only about 3 percent of CDM projects that have been accepted by the UNFCCC are being implemented in Africa and very few are in Sub-Saharan Africa (APF 2007). Moreover, there are unequal treatments among developing countries to the disadvantage of poorer countries. Despite all the efforts, so far there is only one CDM project that is under implementation in Ethiopia.

Perhaps the biggest limitation with the CDM is that it has not moved developing countries onto low-carbon development pathways. Although the CDM is to implement emission reduction projects in developing countries, its focus is on industrial process, waste management, energy, and agriculture sectors as main sources of Greenhouse Gases emission (UN, 1998). It overlooked emissions from deforestation, which made many tropical developing countries non-beneficiaries from their source of emission reduction (Caravani et al. 2010). Anyway, with the Kyoto Protocol coming to an end, the CDM will not be effective unless there comes a binding agreement. The CDM cannot continue, as long as there is no new treaty signed. As a result, it is expected to be merged with the Reducing Emission from Deforestation and Forest Degradation (REDD) program.

Recently, there are moves that may play important roles in improving equity of disbursements. One of the measures put in place to improve equity of disbursements of climate finance is the assignment of a special fund for Least Developed Countries. This is a special fund to particularly address the urgent adaptation needs of least developed countries (LDCs), based on a National Adaptation Program of Action (NAPA) and mainly focusing on enhancing adaptive capacity to climate variability. Most of the LDCs fund is meant to be allocated for developing countries in Africa and Asia to tackle their prior climate change induced challenges. The LDCs fund is mainly for adaptation to climate changes. So far, out of the total approved LDCs fund, Africa has already received about 66 percent, while about 21 percent and 10 percent of the fund is disbursed to Asia and Oceania, respectively. The remaining 3 percent is allocated to North America (Figure 2.1).

Figure 2.1. Disbursement of approved fund for least developed countries



Source: www.climatefundsupdate.org, accessed on 27.12.2010

There is also lack of capacity (trained manpower) in Africa in general and particularly in Ethiopia, to prepare a winning document. In addition, the sated criteria for most of the projects and programs are too restrictive even to secure the climate funds assigned for developing countries. This makes the climate fund hardly accessible for the least developed countries of Africa. So far, only about 23 percent of the amount earmarked has been disbursed. In the case of Ethiopia, although the country has prioritized promotion of crop insurance and irrigation system as well as early warning system as top three priority projects in adaption to climate change, there is no LDCF allocated to these projects (Appendix Table A.1).

2.1.2. REDD, REDD plus, and related carbon funds

The REDD is developed as a new initiative in the Bali Action Plan under the UN Framework Convention on Climate Change (UNFCCC) to conserve intact forests and to ensure sustainable management of the natural forests. REDD is becoming the common mechanisms of climate finance and the most progressive intervention in GHG reduction for climate protection in developing countries. It can be either a market-based or fund-based mechanism that allows an international trading scheme. From time to time the REDD mechanism is evolving to a broader concept of carbon finance for climate protection. This can be evidenced by the agreement on the recent high level meeting in Cancun, not only about REDD but also about REDD plus. Unlike the case of REDD in which finances are based only on reduced emissions from deforestation and forest degradation, the REDD plus mechanism considers co-benefits of controlling forest losses and sustainable forest management such as biodiversity conservation and poverty alleviation roles in addition to reducing GHG emissions. Thus, the agreement provides guidelines for the implementation of the REDD plus as well.

Carbon finance is considered as the flexible mechanism for implementation of the Kyoto Protocol. This is because most of the carbon funds target multiple purposes (Table 2.3). For instance, the World Bank's Prototype Carbon Fund facilitates a number of pre-Kyoto investments in carbon offsets, and also provides capacity building for the stakeholders (Crooks 2009). Besides, it is possible to use carbon funds pledged to the World Bank either for climate change mitigation or adaptation activities or for both of them.

Table 2.3. Fund pledged to the World Bank Carbon Fund and facilities

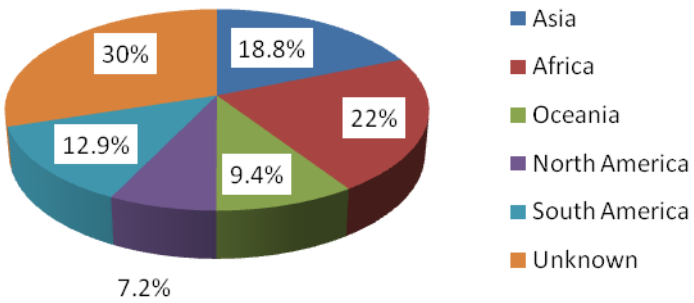
Sources	Amount (in million USD)	Purpose
Prototype carbon fund	180.0	Multi-purpose
Community development carbon fund	128.6	Small scale CDM, energy projects
Bio-Carbon Fund	91.9	Mainly CDM, LULUCF project, REDD and soil Carbon
Italian Carbon Fund	155.6	Multi-purpose
Spanish Carbon Fund	282.4	Multi-purpose
Danish Carbon Fund	69.4	Multi-purpose
Umbrella Carbon Facility	737.6	NA
Carbon Fund for Europe	65.0	Multi-purpose

Source: Bromhead (2010)

Registered carbon offset projects are resulting in GHG emission reductions located in developing countries or countries of emerging economies to obtain emission reductions that can be traded in the market, thereby providing performance-based revenue to the project. The good thing about carbon offsets purchased from developing nations is that it allows industries in developed countries to continue their production without increasing carbon concentration in the atmosphere. This is based on binding targets defined in the Kyoto Protocol for industrialized countries and the European Community for reducing GHG emissions by about 5 percent in the period 2008–2012, against 1990 levels. The carbon offsets is supposed to provide opportunities for some kind of mutually beneficial commons stated as a win–win situation between developing and developed countries. The Kyoto Protocol, which allows carbon trading, will remain a binding treaty only until the end of 2012. There is a need to pursue a new treaty that makes developing countries in a better position in the climate change negotiations.

There are also other carbon funds, such as the UN-REDD program, established jointly by UNEP, UNDP, and FAO to pool multi-donor trust fund resources with the objective of financing projects that reduce global emissions from deforestation and forest degradation in developing countries. The program supports the capacity of national governments to prepare and implement national REDD strategies with the involvement of all stakeholders. It seems that the UN-REDD program is on the right track to achieve its objective by supporting developing tropical countries. This is evident as the share of Africa from the UN-REDD fund is about 22 percent and even better than any other continent in this case (Figure 2.2).

Figure 2.2. Disbursement of approved UN-REDD fund, by continent



Source: www.climatefundsupdate.org, accessed on 27.12.2010

The disbursement of UN-REDD fund has a phased approach such that three countries, Democratic Republic of Congo (DRC), Tanzania, and Zambia (all three from Africa); Indonesia, Papua New Guinea, and Vietnam (from Asia and the Pacific); and Bolivia, Panama, Paraguay (from Latin America and the Caribbean) have been selected for phase I of the project. As of

November 2010, the UN-REDD program for these countries and for other international activities has been approved (Table 2.4).

Table 2.4. Total budget approved and disbursement of UN-REDD fund

Programme	Approved budget (USD)	Disbursed (USD)
Bolivia	4,708,000	0
DRC	7,383,200	7,383,200
Indonesia	5,644,250	5,644,250
Global	8,688,584	8,688,584
Global	13,325,582	13,325,582
Panama	5,300,000	2,169,960
Papua New Guinea	6,388,884	0
Tanzania	4,280,000	4,280,000
Vietnam	4,384,756	4,384,756
Cambodia	3,001,350	0
Paraguay	4,720,001	0
Solomon Islands	550,000	0
Philippines	500,000	0
Zambia	4,490,000	1,685,193
Total	76,494,647	47,561,525

Source: www.climatefundsupdate.org, accessed on 27.12.2010.
Note: Total approved budget includes global activities and national activities.

Despite all its strength, the REDD program has some limitations in benefiting least developed countries of Africa. REDD targets reduction of land use emission so that it gives priority to countries with high land use emissions. Developing countries with less deforestation rate, on relatively sustainable development path, get less attention. For instance, Indonesia reduced annual forest loss by half a million hectares and could yield between USD 1200 and USD 6000 per hectare or an aggregated value between USD 600 million and USD 3000 million annually in terms of the value of CO_2 not released into the atmosphere (World Bank 2008). In addition, accessing REDD finance will demand significant policy and institutional reforms and substantial improvements in forest governance, all of which will be barely possible to achieve in least developed countries of Africa in the short run.

There is a need to increase the base for climate finance to benefit Africa. But the carbon market also needs to encompass trading of carbon in agricultural fields and soil fields. So far the carbon market has focused on the carbon sequestering capacity of forests through REDD. According to UNFCCC, forest is defined as an area of land of at least 0.05 to 1 hectare in size, with a tree crown cover of at least 10 to 30 percent. The trees also must have the potential to reach a minimum height of 2 to 5 meters at maturity. In addition, deforestation is defined as direct human-induced conversion of forested land to non-forested land while forest degradation is explained as a human-induced and long-term reduction in forest carbon stocks and other ecological services of a forest (Dkamela et al. 2009). At this juncture, it is important to acknowledge the recent moves to incorporate additional attributes of carbon sequestration through the 'REDD plus programs', which encompasses a wider range of agricultural landscape, range land, and other land use types.

Yet there are doubts around the effectiveness of the REDD as market-based mechanism in achieving its goal. This is mainly linked to the credibility of the carbon credits given the difficulty to control for carbon emission at a different site as a result of displaced deforestation (Kant

2010). It may not help in reducing GHG concentration for which the carbon tax is the right strategy (Keohane 2009). On the other hand, the challenge with carbon trading is the high transaction costs of carbon accounting, monitoring, and audits at various levels. In some cases, the carbon financing programs are defined too narrowly that most of the priorities of developing countries fall out of the domain of the climate finance. Finally, it is also vital to mention the uncertainty attached to the price of emission as one of the challenges in carbon trading. The price of a ton of carbon depends on compliance cost and penalty for a ton of carbon emitted by a given firm (Crooks 2009). It seems that these are some of the limiting factors for the projects to attract sufficient funds.

2.2. Non-market-based climate finance

The non-market-based climate finances are mostly from multilateral funds with financial contributions from rich countries based on their historical emission levels and their current stage of development. The World Bank got a pledge of about USD 2.1 billion public and private funds from 16 governments and 67 firms (Bromhead 2010). Some of the public climate funds are already approved. For instance, the Climate Investment Fund (CIF) is approved by the World Bank in collaboration with Multilateral Development Banks (MDBs) to bridge the financing and knowledge gaps between now and the post-2012 global climate change agreement (Table 2.5). The CIFs are financing instruments designed to pilot low-carbon and climate-resilient development in developing countries through the MDBs. So far, donors have pledged USD 6.2 billion to the CIFs, including USD 4.9 billion to the Clean Technology Fund. The two funds under the CIFs are the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF).

The Clean Technology Fund (CTF) is to provide scale-up financing for the demonstration, deployment, and transfer of low-carbon technologies for long-term reductions in greenhouse gas emissions within country investment plans, whereas the SCF consists of the Pilot Program for Climate Resilience (PPCR), Forest Investment Program (FIP), and Scaling-up Renewable Energy Program (SREP). The Pilot Program for Climate Resilience (PPCR) is to support developing countries to mainstream climate resilience into development planning; the Forest Investment Program (FIP) is to provide support efforts, among other things, reducing emissions from deforestation and forest degradation (REDD) by financing investments to address drivers of deforestation and forest degradation; and the Scaling-up Renewable Energy Program (SREP) aims to help low income countries to exploit the renewable energy potential to move toward low-carbon energy paths.

Table 2.5. Some of the Climate Funds available

Sources	Amount (USD million)	Types	Remark
Carbon support, Spanish funds, and others	About 2000	Carbon Fund	This is existing fund
Carbon Partnership Facility	3000-5000	Carbon Fund	Expected
Forest Carbon Partnership Facility	100-300	Carbon Fund	NI
Clean Technology Facility	About 5000**	Climate Investment Fund	NI
Pilot Program for Climate resilience	About 500		NI
Forest Investment Program	About 500	Climate Investment Fund	NI
Scaling-up Renewable Energy Program	About 250	Climate Investment Fund	NI

Source: Bromhead (2010)
Note: ** USD 500–700 is for Africa; NI=No information

Under the Forest Investment Program (FIP), the World Bank has already raised about USD 260 million to finance REDD and sustainable forest management (Bromhead 2010). Moreover, the

World Bank has designed a program, Forest Carbon Partnership Facility (FCPF), to enhance the capacity of developing countries in accessing large scale REDD fund. For this program as well, the World Bank has managed to generate about USD 107 million.

Most African countries are currently at a stage where they are trying to show donors that they have a capacity to manage the carbon funds for its purpose. In this regards, eleven countries (Ethiopia, Kenya, Uganda, Cameroon, Gabon, Congo, DRC, CAR, Ghana, Madagascar, and Liberia) got a total of USD 1 to 3 million as a grant for REDD Readiness Plans Preparation (RPP), which is in fact the initial step towards access to REDD fund (Bromhead 2010). From Latin America, eight countries have already submitted their application for funding in the form of a Readiness Plan Idea Note (R-PIN). In particular, there are countries like Costa Rica and Mexico in Latin America that are already experimenting with payments for environmental services (PES) produced by forests and have also showed strong interest in the FCPF. In addition to the FCPF, the Bio-Carbon Fund (BioCF) is piloting three innovative projects with payment schemes for REDD in Colombia, Honduras, and Madagascar. The BioCF also has a portfolio of over 20 projects, of which seven are in Africa to promote afforestation and reforestation according to the CDM methodologies (World Bank 2008). There is also a fund from Carbon Partnership Facility (CPF) to support low-carbon investment but none of the African countries have benefited from this program.

With the integration of climate finance to sustainable development various activities have been implemented in different African countries through International Development Association (IDA) and International Bank for Reconstruction and Development (IBRD) (Bromhead 2010). The effort of Ghana to integrate climate adaptation within the development agenda of the country through the agricultural development policy loan is a good example. In the Democratic Republic of Congo more than USD 200 million is assigned as credit to improve transmission of energy. In Ethiopia about USD 300 million is allocated to finance sustainable land management, irrigation, and improved watershed management. Similarly, there are funds allocated to arid lands, flood management, and natural resource management programs in Kenya and as drought risk insurance in Malawi. There are also funds for disaster risk reduction facility to support disaster preparedness and disaster recovery. Up to now, Ethiopia, Ghana, Mozambique, Madagascar, Namibia, Burkina Faso, and Seychelles have benefited from this program.

The integration of climate finances to sustainable development, in Africa in general and Ethiopia in particular, would have been more successful only if it recognized the role of the agricultural sector in climate change mitigation since the GDP of these countries are highly dependent on agriculture. Climate-smart agricultural practices can address both the adaptation to and mitigation of climate change. However, in the past years little has been done due to knowledge gaps in the measuring of reduction of carbon emission. The continent was not able to benefit from the fast-start funds (Suppan 2010). For instance, Ethiopia is doing its best to mitigate adverse consequences of climate change, particularly in the agricultural sector, through various interventions, among which are the establishment of large- and small-scale irrigation schemes. This is mainly from government budget while it is supposed to be financed through climate change adaptation fund as the country puts irrigation as one of climate change adaptation strategies in its National Adaptation Program of Action (NAPA) (Appendix Table A.2). However, one of the benefits that Africa gained from the Cancun meetings is the decision to allocate 10 percent (about 3 billion) of the 'fast-start' finance to support agricultural adaption projects identified in the most climate vulnerable countries (Suppan 2010).

3. Purposes of climate finance

In general the various climate finances can be grouped into two, based on its purpose as *climate finance for mitigation* and *climate finance for adaptation* to the possible consequences of climate change. The climate change finances are channeled to developing countries in many ways. It comes in the form of official development assistance, which overlaps mostly with adaptation to climate change. Most of the fund for climate finance is approved for general mitigation purpose, which is about 82 percent—although amount disbursed is about 64 percent (Table 3.1).

Table 3.1. Focus of approved and disbursed funds (in percent)

Purpose	Approved	Disbursed
Adaption	9.7	20.9
Mitigation-REDD	7.5	12.5
Mitigation-general	82.1	64.1
Multiple focus	0.7	2.5
Total	100	100

Source: www.climatefundsupdate.org, accessed on 27.12. 2010

3.1. Climate finance for adaptation

According to the World Bank Synthesis Report (World Bank 2010b) adaptation measures can be proactive and reactive measures based on timeframe of response to climate change; soft and hard measures based on policy tools used to respond to climate change; or public and private adaptation based on economic agent taking measures. The reactive measures will be the dominant response until threats become better understood. But countries can become more proactive in disaster preparedness. Soft measures are institutional and policy measures such as agricultural extension intervention, water and energy pricing, strengthening property rights, and flood plain and landslide area zoning; hard measures are capital investment, for instance, development of new technologies to enhance adaptation to climate change. Soft measures are found to be an effective adaptation and development tool but take longer time and require strong institutional setup. In addition, adaptation measures by households and communities acting on their own without public interventions are considered as private adaptation, while public adaptation refers to adaptation measures with deliberate public policy decision.

Costs of adaptation vary considerably across regions (Table 3.2). Moreover, the adaptation costs as a percentage of GDP are significantly higher in Sub-Saharan Africa than in any other regions. This is mainly due to the lower GDPs and higher costs of adaptation for water resources and extreme weather events arising from an erratic pattern of rainfall. In addition, it is found that Sub-Saharan Africa experiences the greatest increase over time with its adaptation costs rising from USD 0.9 billion during the first 10 years (from 2010 to 2019) to USD 5 billion over the last 10 years (from 2040 to 2049), by more than five folds (World Bank 2010b).

Table 3.2. Total annual cost of adaptation by regions from 2010 to 2050 (in USD billions)

Regions	National Center for Atmospheric Research (NCAR), wettest scenario			Commonwealth Scientific and Industrial Research Organization (NSIRO), driest scenario		
	Gross-sum	***X-sum***	***Net-sum***	***Gross-sum***	***X-sum***	***Net-sum***
Sub-Saharan Africa	17.1	15.1	14.9	16.4	14.1	13.8
Middle & East Africa	17.1	12.4	12.3	3.5	2.5	2.4
East Asia & Pacific	25.7	21.7	21.7	20.1	17.9	17.7
South Asia	17.1	12.4	12.3	18.7	15.0	14.6
Latin America & Caribbean	21.3	18.7	18.7	17.9	14.8	14.5
Europe & Central Asia	12.6	11.2	11.1	8.1	6.9	6.5
Total	97.5	81.5	81.1	84.8	71.2	69.6

Source: The World Bank Group (2010b)
Note: The ***gross-sum*** method sets negative costs in any sector in a country to zero before costs are aggregated for the country and for all developing countries. The ***X-sum*** refers to net positive and negative items within countries but not across countries and includes costs for a country in the aggregate as long as the net cost across sectors is positive for the country. The ***net- sum*** measure nets negative costs within and across countries. All costs are estimated at 2005 year price for years between 2010 and 2050, no discounting, for adaptation to approximately 2 degree centigrade warm.

The average cost of adaptation to climate change for Ethiopia is between USD 260 and 614 million per year. The impacts of climate change on the Ethiopian economy can be revealed mainly through its effects on the agricultural sector and infrastructure. This is because agriculture is the pillar of the Ethiopian economy and quite sensitive to rainfall, while infrastructure damage, on the other hand, has huge direct and indirect effects on the economy. Ethiopia needs to invest in irrigated and irrigable cropland as well as investing in agricultural research and development to increase its resilience to climate change. In addition, there is a need to invest to increase the share of paved and hardened roads, transfer of relevant transportation technology to stakeholders, and the enhancement of transportation safety measures. Besides, the policy decision for adaptation to climate change needs investment in hydropower sector. In order to improve its resilience through such various measures, the country needs an increase of annual foreign aid by about 10 percent (World Bank 2010b). The adaptation cost tends to mount in case the country fails to meet investment targets envisaged in the baseline regarding infrastructure development since vulnerability increases.

In most cases, the interest of the developed countries is toward mitigation than adaptation while adaptation is the top priority of developing countries whose people are vulnerable to impacts of climate changes. As a result, most of the multilateral as well as bilateral funds are intended to support mitigation activities rather than adaptation. Besides, the adaptation and mitigation activities should not totally depend on results of the cost–benefit analysis from the global climate protection perspective alone but also on to what extent it provides critical protection to local populations. Nevertheless, the private sources of adaptation funds in particular choose projects considering primarily the direct and indirect costs, benefits, and risks with the investment. This makes, as stated in section 2.2, the public sources of adaptation finances indispensable in filling this gap in investing on projects less attractive for the private sectors but which have considerable local and national benefits.

Although the amount is less than the mitigation funds, a range of funds have been made available for adaptation to climate change as well (Appendix Table A.3). For instance, the governments of Australia, Germany, Japan, United Kingdom, and the European Union donated about USD 2.7 billion in the form of environmental fund for climate change mitigation and adaptation. There are six bilateral environmental funds announced between December 2006

and September 2008 (ODI 2008): the Cool Earth Partnership of Japan, the Environmental Transformation Fund (International Window) of the United Kingdom, the International Climate Protection Initiative of Germany, the Global Initiative on Forests and Climate of Australia, the Global Climate Change Alliance of the European Union, and the UNDP-Spain MDG Achievement Fund (Environment and Climate Change Thematic Window).

There is also a climate resilience fund of about USD 0.5 billion raised to improve developing countries' climate adaptation. The fund targets identified priorities in the agricultural sector, mitigating coastal and urban flooding, watershed management, as well as capacity building for developing countries. Up until now, nine developing countries—including Niger, Zambia, and Mozambique from Africa—have benefited from it in various forms to improve their climate resilience. Under this program each country is to get USD 40 to USD 70 million, with preparation grants of USD 1–2 million depending on readiness (Bromhead 2010). Developing countries' access to the adaptation fund can be either directly through projects that the national institutions are implementing or indirectly through United Nation Development Programs that are implemented by UN agencies (Suppan 2010).

The amount of adaptation fund depends upon many factors including the extent to which parties reduce emission through the CDM, the degree of countries' dependence on the CDM under a second Kyoto Protocol period, and the extent to which the fund is augmented from other sources (Mace 2005). One of the challenges in financing adaptation is securing international funds for a chosen particular place of investment when benefits are local. Yet, there are ongoing programs to mainstream climate resilience in development planning of African countries, i.e. in Ethiopia, Malawi, Senegal, Nigeria, Cameroon, Kenya, and Namibia, among others.

3.2. Climate finance for mitigation

Adaptation and mitigation are policy responses to climate change that can be implemented independently or in a complementary or substitutable way for one another (Barker et al. 2007). For instance, better land, water, and forest management are key to adaptation but as of today deforestation and land degradation contribute about 65 percent of Africa's CO_2 emissions (Bromhead 2010). Thus, in addition to the adaptation interventions, there is a need for immediate mitigation interventions to reduce global warming. The mitigation actions are estimated to require annually about one percent of global GDP (Crooks 2009). The benefits of climate change mitigation are beyond local and extend to the globe.

The various climate change mitigation funds have different attributes (Table 3.3). Based on their attributes, which actually include their objectives, the finance has its own criteria for its approval. The important criterion for climate change mitigation projects is the level of carbon offset benefits through reducing or sequestering emissions. If a project delivers large quantities of offsets for a relatively longer period, it is having high mitigation benefits while projects with lesser quantity or for a shorter period are considered to have lower mitigation benefits (Crooks 2009).

Table 3.3. Climate change mitigation finances and their attributes

Attributes	GEF	CTF	CPF
Objective	To transform the market development paths of eligible countries into trajectories with lower GHG emissions in the energy, industry, transport and land use sectors	To provide scaled-up financing to contribute to demonstration, deployment, and transfer of low-carbon technologies with a significant potential for long-term GHG emission savings	To target long-term emission reductions; to scale up low-carbon interventions; and to support strategic, transformational interventions
Overall approach	Removing barriers for sustainable market development and growth, including through pilots and demonstration including reduction of risks and support to innovation	Scaling up low-carbon development through support to investments	Increasing the scope and scale of verifiable GHG offsets and the generation of carbon revenues by reducing GHG emissions through output-based approach
Determination of funding requirements	Initial resource allocation through resource allocation framework; incremental costs of each project, including costs of barrier removal	Financing gap necessary to make project viable	Payment made upon certification of emission reductions at negotiated or prevailing market rates
Financial tools	Grants and limited non-grant instruments	Loans and risk mitigation instruments at concessional (IDA) rates; limited grants available	Emission reductions purchase agreements (ERPA) typically paid upon delivery; pricing based upon market prices for certified emission reductions (CERs)
Scale of financing	USD 250 million per year over four years of GEF-4 (2007–2010)	USD 4.4 billion over four years (2009–2012), or USD 1.1 billion per year	CDM primary transactions in 2008 totaled USD 6.5 billion
Typical project size	From USD 5 million to USD 40 million GEF allocation per project linked to larger bank project (average size, USD 8 million)	Between USD 50 million and USD 100 million, linked to larger client project, including Bank loan resources	CPF aims to scale up the size of the transactions significantly, typically at least one million emission reduction units

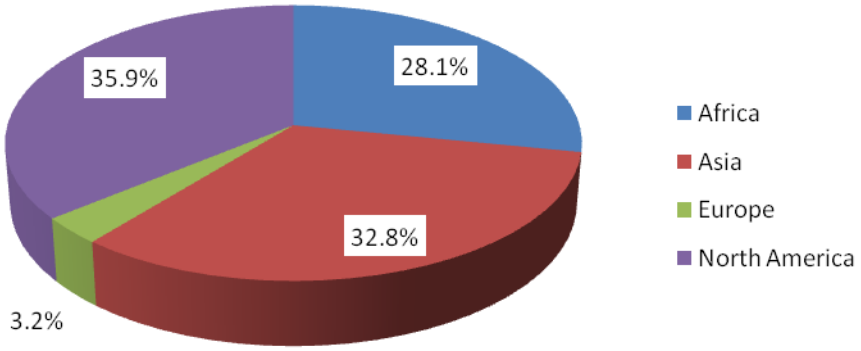
Source: World Bank (2010a)
Notes: GEF=Global Environment Facility; CTF=Clean Technology Fund; CPF= Carbon Partnership Facility; IDA= International Development Association; CDM= Clean Development Mechanism

Some of the climate finances such as the Clean Technology Fund (CTF) and carbon financing (Carbon Partnership Facility) are dedicated to put developing countries on a low-carbon development path. CTF is one of the Climate Investment Funds (CIF), which provides between USD 50 million and USD 200 million per project in the form of grants, concessional loans, or risk guarantees for scaling up of clean technology. So far, about USD 5 billion is raised from various sources. In its effort of putting developing countries on a low-carbon development path, up to now programs of about USD 500 million are approved for Turkey, Egypt, and Mexico—also underway for Nigeria and South Africa (Bromhead 2010). The programs are focusing on energy efficiency, renewables, transport shifts, and urban planning.

In Africa, 90 percent of the whole population has no access to electricity and 75 percent of the energy comes from fossil fuels (APF 2008). The Special Climate Change Fund (SCCF) was established to finance the special needs of developing countries, including Africa, in adaptation, technology transfer, climate sensitive sectors and economic diversification for economies dependent on fossil fuel sector. Woodfuels and biomass remain the main source of energy in spite of the potential Africa has in terms of clean energy development; only eight percent of the hydroelectric potential is realized and ample solar and cleaner coal are part of the solution

(Bromhead 2010).However, the continent received the smallest share of Clean Technology Fund as compared to Asia and North America (Figure 3.1).

Figure 3.1. Disbursement of approved fund of Clean Technology Fund by continent



Source: www.climatefunsdupdate.org, accessed on 27.12. 2010.

4. Institutional issues in climate finance

One of the possibilities to improve effectiveness of the climate finances for adaption and mitigation is to increase efficiency and equities of management of the finance. This depends, among others, on management efficiency of institutions at various levels (Appendix Table A.4). In fact, efficiency in the management of the climate finance can also have contributions towards motivating the potential private and public donors to commit additional funds.

At international level, the United Nations Framework Convention on Climate Change (UNFCCC) is a figure institution for matters involving climate change issues including climate finance. UNFCCC is currently implementing various climate financing mechanisms through projects designed to support energy efficiency, renewable energy, new clean energy technology, and sustainable transport projects. Under UNFCCC as an umbrella institution, there are institutions established to help developing countries. These include the subsidiary body for scientific and technological advice and the subsidiary body on implementation. These institutions support in identification of priorities to address climate change-resilience, in designing, funding, and implementation of the projects in developing countries. It is also the responsibility of this institution to monitor, verify, and report (MRV) the implementation of the short-term results of the projects to ensure efficient and effective use of the finance (Suppan 2010). It is also worth mentioning the Intergovernmental Panel on Climate Change (IPCC) although it is established mainly to conduct research that guide policy and to fill existing information gaps rather than to deal with climate finance.

The other important international institution is the Carbon Partnership Facility of the World Bank established to improve developing countries' access to climate finances for sustainable development. In addition, the World Bank founded GEF in 1991 in consultation with UNDP and UNEP to provide funding to protect the global environment. The GEF restructured in 1994 and amended so as to address the issues of climate change and other environmental problems.

GEF gets finance from developed-country donations and the largest percent of its fund goes to climate change and biodiversity areas. GEF works towards the fulfillment of any of global environmental objectives. The climate financing targets of GEF covers almost all area of the development priorities of developing countries such as adaptation, transfer of technologies, energy, transport, industry, agriculture, forestry, and waste management; and assists activities of developing countries in diversifying their economies (Mace 2005). Particularly, GEF is working towards mitigation of climate change through its program on removal of barriers to energy efficiency and energy conservation, promoting the adoption of renewable energy, reducing the long-term costs of low greenhouse gas emitting energy technologies, and promoting environmentally sustainable transport (Table 4.1).

Table 4.1. GEF-3 Climate Change Strategic Priorities (2003–2006)

Strategic priorities	**Projected funding** (in million USD)
Transformations of markets for high volume products and processes	78
Increased access to local sources of financing for renewable energy and energy efficiency	84
Power sector policy frameworks supportive of renewable energy and energy efficiency	128
Productive uses of renewable energy	95
Global market aggregation and national innovation for emerging technologies	65
Modal shifts in urban transport and clean vehicle/fuel technologies	79
Piloting an operational approach to adaptation (2005–2007)	50

Source: Mace (2005)

A challenge related to institution, at international level, is that a particular institution handles a bundle of funds of different targets with little transparency. As a result, there is lack of clarity as to whether a given climate financing fund is additional to Official Development Assistance (ODA) or is part of ODA. Particularly at national level, effective implementation of climate finance requires collaboration of several institutions as its effectiveness or scope is usually beyond a single discipline. In most of the cases, the responsibilities of institutions at national and regional levels overlap. The roles of some of the institutions in the winning projects development and disbursement of climate finances are overlooked.

In parts of Africa forest resources are under customary right of use by the local people; in some case the users are not clearly identified with clear boundaries. In some other cases there are forests managed under communal access of a community. Local people have the right to use land and other natural resources attached to it in an economically and socially acceptable way. By the same token, the local people who have right of use of land resources have to have access to climate finances that are realized from the services generated from their land resources. This complicates the inclusion and exclusion of individuals. The inclusion of more individuals leads to inefficiency problems while too much exclusion leads to equity problems—this shows the trade-off between efficient and equity in climate financing.

At grass root level, the access rights that recognize the intangible benefits of environmental resources created through international agreements are vital. The potential benefits of climate finance can be realized only if the programs deliver sufficient attention in safeguarding the clearly defined rights of indigenous people at community, household, and individual levels and their enforcement. Yet, given the complex social system in Africa, guideline of conflicts resolution, ensuring acceptance, and trust by the public is important. It has to clearly state the accountability and participation of local people in decision making for sustainability of the climate finance in climate protection and realize co-benefits. Otherwise, the climate finance may have

perverse effects. In addition, although the countries' environmental protection strategies and action plans state the various options of sustainable natural resources conservation and use (including natural forest), issues related to climate finance are not incorporated in environmental laws of most African countries, which holds true for Ethiopia as well. It may also contradict with some of the existing national and regional regulations. To this end, it seems quite important to mainstream the issues of climate change adaptation and mitigation into the development policies and institutional set up of African countries.

5. Conclusion and the way forward

Africa in general and Ethiopia in particular have not benefited from climate finances to the extent expected. This is for various reasons including lack of capacity (skilled manpower) and restrictive criteria of project selection. Moreover, in most cases, the global funds available as climate finance are voluntary and market-based. The donors of climate finance or buyers of carbon credit may also stop funding at any point in time as there is no binding treaty. This makes developing countries' involvement in carbon credit a risky venture. Therefore, there is a need to harness climate finances making it more flexible by relaxing some of the restrictive project criteria for developing countries and incorporating additional criteria that enhance effectiveness and equity of the climate finances. It is also important to rectify the institutional set up in order to improve the transparency of the climate finance management and equity of benefits distribution across the climate finance chain.

In the market-based mechanisms buyers usually go for the cheapest climate protection mechanisms. For instance, in the case of CDM, they go for cost-effective emission reduction instead of evaluating its contribution towards CDM. Other market-based climate finance activities, for instance the LULUCF activities undertaken through the Kyoto protocol, have little prospect of contributing substantially to the conservation of biodiversity. The possible decisions of allowing credit for afforestation and reforestation projects in the CDM may negatively impact biodiversity by increasing the financial attractiveness of plantations compared to restoring natural forests. In order to enhance CMD's contribution to GHG emission reduction and biodiversity conservation, there is a need to gear it towards reduction of deforestation.

The distribution of climate fund across nations need to be based on a set of national climate-related factors such as need for adaptation and mitigation, carbon sinks, and clean development infrastructures. There is uneven distribution of some of the climate financing schemes, such as clean development mechanisms, mainly to the disadvantage of poorer developing countries. This is because, for instance, in the case of the CDM, prior attention is given to reduce emission, which is actually not the case in developing countries. In addition, CDM projects involve considerable transaction costs and thus prioritize large-scale over smaller, community-oriented projects.

In most cases, companies' and developed countries' investment on REDD require the availability of clearly defined responsibilities and benefits-sharing and institutional stability. In most of African countries and in Ethiopia as well, structural changes are common. In most cases, the way to manage—specifically the institutional arrangements for governance of REDD and REDD plus funds—are not clear. The institutional rules and regulations of the financial institutions need necessary adjustments in such a way that they can manage the REDD fund

appropriately. There is also overlapping of activities among institutions working on forest and environment. Lack of clarity of benefits and responsibility sharing at national, regional, and local levels is one of the problems. There is a need to establish a national REDD project coordinating body.

Promised funding often took a much longer timeframe to arrive in developing countries than promised, even the fast-track one. Ethiopia in particular and Africa in general should go for grants for the development phase as well as for the first two years of implementation of REDD projects. This will give the countries and implementing institutions flexibility and reduce the risk of investing on REDD and REDD plus. In this case, besides its being risk-free, since the countries are selling what they have already done in reducing greenhouse gas emission (performance-based), it is possible to get market easily. But the serious problem in this regard is that the developing countries do not have their own sources of fund to finance the pre-implementation phase of REDD projects. Thus, there is a need to make available sufficient fund as a startup fund for the pre-implementation phase of REDD.

The carbon financing mechanisms have strict criteria for application that demand highly skilled manpower which is usually difficult for governmental and non-governmental organizations to obtain and thus to secure the fund. There is also a need to disburse the considerable amount of capacity building funds for Africa in order to capacitate African experts to develop winning proposals for private and public climate funds.

It seems important to combine both private and public sources of fund to sustainably finance adaptation to and mitigation of climate change. It is possible to increase benefits of a particular project to attract private funds through non-timber forest products and ecotourism without reducing but improving climate benefits such as carbon sequestration. In some cases climate protection and adaptation projects may be financed locally, at national level, through product sales, price premium, or tax on sales of products contributing toward climate protection rather than carbon offsets. For instance, it may be important to levy premium export coffee or tax on export income from coffee to be used to ensure sustainable use of natural forests and watershed protection in coffee areas as a climate protection measure in addition to carbon credit.

Climate change mitigation and adaptation strategies, including REDD finance, need to be integrated in the national plan and development strategies of the countries. Climate change results in crop failure that aggravates food insecurity and poverty, as agriculture is most vulnerable to climate changes. In Africa in general and Ethiopia in particular, the integration of climate finances, such as REDD, into the agricultural sector makes agriculture climate-smart. This strategy will also enable African countries to overcome the problem of providing insurance coverage of the agricultural sector as it involves high risks. Over the past many years it has been proven, at least in Ethiopia, that it is difficult to motivate private insurance companies in providing insurance coverage for climate related damages in the agricultural sector. Therefore, there has to be strategies that direct some share of the climate finances toward insurance covers for ‘climate change induced losses’ as part of the mitigation and adaptation process.

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Appendix

Appendix Table A.1. Priorities of the National Adaption Program of Action (NAPA) of Ethiopia

Rank (priority)	Title of Project	Estimated project implantation cost (million USD)	Estimated project design cost (million USD)
1st	Promoting drought/crop insurance program in Ethiopia	8	0.1
2nd	Strengthening/enhancing drought and flood early warning systems in Ethiopia	10	0.1
3rd	Development of small scale irrigation and water harvesting schemes in arid, semi-arid, and dry sub-humid areas of Ethiopia	30	0.5
4th	Improving/enhancing rangeland resource management practices in the pastoral areas of Ethiopia	2	0.05
5th	Community based sustainable utilization and management of wet lands in selected parts of Ethiopia	2	0.05
6th	Capacity building program for climate change adaptation in Ethiopia	3	0.1
7th	Realizing food security through multi-purpose large-scale water development project in Genale– Dawa Basin	700	2
8th	Community Based Carbon Sequestration Project in the Rift Valley System of Ethiopia	1	0.05
9th	Establishment of national research and development (R&D) center for climate change	2	0.2
10th	Strengthening malaria containment program (MCP) in selected areas of Ethiopia	6	0.5
11th	Promotion of on farm and homestead forestry and agro-forestry practices in arid, semi-arid and dry-sub humid parts of Ethiopia	5	0.1
Total cost		**770**	**3.75**

Source: NMA (2007)

Appendix Table A.2. Pledged fast-start finance for 2010–2013 (in billions)

FSF donor country	Fast-start finance pledged	Allocation per annum			Amount to be part of budgetary expenditure
		2010–11	2011–12	2012–13	
EU reported pledge	10.5	3.34	3.6	3.6	NI
Germany	1.8	0.59	0.59	0.59	1.76
United kingdom	2.4	0.8	0.8	0.8	2.4
France	1.8	0.59	0.59	0.59	1.8
Sweden	1.1	NI	NI	NI	NI
Netherlands	0.4	0.4	0.4	0.4	NI
Spain	0.5	0.17	0.17	0.17	NI
Belgium	0.2	0.07	0.07	0.07	NI
Denmark	0.2	NI	NI	NI	NI
Austria	0.2	0.06	0.06	0.06	0.17
Italy	0.8	0.28	0.28	0.28	NI
Finland	0.2	NI	NI	NI	0.15
Ireland	0.1	NI	NI	NI	0.14
EU commission	0.2	0.07	0.07	0.07	0.21
Norway	0.6	0.6	NI	NI	NI
Japan	15.0	NI	NI	NI	7.2
US	3.2	1.9	1.30	1.88	3.19
Canada	0.4	0.44**	NI	NI	0.44
Australia	0.6	NI	NI	NI	0.59
New Zealand	0.0	0.0	0.0	0.0	0.0
Switzerland	0.0	0.0	0.0	0.0	0.0
Total	29.7				

Source: www.climatefundsupdate.org, accessed on 27.12. 2010.
Note: ** there is a new pledge of 0.4 billion USD; NI= No information

Appendix Table A.3. Amount pledged and paid for Least Developed Countries Fund as of May, 2010

	Participant	Pledges (USD)	Paid (USD)	Unpaid (USD)
1	Australia	6,600,750	6,600,750	
2	Austria	580,400	580,400	
3	Belgium	638,000	638,000	
3	Canada	6,518,366	6,518,366	
4	Czech Republic	25,454	25,454	
5	Denmark	15,967,606	15,967,606	
6	Finland	10,447,515	9,474,030	973,485
7	France	14,675,270	11,633,130	3,042,140
7	Germany	52,921,488	34,668,650	18,252,838
8	Ireland	9,749,794	9,749,794	
9	Italy	1,000,000	1,000,000	
10	Japan	250,000	250,000	
11	Luxembourg	5,702,900	5,702,900	
12	Netherlands	16,342,578	16,342,578	
13	New Zealand	3,868,560	3,868,560	
14	Norway	8,421,064	8,421,064	
15	Portugal	64,065	64,065	
16	Spain	1,520,781	1,520,781	
17	Sweden	9,912,143	9,912,143	
18	Switzerland	4,231,686	4,231,686	
19	United Kingdom	22,020,974	22,020,974	
20	United States	30,000,000		30,000,000
	TOTAL	**221,459,413**	**169,190,930**	**52,268,463**

Source: www.climatefundsupdate.org, accessed on 27.12.2010

Appendix Table A.4. Sources, purposes, and administering institutions of climate finance

Climate financing fund	Type	Administering institutions	Areas of focus	Date operational
Adaptation Fund	Multilateral	Adaptation Fund Board	Adaptation	2009
Amazon Fund (Fundo Amazônia)	Multilateral	Brazilian Development Bank (BNDES)	Mitigation – general, Adaptation, Mitigation – REDD	2009
Clean Technology Fund	Multilateral	World Bank	Mitigation – general	2008
Congo Basin Forest Fund	Multilateral	African Development Bank	Mitigation – REDD	2008
Environmental Transformation Fund - International Window	Bilateral	Government of the United Kingdom	Mitigation – general, Adaptation	2008
Forest Carbon Partnership Facility	Multilateral	World Bank	Mitigation – REDD	2008
Forest Investment Program	Multilateral	World bank	Mitigation – REDD	2009
GEF Trust Fund - Climate Change focal area (GEF 4)	Multilateral	Global Environment Facility (GEF)	Mitigation – general, Adaptation	2006
GEF Trust Fund - Climate Change focal area (GEF 5)	Multilateral	Global Environment Facility (GEF)	Mitigation – general, Adaptation	2010
Global Climate Change Alliance	Multilateral	European Commission	Mitigation – general, Adaptation, Mitigation – REDD	2008
Global Energy Efficiency and Renewable Energy Fund	Multilateral	European Commission	Mitigation – general	2008
Hatoyama Initiative - private sources	Bilateral	Government of Japan	Mitigation - general, Adaptation	2008
Hatoyama Initiative - public sources	Bilateral	Government of Japan	Mitigation - general, Adaptation	2008
Indonesia Climate Change Trust Fund	Multilateral	Indonesia's National Development Planning Agency	Multiple foci	2010
International Climate Initiative	Bilateral	Government of Germany	Mitigation – general, Adaptation, Mitigation – REDD	2008
International Forest Carbon Initiative	Bilateral	Government of Australia	Mitigation – REDD	2007
Least Developed Countries Fund	Multilateral	Global Environment Facility (GEF)	Adaptation	2002
MDG Achievement Fund – Environment and Climate Change thematic window	Multilateral	UNDP	Mitigation – general, Adaptation	2007
Pilot Program for Climate Resilience	Multilateral	World Bank	Adaptation	2008
Scaling-Up Renewable Energy Program for Low Income Countries	Multilateral	World Bank	Mitigation – general	2009
Special Climate Change Fund	Multilateral	Global Environment Facility (GEF)	Adaptation	2002
Strategic Climate Fund	Multilateral	World Bank	Mitigation – general, Adaptation, Mitigation – REDD	2008
Strategic Priority on Adaptation	Multilateral	Global Environment Facility (GEF)	Adaptation	2004
UN-REDD Programme	Multilateral	UNDP	Mitigation – REDD	2008

Source: www.climatefundsupdate.org, accessed on 27.12.2010

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