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- Climate change is becoming a growing development challenge for developing countries from time to time.
- Africa's growth is being challenged by climate change since the economy of the continent is highly dependent on rainfed agriculture, which is climate change sensitive; more than 95 % of agriculture in Africa is rain-fed
- Climate change impacts livelihoods in Africa through its effect on availability of water resources, animal and human health, ecosystems and biodiversity

- The IPCC report reveals that the cost of adaptation in Africa could be as high as 5 to 10 per cent of the continent's GDP
- Africa is losing about 1 to 2 per cent of their GDP per annum as a result of climate variability alone
- The cost of adaptation to the increasing floods and droughts could reach about 5 to 10 per cent of their GDP

- The cost of adaptation and mitigation vary spatially and temporally.
- It seems that there is a consensus regarding the effects of climate change and options for adaptation and mitigation is not a big deal, but sources of funding, transparency issues on management of such funds and bases for equitable disbursement remain to be the point of discussion

- Climate financing should target not only the reduction of greenhouse gas (GHG) emissions but also the promotion of green growth for developing countries
- The funding requirement for priority investments in case of vulnerable countries is estimated to be about 10-20 billion Euro per annum
- There is a need to allocate about USD 200 billion annually for climate protection activities for the coming 20 years to keep global average temperature rise within 2 degrees Celsius

- recent estimates indicate that mitigation efforts in developing countries could cost US\$140 to 175 billion a year over the next 20 years
- adaptation investments could average US\$ 30 to 100 billion a year over the period 2010 to 2050
- fund raising efforts for mitigation and adaptation have been sadly inadequate, standing at less than 5 percent of projected needs

- Africa region has the lowest average per capita emission with 2.4 tonnes while Eastern Europe is about 5.1 tonnes in 1994, which is considerably high as compared to Africa.
- Ethiopia is one of the least per capita carbon GHG emitters, 0.7 tonnes GHG per capita, China emits about 3.3 tonnes.
- Countries that are least contributors to climate change such as Ethiopia are among the most affected as a result of climate change.

- Recent reports of IPCC confirm that the consequence of climate damage is more serious than we expected unless immediate action is taken to reverse the situation
- There are mechanisms put in place through which developed countries could finance resilience to climate change
 - the emission cap and trade
 - CDM and carbon offset market
 - carbon taxes and special climate funds

other options include the World Bank-supported instruments such as Climate Investment Funds (CIFs), Carbon Funds, Gasflaring Reduction Initiative, Global Fund for Disaster Risk Reduction (GFDRR), and Adaptation Funds

effectiveness and usefulness of climate finance depends on its management efficiency and how responsive it is to the needs of particularly vulnerable countries

- In most cases, sources of climate finance are from the North while the South is the recipient of the finance
- The finance for climate change can be generated from Bilateral donors, UN agencies, African Development Bank, European Union and Norwegian Funding for Avoided Deforestation
- Climate finance falls under two categories based on their sources: public and private fund

- 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 financing for carbon offset and carbon allowance, non-carbon finance, which are not based on carbon credit and combination of carbon and non-carbon finance
 - the effectiveness of market based mechanisms to overcome current environmental problems
 - mostly through emission trade schemes (ETS)

- there are concerns that the domestic trading system is not going to be feasible for developing countries particularly in Africa. climate finances were among the issues discussed on the Copenhagen meeting as well
- High Level Advisory Group on Climate Change (AGF), was assigned to identify various possible public as well as private sources of climate finances, presented its report at Cancun 2010.
 - some of the sources of climate fund 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.
 - Domestic trading system

- 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
- The most common market-based climate financing includes accessing climate finance for clean development mechanisms and
 - carbon emission reduction
- The market-based climate financing mechanisms are well acknowledged that it would be efficient and involve lower administrative costs and is not prone to policy and governance failures

- the level of effectiveness and equity depends on the nature of existing market
- It seems hardly possible to achieve greater equity in the imperfect market existing in the case of developing countries as compared to government policy
- The market-based mechanism of reducing emissions is developed as one of the mechanisms to meet the Kyoto protocol of reducing GHG emission.
 - Emission trading (carbon trading),
 - Clean development mechanism (CDM) and
 - Joint implementation



- Clean Development Mechanisms (CDM):
 - one of the main market-based sources of climate change mitigation finance for developing countries
 - Instruments that attract the private sectors of industrialized countries to support mitigation of the climate change
 - two carbon certifications entities to trade clean development mechanisms of UNFCC
 - the compliance market for carbon dioxide sequestered Voluntary Carbon Standard (VCS) for voluntary market

- Although the primary target of CDM is to emission reduction in developing countries, little fund has been disbursed to least developing countries as compared to emerging economy countries
 - 15 out of 500 CDM projects that have been accepted by the UNFCCC are being implemented in Africa
- In Ethiopia there is only one CDM project under implementation by the World Vision so far.
- Perhaps the biggest limitation with the CDM
 - it has not moved developing countries onto low-carbon development pathways.
 - It exclude deforestation emissions

- REDD, REDD plus and Related Carbon Funds
 - to conserve intact forests and to ensure sustainable management of the natural forests
 - one of the common mechanisms for greenhouse gas reduction for climate protection
 - allows an international trading scheme and is the main market mechanisms for reducing atmospheric concentrations of greenhouse gases
 - Provides performance-based revenue to the project of reducing emission

- Despite all its strength, the REDD program has some limitations in benefiting least developed countries of Africa. Possible reasons
 - REDD targets reduction of land use emission so that it gives priority to countries with high land uses emission.
 - Developing counties with less deforestation rate, on relatively sustainable development path, get less attention.
 - accessing REDD financing will demand significant policy and institutional reforms and substantial improvements in forest governance
 - There are also direct and indirect costs with accessing these funds

2.2 Non-market based climate financing

The BioCF also has a portfolio of over 20 projects, of which seven are in Africa to promote afforestation and reforestation according to the clean development mechanism methodologies

One of the benefits that Africa gained from the Cancun meetings is the decision to allocate 10 per cent (about 3 billion) of the 'fast-start' finance to support agricultural adaption projects identified in most climate vulnerable countries

- 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 per cent, although amount disbursed is about 64 per cent

Table 6. Focus of approved and disbursement (in per cent)

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.climatefundupdate.org, accessed on 27.12, 2010.

- 3.1 Climate finance for adaptation
- 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
 - Non e of the two can stand alone
- The reactive measures will be the dominant response until threats become better understood

- Soft measures: 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:
 - capital investment, for instance, development of new technologies to enhance adaptation to climate change

- private adaptation: adaptation measures by households and communities acting on their own without public interventions are considered
- public adaptation :adaptation measures with deliberate public policy decision.
- The average cost of adaptation to climate change for Ethiopia is between USD 260 and 614 million per year

- In most cases, the interest of the developed counties is towards mitigation than adaptation while adaptation is the top priority of developing countries whose people are vulnerable to impacts of climate changes
- Bilateral funds are also intended to support mitigation rather than adaptation
- Adaptation and mitigation activities should not totally depend on results of cost-benefit analysis from the global climate protection perspective alone but also on to what extent it provides critical protection to local populations.

3.2 Climate finance for mitigation

- deforestation and land degradation contribute about 65
 per cent of Africa's CO₂ emissions
- Thus, in addition to the adaptation interventions, there is a need for immediate mitigation intervention to reduce global warming
- The mitigation action is estimated to require annually about one per cent of global GDP
- The various climate change mitigation funds have different attributes

3.2 Climate finance for mitigation

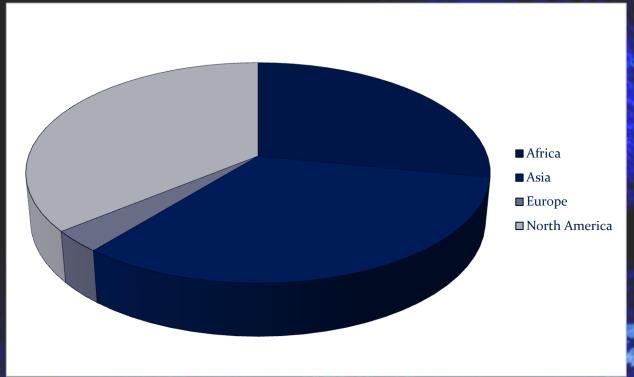


Figure 3. Disbursement of approved fund of Clean Technology Fund by continent *Source*: www.climatefundupdate.org, accessed on 27.12. 2010.

- Institutional arrangement is one of the possibilities to improve effectiveness of adaption and mitigation of the climate finances is to increase efficiency and equities of management of the finance.
 - This depends, among others, on management efficiency of institutions at various levels
 - efficiency in the management of the climate finance can also have contribution towards motivating the potential private and public donors to commit additional funds

- United Nations Framework Convention on Climate Change (UNFCCC) as an umbrella institution, there are institutions established to help developing countries
 - the subsidiary body for scientific and technological advice and the subsidiary body on implementation
- Institution is important in identification of priorities to address climate change-resilience, in designing, funding and implementation of the projects in developing countries

- A challenge related to institution,
- at international level,
 - is that a particular institution handles a bundle of funds of different target with little transparency
 - 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
- at national level,
 - Effective implementation of climate financing requires collaboration of multi- institution but there is overlap of responsibilities of institutions at national and regional levels r
 - Roles of some of the institutions in the wining projects development and disbursement of climate finances are overlooked.

- Communal property right complicates the inclusion and exclusion of individuals
- inclusion of more individuals leads to inefficiency problem while too much exclusion leads to equity problems-the trade-off between efficient and equity in climate financing.
- given the complex social system in Africa, guideline of conflicts resolution, ensuring acceptance and trust by the public is important
- accountability and participation of local peoples in decision making for sustainability of the climate finance in climate protection and realizing co-benefits.
- Otherwise, the climate finance may have perverse effects

5. Conclusion and recommendations

- Africa in general and Ethiopian in particular have not benefited from climate finances to the extent expected.
 - Mainly due top lack of skilled manpower and restrictive criteria of project nomination
 - In most cases, the funds available for climate financing are voluntary and market based, with no binding treaty
 - This makes developing counties involvement in carbon credit a risky venture

5. Conclusion and recommendations

- 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.
- The possible decisions of allowing credit for afforestation and reforestation projects in the CDM may negatively impacts biodiversity by increasing the financial attractiveness of plantations than 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.

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- There is also a need to capacitate African experts to develop winning proposals for private and public climate funds.
- It is difficult to involve private sectors in providing insurance coverage for climate related damages being it a risky venture. Some of the climate finance should be used for 'climate change induced loss insurance' as part of the mitigation and adaptation process.
 - It seems important to combine both private and public sources of fund to sustainably finance climate change
- In African countries in general and for Ethiopia in particular, the integration of climate finances such as REDD to agricultural sector makes agriculture climatesmart

