Joint Action on Climate Change: African Countries - part of the problem or part of the solution?

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Abstract

Climate change and the associated global warming are a major challenge in the world today: extreme weather events such as flood and droughts; food insecurity and famine; disease etc. are reported to be exacerbated by the climate change. Greenhouse gas (GHG) emission is considered to be responsible for this change. On one hand, it is believed that the weakest economies (the majority of sub-Saharan countries) and disadvantaged poorest people are more vulnerable to impacts of climate change. On the other hand Sub-Saharan Africa contributes about 3% to GHG emissions, with per capita GHG emission standing at about 2.3 tCO_2e compared to about 24.1 tCO_2e for North America. Mechanisms that have been put in place to mitigate climate change, such as the Clean Development Mechanism, have not significantly benefitted Africa. This paper discusses the inadequacies of the existing mechanisms to mitigate climate change in the African context. It argues that currently Africa is neither part of the problem nor part of the solution. This, therefore, calls for a separate mechanism for Africa in the next round of climate negotiations.

Keywords: Clean Development Mechanism, Greenhouse gases, Climate Change,

1. INTRODUCTION

Global warming and the consequent climate change pose a major challenge in the world today. Extreme weather events such as flood and droughts, food insecurity and famine, disease etc. are reported to be exacerbated by the climate change. Greenhouse gas (GHG) emissions, currently approximately 49 $GtCO_2e$ per year [1], are considered to be responsible for the climate change.

On one hand, it is believed that the weakest economies and disadvantaged poorest people are more vulnerable to impacts of climate change [2]. One region of the world where the effects of climate change are being felt particularly hard is Africa. This has been attributed to lack of economic, development and institutional capacity to adapt to climate change. Further, there is evidence that the African continent is warming faster than the global average, and that this is likely to continue [3]. However Africa is such an enormous landmass, stretching from about 35ºN to 35ºS, that the climatic effects are very different according to location within the continent - there is no Africa-wide climate effect as such. Agriculture (mostly rain fed) is the largest single economic activity in Africa, accounting for around 60% of employment and, in some countries, more than 50% of GDP [1].

On the other hand, Sub-Saharan Africa contributes about 3% to global GHG emissions, with per capita GHG emissions standing at about 2.3 tCO_2e per year (see Table 1, which distinguishes between existing emissions in 2000; and those which would occur under specified land-use change such as, for instance, the replacement of forest cover by agriculture)[4,5]. So the Sub-Saharan contribution to the GHG global burden is relatively small.

Table 1: Per capita GHG emissions in 2000 [4]

	tCO_2e with land-use change	**tCO_2e without land-use change**
Asia	4.5	3.4
Europe	10.6	10.5
Middle East & North Africa	5.7	5.6
Sub-Saharan Africa	4.5	2.3
North America	23.1	24.1
Central America & Caribbean	6.3	4.5
South America	11.1	5.3
Oceania	24.2	19.1

In order to mitigate climate change the global community has put in place two mechanisms, namely the Clean Development Mechanism (CDM) and Joint Implementation (JI). The Kyoto Protocol legally binds Annex 1 countries to reduce their collective emissions of GHGs by 5.2% compared to the year 1990 [6]. Parallel to the CDM, the World Bank established the Carbon Finance Unit (CPU) to assist governments and companies in OECD countries to purchase project-based greenhouse gas emission reductions in developing countries and in countries with economies in transition [7]. The purchase of the emission reductions is done through one of many Carbon Funds and Facilities (CFFs) such as the World Bank's Prototype Carbon Fund, the Community Development Carbon Fund, Bio-Carbon Fund etc. Some of these CFFs are discussed in this paper.

This paper focuses primarily on the CDM, the purpose of which is to assist Parties not included in Annex I to achieve ***sustainable development,*** and to assist Parties *included* in Annex I to achieve compliance with their quantified emission limitation and reduction commitments under Article 3 [6].

2.0 PERFORMANCE OF AFRICA IN VARIOUS MITIGATION MECHANISMS

2.1 The CDM

CDM has two purposes: on one hand it should assist a particular Annex 1 country to meet their GHG reduction commitment; and on the other hand it should contribute to sustainable development of the recipient non-Annex 1 country [6]. Tables 2 and 3 show CDM projects in Africa and the rest of the developing world, respectively. It can also be seen that the major players in Africa are South Africa, Egypt and Nigeria, which have over 70% of Certified Emission Reductions (CERs). CERs may be obtained from a wide range of projects, ranging from reduction in gas flaring (Nigeria), landfill gas recovery and electricity generation in Tanzania and Egypt, to protection of forests in Uganda.

Table 2: CDM Projects in Africa [8]

Name of Party	Number of Projects	kt CER 2012	%ge	Estimated Value of CERs '000 US$*
South Africa	27	24,555	24.9	245,550
Egypt	12	16,673	16.9	167,673
Morocco	9	2,853	2.9	28,530
Uganda	8	867	0.9	8,670
Kenya	7	2,789	2.8	27,890
Nigeria	4	30,445	30.9	304,450
Tanzania	3	2,924	3.0	29,240

Ivory Coast	2	6,016	6.1	60,160
Congo DR	2	2,648	2.7	26,480
Mali	2	281	0.3	2,810
Tunisia	2	4,125	4.2	41,250
Senegal	2	1,103	1.1	11,030
Mauritius	1	1,764	1.8	17,640
Mozambique	1	228	0.2	2,280
Madagascar	1	210	0.2	2,100
Zambia	1	588	0.6	5,880
Ethiopia	1	181	0.2	1,810
Swaziland	1	252	0.3	2,520
Rwanda	1	74	0.2	740
Total	87	98,577	100.00	986,703

* based on 10US$/tonne of CO_2 avoided [9]

Table 3: Regional Distribution of CDM Projects

Name	Number of Projects	%ge	kCERs	2012 kCERs	%ge	Estimated Value of CERs '000 US$*
Latin America	814	19.1	79,430	427,930	14.9	4,279,300
Asia Pacific	3255	76.6	476,382	2,281,589	76.6	22,815,890
Europe and Central Asia	42	1.0	4,064	18,953	0.7	189,530
Africa	87	2.0	18,642	98,577	3.4	985,770
Middle East	54	1.3	8,376	38,093	1.3	380,930

Globally, it can be seen that more than 96% of all CDM projects are in Latin America and Asia Pacific. In order to address the low number of CDM projects in Africa, the ***Nairobi Framework***, a joint initiative of UNDP, UNEP, World Bank, African Development Bank and UNFCC was launched in September 2007 with the aim of expanding CDM projects in Africa [10]. It is reported that the Framework has succeeded in raising awareness of the CDM and in improving inter-agency coordination, but it is yet to deliver the anticipated increase in CDM projects [7].

2.2 The Prototype Carbon Fund (PCF)

The PCF was established in 1999 as a public-private partnership aimed at catalysing the market for project-based GHG emission reductions (ERs) within the framework of the Kyoto Protocol, while contributing to sustainable development [11]. In 2006, out of a total global carbon market of $30 billion, and with the share of developing countries totalling $5 billion of that amount, Africa's share was only $200 million. Figure 1 shows the geographical distribution of carbon fund projects. The contracts that have been signed have total emission reductions of 31,087,366 tCO_2e. In Africa, South Africa has a project that will generate about 700,000 tCO_2e (2.3%) and Uganda will generate 509,946 tCO_2e (1.6%).

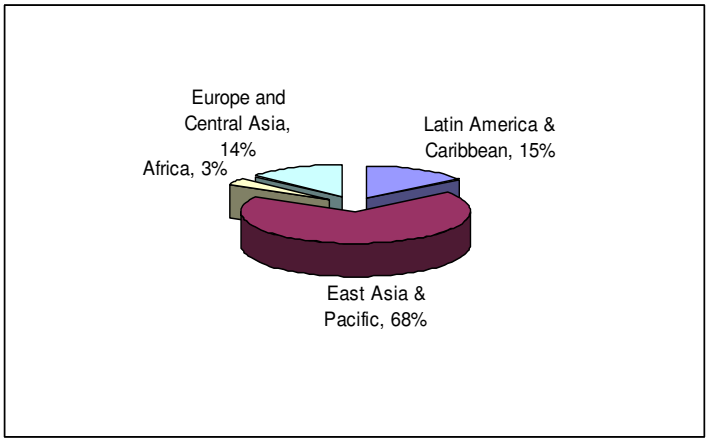

Figure 1: Geographical Distribution of PCF Portfolio [7]

Thus Africa is poorly represented in the PCF also.

2.3 The Community Development Carbon Fund

The CDCF was created in 2002 to extend the benefits of CF to the poorest countries and to poor communities in all developing countries, which would otherwise find it difficult to attract carbon finance because of country and financial risk [12]. The main aim was to assist developing countries reduce their CO_2 emissions and earn carbon credits. It combines community development attributes with emission reductions to create development plus carbon credits; and aims to improve the lives of the poor, and their local environment, significantly. CDCF supports a wide range of projects, such as crop residue to energy conversion, cooking stoves, biogas, mini hydropower, waste management, wastewater treatment, fuel switching, efficient brick making etc. It supports projects with ERs of 40,000 tCO_2e to 1,000,000 tCO_2e. By 2007, the total ER for the signed projects stood at 5,694,496 tCO_2e, of which African nations' contribution was about 2,045,000 tCO_2e (35.9%). However, this came from just two projects: one in Kenya (900,000 tCO_2e) and one in Nigeria (1,145,000 tCO_2e) [8]. Figure 2 shows the geographic distribution of CFD projects.

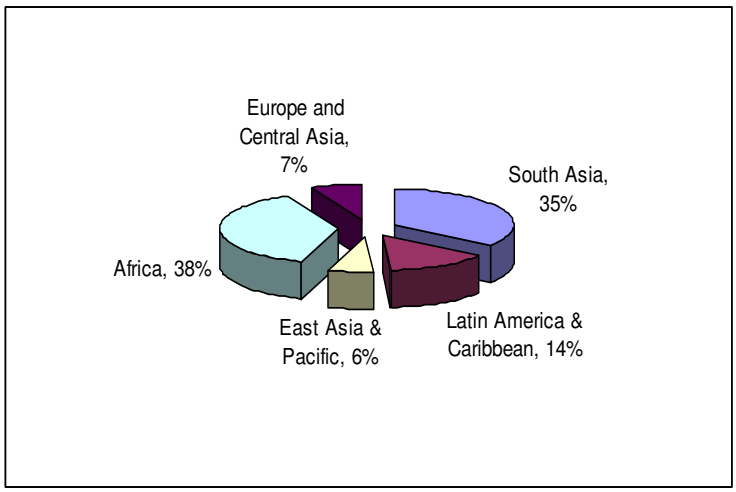

Figure 2: Geographic Distribution of CDCF Portfolio [7]

Africa features strongly under this fund (38%) (Figure 2). African projects account for about 30% of the ERs, with a commitment value of about US$90 million. Although this total is very modest, it illustrates that the combined objectives of carbon credits plus community development make this particularly attractive to African counties. Participation is also encouraged by relaxation of the constraints of country and financial risk on disbursement.

This is potentially a for post-Kyoto activities.

2.3 The Bio-Carbon Fund

The BioCF was designed to provide carbon finance to demonstrate and test projects that sequester or remove GHG in forest, agricultural, and other ecosystems [12]. The BioCF has been set up to buy carbon credits from forestry and agriculture projects. The goal of the BioCF is to remove CO_2 from the atmosphere, and to improve livelihoods through the production of (non-timber) forest products, which may also include bio-char production. The BioCF Participants' Committee has approved 33 projects giving an estimated $41.5 million worth of emission reductions.

Tthe use of biological sinks to comply with Kyoto targets begs the question as to whether the sequestered carbon will remain sequestered indefinitely. This concern is more pronounced because of the increased incidences of forest fires [13]. To cover this "non-permanence risk", it is intended that the BioCF will replace the temporary carbon credits (issued from land use and forestry projects) with permanent credits generated by non-sequestration projects that are under development by other carbon funds managed by the World Bank [7].

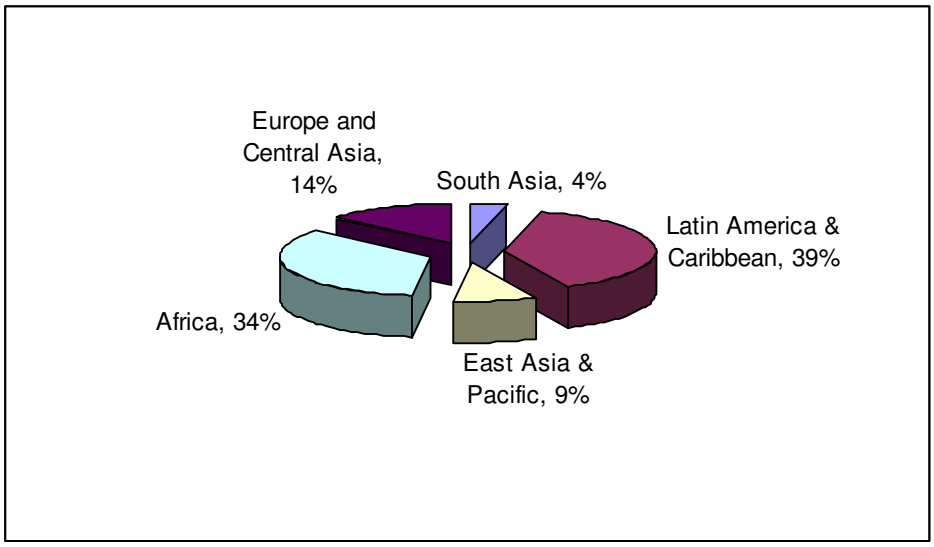

Figure 3: Geographic Distribution of BioCF Portfolio (Word Bank 2007)

Again, under this fund Africa features prominently (Figure 3). However, CO_2 sequestration projects may not bring about rapid economic development, particularly when compared with CDM projects which involve multimillion dollar capital investment.

2.3 Other Carbon Funds

Performance of Africa in other carbon funds
The performance of Africa in other funds is as follows: Netherlands CDMF (3%), Italian CF (12%), Danish Carbon Fund (15%) [7]. Other countries in Europe have been involved in carbon fund projects, but still Africa is either completely missing or sparsely represented.

2.4 New Global GHG Mitigation Initiatives

In 2003 the EU issued a Directive promoting the use of biofuels and other renewable fuels for transport. The Directive sought/seeks to have biofuels account for 2% of EU transport fuels by 2005, 5.75% by 2010, and in a 2007 addendum, 10% by 2020 [15]. With this directive, the world, particularly the developing countries witnessed unprecedented rush of big chunks of land by the biofuels speculators. The developing world is attractive because it offers both cheap land and inexpensive labor for bioenergy crop production, and tropical energy crops such as palm oil offer greater energy yields and lower production costs than traditional oil seeds and grains. For example, in Tanzania, for the past three years about 30,000 acres have been acquired by foreign companies to develop biofuel plants. Apart from the worries that this land take will impact food production and that will displace the poor communities, it is not clear yet on whether the countries where the biocrops are being grown will benefit from these initiatives. It is a fact that this new drive is not being pushed by the interests of the recipient countries, but rather by the anticipated increased demand as a result of the European Directive. Similar to other carbon related initiatives, Africa is also going to miss out. This is because, most of developing countries have been caught unaware by this upsurge of land demand; they have no policies in place to guide the biofuel development.

3.0 DISCUSSION

It has been seen that the performance of African nations, particularly sub Saharan Africa, is not impressive under any of these funding mechanisms. Even where the reported percentages are relatively high, a closer look shows that only a handful countries are taking part. This is attributed to the unstable micro-economic environment, absence of supportive policies, lack of investors' confidence and lack of up-front capital [16], low capacity of poor developing countries to identify and develop projects [7], weak business environments, and high project-related currency and country risks. Unfortunately these factors are likely to remain true in the post-Kyoto era.

It is therefore evident that unless a holistic analysis of the CDM or related funding cycle is done, Sub Saharan countries' participation in these funding mechanisms will remain dismal. It is true that CDM and related mechanisms are investments like any other, where the rule is that the investor(s) need to be sure of their return on investment. This requires a conducive investment environment where there is security of investment and where the technical and financial risks are low.

Furthermore, Sub Saharan Africa evidently does not have a critical mass of indigenous entrepreneurs who are ready to put money up front to develop projects and consequently generate CERs. For example, Tanzania took part in the (just ended) C4CDM project; and under this project 10 Project Idea Notes (PINs) for small scale projects were developed. Until now no company has come forward to develop *any* of them into a Project Design Document (PDD). Another obstacle is that the majority of the projects are small, and others very small, so they are not attractive because of high transaction costs. To solve the problem of small projects, the CDM Executive Board approved guidelines for developing bundled projects [17]; but even if these projects were to be bundled, they still remain small and the required baseline calculations, demonstration of additionally and monitoring aspects become tedious. Unless Sub Saharan Africa is considered and dealt with as a special case, its performance will remain low, despite the fact that it is more vulnerable than any other continent.

The following summarises the possible solutions which could be discussed for post-Kyoto:

a) New negotiations should ensure that the mechanism that will be put in place ensures that the projects are developed fully. For example a special fund geared at helping Sub Saharan Countries to develop projects to full PDD could have helped African Countries to realise a reasonable number of CDM project. This could be similar to the current Community Development Fund; but the difference could be that the fund may aim at assisting the countries to develop national implementation plans, thereby creating an enabling environment for CDM projects. The enabling environment should include policy reforms, reforming micro-economic environment, and developing a framework for local financial institutions to take on board CDM under their funding portfolio. As has been mentioned, the Nairobi Framework was not designed to go this far.

b) New negotiations should consider establishing a hybrid mechanism that combines adaptation and development. The Adaptation Fund has been established by the Parties to the Kyoto Protocol [18] to finance specific adaptation projects and programmes in developing countries that are Parties to the Kyoto Protocol. The Fund will be financed with 2% of the Certified Emission Reduction (CERs) issued for projects of the Clean Development Mechanism (CDM), and with funds from other sources. By inclusion development aspects, the fund could assist to bring on board the sustainable development.

4.0 CONCLUSION

Although Africa's contribution to GHG emissions is very small, Africa is the most vulnerable continent to climate change since widespread poverty severely limits the capabilities of communities to adapt to such changes. Because of its significant capacity as a sink for GHG emissions, Africa needs to be part of the *solution* to climate change problems. However, interventions that lump together African nations with other developing countries seem not be working for Africa. This fact needs to be taken into consideration in the negotiation of post-Kyoto climate change mitigation measures.

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