



# POLICY BRIEF

## CLIMATE CHANGE AND AFRICAN MOIST FORESTS

**African moist forests are enduring ever more pressure from over-use and climate change. Interest is increasing in their contribution to global mitigation and adaptation strategies. The challenge now is how to reduce deforestation without threatening the livelihoods of millions of people who depend on African moist forests. Policy changes are required to transform internationally binding agreements into effective national laws. More monitoring of moist forests and comprehensive data analysis are urgently needed. But above all, local coping strategies must be assessed, and adapted and expanded where they are shown to support livelihoods while also protecting the forests on which they depend.**

Tropical moist forests are among the ecosystems expected to be most affected by climate change. In Africa, they underpin the economies of several countries through industrial wood production (Okali and Eyog-Matig 2004). They also support the livelihoods of millions of rural people in many other ways, providing fuelwood, timber, housing, food, medicines, bush meat and various environmental services. African forests serve as livelihood safety nets, helping communities to overcome shocks from natural disasters and economic or climatic change. In addition, they maintain the quality of the environment, and command international attention because of their rich biodiversity, the unique products they provide and their potential to influence climate.

But pressure from over-exploitation and conversion to agriculture and other land uses is leading to land degradation, fragmentation and complete loss of forest cover over large areas. Added to this the increasing impacts of climate change are reflected in accelerating rates of species loss and **effects** on forest productivity. However, relationships between these factors are not yet well understood.

With tropical deforestation contributing about 20 per cent **of** the world's total carbon dioxide emissions, any reduction in the loss of African moist forests will contribute to mitigating global climate change. The challenge is how to achieve reductions in forest loss while at the same time meeting the livelihood needs of the majority of Africans who depend on forests. This is also an important issue in the debate on emerging mechanisms for Reducing Emissions from Deforestation and forest Degradation (REDD).

### African moist forests in a changing world

- ▶ Moist forests occupy about 22 per cent of Africa's land area, but contain more than 80 per cent of the wood biomass and 70 per cent of the carbon stocks in all African forests.
- ▶ Rates of deforestation are higher in Africa than on any other continent, with an average of 3.4 million hectares being lost every year since 2000.
- ▶ Today, African moist forests represent less than 7 per cent of the world's forest cover, but contribute nearly 20 per cent to total global deforestation.
- ▶ African moist forests fixed carbon at a rate of 0.63 tones of carbon per hectare per year between 1968 and 2008 (Lewis et al. 2009). This is comparable to Amazonian forests, indicating their importance in climate change mitigation.

Table 1. Growing stock, biomass and carbon content of lowland moist forest in West and Central Africa

Country	Growing stock		Biomass		Carbon content	
	Per hectare (m <sup>3</sup> /ha)	Total (million m <sup>3</sup> )	Per hectare (tonnes/ha)	Total (million tonnes)	Per hectare (tonnes/ha)	Total (million tonnes)
<b>West Africa</b>						
Benin	ND	ND	ND	ND	ND	ND
Côte d'Ivoire	258	2,683	386	4,014	179	1,864
Ghana	58	321	180	993	90	496
Guinea	77	520	189	1,272	95	636
Liberia	158	498	287	908	144	453
Nigeria	125	1,386	253	2,803	126	1,402
Sierra Leone	ND	ND	ND	ND	ND	ND
Togo	ND	ND	ND	ND	ND	ND
<b>Total West Africa</b>	<b>135.2</b>	<b>5,408</b>	<b>259</b>	<b>9,990</b>	<b>126.8</b>	<b>4,851</b>
<b>Central Africa</b>						
Cameroon	62	1,313	179	3,804	90	1,902
Central African Republic	167	3,801	246	5,604	123	2,801
Congo	203	4,551	461	10,361	231	6,181
DR Congo	231	30,833	347	46,346	173	23,173
Equatorial Guinea	66	107	142	231	70	115
Gabon	223	4,845	335	7,285	167	3,643
<b>Total Central Africa</b>	<b>158.7</b>	<b>45,450</b>	<b>285</b>	<b>73,631</b>	<b>142.3</b>	<b>37,815</b>

ND = No data

Source: FAO (2009) State of the World's Forests

## African moist forests

African moist **deciduous** forests are divided into three types. The main two groups encompass the extensive lowland forests collectively known as 'rainforest', separated into those receiving 1000–2500 mm rainfall per year, and the true rainforests that receive more than 2500 mm annual rainfall. These are concentrated in West and Central Africa and include, in the Congo basin, the largest continuous block of forest in the world outside Amazonia.

The third type includes high altitude moist forests, notably the Afromontane forests at > 900 m elevation which, although widely scattered across Africa, cover much less total area. Especially common in eastern and southern Africa, these highland 'islands' are sometimes referred to as an archipelago, with high levels of associated biodiversity. However, most discussion surrounding moist forests refers solely to the lowland rainforests and adjoining upland forests of West and Central Africa.

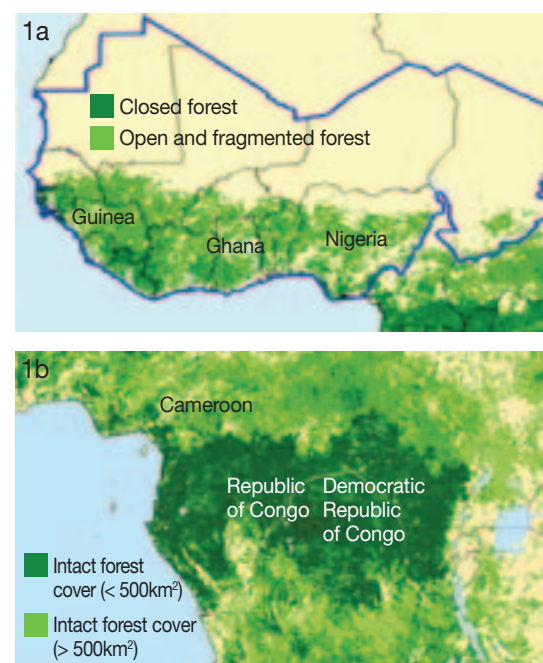
## The vulnerability of African moist forests

Moist forests in Africa are being heavily depleted by commercial logging, conversion for agriculture, exploitation of non-timber forest products (NTFPs), expansion of settlements and their associated infrastructure, and in some places, mining or civil unrest. Afromontane moist forests are additionally degraded by invasion of alien species, including those escaping from extensive plantations of exotic trees.

Human pressure is much higher in West Africa than in Central Africa because of greater population density, leading to the loss of more than 90 per cent of the original forest to date. In both sub-regions the moist forest zone has become a mosaic of forest reserves within which most industrial wood production is concentrated, set in a matrix of farms and forests at various stages of re-growth after farming or disturbance, and forests outside reserves which also contribute in part to industrial wood production (Okali and Eyog-Matig 2004).

Especially in West Africa, forests are very fragmented, a process that begins with the construction of logging tracks that open up new areas. Central Africa still has large blocks of contiguous forest, however, with over two-thirds of the forests classified as 'low-access', being continuous areas of at least 1000 km<sup>2</sup> of forest unbroken by public roads (Minnemeyer 2002).

Figure 1. Location of African moist forests.



Source:

1a. Forest Resources Assessment Map of the World's Forests, 2000.

1b. Adapted from South Dakota State University and USAID CARPE Project.



Evergreen forest near Ankasa game reserve, south-west Ghana (Courtesy Enoch Achigan-Dako)

## Translating international arrangements into national action

African moist forests must be further integrated into global arrangements for responding to climate change, such as the Clean Development Mechanism (CDM) and the REDD+ initiative. Their inclusion, however, requires mechanisms and procedures to be presented in understandable ways so that they are readily accessible to African people in terms of definitions, criteria for emission reduction assessment, transaction time and cost. Mechanisms must also provide resources and technologies to develop the full range of activities in agriculture, forestry and other land uses that avoided deforestation will forego.

To engage effectively in such mechanisms, African countries must themselves take steps to develop the necessary expertise and knowledge base. This is especially true regarding the status of forest resources and issues in the transaction process. But there is also a need to establish the necessary institutional, legislative and administrative frameworks, and domesticate international laws and processes in

ways that take local realities fully into account.

Policies must be reformed to clarify and secure forest land and tree ownership, tenure and rights, that take equity and gender considerations fully into account so that benefits from the engagement reach the grassroots. Policy reforms must also provide incentives and financial assistance for transaction and initial implementation costs, and install management and monitoring regimes that ensure full accountability. And since the drivers of deforestation often come from many sectors outside the forestry sector, mechanisms for cross-sectoral coordination of policies and their implementation must be in place.

In summary, the requirements can be classified into three groups of interventions at descending levels, from national to local:

- ▶ improving institutional and governance arrangements for climate change;
- ▶ increasing the monitoring and reporting on climate change and change in forest status;
- ▶ developing and expanding the coping practices of the forest-dependent communities.

## Local adaption by forest-dependent communities in Cross River State, Nigeria

Adaptation practices that traditionally coped with past and current climate variability may not be sufficient for future climate change. However, they are a valid take-off point in the development of climate change adaptation. Land use practice has recently been reformed in the moist forest zone of Cross River State, Nigeria to increase the conservation of land in order to accommodate rising population pressure. Encouraged by NGOs, people are now instituting Community Land Use Plans to control wasteful use of land. Community forest land was mapped and demarcated into various use zones, including a core zone that is totally protected, areas for collection of NTFPs, recuperation areas and farmland. Adherence to the prescribed use is controlled by regulations and bye-laws endorsed at the local government level. This effort at controlled land use is only a few years old, but its potential for contributing to reduced deforestation is evident. The practice is now being examined to see whether aspects of it can provide viable options for climate change adaptation at a national level.



## Recommendations

Under the Kyoto Protocol, the existing instrument through which forestry activities can be conducted as a response to climate change is the CDM. African countries with moist forests have not been able to access financial resources to meet the heavy costs involved in reaching project preparation standards. Furthermore, high transaction and plantation establishment costs, requirements for clear property rights and the difficulty of meeting sustainability criteria are further obstacles that make it difficult for local communities to participate even in simplified afforestation/reforestation projects under the CDM.

- ▶ The emerging mechanism of REDD+ should learn lessons from CDM implementation and take these into account to ensure that African governments and communities can both participate fully.
- ▶ Studies are urgently needed to ascertain the stability of African moist forests, especially in terms of their response to climate change and climate variability. Since different species respond differently to climatic factors, attention should focus on each ecosystem's dominant and critical species (Okali and Eyog-Matig 2004).
- ▶ Methodological and policy reform and capacity building are all needed before African moist forests can be fully included in climate change mitigation and adaptation strategies, ensuring their sustainable future use.



Afromontane forest, near Meru, Kenya (Courtesy Nick Pasiecznik)

## Source

Okali, D., 2011. Climate change and African moist forests. In Chidumayo, E., Okali, D., Kowero, G., Larwanou, M., eds. *Climate Change and African Forest and Wildlife Resources*. Nairobi: African Forest Forum, p. 85–101.

## References

- Lewis, S.L., et al. 2009. Increasing carbon storage in intact African tropical forests. *Nature* 457: 1003–1007.
- Minnemeyer, S., 2002. *An Analysis of Access to Central Africa's Moist Forests*. Washington: Global Forest Watch and World Resources Institute.
- Okali, D., Eyog-Matig, O., 2004. Moist forest management for wood production in West and Central Africa. Paper prepared for Royal Swedish Academy of Agriculture and Forestry, African Forest Research Network and the Food and Agriculture Organization of the United Nations.

Design and editing by Green Ink ([www.greenink.co.uk](http://www.greenink.co.uk))

## Contact us

The Executive Secretary, African Forest Forum (AFF), United Nations Avenue, Gigiri, P.O. Box 30677-00100, Nairobi, Kenya  
Phone: +254 20 722 4203 | Fax: +254 20 722 4001 | Email: [exec.sec@afforum.org](mailto:exec.sec@afforum.org) | Web: [www.afforum.org](http://www.afforum.org)

