



**MAKING SUB-SAHARAN AFRICAN FORESTS
WORK FOR PEOPLE AND NATURE**

Policy approaches in a changing global environment

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IUFRO-WFSE TOGETHER WITH PARTNERS ICRAF AND CIFOR ORGANIZED A WORKSHOP IN NAIROBI, KENYA, IN APRIL 2008 TO COLLATE THIS POLICY BRIEF. THE WORKSHOP PARTICIPANTS (FROM TOP LEFT): EVERISTO NONDE (MINISTRY OF TOURISM, ENVIRONMENT & NATURAL RESOURCES, ZAMBIA), MICHEL LAVERDIERE (FAO), ESTHER MWANGI (HARVARD UNIVERSITY), AUGUST TEMU (ICRAF/AFF), ALFRED OTENG-YEBOAH (CSIR - GHANA), JONAS YEMSHAW (AFORNET); (FROM LOWER LEFT) BRENT SWALLOW (ICRAF), CATHERINE KIMENGU (ICRAF), HARRISON KOJWANG (WWF), CYRIE SENDASHONGA (CIFOR), HEIDI VANHANEN (WFSE/METLA) AND PETER A. MINANG (ICRAF). MISSING FROM THE PHOTO: PATRICK MILIMO AND CHEIKH DIENG.

THE OPINIONS PRESENTED HEREIN ARE THOSE OF THE CONTRIBUTING AUTHORS AND DO NOT NECESSARILY REPRESENT THE VIEWS OF THE INSTITUTIONS INVOLVED.

PREFACE

However diverse the forests and people of sub-Saharan Africa may be, they share many commonalities. They face the challenges of alleviating poverty, limiting deforestation and the degradation of forest and tree resources, reversing land degradation, coping with water scarcity, and restraining desertification. Many of these problems are aggravated by climate change and the global economic crisis, as reflected in rising food and energy prices. At the same time, tremendous opportunities exist in the form of growing markets for bio-energy and environmental services such as carbon sequestration and protecting water resources and biodiversity. To secure its future, sub-Saharan Africa must seize the moment and find opportunities in these markets to diversify livelihoods and safeguard the welfare of its people. This requires the sustainable management and use of forests.

This policy brief is a call for action. It focuses on three global drivers of change - climate change, payments for environmental services, and emerging energy markets - that will likely shape sub-Saharan Africa's future development

and her forests. These drivers affect a range of social, economic and environmental parameters including income and food security, employment, migration, social security, and biodiversity, as well as structures and institutions within and beyond the forestry sector. When these new global drivers of change intersect with local drivers, such as demand for food pushing the farmland frontiers into forests, they introduce new challenges that require innovative responses. Such responses will differ between humid and dry regions and even country by country.

This policy brief seeks to provide options on how countries in sub-Saharan Africa and their forests can respond strategically to these global drivers, summarized as key messages and policy recommendations.

The policy brief is a product of participatory brainstorming and review based on scientific evidence by about 20 specialists and researchers from Africa and beyond between April 2008 and early 2009. Generous support was received from the Ministry for Foreign Affairs of Finland.

Key messages

1. Global drivers of change require new approaches to local forest and landscape management.
2. Since most impacts on forests, including deforestation and forest degradation, emanate from outside the sector, intervention requires cross-sectoral and integrated approaches.
3. To succeed, any proposed strategy must bring African livelihoods to the fore.
4. Emerging environmental services markets and trends in energy markets present opportunities, but leveraging them requires long-term strategies.
5. National policies and institutions need to be further reformed to respond to the complex challenges of these dynamic times.
6. Urgent policy and development responses are needed to adapt to climate change.

New approaches to new challenges

Forest management practices are shaped by dynamic factors such as population growth, technological and agricultural development, and globalization of production and markets. Forest management approaches have emphasized commercial products more than direct, indirect and long-term services for the people. More recently, decentralized forest management has expanded in the form of community, collaborative, joint, and adaptive forest management – all aiming to include people and ensure that forests benefit both people and nature.

The three global drivers of change – climate change and emerging markets for environmental

services and markets for bioenergy – impacting on Africa's forests call for an innovative approach to managing forested landscapes. The challenge for sub-Saharan Africa is to ensure that forests and woodlands continue to support and diversify livelihood options and create new opportunities for long-term human development. Forests and trees are, more than ever before, seen as important in the struggle to alleviate poverty and mitigate and adapt to climate change. Emerging global mechanisms to pay for environmental services have the potential to generate incentives for improved forest and land management. Meanwhile, growing demand for biofuels and rising food prices put more pressure on forested land. These global changes are likely to play an important role in shaping policies affecting forests in sub-Saharan Africa.

Box 1. An African mosaic of people and forests

The forests of sub-Saharan Africa cover 582 million hectares and are extremely diverse; 180 million hectares of rainforests in the Congo Basin region and 270 million hectares of *Miombo* woodlands, with dry forests comprising the bulk of the remainder. All of Africa has 8 million hectares of forest plantation, accounting for only about 4.3% of the global total. In sub-Saharan Africa, there are major plantations only in South Africa and Sudan.

The percentage of sub-Saharan people living on less than USD1.25 per day (the World Bank's poverty benchmark) declined from 58% in 1990 to 51% in 2005. However, the absolute number of those in extreme poverty grew by nearly half in the same period, from 394 million to 557 million. Even if the percentage of sub-Saharan Africans living on less than USD 1.25 a day declines, as projected by UN-ECOSOC, further to 37% by 2015, their number will likely reach 585 million.

One third of sub-Saharan Africans were undernourished in 2001–03, and 24 countries required external food assistance at the beginning of 2007. The effects of climate change may triple the number of undernourished people in sub-Saharan Africa between 1990 and 2080.

In 2008 about 15 sub-Saharan African countries entered a second decade of strong annual economic growth rates of better than 5%, buoyed by the global commodity boom. Yet the 2009 global economic crisis threatens hard-won poverty reduction gains, as per capita income in several countries declined for the first time since 1994.

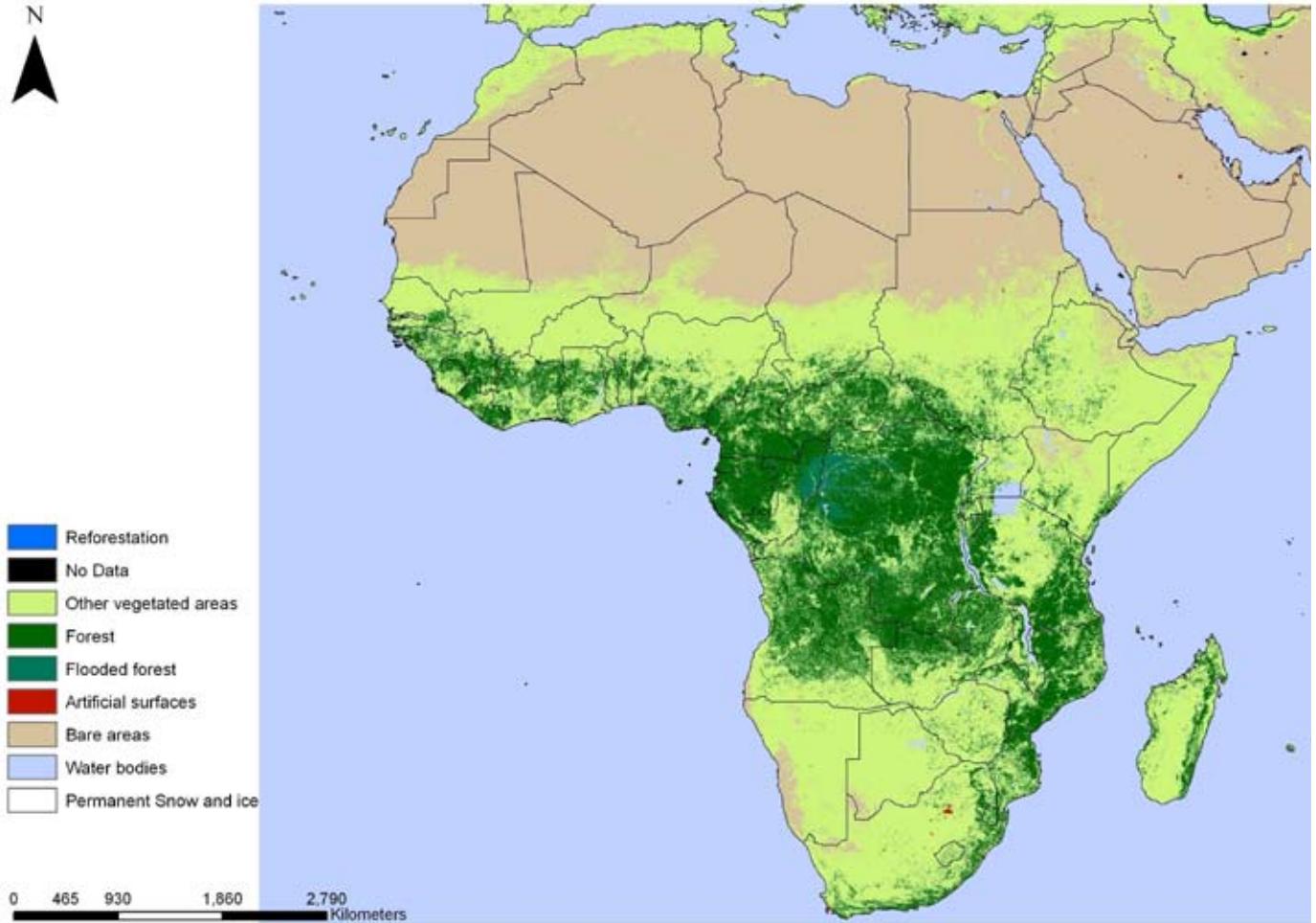


FIGURE 1: FOREST AND WOODLAND COVER IN AFRICA.

SOURCE: ESA / ESA GLOBCOVER PROJECT, LED BY MEDIAS-FRANCE

WHY SUB-SAHARAN AFRICA'S FORESTS MATTER

Forests contribute immensely to economic and social development through formal trade in timber, through environmental services and non-timber forest products, as well as through their safety net, spiritual and aesthetic values. This contribution will be all the more important in the future. Forests provide up to 10% of the gross domestic product of 19 African nations and more than 10% of the trade of 10 nations. However, economic benefits are unevenly distributed, often favouring the rich and powerful at the expense of the rural poor.

Forests are critical for the well-being of people and the provision of a broad range of products, services and functions. The vast majority of rural Africans interact with forests and woodlands daily, whether as nomads or sedentary farmers. An estimated 65% of the population of sub-Saharan Africa is rural and depends directly or indirectly on forests and woodlands for food, fuelwood, building materials, medicines, oils, gums, resins and fodder. The World Bank estimates that forests generate at least 20% of the disposable income of landless and poor families, while 85% of the wood removed from forests and woodlands is burned as fuel by both rural and urban residents.

Africa's diverse forests and woodlands (Figure 1) support a tremendous amount of biodiversity, protect water sources and store huge amounts of carbon. Four African nations are among the world's 17 countries with 'mega-biodiversity', and three forested areas are recognized as biodiversity hotspots: the Guinean Forest, the Eastern Arc Mountain Forests and the Mediterranean Basin Forests. The Congo Basin is the second-largest continuous expanse of tropical rainforest in the world. It accounts for more than 60% of Africa's biodiversity.

Central African forests store 25-30 billion tonnes of carbon, equivalent to 4 years of current global anthropogenic emissions of carbon dioxide. Mature humid forests in Africa sequester 630 kilograms of carbon per hectare per year, providing a critical buffer against global climate change. Forests also play important roles in maintaining clean and healthy watersheds that sustain forest-dwelling people and urban populations alike.

Despite their importance, Africa's forests continue to decline rapidly. The Food and Agriculture Organisation of the United Nations (FAO)



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estimates that more than 9% has been lost between 1990 and 2005, at an average rate of 4 million hectares or 40,000 square kilometres annually. With 17% of the world's forests, Africa accounts for over half of global deforestation; tropical dry forests in East and Southern Africa accounting for most of this. Reasons for the decline include the expansion of agriculture into forest lands, population growth, poverty, high dependence on natural resources for subsistence and income, and economic pressures to increase exports of agricultural produce, timber and minerals.

Globally, 78% of the increase in agricultural crop output between 1961 and 1999 was attributable to yield and productivity increases and only 22%

2 & 3. LAND IS A VITAL PRODUCTIVE ASSET IN RURAL ECONOMIES. THE DIVERSE MOSAIC LANDSCAPES OF AFRICA CONTINUOUSLY CHANGE AS LAND USES COMPETE; CASH AND COMMERCE VERSUS DAILY NEEDS, CATTLE VERSUS CROPS VERSUS TREES.

to expanded arable land. In sub-Saharan Africa, by contrast, only 34% of increased output was derived from yield increases and the remaining 66% from expanded farm area. Two thirds of Africa's arable land suffered degradation from 1950 to 1990, and two thirds of the remainder may suffer the same fate by 2025. Without improved agricultural productivity, rising food demand alone will perpetuate deforestation and forest degradation.

Sub-Saharan Africa's population is expected to increase rapidly in the next few decades (Figure 2), stimulating greater demand for wood energy, especially in urban areas. The consequences for forests will be severe, as rising global energy prices and continuing electricity shortages in Africa further concentrate dependence on fuelwood, charcoal and other biomass.

As supplies of wood and other products from forests decline, trees grown outside forests on homesteads and communal lands become more important. However, expanding the roles of individuals and companies in growing, protecting and managing trees requires secure tenure and property rights.

Sub Saharan Population Growth

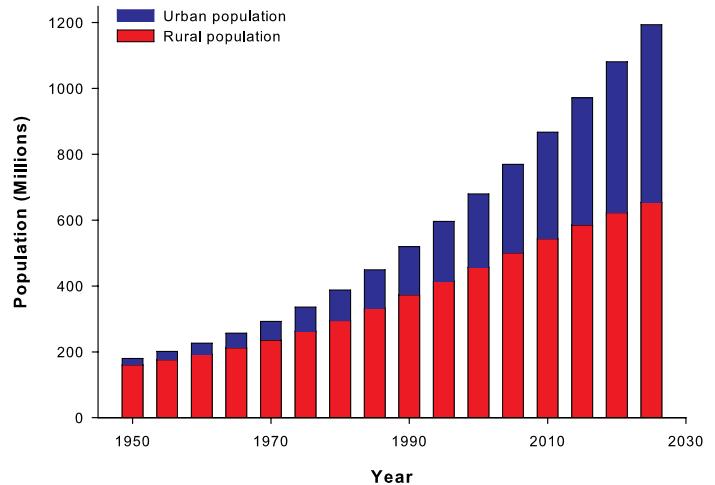


FIGURE 2: SUB-SAHARAN AFRICA HAS DOUBLED ITS POPULATION IN THE PAST 25 YEARS AND IS THE ONLY MAJOR REGION IN THE WORLD WHERE THE RURAL POPULATION IS PROJECTED TO GROW UNTIL THE 2040s. THE URBAN POPULATION IS ESTIMATED TO INCREASE BY 100 MILLION FROM 2000 TO 2010 AND BY ANOTHER 125 MILLION FROM 2010 TO 2020.

SOURCE: ECOSOC 2007

CLIMATE CHANGE MITIGATION AND ADAPTATION



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4. THE DRY AND COASTAL AREAS OF SUB-SAHARAN AFRICA WILL BE WORST AFFECTED BY CLIMATE CHANGE, WITH THE STRONGEST IMPACTS ON THE URBAN POOR. ALTHOUGH TO DATE, POVERTY HAS BEEN MUCH GREATER IN RURAL AREAS, 72% OF THE URBAN POPULATION OF SUB-SAHARAN AFRICA WAS LIVING IN SLUMS IN 2005.

Sub-Saharan Africa is the region most vulnerable to climate change. Further, it faces huge developmental challenges: widespread and endemic poverty; HIV/AIDS; armed conflict; weak institutions; poor planning; and limited infrastructure, education and access to technology, finance and information. These challenges also compound the impacts of climate change and limit capacity to adapt.

African forests work for the well-being of African people but also for the people of the rest of the world, through their climate change mitigation capacity. Africa's responses so far to the challenges and opportunities of climate change have been slow, inadequate and erratic. International policies relating to forests and climate change require novel approaches to these new opportunities and challenges.



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5 & 6. AFRICA HAS 60 TRANSBOUNDARY RIVER AND LAKE BASINS, WHICH COMBINED COVER MORE THAN 60% OF THE CONTINENT'S TOTAL AREA. SOME OF THE LARGEST BASINS ARE THE CONGO, NIGER, NILE, ZAMBEZI AND LAKE CHAD, EACH WITH SHARED RESOURCES FOR AGRICULTURE AND HYDRO-ENERGY. SUB-SAHARAN AFRICA IS EXPERIENCING INCREASING WATER STRESS DESPITE USING LESS THAN 4% OF ITS FRESHWATER RESOURCES.

Opportunities

Acting now to adapt to climate change could benefit sub-Saharan Africa as it is likely to be less expensive than delayed action. Adaptation to climate change is urgent and still costly, and could put tremendous pressure on national budgets. Sub-Saharan Africa must leverage urgently needed climate change adaptation funding through various mechanisms under the United Nations Framework Convention on Climate Change (UNFCCC).

A mechanism for Reducing Emissions from Deforestation and Degradation (REDD), currently under negotiation, may provide incentives to reduce emissions from forests. Some countries in sub-Saharan Africa are already

engaging in REDD readiness activities and preparing nationally relevant strategies for a REDD framework that could be introduced after 2012.

- * In the short term REDD is seen as a cost-effective and efficient way of slowing global warming. In the medium term REDD programmes could advance pilot compensation mechanisms to compensate people for avoiding deforestation (see section 3).
- * Climate change adaptation strategies can take advantage of existing regional institutions for river and lake basin management. Some eight river basin organizations and several transboundary water agreements exist in Africa, most of them established in the 1960s and 1970s.



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7 & 8. CRUCIAL FOR ADAPTATION TO CLIMATE CHANGE IN SEMI-ARID CONDITIONS IS SCALING UP VARIOUS RAINWATER HARVESTING AND WATER CONSERVATION TECHNIQUES, SUCH AS THE ZAI TECHNIQUE PRACTISED IN BURKINA FASO.

Challenges

The challenges of climate change in sub-Saharan Africa fall into two groups. The first is to reduce vulnerability to the multiple sectoral impacts of climate change and enhance capacity to adapt to them (see Box 2). The second is to improve Africa's participation in global climate change negotiations and mechanisms.

Countries need to plan more proactively for climate change adaptation. Only 24 countries in sub-Saharan Africa have prepared national adaptation plans of action. Most strategic planning for adaptation has been sponsored by UNFCCC and donor driven. Most strategies

are inadequately linked to other strategies and activities, such as for poverty reduction, and to national forest programmes. Institutional challenges and the lack of funding delay planned implementation.

* Countries need to scale up current adaptation action. Most climate change adaptation in the region is limited to small project areas: addressing water conservation techniques; agricultural techniques such as intercropping and crop diversification; agroforestry for improving products and services and soil conservation; and livestock management changes such as replacing goats with sheep in Sudan.



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- * Meaningful participation in global climate policy processes is needed. Most African country delegations to UNFCCC post-2012 negotiations are small, technically weak and lacking in well-articulated positions. Delegations require diverse, multidisciplinary expertise on teams large enough to allow attendance at multiple and often parallel sessions.
- * Cross-region collaboration would boost Africa's bargaining power in negotiations such as UNFCCC. The shift in emphasis from CDM to REDD, which focuses on humid forests, for example, may call for developing a common position among the countries with dry forests.

9 & 10. AFRICA TODAY HAS NATURAL FORESTS, BOTH DRY AND HUMID, WOODLANDS AND MOSAIC LANDS WITH COMBINATIONS OF CROPS, PASTORALISM AND TREES. DIFFERENT POLICY APPROACHES AND STRATEGIES ARE NEEDED IN DIFFERENT LANDSCAPES TO MITIGATE CLIMATE CHANGE. IN MOSAIC LANDS, SMALLHOLDER FARMERS ARE LIKELY TO BENEFIT MOST. AT THE FOREST MARGINS, THE GREATEST POTENTIAL TO REDUCE DEFORESTATION LIES WITH EFFECTIVE POLICIES ADDRESSING TENURE ISSUES.

Box 2. Vulnerability to climate change in sub-Saharan Africa

As temperatures and rainfall patterns change in sub-Saharan Africa, a number of sectors are likely to be affected, according to the Intergovernmental Panel on Climate Change (IPCC).

Water. Water stress and scarcity – defined as annual water resources available less than 1,500 cubic metres/capita – is expected to worsen in sub-Saharan Africa with climate change. Projections indicate that between 75 and 250 million people will likely face increased water stress by 2020.

Terrestrial ecosystems. Climate change is projected to expand the semi-arid and arid land area of Africa by 5-8% by 2080. The IPCC estimates that desertification, especially in Sahelian and Southern Africa, could further degrade forests and consequently endanger 20-40% of the species on the continent. Pressure on forest resources is intensifying with the declining productivity of agricultural land caused by climate change.

Agriculture and food security. Forty-nine percent of sub-Saharan Africa's 17.3 million hectares of harvested tuber area is rainfed, as is 95% of its 103 million hectares of cereal land. Temperature and rainfall changes induced by climate change are expected to reduce yields from rainfed agriculture by up to 50% by 2020.

Coastal zones. Coastal areas in West Africa and woodlands in East and Southern Africa are particularly threatened by sea level rise and increasing aridity.

Human health. Climate change is likely to alter the spatial and temporal distribution of malaria, dengue fever, meningitis, cholera and other diseases. Previously malaria-free highlands in Burundi, Ethiopia, Kenya and Rwanda may be malarial by 2070.

Policy recommendations to enhance climate change mitigation and adaptation

Encourage regional collaboration in adaptation to climate change. Climate change impacts cut across national boundaries. Regional collaboration efficiently enhances resilience and adaptive capacity and reduces vulnerability. Existing arrangements for transboundary river basin management and cross-boundary conservation can become platforms for regional collaboration.

Focus on capacity and awareness building. All necessary action must be taken for training, education and research at all levels of government, academic and research institutions as well as the media and public for them to fully understand the challenges and opportunities in the mitigation and adaptation to climate change.

Develop mechanisms to reduce vulnerability. Targeted development planning in vulnerable areas is essential for Africa's future. Policies that empower poor people, promote equity, and diversify livelihoods with off-farm employment will improve adaptive capacity and reduce vulnerability.

Enhance interdepartmental collaboration and multisectoral approaches. Understanding and planning for climate change requires a multidisciplinary and cross-sectoral approach with the participation of forestry, finance, planning, agriculture, environment and other departments. Countries need to enhance cooperation between ministries to be effective and to ensure that national adaptation plans and all climate related strategies complement and are integrated into development plans.

Develop and implement strategic initiatives, studies and decision-support systems on climate change. REDD and biofuel initiatives are likely to affect national economic development objectives, impacting actors differently. Private sector is an essential actor in development. Answers are needed as to: what are the potential impacts in the short and long term? What technical and institutional arrangements enable effective, efficient and equitable REDD and biofuel development?

Encourage regional collaboration in UNFCCC post-2012 negotiations and processes. Developing a common vision will give greater voice to African countries in negotiations and enable economies of scale in methodology development and monitoring (see Box 3).

Box 3. Forest collaboration in the Congo Basin

The Central African Forest Commission is a good example of a supra-national and sub-regional collaborative effort for forest conservation in sub-Saharan Africa. The initiative was set up to harmonize forest policy and policy implementation in Central Africa through a convergence plan.

The commission has facilitated four joint submissions from Congo Basin countries arguing that: (1) forest degradation must be considered in any future climate change regime; and (2) historical baselines would put its member countries at a disadvantage given their low historical deforestation rates, and so baselines should be adjusted for level of development.

Environment and forest ministers from commission countries signed a declaration in Bangui, Central African Republic, in September 2008 committing to joint action on UNFCCC processes. This includes stating a common position and regional strategy on REDD, building UNFCCC negotiation capacity, and jointly developing methodologies for assessing forest degradation and establishing a regional satellite receiving station to facilitate REDD planning and monitoring.

GLOBAL PAYMENTS FOR ENVIRONMENTAL SERVICES

Forested landscapes can provide a multitude of environmental services for which market systems and payments are growing. Evolving and developing schemes recognize carbon sequestration, water protection, biodiversity protection and scenic beauty.

Payments for environmental services (PES) can reward local communities for managing natural resources to sustain or restore environmental services. Africa lags behind Latin America and Asia in developing multiple-use forested landscape and land management schemes that involve PES.

Opportunities

PES schemes may contribute to poverty alleviation. Although they are not a panacea for African poverty, they provide opportunities for those who manage environmental services to benefit directly. Potential is especially great in the growing carbon markets. Global markets for carbon sequestration services are directly influenced by the global debate on climate change. Carbon markets worth USD 118 billion in 2008 are projected to be worth USD 150 billion in 2009. Africa's current share is only 2% of the market.

Box 4. Environmental services mechanisms in brief

The Clean Development Mechanism (CDM) is one of three flexible mechanisms in the Kyoto Protocol that allows the North to invest in projects that contribute to carbon emission reduction and carbon sequestration in the South. Only afforestation and reforestation are eligible under current CDM forestry rules. These projects should contribute to sustainable development in developing countries while enabling developed countries to meet Kyoto targets for emission reduction and quantified emission limitation. CDM rules are valid only for the first Kyoto Protocol commitment period, from 2008 to 2012. Negotiations for the second commitment period are underway, and the future of the CDM after 2012 is unclear.

A new mechanism being discussed for developing countries in a post-2012 climate change scenario is Reducing Emissions from Deforestation and Degradation (REDD), which will compensate countries for avoiding deforestation and - specifically in REDD+ - for implementing sustainable forest management. Countries that elect to reduce deforestation nationally to below an agreed baseline, can receive compensation for stabilizing or further reducing deforestation in the future.



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11. AS DEFORESTATION AND FOREST DEGRADATION IN SUB-SAHARAN AFRICA MOST SEVERELY AFFECTS DRY FORESTS, A REDD MECHANISM MUST TARGET THESE AREAS. COUNTRIES TO CONSIDER FOR REDD EFFECTIVENESS IN AFRICA ARE THOSE WITH HIGH RATES OF DEFORESTATION, SUCH AS BURUNDI (5.2%), COMOROS (7.4%), SUDAN (589,000 HA/YEAR) AND ZAMBIA (445,000 HA/YEAR).

The two kinds of carbon market mechanisms are UNFCCC regulated and voluntary markets. The only regulated market for which African countries are eligible is the Clean Development Mechanism (CDM), which compensates only for afforestation and reforestation. UNFCCC is discussing the possibility of including avoided deforestation and sustainable forest management in a post-2012 REDD mechanism (see Box 4). The best-known example of a voluntary market system is the Chicago Climate Exchange.

* Many African countries see REDD as an opportunity to raise funds for poverty alleviation, conservation and for sustainable management. Countries with humid forests such as Cameroon, Democratic Republic of

Congo, Guinea and Liberia are among those with the most potential for REDD in Africa. Yet, the shift in focus from CDM to REDD is raising concerns that countries with dry forests will be marginalized.

* Payments for maintaining forests and trees to protect water resources have so far been local or sub-regional but may expand into inter-regional markets as water insecurity progresses. Demand for water is growing along with urban populations and demand for hydropower. In 1950, only 11% of sub-Saharan Africans lived in urban areas, but this figure increased to 35% in 2005 and is projected to rise to 40% by 2015.



12.

12. GLOBAL NATURE TOURISM AND BIODIVERSITY MARKETS ARE GROWING RAPIDLY. INCOME FROM TOURISM IN 2005 EXCEEDED 25% OF THE TOTAL EXPORT VALUE IN ETHIOPIA, TANZANIA AND UGANDA. TOURIST PAYMENTS FOR SCENIC BEAUTY, INTACT ECOSYSTEMS, BIODIVERSITY AND GAME VIEWING ALLOW REINVESTMENT IN ECOSYSTEMS THAT ARE FRAGILE OR AT RISK. IN SOUTHERN AFRICA, GAME FARMING HAS BEEN BUOYED BY PROSPECTS FOR SUCH MARKETS (SEE BOX 6).

- * Africa has about 10 payment systems for local or sub-regional water service initiatives thus far. Most are nascent, and only two have begun making payments: Working for Water and Working for Wetlands, both in South Africa (see Box 5).
- * Growing markets for water – globally and nationally – could help finance African transboundary river and lake basin management. A report by the United Nations Economic Commission for Africa revealed that lack of finance is the major constraint on the successful implementation of river basin activities in Africa.

Box 5. Working for Water Programme in South Africa

Since 1995, the Working for Water Programme (WfW) has employed between 25,000 and 32,000 low-skilled labourers and historically disadvantaged individuals (including rural women and the disabled) to clear over 1 million hectares of invasive plants across South Africa. Invasive species cover about 10% of South Africa (10 million hectares), soak up 7% of water resources, intensify floods and fires, and threaten native biodiversity. One study indicates that the programme has generated increased water flows of 250 million cubic metres annually.

Most activities are on public lands, as WfW is largely government funded. The annual budget is 500 million rand (USD 70 million), of which 80% is funded by tax revenues from the central government through its Poverty Relief Fund. Most of the remainder comes from the general budget of the Department of Water Affairs and Forestry, about half of which—or 10% of total funding—comes from water resource management fees charged in 13 of the 19 water management areas in the country.

The sustainability of programme funding is a concern, but payments from municipalities, state-owned utilities and private companies offer hope of continuity that will see invasive species cleared from catchments that supply water.

Box 6. Learning from the CAMPFIRE experience

The Communal Area Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe has enabled communities on communal land to access markets for wildlife services through rural district councils. The government authorizes district councils to receive and manage wildlife revenues on behalf of communities. Districts sell these services to safari operators, who sell hunting or ecotourism packages to hunter or nature tourist end-users. In principle, half of the revenue received by the rural district council goes to the communities, 35% is allocated to wildlife management and 15% is a district administrative levy. Between 1989 and 2001, CAMPFIRE generated USD 20 million in benefits to communities, reaching 121,550 households.

The programme faces such challenges as overlapping boundaries, communal rights issues, high start-up costs for late-starting districts and limited motivation as payments in communities are undifferentiated. Nonetheless, the CAMPFIRE experience has spread to other countries in Southern Africa and offers many lessons for Africa in general.

Box 7. Enforcement of water-use fees in Tanzania

Tanzania Electricity Supply Company Limited currently pays annual user fees to the Ministry of Water and Livestock Development, a proportion of which goes to water basin authorities to finance catchment management. However, very little evidence of catchment maintenance is evident. African governments need to strengthen their enforcement of such provisions if PES markets are to develop.

Challenges

Scaling up systems of paying for and trading diverse ecosystem services remains a challenge for sub-Saharan Africa. Several factors have constrained scaling up, including unclear tenure rights, weak institutions, poor technical capacity to measure and monitor services, lack of project finance, and often weak legal and policy frameworks. Who owns the carbon? Who owns the land that provides environmental services? And who are the beneficiaries of these services? Lack of clarity is a disincentive for investment in resource management and payment, and there is genuine concern that governments or brokers alone will appropriate revenues from these activities.

* An enabling institutional environment is needed for PES development, yet current institutional arrangements in sub-Saharan Africa are weak. Specialized organizations are needed to support project development, certify projects, help broker and negotiate deals with overseas buyers that communities cannot reach, and ensure benefit sharing in communities.

- * Buyers and sellers need to be better linked. While most buyers of environmental services are large institutions, such as hydroelectric companies, municipal water suppliers or governments, service suppliers are mainly rural land users. Sub-Saharan Africa currently has few local buyers of environmental services, and suppliers are unaware of potential markets. Governments need to sensitize buyers and sellers and provide incentives for them to enter into agreements.
- * Regulations need to be improved and better implemented (see Box 7). They include deducting a percentage of utility payments or taxes for the development and maintenance of services such as protecting water resources.
- * Data to quantify environmental services provided in sub-Saharan Africa are grossly inadequate. Most buyers require certified measures of carbon sequestered, increased water flows and/or improved biodiversity. Project developers and/or service providers must employ scientific procedures that require robust data.

Policy recommendations to enhance global PES

Develop policy and legal frameworks to enhance PES markets. Clarity regarding rights, responsibilities and equity is critical for successful environmental service markets, especially as certain groups can suffer. Legal instruments need to be reformed for: (1) assigning rights and duties over forest resources and environmental services; (2) managing and distributing benefits and funds effectively, transparently and fairly; and (3) organizing community groups into effective producers and marketers of services, such as carbon credits.

Bundle carbon, water and/or biodiversity services to enhance PES profitability and viability. The opportunity, programme and operational costs of PES schemes are likely to be very high. CDM project costs are prohibitively high. It could be useful to explore possibilities for optimizing costs and benefits by bundling services and accruing PES at a landscape level.

Reform and rebuild institutions to support environmental services markets. Sub-Saharan African forest and natural resource management institutions need to adapt to the market paradigm. Governments need to create and strengthen institutions that facilitate the development, validation and certification of projects, such as the designated national authority required for CDM projects. Often private sector involvement may be necessary.

Facilitate mechanisms for investments in PES. Creating mechanisms for financing PES projects up front would catalyse project development. A broad range of mechanisms need to be considered, including government funds generated from taxes and tax privileges for private investors.

Support collaborative efforts on PES research, capacity building and sharing experiences on best practices. Learning from successes and failures across sub-Saharan Africa and consultations with other experts can help overcome some of the scientific, technical and implementation challenges facing PES initiatives. Basic data for assessing and monitoring environmental service schemes are urgently needed.

CHANGING GLOBAL ENERGY MARKETS

Secure access to energy is central to economic and social development. One of the biggest obstacles to foreign investment and development in Africa is energy shortage. Africa has the world's lowest rate of electricity consumption per capita, which actually declined in the 1990s. In 2005, only 26% of all households in sub-Saharan Africa—and 8% of rural households—had access to electricity.

While sub-Saharan Africa's population is projected to double by 2030, the International Energy Agency anticipates that the number of people without electricity in the region will increase to 584 million by then (from 526 million in 2002) unless major improvements occur in electricity generation and distribution.

Eighty-nine percent of residents and 84% of small and medium-sized enterprises in sub-Saharan Africa rely mainly on solid fuels including wood, charcoal or crop residues for primary energy. It is projected that there will be 627 million people burning biomass in 2015, up from 575 million in 2004. Population growth without accompanying growth in affordable and clean energy supplies

means continued pressure on tree resources, particularly in dry forests and open woodlands, to supply charcoal and fuelwood.

- * Markets for diverse biofuels are growing, spurred by oil price fluctuations, import substitution, and global and regional policies aiming to mitigate climate change. The potential for sub-Saharan Africa to benefit from these is considerable, offering alternative sources of income for farmers while also supplying energy locally.
- * The benefits of biofuel production must be weighed against risks to agricultural production, food security and ecosystem health. Biofuels may compete with food production for land and water resources, most critically in semi-arid areas.
- * Major global reorientation toward renewable energy and growth in bio-energy markets requires appropriate policy responses in sub-Saharan Africa to simultaneously meet local and global energy needs, contribute to climate change mitigation, and enable better management of forested landscapes.



13. WOOD RESIDUES GENERATED DURING HARVESTING AND PROCESSING MAY BE SUFFICIENT TO MEET CAMEROON'S TOTAL ELECTRICITY DEMAND OF 3,320 GIGAWATT-HOURS. WOOD RESIDUES FROM MILLS COULD PRODUCE 60% OF THE ELECTRICITY CONSUMED IN GABON AND 12% IN NIGERIA, ALBEIT WITH LOGISTICAL PROBLEMS TO RESOLVE.

13.

Opportunities

Sub-Saharan Africa has an assortment of potential energy sources to meet deficits locally, nationally and across boundaries: hydro, solar, wind and thermal energy, oil-bearing plants, tree and agroforest plantations on various scales, and wood residues. Coal reserves in Southern Africa offer great benefits if developed with new technology.

* Growing biofuels can help alleviate energy shortages, sequester carbon and improve incomes. Some biofuel crops such as jatropha, croton and sweet sorghum can thrive on degraded lands and are less likely to compete with food crops or affect local water supplies.

However, poor soils and degraded lands may constrain productivity and profitability. Also, some apparently idle, underutilized or barren land may actually be important to local livelihoods.

* Increasing demand for wood-derived fuels such as charcoal and fuelwood presents great opportunity for plantation development and private tree planting by farmers and communities. Second-generation biofuel technologies that efficiently produce liquid biofuels from cellulosic material rather than from food crops could reduce competition with food production and improve energy efficiency and balance.

14. EVEN URBAN AREAS HAVE FEW OPTIONS FOR REPLACING FUELWOOD. IN THE MAIN URBAN AREAS OF MALAWI ONLY ONE THIRD OF HOUSEHOLDS ARE CONNECTED TO THE NATIONAL ELECTRICITY GRID. AS REPORTED IN THE URBAN ENERGY SURVEY, THE DIFFERENCE IN HOUSEHOLD EXPENDITURE ON CHARCOAL IS VERY SMALL BETWEEN HIGH AND LOW-INCOME HOUSEHOLDS.



14.

Challenges

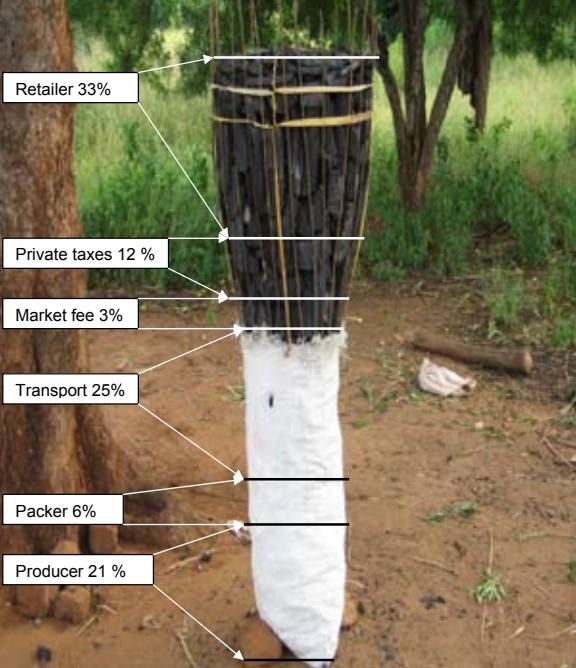
Rising demand for fuelwood and charcoal is accelerating forest degradation and deforestation. Even if much of the fuelwood supply is not derived from forested areas, forest reserves, customary lands and national parks are often in transition to degraded woodland and devoid of species preferred for fuelwood or charring.

Most fuelwood comes from unauthorized and uncontrolled sources (see Box 8). The informal nature of fuelwood and charcoal production, transport and trade leaves many small producers operating at subsistence with no employment

security. Many workers are underpaid and abused, and some are child labourers.

Climate change is likely to constrain biomass supply by lowering productivity and making forests and woodlands less resilient, especially in dry areas where wood scarcity is greatest. Even now, 258 million people in sub-Saharan Africa, or nearly 40% of the population, live in fragile or arid areas with extreme rainfall variability, recurrent but unpredictable drought, high temperatures, low soil fertility, and pressure from grazing and fires.

* Land giveaways to large companies to supply growing global markets for biofuels



15. PRODUCING, PACKAGING, TRANSPORTING AND TRADING FUELWOOD AND CHARCOAL EMPLOYS LARGE NUMBERS OF PEOPLE. IN DAR ES SALAAM THE FUELWOOD AND CHARCOAL TRADE INVOLVES 125,000 PEOPLE. IN MALAWI 92,800 PEOPLE OWE THEIR LIVELIHOODS TO CHARCOAL, INCLUDING 46,500 PRODUCERS, 12,500 BICYCLE TRANSPORTERS, 300 OTHER TRANSPORTERS AND 33,500 TRADERS.

15.

may aggravate food insecurity and cause deforestation and conflicts. Land and water are the key inputs to bio-energy production, which can make high-quality arable land or water less available for producing food.

- * Rising global energy and food prices and demand for biofuels may combine to aggravate social inequality, poverty and other development challenges. Biofuel production has been blamed for 30% of the increase in average global food prices between 2000 and 2007.
- * Heightened competition and higher prices for land may alter power relationships and threaten the land rights of marginalized groups such as pastoralists. Rapid and

uncoordinated land use change can be expected to upset forested landscapes' provision of local and regional livelihoods and environmental services, with far-reaching implications for both people and nature (see Box 9).

- * Rising demand for bio-energy presents enormous challenges to current land and forest management systems and institutions. Huge technological and capital investments are needed to optimize benefits from global energy markets and to meet local needs.
- * The challenges include identifying biofuel crops that are suited to local conditions, investing in the right technologies of the right scale to convert biomass into usable energy, building the necessary infrastructure and training workers.

Box 8. Challenges of wood energy in Ouagadougou, Burkina Faso

As in many parts of sub-Saharan Africa, wood is the main fuel for most households in Burkina Faso. Wood energy demand in Ouagadougou, the capital, was estimated at 341,263 tons in 2000, with a market value of USD 6 million. Households used 49% of this. Demand is expected to increase, as the population of Ouagadougou is growing by 6% annually. Between 2000 and 2006, demand for wood energy contributed to the clearing of 30,000 hectares of forest, occupying 1% of the central region of Burkina Faso that supplies the capital city and, not incidentally, an area that suffers the country's worst fuelwood scarcity, a deficit of 900,000 cubic metres annually.

Government policies adopted in 1997 to improve the management of fuelwood resources have been largely ineffective. One reason is that the regulations target only managed forest areas, while most of the wood energy is supplied illegally from unmanaged estates. With one forest officer for every 10,600 hectares of forest in the region, controlling informal harvesting is impossible. Another reason is that the collection of eco-taxes – brought in to provide incentives for local forest management – has been ineffective, leaving producer prices low and benefiting intermediaries, transporters and retailers more than the communities that manage forests.

Low prices have discouraged private plantation development but allowed the degradation of natural forests, with attendant ecological and social impacts.



16.



17.

16 & 17. DEVELOPING THE FUELWOOD PRODUCTION CHAIN WITH TRANSPARENT REGULATIONS AND CONTROLLED RESOURCE USE CAN DIVERSIFY RURAL LABOUR MARKETS, PROVIDE DECENT EMPLOYMENT AND EARN REVENUES FOR THE GOVERNMENT OR OTHER RESOURCE OWNERS.

Box 9. Higher food prices and biofuels drive land grabs in Africa

Growing demand for biofuels and rising food prices are increasingly prompting rich economies to seek arable land in developing countries. Examples of land-leasing initiatives in Africa include the following:

- * The South Korean firm Daewoo Logistics has been negotiating a 99 year lease of 1 million hectares of arable land in Madagascar.
- * ZTE International, a Chinese company, leased 3 million hectares of land in the Democratic Republic of the Congo for planting oil palm.
- * Jarch Capital Management, an American company, leased 400,000 hectares in southern Sudan.
- * Qatar has asked the government of Kenya to lease 40,000 hectares of arable land in the Tana River delta as part of a deal for constructing a seaport further up the coast at Lamu.

Although some of these deals include infrastructure development, in many instances governments do not appreciate the opportunity cost of the land. There are risks of social unrest as tenure arrangements are sometimes complex. Smallholder farmers dependent on the land are not part of the deal, though the implications for their livelihoods are obvious. Some of the deals may be beneficial, provided that full economic, environmental and social benefits and costs are understood and addressed.

Policy recommendations to enable tree-based energy development

Promote strategic multisectoral policy approaches in sub-Saharan Africa. There is need for long-term strategic thinking. The many trade-offs—such as between food and fuel and between energy supply and climate change mitigation—need to be addressed through clear cross-sectoral policy frameworks so as to minimize damage to the poor and the environment, and to maintain energy availability and affordability.

Draw an early and strategic approach to bio-energy development. Biofuels need to be considered in the total energy mix. Policy processes should address bio-energy as a cross-sectoral issue and integrate energy into policies on forests, agriculture and other land uses. The opportunity to benefit from increasing global bio-energy markets can be assessed only case by case and country by country. Securing land rights for smallholders can strengthen their hand in negotiations with larger players.

Develop policy incentives for investment in alternative energy production. Most funding needs to come from the private sector and small producers, who require clear, long-term price signals and predictable rules to facilitate their investment decisions. Policy incentives are urgently needed for investments in all alternative energy sources, as well as removing restrictions on the use of harvest and milling residues for energy.

Review and reform, where necessary, existing regulations for profitable and sustainable enterprising. Restrictive regulations that do little to regulate trade and sustainable harvesting, and often just add to costs of producers through informal payments, should be reformed.

Reform markets and production chains to strengthen value addition. Developing diversified, profitable, investment-attracting production and trade chains to meet growing energy demand can open up opportunities for generating income. Good possibilities exist in small-unit feeds into the electricity grid and decentralized off-grid supply. Also reliable forecasts are needed for future demand.

Develop and implement a framework for assessing biofuel projects. A clear and transparent evaluation framework for ensuring that activities are designed to avoid economic, environmental and social harm will help ensure that sub-Saharan Africa benefits from the emerging biofuel market.

Promote regional collaboration in bio-energy development, technology and research. Regional collaboration and integration will allow economies of scale, distribute the burden of investment, and secure supplies and profitability for electricity generation networks. Sub-regional collaborative mechanisms such as the Southern African Development Community and the Economic Community of Central African States can enhance joint energy opportunities using coal and hydropower. Collaborative research can help build knowledge on strategic developments such as second-generation biofuels.



A Plea for change

From Wangari Maathai, the 2004 Nobel Peace Prize laureate recognized for “her contribution to sustainable development, democracy and peace” and the first African woman or environmentalist to receive this prestigious honour

The world is changing rapidly, and sub-Saharan Africa is no exception. Decisions made in faraway places affect what happens locally. In our villages we notice that rains sometimes come too late or too early. People must walk further for water and wood. Our forests and land resources are coming under increasing pressure. The implications of these changes need to be understood and managed to take advantage of market opportunities while avoiding harm to people and nature.

This policy brief is a call for action. Making forests in sub-Saharan Africa work for people and nature demands a new vision and strong leadership from Africans at all levels. Such a new vision must recognize that the greatest impact on forests is from agriculture, mining, and infrastructure and energy development—sectors outside of forestry. Additionally, it must recognize the global role of

forests and trees in mitigating climate change, adapting to it, and meeting demand for forest goods and services including bio-energy.

Governance disconnect has been a major constraint on sub-Saharan African development. We need to ensure that rights and responsibilities are clarified so that the benefits derived from our land and forests are equitably distributed and that our institutions and policies are forward-looking and equipped to respond to global changes. As a region, we need to forge regional partnerships to acquire a greater voice in global forums and benefit from economies of scale.

Meeting these needs and implementing the recommendations of this policy brief will be possible only with the genuine commitment of political leaders and decision-makers.

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Figure 2: ECOSOC 2007: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. World population prospects: the 2006 revision and world urbanization prospects: the 2007 revision. <http://esa.un.org/unup> accessed January 20, 2009

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