THE FORESTS OF THE CONGO BASIN

Forests and climate change

The Forests of the Congo Basin - Forests and climate change

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Cover picture: Open canopy of a rain forest in the south-west of Gabon. Photo taken from a track in a forest concession. © Frédéric Sepulchre

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ACRONYMS

AF	Adaptation Fund
AfDB	African Development Bank
AGEDUFOR	Appui à la Gestion Durable des Forêts de la RDC
ARECO	Association Rwandaise des Ecologistes
ASAP	Adaptation for Smallholder Agriculture Program
ASECNA	Agence pour la Sécurité de la Navigation Aérienne en Afrique et à Madagascar
AUDD	Avoided Unplanned Deforestation and Degradation
AU-NEPAD	African Union - New Partnership for Africa's Development
BBOP	Business and Biodiversity Offset Program
BIOM	Biosphere Management Model
BMU	German Federal Ministry for the Environment
BP	Before present
BSM	Benefit-sharing mechanisms
CA	Central Africa
CAR	Central African Republic
CBFF	Congo Basin Forest Fund
CBFP	Congo Basin Forest Partnership
CCAFS	Climate Change, Agriculture and Food Security
CDM	Clean Development Mechanism
CED	Center for Environment and Development
CEMAC	Central African Economic and Monetary Community
CER	Certified Emission Reductions
CGIAR	Consultative Group on International Agricultural Research
CICOS	International Commission for the Congo-Oubangui-Sangha Basin
CIFOR	Center for International Forestry Research
CIRAD	Center for International Agricultural research for development
CN REDD	REDD National Coordination
CNCM	National Centre for Meteorological Research - Coupled Models
CNRS	National Center for Scientific Research
CO_2	Carbon dioxide
COBAM	Climate Change and Forests in the Congo Basin
CoFCCA	Congo Basin Forests and Climate Change Adaptation
COMIFAC	Central African Forests Commission
COP	Conference of the Parties
CSC	Climate Service center
DFID	Department for International Development
DMC	Disaster Monitoring Constellation
DRC	Democratic Republic of Congo
EbA	Ecosystem-Based Adaptation
ECCAS	Economic Community of Central African States
ECHAM	European Centre Hamburg Model
ECOFORAF	Eco-certification of forest concessions in central Africa
ENSO	El Niño Southern Oscillation
ERA	Extension of Rotation Age
ESA	European Space Agency
EU	European Union
FAO	Food and Agriculture Organization
FCPF	Forest Carbon Partnership Facility
FIP	Forest Investment Program
FLEGT	Forest Law Enforcement, Governance and Trade
FORAFAMA	Support for the sustainable management of forests in the Congo Basin and the Brazilian Amazon Basin
FRA	Forest Resources Assessment
FRELs	Forest Reference Emission Levels
FRLS	Forest Reference Levels
FRM	Forêt Ressources Management
FSC	Forest Stewardship Council
FSCD	ClimDev Special Fund
FSF	Fast-Start Financing
GCCA	Global Climate Change Alliance
GCF	Green Climate Fund

GCM	Global Climate Models / General Circulation Model
GCOS	Global Climate Observing System
GCS	Global Comparative Study
GDP	Gross domestic product
GE	Green economy
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIZ	German Agency for International Cooperation
GLOBIOM	Global Biosphere Management Model
GTS	Global Telecommunication Systems
HCVF	High Conservation Value Forests
ICF	International Climate Fund
ICRAF	International Centre for Research in Agroforestry
IFAD	International Fund for Agricultural Development
IFM	Improved Forest Management
IIASA	International Institute for Applied Systems Analysis
IKI	International Climate Initiative
INDC	Intended Nationally Determined Contribution
INDEFOR	National Institute for Forest Development - Equatorial Guinea
IOC	Interoceanic Convergence
IPCC	Intergovernmental Panel on Climate Change
IPSL	Institut Pierre Simon Laplace des Sciences de l'Environnement Global
IRD	Institute of Development Research
ITCZ	Inter-Tropical Convergence Zone
ITF	Inter-Tropical Front
IUCN	International Union for Conservation of Nature
JMA	Joint Mitigation and Adaptation Mechanism
JRC	Joint Research Centre
LCBC	Lake Chad Basin Commission
LDC	Least Developed Countries
LDCF	Least Developed Countries Fund
LED	Low Emissions Development
LEDS	Low Emissions Development Strategy
LPJ-ml	Lund-Potsdam-Jena-managed lands
LTPF	Logged to Protected Forest
LUCF	Land-Use Change and Forestry
MDG-F	Millennium Development Goals Achievement Fund
MODIS	Moderate Resolution Imaging Spectroradiometer
MRV	Measurement, Reporting and Verification
NAP	National Adaptation Plan
NAPA	National Adaptation Program of Action
NCBs	Non-Carbon Benefits
NCs	National Communications
NGO	Non Governmental Organization
NTFP	Non-Timber Forest Product
OECD	Organization for Economic Co-operation and Development
OFAC	Observatory for the Forests of Central Africa
OLB	Origin and Legality of Timber
ORSTOM	Office of Scientific and Technical Research Overseas
PAPPFG	Gabonese project for development of small forestry permits
PES	Payments for Ecosystem Services
PFES	Payment for Forest Ecosystem Services
PNIA	National Agricultural Investment Program
PPCR	Pilot Program for Climate Resilience
PS6	Performance Standards 6
RAFM	African Network of Model Forests
REDD	Reducing Emissions from Deforestation and Degradation
REDD - PAC	REDD+ Policy Assessment Centre
RIL	Reduced Impact Logging
RMTN	Regional Meteorological Telecommunication Network
ROSE	Network of local NGOs in south-eastern Cameroon
R-PIN	Readiness Plan Idea Note
R-PP	Readiness Preparation Proposal
SATCOM	Satellite Communications

SBSTA	Subsidiary Body for Scientific and Technological Advice
SCCF	Special Climate Change Fund
SFM	Sustainable forest management
SIEREM	Système d'Informations Environnementales sur les Ressources en Eau et leur Modélisation
SIS	Safeguard Information Systems
SOF	State of the Forest
SPA	Strategic Priority for Adaptation
SRES	Special Report on Emission Scenarios
SST	Sea Surface Temperatures
TLTV	Timber Legality and Traceability Verification
TREES	Tropical forest monitoring from Satellite remote sensing
UCL	Catholic University of Louvain
UEFA	Union pour l'Emancipation de la Femme Autochtone
UK	United Kingdom
UN	United Nations Organization
UN-DESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation
VCS	Verified Carbon Standard
VIC	Variable Infiltration Capacity
VPA	Voluntary Partnership Agreement
WAM	West African Monsoon
WATCH	Water and Global Change
WCMC	World Conservation Monitoring Centre
WFD	WATCH Forcing Data
WMO	World Meteorological Organization
WRI	World Resources Institute

PREFACE

For several decades, climate change has been a fixture on the global agenda as a highly dangerous scourge whose consequences can jeopardise the survival of the planet and all humanity. Since 1992 the international community has been trying to find solutions to the problem. In fact, the United Nations Framework Convention on Climate Change and the Kyoto Protocol adopted respectively in 1992 and 1997 laid down the legal basis for international cooperation to combat the causes and effects of climate change around the world.

While the adoption of these instruments held much promise, their implementation has proven more complicated in light of difficulties faced by the country parties to annex 1 in fulfilling their commitments to reduce greenhouse gas emissions (GHG). Furthermore, funding provided in support of climate change adaptation and mitigation efforts in developing countries has fallen short of needs and expectations.

It was in a bid to provide a more comprehensive and better coordinated response to the scourge that a new round of negotiations has been underway for a few years with the aim of adopting a new global climate agreement. The 21st Conference of the Parties to the Convention, slated to take place at the end of 2015 in Paris would be the culmination of these negotiations where the international community is expected to adopt the new cooperation instrument.

Similar to other Parties to the Convention, the Central African countries have been actively involved for years in international climate change negotiations. Concerted positions on various issues and topics of interest to the sub-region have been regularly developed and defended by these countries during negotiations. In fact, given that the Central Africa harbours the Congo Basin forests, the world's second largest contiguous tropical forest, the sub-region's countries have always desired to see the role of these forests being taken into account in the fight against climate change.

As a matter of fact, tropical forests play an undeniable role in the fight against climate change. According to the Intergovernmental Panel on Climate Change (IPCC), deforestation in tropical areas accounts for approximately 15% of GHG emissions. In this respect, it has been recommended that the trend be reversed by putting in place policies and actions at national level to combat deforestation; hence the emergence of the reduction of emissions resulting from deforestation and forest degradation mechanism (REDD+).

The Congo Basin countries have an exemplary record in preserving their forest resources. The last 2013 State of the Forests Report (EDF) is quite revealing in this respect, as the sub-region registered very low deforestation and degradation rates (0.14 per cent per year) compared with other tropical regions around the world. The REDD+ mechanism which is supported by most countries in Central Africa is rightly regarded as a development opportunity for these countries. Considering the countries' long and medium term aspirations for economic growth and development, implementing the REDD+ strategy should help the Central African countries access the funding and technologies necessary to minimize their carbon footprint, by modernizing their agricultural and livestock production systems, etc.

While the REDD+ concept may seem easy on the face of it, the pre-requisites for its implementation at national level are more complex. In fact, several methodological and technical aspects constitute hurdles to the operationalization of this instrument by our countries.

Beyond REDD+-related issues, climate change adaptation issues are also a priority for the sub-region. There has been an increase in extreme events arising from climate change with consequences for both ecosystems and populations. There is therefore a need to take action by putting in place appropriate measures and actions to make these populations less vulnerable.

To address all these challenges, the Central African countries must of necessity develop an integrated approach to addressing climate change with forests being an important part of this strategy.

It is in consideration of the foregoing, that it was deemed needful within the framework of the 21st Conference of the Parties to the Convention in Paris, to take stock of the dual issue of "forests and climate change" in Central Africa. This report on forests and climate change produced by the Central African Forest Commission (COMIFAC) with the support of its partners aims to update the international community and the authorities of countries in sub-region on progress achieved in sustainable forest management and tools being developed for REDD+ on the one hand, and issues and challenges related to climate change mitigation and adaptation on the other hand.

In the hope that this report will help to strengthen the Central African countries' advocacy at current and future international negotiations on climate change in Central Africa,

I wish you all a pleasant reading,

Raymond Mbitikon
Executive Secretary of the
COMIFAC

INTRODUCTION

On the occasion of the 21st Conference of Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC) held in Paris from 1 to 10 December 2015, the member States of the COMIFAC wish to address the climate issues for their region and in particular with regard to the role of forests. As a result, the COMIFAC is proud to release this special publication on climate and forests in Central Africa. The redaction of this special report was put under the coordination of the Executive Secretariat of COMIFAC and OFAC with support from CIFOR.

This report is the fruit of a long participatory process of information gathering, exchanges between experts, debates and the building of consensus to provide elements for the improved sustainability of the Central African ecosystems. This vital undertaking responds to a groundswell request from diverse stakeholders for consolidated information in a joint report. The process of creating the report comprises many stages, wherein many actors are involved over a period of more than one year. The production of this new edition began in October 2014 on the occasion of the CBFP meeting in Brazzaville.

The drafting of each chapter is led by a 'chapter coordinator'. His role is to :

(i) Propose a structure for the chapter, based on the topics proposed,
(ii) Stimulate the group of co-authors to generate their respective contributions,
(iii) best achieve arranging of the different contributions, and
(iv) Prepares the first version of the chapter for the reviewing workshop and the final chapter based on feedback received from the workshop.

The 3 days workshop held in Kribi in July 2015 constituted a key step in the production of this publication. The principal goal of the workshop was to encourage the authors and partners of the Congo Basin forest sector to examine, amend and validate the texts proposed for publication. In that sense, the workshop can be considered as a "real time peer reviewing" process. First, each draft chapter, including its themes and key elements, was presented, thus enabling each participant to identify the topics to which they could best contribute. Secondly, the participants were divided into working groups so as to make suggestions and contributions towards improving chapter content. During these discussions, there was a high degree of participation, and participants helped to make available to the authors better and more accessible information. The authors then proceeded to work on these texts.

Once the texts – often drafted partly in French and partly in English – have been finalized, a proofreading committee works on improving their coherence and presentation in order to reach as wide an audience as possible. The translation, formatting, proofreading, printing and dissemination of the document are the final stages in this adventure, but they are nonetheless intensive and time-consuming and involve substantial human resources.

In terms of content, this special publication pays primary attention to forests, the climate and the possible policies linked to this topic. Its content, divided into 6 chapters is the result of the collaboration of many stakeholders.

The first 3 chapters focus on describing the central African forest and climate features with scientific evidences, but also the relations and mutual interaction between the forest and the climate.

The first chapter describes the key role of tropical African forest as a reservoir of carbon and biodiversity. Thanks to the latest development in remote sensing technologies, the state of forests and the dynamics of tropical forest cover types are increasingly well described. It addresses also the cause of forest cover changes and the possible evolution of the forest cover with regards with new economic development opportunities, demography increase and political and management challenges.

The second analyzes the Central African climate, concentrating in particular on (i) the key features of the climate, (ii) the historical evolutions and changes (iii) the way in which this climate could change in years to come, and (iv) the possible impacts of these changes on the hydrological regime, evaporation and consequently on the vegetation and human population.

After having described the forest and the climate of central Africa, the third chapter addresses the question of the relation between these 2 elements. This is made through the exchanges in water content, the energy conversion with the role of the sensible and latent heat and the influence of atmospheric carbon. The chapter analyses also the historical mutual influence with vegetation extent driven by the climate evolutions and the possible impact of climate modifications on vegetation and conversely the impact of deforestation on the climate features.

The second part, with the 3 last chapters, is related to policies issues and options to face the challenges of sustainable forest in a context of climate change issues.

The chapter 4 is dedicated to vulnerability and adaptation of forest and communities in a situation of changing climate. Indeed not only the biophysical aspect are important to address, but also the changes in environmental policies related to access to forest resources in a context of increasing pressure on natural resources mainly due to population increase. The vulnerability is also depicted with regards to the economic and social sectors, hydrology and energy, agriculture, health and urbanization. Then, the adaptation is tackled regarding the ecosystem point of view, recalling that the forest provide ecosystem goods and services, then, regarding the policies and strategies, with some Lesson learnt from early initiatives.

The fifth chapter is addressing the contribution of forests in the mitigation to climate changes. Indeed, the forest analyzed as a carbon stock, a carbon sink or as carbon emission, is a key aspect for the carbon balance assessment and climate based policies. Mitigation of climate change is approached by three main sets of policies and measures i.e. sustainable forest management techniques, the improvement of forest governance and the current engagement in the REDD+ process. There is also a new thinking to favour traditional policies that additionally provide climate regulation services as co-benefit while internalizing new international initiatives such as Reducing Emissions from Deforestation and forest Degradation (REDD+). The status and the implementation of REDD+ in central Africa, together with Lessons learned from early mitigation initiatives and the remaining challenges, the region have to face are also described in the chapter.

In the Congo Basin countries given that there is urgency for both mitigation and adaptation actions, the sixth and last chapter analyses the synergies and trade-offs between mitigation, adaptation and development interventions. This chapter addresses the political and institutional prerequisite for synergies in central Africa while stressing the importance of multi-sectorial approaches and the roles of the different actors in the designing and implementation of actions tackling both adaptation and mitigation outcomes. Entry points for synergy is illustrated through the promotion of carbon and non-carbon benefits together, and the new tendency towards the Joint Adaptation and Mitigation Mechanism (JMA) proposed as a non-market based alternative to REDD+.