



# Congo Basin Forests

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# State of the Forests 2021

Book abstract

## Editors:

Richard Eba'a Atyi, François Hiol Hiol, Guillaume Lescuyer, Philippe Mayaux, Pierre Defourny, Nicolas Bayol, Filippo Saracco, Dany Pokem, Richard Sufo Kankeu and Robert Nasi

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*Photo Axel Fassio/CIFOR*



# Congo Basin Forests – State of the Forests 2021

## Introduction

The State of the Forests 2021 (SOF 2021) report is the seventh in the series published since 2005. The previous report was released in 2015 during the fifteenth Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris.

This report was prepared during the COVID-19 pandemic, which imposed itself as a major constraint, particularly with regard to the consultation process.

Paradoxically, although this context was constraining, it was also characterized by a renewed interest of the international community in Central Africa forests. It is now recognized that these Congo Basin forests, with their ecosystems and peatlands, play a major role in global carbon sequestration. For example, Central Africa forests were the subject of a funding declaration of 1.5 billion USD for the 2021-2025 period at the COP26 of the UNFCCC held in Glasgow (Scotland) in November 2021.

The constraint presented by the pandemic of COVID-19 notwithstanding, this report was prepared using an inclusive approach with broad-based consultation. Thus, the themes addressed were defined during a regional workshop held in Brazzaville in February 2018 with the participation of experts from all member countries of the Central Africa Forests Commission (COMIFAC), who were joined by international scientists involved in the monitoring and management of the Congo Basin forests. Subsequently, nearly 180 experts from within and out of the Central African sub-region, interested in the management of its forest ecosystems volunteered to write the chapters. The consultative process also included the organization of a drafting workshop in Kinshasa in December 2020 that brought together the coordinators of the various chapters.

This report has received financial support from the European Union through the Strengthening and Institutionalization of the Central African Forest Observatory (RIOFAC) project, a project implemented by a consortium of scientific and technical organizations (CIFOR-ICRAF, CIRAD, FRMi, UCL). Additional financial support was provided by the German Technical Cooperation (GIZ) through the Congo Basin Forest Partnership (CBFP) for the translation of the chapters.

**The EDF 2021 report is organized into four parts and 13 chapters as follows:**

### Part 1: Central African Forests: Resource Status and Management

It is made up of five chapters on the following themes: distribution of forest types and changes according to their use, changes in the timber industry in the Congo Basin, plantations in Central Africa, matching international financial flows with the implementation of the COMIFAC Convergence Plan, and the implementation of REDD+ activities in Central African countries.

### Part 2: Congo Basin Forests in International Debates

It is made up of three chapters on: mainstreaming sustainable development objectives into forest management in Central Africa, international commitments of Central African countries in response to climate change, the fight against imported deforestation and Central Africa's commitments to zero deforestation.

### Part 3: Emerging Themes for Central African Forests

It is made up of two chapters on the following themes: peatlands in the central trough of the Congo Basin: realities and prospects, emergence/re-emergence of infectious agents and epidemic risks in Central African forests.

### Part 4: Stakes and challenges for the Congo Basin forests

It is made up of three chapters on the following themes: land-use planning and its impact on the sustainable management of forest ecosystems in Central Africa, forest landscape restoration (FLR) in Central Africa, and the rights of local and indigenous populations in the face of forestry and conservation policies.

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# CHAPTER 1

## Distribution of forest types and trends according to their allocation

**Authors:** Juliette Dalimier<sup>1</sup>, Frédéric Achard<sup>2</sup>, Baptiste Delhez<sup>1</sup>, Baudouin Desclée<sup>2</sup>, Clément Bourgoin<sup>2</sup>, Hugh Eva<sup>2</sup>, Sylvie Gourlet-Fleury<sup>3</sup>, Matthew Hansen<sup>4</sup>, Jean-Paul Kibambe<sup>5,6</sup>, Frédéric Mortier<sup>3</sup>, Pierre Ploton<sup>3</sup>, Maxime Réjou-Méchain<sup>3</sup>, Christelle Vancutsem<sup>2</sup>, Quentin Jungers<sup>7</sup>, Pierre Defourny<sup>1</sup>

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### Summary

This chapter sums up knowledge on forest mapping in terms of floristics, physiognomy and carbon stock, reviews trends in forest dynamics and analyses the impact of land use on the conservation of forest ecosystems. It also presents the Forest Reference Emission Levels (FRELs) mechanisms before covering investment by countries as part of Reducing Emissions from Deforestation and forest Degradation plus (REDD+) process.

Floristic forest mapping was carried out using management-volume inventory data collected by 105 forest concessions throughout Central Africa. These results allow the characterization of three correlated floristic gradients: first on climate, second on seasonality and maximum temperature, and thirdly concerning human activity. This results in a map of ecological vulnerability of forest stands to climate change.

A new mapping of forest types on a physiognomic basis provides information on spatial detail (20 m spatial resolution) and semantics never before achieved for such geographical coverage, thanks to the Sentinel-2 satellite data acquired in 2020 and the new method of image correction.

Despite these major advances, the spatial distribution of forest carbon stocks across Central Africa remains largely unknown, due to the scarcity of field observations and difficulties in extrapolating carbon stocks via remote sensing.

Comprehensive high-resolution spatial mapping of tropical rainforests over the past 30 years (1990-2020) has provided us new annual data.

The annual rates of forest disturbance by type of allocation and by country over the last 20 years highlight the importance, for conservation, of forest concessions and protected areas in relation to mining concessions and unallocated areas. The monitoring of deforestation, degradation and forest regeneration shows differences between not only forest countries, but also between monitoring periods: there was an overall increase in rates of deforestation in protected areas and forest concessions between 2010 and 2020 compared to 2000-2010.

Lastly, a case of FREL application at the provincial scale is presented, with an estimation of activities and associated emissions for Maï-Ndombe Province in the DRC for the reference period 2005-2014 and for an initial accounting period 2018-2019. The trend of increasing emissions observed during the reference period could justify a status quo adjustment in the assessment of the performance of the emission reduction programme in this province.

**Keywords:** Mapping, deforestation, high resolution, remote sensing, degradation, forest, land use, carbon stock, forest cover, FRELs

<sup>1</sup>Catholic University of Louvain, <sup>2</sup>CCR-UE, <sup>3</sup>CIRAD, <sup>4</sup>University of Maryland, <sup>5</sup>University of Kinshasa, <sup>6</sup>WCS, <sup>7</sup>FRM



# CHAPTER 2

## Timber sector trends in the Congo basin

**Coordinators:** Nicolas Bayol<sup>1</sup>

**Authors:** Caroline Duhesme<sup>2</sup>, Michel Gally<sup>1</sup>, Stéphane Glannaz<sup>3</sup>, Cécile Hervo<sup>1</sup>, Youssouf Kone<sup>4</sup>, Guillaume Lescuyer<sup>5</sup>, Liboum Mbonayem<sup>5</sup>, Prosper Nakoe<sup>6</sup>, Alain Ngoya Kessy<sup>7</sup>, Petra Lahann<sup>9</sup>, Alexandra Pasquier<sup>1</sup>, Olman Serrano<sup>2</sup>, Tom van Loon<sup>8</sup>

Photo by Mokhamad Edliadi

### Summary

Forest concessions in the Congo Basin cover over 50 million hectares. Most of them are managed using a management plan, which has proved to be the best tool for planning timber harvests, even if readjustments are needed. It is necessary to rethink the community management model, which has not proven its worth in terms of sustainable management and contributes very little to production.

Mechanisms to verify that production is legal have been set up in recent years (notably through the VPAs and the EUTR), as have voluntary certification standards.

The quantity of timber harvested has grown slightly in recent years. This growth has been unhampered by the COVID crisis and stimulated by demand from Chinese companies. The range of species used by the timber sector is growing but remains limited, and industrialization is still too strongly limited to primary processing of products. We can thus say that forest resources are underused in Central Africa.

With the coming ban on exportation of logs for all the Central African countries, one of the major challenges for the sector is to industrialize timber processing further. The States of the region are preparing to support in-depth transformation of the sector with a set of reforms.

Another challenge is oversight of the timber sector in local markets, which accounts for a significant portion of timber harvest, but which jeopardizes the sustainability of the forest resource and produces no direct benefits for nation states. Formalization of this sector will require adaptation of national regulatory frameworks and the development of transactions within a reorganized sector.

**Keywords:** Timber sector, production forest, forest concession, forest certification, FLEGT-VPA, due diligence, informal production, land-use planning, sustainable industrialization

<sup>1</sup>FRMI, <sup>2</sup>ATIBT, <sup>3</sup>Precious Woods, <sup>4</sup>BAD, <sup>5</sup>CIFOR-ICRAF, <sup>6</sup>CDE, Ministry of Forests, in the Central African Republic, <sup>7</sup>Independent Forest Consultant, <sup>8</sup>Interholco



## Forest plantations in central Africa

**Coordinators:** Paul Bertaux<sup>1</sup>, Carla Baltzer<sup>1</sup>

**Authors:** Paul Bertaux<sup>1</sup>, Carla Baltzer<sup>1</sup>, Jessenia Angulo<sup>2</sup>, Charlie Bosworth<sup>3</sup>, Pierre Clinquart<sup>4</sup>, Daniel Diangana<sup>5</sup>, Emilien Dubiez<sup>6</sup>, Timothy Fleming<sup>7</sup>, Vincent Freycon<sup>6</sup>, Maurice Goma<sup>8</sup>, Jean-Michel Harmand<sup>6</sup>, Michael Henson<sup>9</sup>, Mike Howard<sup>10</sup>, Shauna D. Matkovich<sup>11</sup>, Régis Moukini<sup>1</sup>, Olivier Mushiete<sup>12</sup>, Cleto Ndikumagenge<sup>13</sup>, Salvator Ndabirorere<sup>14</sup>, Tapani Pahkasalo<sup>15</sup>, Régis Peltier<sup>6</sup>, Robert Van Den Plas<sup>16</sup>, Andries Smith<sup>17</sup>, Colin Smith<sup>18</sup>, Luis N. Silva<sup>19</sup>, Julius C. Tieguhong<sup>20</sup>, Richard Eba'a Atyi<sup>21</sup>

Photo by Paul Bertaux

### Summary

Plantations of fast-growing species could make a significant contribution to the conservation and sustainable management of forest ecosystems and livelihoods in Central Africa. However, investments in this sector are complicated because of unclear land tenure and use, inadequate industrial infrastructure, lack of technology, low productivity and a shortage of financing. While there are good growth opportunities in the sector, progress is slow due to a risk-averse investment climate, limited financing opportunities and the lack of conclusively successful business models in the forest sector. Investing in Africa's forests is a bold undertaking, but the continent urgently needs investment to promote the sustainability of wood supply, climate change mitigation and adaptation, and rural development.

The authors draw lessons from concrete experiences of plantations in Central Africa and from other regions of the world, and from the successes and difficulties encountered. They also

explain the conditions that promote development of plantations in Central Africa. There are several points to consider to ensure the sustainability of forest plantations in this region: the choice of directors and staff, setting up plantations, forestry or forest-management techniques, plant material, land and marketing opportunities, mobilisation of stakeholders, environmental and social risks, carbon impact and certification standards.

Two key examples that the authors focus on are the development of eucalyptus plantations in RoCongo and the sequential agroforestry model based on acacia-manioc in the DRC.

**Keywords:** Forest plantations, eucalyptus, agroforestry, forestry, carbon sinks, biomass, deforestation, wood fuel, public-private partnership

<sup>1</sup>Groupe FRM, <sup>2</sup>FMO, <sup>3</sup>Miro Forestry & Timber Products, <sup>4</sup>Fondation Hanns Seidel, <sup>5</sup>ex-ECO S.A., <sup>6</sup>CIRAD, <sup>7</sup>International Woodland Company, <sup>8</sup>Consultant, <sup>9</sup>PNG Biomass, <sup>10</sup>Fractal Forestry, <sup>11</sup>The Forest Link, The International Woodland Company Information, <sup>12</sup>Ibi Project and Bombo Lumene Domain and Reserve, <sup>13</sup>FAO RDC, <sup>14</sup>FAO BURUNDI, <sup>15</sup>Forest Investment Professional, <sup>16</sup>Marge, <sup>17</sup>CDC, Investment Director and Head of Forestry & Wood Products, <sup>18</sup>Paperbark Forestry Consulting, <sup>19</sup>WWF – New Generation Platform, <sup>20</sup>BAD, <sup>21</sup>CIFOR-ICRAF

# The need for international financial flows to support COMIFAC convergence plan implementation

**Authors:** Richard Eba'a Atyi<sup>1</sup>, Valérie Tchuente<sup>2</sup>, Dany Pokem<sup>3</sup>



Photo by Pilar Valbuena

## Summary

The global role of Africa's forests in climate regulation is becoming increasingly recognized. These hardly touched forests have become the main tropical forest area for carbon sequestration. Similarly, in view of its heritage and the endemism that characterizes its forest ecosystems, Central Africa is a priority area for conservation. Its forests represent a common good of humanity: they benefit both present and future generations. They therefore deserve a global effort, including financially, for their conservation and sustainable management.

To coordinate their forest management activities, the Central African States have set up COMIFAC, a unique initiative to harmonize and coordinate forest heritage management activities at the subregional level. At the technical level, COMIFAC has adopted a convergence plan which defines both the priority actions and the cross-cutting actions to be carried out with the goal of such coordinated management of forest ecosystems.

Despite their importance and the organizations put in place for their management, Central African forests are struggling to attract the same level of funding as tropical forests in South America and Asia. Over the 10-year period from 2008 to 2017, the forest-environment sector of Central Africa accounted for only 11.5% of financing released for the conservation and sustainable management of tropical forests.

Financial flows consist mainly of official development assistance, while the private sector, foundations and philanthropic organizations investment remains very low. The main donors are Germany, the European Union and the GEF.

Central African forests are gradually becoming more important on the international political agenda, thanks in part to the efforts of the CBFP, which is stepping up diplomatic efforts towards recognition of their crucial role in regulating the world's climate. For example, at COP26, a collective declaration from 12 of the richest countries and including the Bezos Earth Fund promised to mobilize at least USD 1.5 billion for the protection and sustainable management of forests in the Congo Basin.

Many opportunities and potential sources of international financing exist for the forest-environment sector of Central Africa. To take advantage of them, it will be necessary to improve the subregion's capacity to develop quality proposals and promote credible governance for the financial institutions of Central Africa, both at the country level and at the common subregional level.

**Keywords:** Financial flows, forest conservation, forests, sustainable forest management, COMIFAC, forest heritage, convergence plan

<sup>1</sup>CIFOR-ICRAF, <sup>2</sup>COMIFAC, <sup>3</sup>CBFP



## Implementation of REDD+ activities in central African countries

**Coordinators:** Nicolas Bayol<sup>1</sup>, Flore Hirsch<sup>1</sup>, Justine Husson<sup>1</sup>, Richard Sufo Kankeu<sup>2</sup>

**Authors:** Hassan Assani<sup>3</sup>, Christian Mabaya<sup>4</sup>, Claver Boundzanga<sup>5</sup>, Paloma Breumier<sup>6</sup>, Martin Burian<sup>7</sup>, Marie Calmel<sup>8</sup>, Gervais Itsoua Madzous<sup>9</sup>, Vincent Istace<sup>10</sup>, Willy Loyombo<sup>11</sup>, Eliezer Majambu<sup>2,12</sup>, Achile Momo<sup>13</sup>, Lars Schmidt<sup>14</sup>, Moise Tsayem Demaze<sup>2</sup>



Photo by Nicolas Bayol

### Summary

The countries of Central Africa have all been engaged in the REDD+ process from the start. But while they unanimously support the concept of reducing emissions linked to deforestation and degradation, the content and scale of their commitments differ. This analysis of REDD+ implementation policies and a review of REDD+ activities in Central African countries are a key step towards understanding this incentive and reward mechanism. The national REDD+ strategies of Cameroon, the Republic of the Congo, the Central African Republic and the Democratic Republic of the Congo propose cross-cutting programmes and integrated sectoral programmes that contribute to harmonious and sustainable development. These national policies require implementation at local level through pilot projects. For example, it is crucial to take action locally on agricultural practices by establishing conservation concessions, on low-impact logging practices and on forest plantations. Multiple emission-reduction projects have been developed in Central African countries. Carbon standards such as VCS, Planvivo and Gold Standard have certified promising projects, including Eco Makala, Isangi, Mai Ndombé and Ibi Batéké in the DRC; North Pikounda and the Batéké project in the Congo; and

the TNS Carbon Fund in Cameroon and the CAR. In addition, the emission-reduction programmes (ERPD) of the Congo and the DRC show encouraging results. There have been difficulties in carrying out the PIREDD programme, but it has nonetheless led to important lessons learned on implementing a REDD+ integrated project. The pilot projects, which act as real REDD+ implementation laboratories, have shown mixed results but have provided lessons on the difficulties of local implementation of activities.

For the past ten years, Central African countries have been preparing to implement the REDD+ mechanisms at national and local levels. Several technical and financial support initiatives have helped countries prepare for and begin implementing the REDD+ mechanism. It is hoped that other initiatives, such as CFI and the Green Climate Fund, will help strengthen the capacities of the countries involved.

**Keywords:** REDD+, Central Africa, emission reduction, pilot project, land-use planning, forest zoning, sectoral policy

<sup>1</sup>FRMI, <sup>2</sup>Le Mans University, <sup>3</sup>National REDD+ coordination in DRC, <sup>4</sup>WWF, <sup>5</sup>National REDD+ coordination of Congo (Brazzaville), <sup>6</sup>CIRAD, <sup>7</sup>Consultant for Low Carbon Development, <sup>8</sup>ONFI, <sup>9</sup>COMIFAC, <sup>10</sup>CIB OLAM, <sup>11</sup>Organization of accompaniment and support to Pygmies, <sup>12</sup>University of Mbujimayi, <sup>13</sup>GIZ Cameroon, <sup>14</sup>Independent consultant

# Integrating sustainable development goals into forest management in central Africa

**Coordinators:** Jeremie Mbairamadji<sup>1</sup>, Gervais Itsoua Madzous<sup>2</sup>

**Authors:** Jean-Claude Nguingiri<sup>1</sup>, Valérie Tchuante<sup>2</sup>, Donald Djossi<sup>3</sup>

**Contributors:** Sédric Edmond Tiobo'o<sup>4</sup>, Precillia Ijang<sup>5</sup>

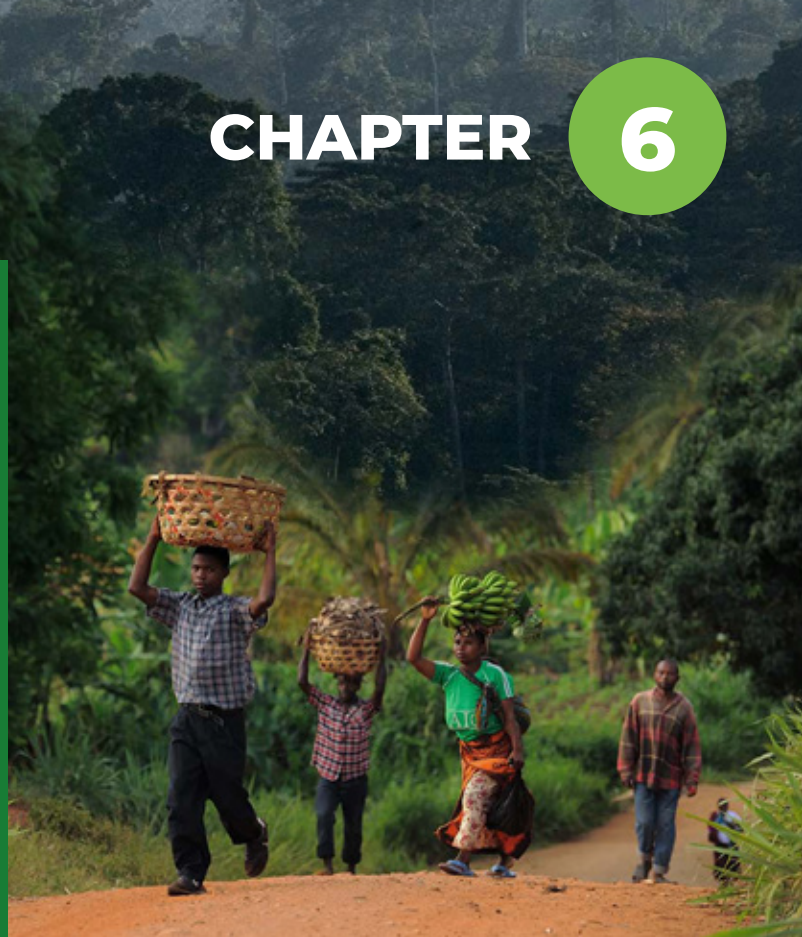


Photo by FAO

## Summary

The forests of the Congo Basin provide many ecosystem goods and services that contribute to regulating the climate system. In this way, they conserve biodiversity and improve the living conditions of local populations. These forests contribute to several Sustainable Development Goals (SDGs), but a frame of reference is required if these goods and services are to be mainstreamed into forest management. In Central Africa, the Convergence Plan of the Central African Forest Commission (COMIFAC) is the framework that guides actions in the forest-environment sector. Thus, to guide Central African countries in better incorporating the SDGs into sustainable forest management, it is essential to ensure both the alignment of the COMIFAC Convergence Plan with the SDGs and the effectiveness of this mainstreaming in the Voluntary National Reviews (VNRs). This chapter focuses on analysis of these two aspects. The results show that, of the 10 SDGs of the FAO's 2018 report on the state of the world's forests,

only SDG 11 has not been prioritized and mainstreamed in Central Africa. Similarly, the many benefits of forests are not well reflected in the national country reports, and the indicators and targets used by countries differ, making it difficult to make comparisons between countries. In terms of recommendations, emphasis has been made on the importance of strengthening the capacity of national statistics units so they can master the tools, approaches to and techniques of data collection, analysis and processing as well as identification and coding of indicators and targets related to the SDGs, and the importance of intersectoral coordination to better take into account in the national reports the contribution of the different sectors to the SDGs.

**Keywords:** SDGs, forest, sustainable forest management, COMIFAC, convergence plan, subregional guidelines, institutional coordination

<sup>1</sup>FAO, <sup>2</sup>COMIFAC, <sup>3</sup>OFAC, <sup>4</sup>National institute of statistic of Cameroon, <sup>5</sup>IRAD



## International commitments of central African countries in response to climate change

**Coordinators:** Denis Jean Sonwa<sup>1</sup>

**Authors:** Richard Sufo Kankeu<sup>2</sup>, Gervais Itsoua Madzous<sup>3</sup>, Eugene Loh Chia<sup>4,5</sup>, Vincent Medjibe<sup>6</sup>, Christine Langevin<sup>7</sup>, Leslie Ouarzazi<sup>7</sup>, Sophia Carodenuto<sup>8</sup>, Wilfran Moufouma-Okia<sup>9</sup>, Philippe Guizol<sup>10</sup>, Michel Ndjatsana<sup>3</sup>, Jérôme Ebuy<sup>11</sup>, Nadji Tellro Wai<sup>12</sup>, Moise Tsayem Demaze<sup>2</sup>, Felicien Kengoum<sup>13</sup>, Chrislain Eric Kenfack<sup>14</sup>, Youssoufa Bele<sup>15</sup>, Kalame Fobissie<sup>16,5</sup>, Gapia Martial<sup>17</sup> et Narcisse Landry Kevis Kossi<sup>17</sup>



Photo by Ollivier Girard

### Summary

This chapter presents the commitments of the 10 COMIFAC countries in response to climate change within the UNFCCC framework.

Of the mandatory regulatory commitments, countries have generally submitted at least two national reports, but no biennial update report. However, they did all submit reports on the first phase of the NDCs, and eight countries submitted updates in March 2022.

Of the voluntary regulatory commitments on adaptation, seven countries have developed a NAPA and three an NAP. Regarding emissions reduction, eight countries submitted a NAMA, and six countries prepared REDD+ documents. Five countries submitted at least one project to the Green Climate Fund. Five countries put in a request for support within the framework of the CTCN for capacity-building needs. Four researchers from Central Africa participated in the 6th IPCC cycle, which brought together 43 scientists from around the world.

In terms of voluntary commitments, five countries participated in the FCPF process. Seven countries embarked on the UN-REDD process. As part of CAFI, three countries which signed a formal letter of intent are receiving financial support to move forward in their REDD+ processes. Three other countries are developing a formal framework.

For activities not labelled “responses to climate change”, countries adhere to the CBD and UNCCD which, together with the UNFCCC, form the three Rio conventions. All Central African countries have

signed the Ramsar Convention, which protects wetlands such as peatlands. Seven countries are participating in the AFR100 process to restore 30.9 million ha in Central Africa. They have also made additional commitments to fight climate change under the SDGs and the UNFF. Six countries are engaged in the EU FLEGT-VPA process, but none have successfully issued a FLEGT certificate. Three countries are developing their timber traceability system. Four countries have launched 13 projects as part of the FIP. The CBFF has generally covered all countries in Central Africa. Six countries in Central Africa are HFLD countries, but only one has managed to become involved in this mechanism and receive the benefits.

With regard to the new processes on greening value chains and on imported deforestation, countries in the region are still in a very preliminary phase.

The nations of Central Africa are not meeting the requirements of the Climate Convention in the same way or at the same pace. They still have a long way to go. They are therefore not in an optimal position to seize the potentials offered by the Convention, and the region requires support to better respond to climate change and develop its transition to a green and resilient economy.

**Keywords:** UNFCCC, country engagement, responses to climate change, REDD+, adaptation, forests, Central Africa, Congo Basin

<sup>1</sup>CIFOR-ICRAF Cameroon, <sup>2</sup>Le Mans University, France, <sup>3</sup>COMIFAC, <sup>4</sup>University of Pretoria, South Africa, <sup>5</sup>FOKABS, Canada, <sup>6</sup>ANPN, Gabon, <sup>7</sup>PNUD New York, <sup>8</sup>University of Victoria, Canada, <sup>9</sup>WMO Geneva, <sup>10</sup>CIRAD, <sup>11</sup>UNIKIS RDC, <sup>12</sup>Ministry of the Environment, Fisheries and Sustainable Development, Chad, <sup>13</sup>Brithway Consult, <sup>14</sup>University of Alberta, Canada, <sup>15</sup>Consultant Canada, <sup>16</sup>University of Ottawa, <sup>17</sup>University of Bangui, Central African Republic

## Fighting imported deforestation and making commitments to zero deforestation

**Coordinators:** Richard Eba'a Atyi<sup>1</sup>, Verina Ingram<sup>2</sup>

**Authors:** Guillaume Lescuyer<sup>3</sup>, Chih-Ching<sup>4</sup>, Belmond Tchoumba<sup>5</sup>, Louis Defo<sup>6</sup>, Sylvie Gourlet-Fleury<sup>3</sup>, Philippe Guizol<sup>1,3</sup>, Denis Sonwa<sup>1</sup>, Liboum Mbonayem<sup>1</sup>

**Contributors:** Violaine Berger<sup>4</sup>, Jean-Michel Harmand<sup>3,1</sup>



Photo by Ollivier Girard

### Summary

There seems to be consensus on the fight against deforestation among various direct and indirect land management stakeholders in Central Africa. However, the policies and means adopted and used in these strategies can have significant social and economic consequences for the producing and exporting countries of this region.

In the importing countries of Europe and North America, civil society activist organizations are influencing the adoption of restrictive consumption policies. In late 2021, the European Union adopted legislation restricting the entry into its territory of products suspected of contributing to deforestation, with the underlying assumption that deforestation is only a tropical phenomenon and linked to the production of internationally traded commodities. For Central Africa, the main products of concern are palm oil, cocoa, rubber, wood and, to a lesser extent, coffee. The technical methods for implementing these policies against “imported deforestation” in importing countries remain unclear or are yet to be determined. Harmonization of the very definition of “forest” and the inherent definition of “deforestation” are necessary if the proposed strategies are to be credible. However, certification – which has already been applied for some 20 years on timber production, and increasingly for palm oil and cocoa – seems to be one of the technical options both at the level of the production units and for the countries having made commitments.

Meanwhile, the Central African producer and exporting countries can be seen to have an awareness of and a gradually increasing process of aligning to the new requirements linked to zero deforestation policies and the fight against imported deforestation adopted by stakeholders in developed importing countries. Two different approaches can be seen in Central Africa: i) diversification of markets with a view to exporting to less demanding markets and ii) initiatives to adopt sustainable management principles in the production of the commodities concerned, with increasing efforts to exclude deforestation from production chains.

In order to limit the negative economic impacts linked to the adoption and implementation of policies to combat imported deforestation, particularly into Europe, the Central African countries should promote negotiation approaches, possibly within the framework of relations between members of the Economic Community of Central African States (ECCAS). The FLEGT experience in the region serves as an example and could be improved. As they are applied in similar ecosystems, the approaches taken by Central African countries could start by seeking to harmonize, for example, the technical definitions of “forest” and the means of monitoring deforestation.

**Keywords:** Imported deforestation, zero deforestation, commodities, degradation, deforestation, forest, importing country, value chains, COMIFAC

<sup>1</sup>CIFOR-ICRAF, <sup>2</sup>Wageningen University & Research, <sup>3</sup>CIRAD, <sup>4</sup>IDH, <sup>5</sup>WWF, <sup>6</sup>PROFOREST



## Peatlands of the central Congo basin, current realities and perspectives

**Authors:** Denis Jean Sonwa<sup>1</sup>, Simon L. Lewis<sup>2</sup>, Suspens Ifo Averti<sup>3</sup>, Corneille Ewango<sup>4</sup>, Edward T.A. Mitchard<sup>5</sup>, Greta C. Dargie<sup>2</sup>, Ian T. Lawson<sup>6</sup>, Sylvie Gourlet-Fleury<sup>7</sup>, Charles Doumenge<sup>7</sup>, Valéry Gond<sup>7</sup>, Julie Betbeder<sup>7</sup>, Andre Kamdem Toham<sup>8</sup>, Julie Van Offelen<sup>8</sup>, Dianna Kopansky<sup>8</sup>, Rémi D'annunzio<sup>9</sup>, Raoul Monsembula<sup>10</sup>, Maria Nuutinen<sup>9</sup>, Laura Villegas<sup>9</sup>, Kai Milliken<sup>9</sup>, Nathalie Philippon<sup>11</sup>, Sylvain Bigot<sup>11</sup>, Olivia E. Freeman<sup>12</sup>, Jean-Jacques Bambuta<sup>13</sup>, Quentin Jungers<sup>14</sup>, Roman-Cuesta Rosa<sup>1,15</sup>



Photo by Axel Fassio

### Summary

This chapter outlines the current state of knowledge of the peatlands of the Congo Basin in the central depression, or “Cuvette Centrale”. The Cuvette Centrale peatlands or the Central Congo peatlands are the world’s largest tropical peatland complex (i.e. near contiguous region) covering over 145,500 km<sup>2</sup>, and storing 30 gigatonnes of carbon in the peat, approximately equivalent to the above ground biomass of trees in the entire Congo Basin forest. To date, these peatlands remain largely intact, providing a range of ecosystem services, locally, regionally and globally. Potential threats include (1) oil exploration and extraction; (2) road network extension; (3) logging expansion; (4) agricultural and/or plantation development including the risk of palm oil expansion, and (5) climate change altering the water balance of the peatlands. While international and regional agreements and conventions exist such as the Ramsar Convention, the United Nations Environmental Assembly

Resolution ([UNEP/EA.4/RES.16](#)) and the Brazzaville Declaration on Peatlands with provisions for sustainable management of peatlands and their protection, there is an urgent need to strengthen national institutions and frameworks for effective application and implementation of these agreements and commitments. Investment in regional capacity is needed as relatively little is known about these ecosystems including the activities of communities in the region. Ongoing and expected future programs provide some of the needed support, but significant additional investment is required to support national governments and further interdisciplinary research into these important landscapes.

**Keywords:** Peatlands, Cuvette Centrale, Congo Basin, Central Congo peatlands, peatland mapping, peatland management, peatland conservation, ecosystem monitoring, wetlands

<sup>1</sup>CIFOR-ICRAF, <sup>2</sup>University of Leeds, <sup>3</sup>University of Marien Ngouabi, <sup>4</sup>UNIKIS, <sup>5</sup>University of Edinburgh, <sup>6</sup>University of St. Andrews, <sup>7</sup>CIRAD, <sup>8</sup>PNUE, <sup>9</sup>FAO, <sup>10</sup>University of Kinshasa, Greenpeace Afrique, <sup>11</sup>University of Grenoble Alpes-IGE, <sup>12</sup>USFS, <sup>13</sup>Ministry of Environment and Sustainable Development (DRC), <sup>14</sup>RIOFAC, <sup>15</sup>Wageningen University & Research





## Land-use planning and Impacts on the sustainable management of forest ecosystems in central Africa

**Coordinators:** Philippe Guizol<sup>1,2</sup>, Liboum Mbonayem<sup>2</sup>, Abdon Awono<sup>2</sup>, Donald Djossi<sup>3</sup>, Pamela Tabi<sup>2</sup>, Marie Ange Ngobieng<sup>1</sup>, Blaise-Pascal Ntirumenyerwa Mihigo<sup>4</sup>, Prince Lungungu<sup>5</sup>, Roger Mbuyu Kimpesa Kasulo<sup>4</sup>, Cléto Ndikumagenge<sup>6</sup>, Salvator Ndabirorere<sup>7</sup>, Glorioso Umuziranenge<sup>8</sup>, Charles Doumenge<sup>1</sup>

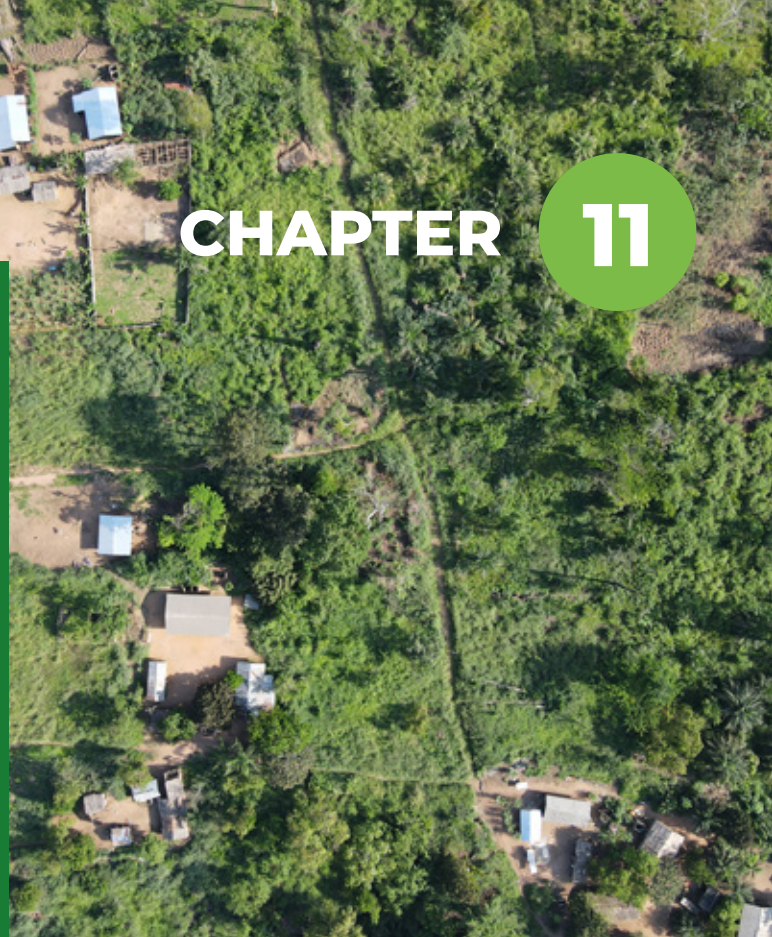


Photo by G. Bouka & C. Doumenge

### Summary

In Central Africa, land-use planning (LUP) is emerging as a tool and solution for managing forest ecosystems. LUP was until recently mainly a state initiative to distribute economic activities over national territory; its goal is development, especially of infrastructure. This chapter uses a historical approach to analyse how concept of LUP has evolved in four countries: Cameroon, the Democratic Republic of Congo, Rwanda, and Burundi. In Cameroon, the 2016 National Regional Planning and Sustainable Development Scheme (SNADDT) has been supplemented by a strategy for the development of Local Land-use & Sustainable Development Plans, with guides to steer the linking between these two processes. Densely populated countries with limited natural resources (Rwanda and Burundi) have been quicker to integrate environment issues into their planning policies. Rwanda also has an original LUP strategy that focuses on green tourism as an economic driver, reserving large areas for natural parks. In the DRC, as in many Central African countries, the trend to integrate

environmental issues into LUPs is recent and supported by the international community: DRC adopted a national land-use policy (NLUP) in 2019. Many of the current LUPs of the countries studied are relics of past decisions that date back to the colonial period. Sustainability of renewable resources, including biodiversity and avoided deforestation, are gradually becoming objectives of these LUPs. Lastly, there is a desire to round out the top-down State-led decision-making process with a bottom-up process originating from traditional communities. Effective implementation of the LUPs will largely depend on the means available to coordinate these two decision-making trends, in order to limit conflicts while guaranteeing environmentally friendly development.

**Keywords:** Land-use planning, deforestation, biodiversity, ecosystem conservation, sustainable management, forest ecosystem, forest resources

<sup>1</sup>CIRAD, <sup>2</sup>CIFOR-ICRAF, <sup>3</sup>OFAC Yaoundé, <sup>4</sup>Faculté de droit, Université de Kinshasa, RDC, Faculty of law, University of Kinshasa (DRC) <sup>5</sup>Lawyer and researcher in environmental and local community law (DRC), RDC, <sup>6</sup>FAO-RDC, <sup>7</sup>FAO-Burundi, <sup>8</sup>Protestant University of Rwanda (PUR)

## Forest Landscape Restoration (FLR) in central Africa

**Coordinators:** Philippe Guizol<sup>1,2</sup>

**Authors:** Philippe Guizol<sup>1,2</sup>, Mamadou Diakhite<sup>3</sup>, Julien Seka<sup>4</sup>, Christophe Bring<sup>5</sup>, Liboum Mbonayem<sup>2</sup>, Abdon Awono<sup>2</sup>, Phil René Oyono<sup>6</sup>, Damas Mokpidie<sup>7</sup>, Cléto Ndikumagenge<sup>8</sup>, Denis Sonwa<sup>2</sup>, Salvator Ndabirorere<sup>9</sup>, Wolf Ekkehard Waitkuwait<sup>10</sup>, Marie Ange Ngobieng<sup>1</sup>, Pamela Tabi<sup>2</sup>, Lydie Essamba<sup>2</sup>



Photo by Philippe Guizol

### Summary

The first part of this chapter seeks to clarify the concept of forest landscape restoration (FLR). FLR is a process that tends to counteract those of forest degradation and deforestation, which are continuous and accelerating processes in Central Africa (see section 1.4). As a result, planting trees is not enough: improving people's relationship with nature is crucial. As stated in many international decisions, FLR seeks to protect biological diversity and to ensure people's food security and living conditions. In the second section, the FLR of Central African countries is analysed through the experiences of four countries: Cameroon, the Central African Republic (CAR), the Democratic Republic of Congo (DRC) and Burundi. It turns out that the idea of restoration has been around a long time. Current landscapes are still marked by past initiatives, which have often generated persistent conflicts. In Central Africa, ambitious FLR programmes are multiplying but face many barriers, including poor governance, lack of

intersectoral coordination, conflicts over land use, mismatch between the time devoted to projects and that needed for the restoration process, and consequently lack of real support for local populations. This analysis shows the importance of involving local populations in landscape restoration decisions starting from the design stage of projects, as well as of having R&D support services to offer better techniques and realistic trajectories to the local governments and people ultimately responsible for implementing FLR activities. Finally, monitoring systems should be set up, starting at the project design stage, to assess the effectiveness, efficiency and sustainability of restoration efforts.

**Keywords:** Forest landscape, restoration, degradation, deforestation, forest governance, local population, biodiversity, forest

<sup>1</sup>CIRAD, <sup>2</sup>CIFOR-ICRAF, <sup>3</sup>AFRI00-NEPAD, <sup>4</sup>ENEF- National School of Water and Forests, Cameroon, <sup>5</sup>MINEPDED Cameroon, <sup>6</sup>Associate researcher in politics Rights and Resources Initiative (RRI), <sup>7</sup>COMIFAC, <sup>8</sup>FAO-RDC, <sup>9</sup>FAO-Burundi, <sup>10</sup>GIZ-Sustainable Forest Management in the Congo Basin Program



## Local and indigenous peoples' rights challenged by forestry and conservation policies

**Authors:** Raphael Tsanga<sup>1</sup>, Samuel Assembe-Mvondo<sup>2</sup>, Guillaume Lescuyer<sup>3</sup>, Cédric Vermeulen<sup>4</sup>, David Andrew Wardell<sup>1</sup>, Marie-Ange Kalenga<sup>5</sup>, Laurence Boutinot<sup>3</sup>, Phil René Oyono<sup>6</sup>, Gretchen Walters<sup>7</sup>, Olivier Hymas<sup>7</sup>, Fernande Abanda Ngono<sup>8</sup>, Jean-Claude Nguingui<sup>9</sup>



Photo by Axel Fassio

### Summary

After years of uncertainty and hesitation, probably due to a lack of conscience inherited from colonial administrations, the issue of the rights of local and indigenous peoples has become very topical, both for policymakers and for forest managers. Therefore the Central African Forest Commission adopted subregional guidelines on participation of these stakeholders in sustainable forest management. This chapter reviews the effectiveness of how people's rights are addressed in production and conservation forests.

The data show that progress in people's rights has been faltering in production forests. On the one hand, the remarkable expansion of social forestry and the strengthening of legal frameworks affirm the recognition and respect of rights. On the other, implementation is proving difficult, as the legal configuration of recognized rights is often at odds with the legitimacy of local practices. Advances in the normative framework are hampered

in practice by the complexity and cost of procedures, thereby cancelling out the expected effects of social forestry.

With regard to conservation forests, improvement is needed in data and knowledge on the socioeconomic and environmental impacts of the implementation of legal provisions. The planned expansion of protected areas must take better account of the human rights of local and indigenous populations, especially where strict protection is being considered. However, several community-rights based approaches (social safeguards, risk analysis, informed and prior free consent, complaint management systems) are currently being experimented, often as part of delegated conservation management to private bodies.

**Keywords:** Rights, local population, indigenous population rights, production forest, social forestry, forest policies, protection forests

<sup>1</sup>CIFOR-ICRAF, <sup>2</sup>Research Institute for Humanity and Nature, <sup>3</sup>CIRAD, <sup>4</sup>University of Liège, <sup>5</sup>Fern, <sup>6</sup>Rights and Resources Initiative, <sup>7</sup>University of Lausanne, <sup>8</sup>Quebec University in Outaouais, <sup>9</sup>FAO



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The State of the Congo Basin Forests report is published periodically to present the Central Africa forest ecosystems and their management environment. Following the 2015 edition which was entirely devoted to climate change, the 2021 report has four parts, the first of which provides an effective assessment of the state of the resource which is increasingly recognized at global level as a forest massif that is essential for carbon sequestration and biodiversity conservation.

This report puts the Congo Basin forest ecosystems into perspective in the global context characterized by debates that will guide the management of all the world's tropical forests for decades to come. It also addresses current issues such as peatland management and questions about the relationship between the management of biodiversity resources and the emergence or re-emergence of zoonotic diseases, as COVID-19 has particularly affected the backdrop in which it was written.

Finally, this report identifies the main challenges that need to be addressed in order to achieve sustainable management of the Congo Basin forest ecosystems, so that it can best contribute to improving the livelihoods and living conditions of local populations and indigenous peoples.

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