

State of the Congo Basin Forests in 2021: Overall conclusions

Richard Eba'a Atyi



Photo by Joel Kouam/CIFOR

State of resources

Huge areas of little disturbed dense forest, but with a clearly growing trend of deforestation and degradation

The remaining evergreen and semi-deciduous forests of Central Africa were estimated to cover approximately 200 million ha in January 2020, including 184.7 million ha with no visible sign of disturbances (Vancutsem et al. 2020). Overall, about 9 percent of the TMF area of Central Africa has disappeared since 2000, representing 18 million ha (See Chapter 1).

Two key findings underline the scale of the degradation process in such ecosystems: degraded forests in Central Africa represent approximately 7 percent of the remaining TMF area (up to 30 percent when we consider disturbance-edge-affected forests), and approximately 40 percent of all forest disturbances (deforestation, regeneration and degradation).

Analysis of changes shows a considerable increase in the annual disturbance rate in the TMFs of Central Africa over a five-year period (2015–2020), as it reached 1.79 million ha per year compared to 1.36 million ha per year during the previous decade (2005–2015) (see Figure 1.13).

The main drivers of deforestation in Central Africa remain the increase in cultivated areas, demographic growth and infrastructure development. Nonetheless, land-use policies are a valuable tool in the fight against deforestation and forest degradation. Protected areas, forestry concessions and community forests can significantly reduce forest loss. At the same time, they can engage local people in the conservation of forests and provide them with livelihoods.

With a carbon sequestration capacity unique in the world

Central African forests sequester about 40 Gt of carbon (Saatchi et al. 2011). These forests have structural characteristics that distinguish them from Amazonian forests: while the density of trees per hectare is lower, there are more trees of a greater diameter, and trees at a similar diameter are taller. This results in a higher average level of carbon or biomass per hectare than that of Amazonian forests (Sullivan et al. 2017). While the atmospheric carbon absorption capacity of undisturbed Amazonian forests has been declining for around 30 years due to an increase in tree mortality blamed on climate change (Brienen et al. 2015), this trend has not yet been observed in Central Africa (Hubau et al. 2020). Currently, despite their comparatively smaller area, the undisturbed forests in Africa are now absorbing more carbon than those in the Amazon. However, an increase in carbon loss from 2011 has been observed, suggesting that the absorption capacity of intact forests in Central Africa will become saturated in the future, despite the stability observed to date (Hubau et al. 2020).

The annual rates of forest disturbance by type of land use 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 also sheds light on the differences between not only the various forest countries, but also between monitoring periods: between 2010 and 2020, there was an overall increase in rates of deforestation in protected areas (Doumenge et al. 2020) and forest concessions compared to 2000–2010.

A significant contribution to the industrial development of Central Africa

The Congo Basin forests contribute to the economies of Central African countries in diverse ways. They contribute significantly to the socioeconomic development of those countries through the value chains still dominated by the informal sector and that include non-wood forest products, woodfuel and the exploitation of wildlife for food. This State of the Forests 2021 report puts special emphasis on the timber value chain (see Chapter 2 above), which constitutes the bulk of the forest contribution to the formal economic sector of Central African countries and on which information is abundant.

Of the 200 million ha of dense moist forest in Central Africa (Vancutsem et al. 2020), nearly 54 million ha (27 percent) are classified as production forests of various types, mainly in the form of forestry concessions.

Many conservation concessions have been created in DRC in recent years, either by converting production forest concessions (thereby reducing the area presented above) or by creating new concessions. There are no comprehensive public data on these concessions, which cover more than 6 million ha according to an estimate by FRMi. The purpose of these concessions is to help reduce greenhouse gas (GHG) emissions.

The model of forest management in Central Africa is a major asset for their conservation and sustainable use. However, their implementation has yet to be assessed, more than 15 years after approval of the first management plans. Besides concessions, two other forms of management of production forests in Central Africa deserve attention: community forests and council forests (or forests of decentralized authorities).

In 2020, FSC-certified forest concessions covered a total area of just over 2 million ha. Prospects for growth in certified areas remain encouraging, particularly with the advent of the PAFC. Since 2019, ATIBT has been developing a PAFC certification system for the Congo Basin and working to make it recognized by the PEFC Board. This regional approach will help minimize the costs of PEFC certification, by pooling its development in the three target countries via national PAFC bodies. This will make it easier to implement and reduce the costs associated with certification for businesses.

Generally speaking, log production has been relatively stable in Congo Basin countries for the past 25 years. Production was not impacted by the Covid crisis and even grew in 2020 to over 8 million m³.

The processing rate, i.e., the share of the harvested volume processed domestically, varies greatly between countries. Gabon has banned the export of logs and therefore requires all logs harvested to be processed in the country. Cameroon has a processing rate of almost 70 percent. The processing rates in DRC, CAR, and the Republic of the Congo are around 55 percent, even though their regulations stipulate that only 15–30 percent of production may be exported as logs. In Equatorial Guinea, less than 20 percent of production is processed. Cameroon and Gabon are the main industrial producers in the Congo Basin thanks to their high production levels and very good processing rates. Products that have undergone primary processing dominate exports, mainly in the form of sawnwood, as well as veneer in Gabon.

Despite the steps taken to encourage forestry operators to increase their production of higher added-value products, Central African countries are lagging far behind due to lack of infrastructure, high transport costs and failure to train people in processing trades.

The global market for Central African wood is estimated at USD 178 billion for the 440 million metric tons produced. Central African countries account for only USD 2.2 billion for a volume of 4.2 million metric tons (i.e., 1 percent). The total value of exports has changed very little in the last 10 years despite volumes increasing by 35 percent. This suggests that the average price per metric ton has decreased for all products on aggregate.

While domestic timber markets appear to be relatively stable and their activity likely correlates with national economic growth rates, exports of artisanal sawnwood to neighbouring countries have increased significantly over the past decade. This is especially true in DRC, where exports to East Africa are now estimated at around 120,000 m³ of sawnwood (Eba'a Atyi et al. 2016) and in Cameroon, where exports of informal sawnwood to Nigeria reached 27,000 m³ per year in 2016. The most notable increase was observed between Cameroon and Chad: in 2015, around 210,000 m³ of sawnwood crossed this border (Lescuyer and Tal 2016), very often with falsified documents from community forests. This is more than double previous estimates made in 2009.

Generally speaking, despite the enormous potential offered by forests in the Congo Basin, over the past 60 years their wood has been harvested and exported in its raw form to countries outside Africa, while African countries have imported finished wood products. The missed economic opportunities are incalculable. The Congo Basin operates on the fringes of the global wood subsector, accounting for 1 percent of global sawnwood production, 6 percent of tropical sawnwood production, 5 percent of tropical logs, 7 percent of tropical veneers, 1 percent of tropical plywood and little to no secondary or tertiary wood processing.

The AfDB's regional study on the sustainable industrialization of the wood subsector recommends that countries take 10 key steps (see Chapter 2) to establish an operational framework for the implementation of this vision by 2030.

If this vision is implemented successfully, jobs will be created in the primary processing sector, increasing from 40,000 today to over 100,000 by 2030, with possibly even more jobs in the secondary and tertiary sectors. The wood subsector's contribution to national GDP will also double. However, this will not happen without substantial investment. It will be necessary to inject EUR 3 billion in private funds into the regional economy. The AfDB plans to invest USD 35 billion over 10 years as part of its industrialization strategy. This will help Africa to increase its GDP from industry from just over USD 700 billion to over USD 1,720 billion by 2030.

Rehabilitation of resources and mainstreaming of climate change

Different countries have different approaches to forest plantations

Forest plantations (see Chapter 3) have been the main approach to forest resource rehabilitation in Central Africa since colonial times. Among the examples are the considerable investments made since the 1950s in the Republic of Congo, where eucalyptus plantations were established to produce fibres for wood pulp production. These efforts, combined with research work, have had significant success in developing plant material quality. However, investments in this sector are complicated because of unclear land tenure and use, inadequate industrial infrastructure, lack of technology, low productivity and 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.

In the DRC, agroforestry systems that combine food crops (especially cassava) with fast-growing forest species for woodfuel production are instead what have been established. Some of these projects have shown their economic viability and impact on social development. An example is Mampu, a reference agroforestry project that has become an autonomous peasant-farming system that no longer receives funding or support from international donors.

The objective of the initial agroforestry projects was to produce woodfuel, but this has gradually shifted towards carbon sequestration, particularly since 2008. These types of initiatives open up new opportunities, such as the development of large-scale community agroforestry projects. While these are built on previous models, they have climate and sustainability criteria and comply with the fundamental principles of protected area management and conservation that are part of Congolese law.

Another example is Rwanda, where demand for woodfuel continues to be high and where wood from natural forests had virtually disappeared several decades ago. Public plantation wood is relatively difficult to access, and land availability for additional large-scale plantations – either private or public – is severely constrained due to the country's high population density.

A large portion of Rwandans will continue to use woodfuel as their main energy source for quite some time to come, as it remains cheaper than electricity, petroleum products and gas on an equivalent energy basis. Wood from farmers' fields has lower production costs than from large-scale plantations and is available without administrative hassle.

While the country claims that it can plant more trees in plantations on marginal lands, it is uncertain that this wood can be marketed easily: the costs per m³ are substantially higher than wood from farmers' fields.

There are no reliable data on the actual production and use of woodfuel to even reliably determine if this will be a problem in the future. The supply of woodfuel has covered the energy demand without major government intervention, and it seems that this will not change any time soon.

Conditions for the success of forest plantations in Central Africa

The following conditions are required for the success of forest plantations in Central Africa:

- Programme objectives, target participants and incentives must be transparent and aligned.
- Suitable land for timber plantation growers must be available.
- Appropriate funding and clear and simple procedures to access the funding must be available.
- Access to high-quality plants must be available.
- The programmes must be developed for an extended period of time.
- A National Forest Inventory must be initiated to track progress and development of the sector.

Moreover, these forest plantations and agroforestry activities contribute to storing a significant amount of forest biomass. In addition to being a source of supply for businesses and woodfuel, plantations contribute to the REDD+ process.

Implementation of REDD+ projects to fight climate change.

Pilot projects act as laboratories for REDD+ implementation (see Chapter 5). Nearly 14 years after the Bali COP, the implementation of these projects should be assessed so that we can draw lessons from them. Some 15 pilot projects have been identified in Central Africa. They have helped (i) convince the most reluctant governments regarding the feasibility of REDD+ mechanism implementation, (ii) promote the incentives associated with this process (Sunderlin et al. 2014), and (iii) highlight the complexity of their implementation.

Since 2007, several technical and financial support initiatives have been developed to help countries prepare and start implementing REDD+ (in particular the FCPF Readiness Fund, UN-REDD, as well as the FIP, the REDD+ window of the Green Climate Fund, and others). Thanks to this support, mainstreaming of climate change mitigation issues has taken on an unprecedented dimension, particularly in Central African countries that have benefited from these funds (Cameroon, CAR, DRC, Republic of Congo and Gabon), but also in the other countries of the region via a rebound effect.

However, this mainstreaming remains relatively limited to the forest sector, and REDD+ has not achieved the expected results in terms of intersectoral coordination. Today, it is crucial to link REDD+ to more comprehensive green growth and/or low-carbon development policies (Thu Thuy et al. 2018), in order to drive the sectors (agriculture, mining, land, energy, etc.) that cause deforestation and forest degradation and ensure its sustainable and effective implementation. In this respect, CAFI is an important source of financing.

Similarly, countries need to harmonize carbon monitoring tools and instruments on their territory. Theoretically, insofar as REDD+ targets are included in the NDCs, the Measurement, Reporting and Verification (MRV) systems developed under REDD+ should feed directly into a broader carbon accounting system that would meet the requirements of the Enhanced Transparency Framework (ETF) of the Paris Agreement. In practice, the REDD+ MRV is often available before the global accounting tool into which it should be included. And it is not uncommon to observe semantic and methodological inconsistencies (often due to anachronisms) between the information submitted to the UNFCCC (greenhouse gas inventories, NDCs, etc.) and the REDD+ MRV instruments (some of which are also submitted to the UNFCCC, such as the FREL). At this time when countries are preparing to submit their second Nationally Determined Contribution (NDC), it is important to correct inconsistencies and harmonize methodologies.

Finally, this dual effort of perspective and harmonization should help align REDD+ commitments and REDD+ projects and programmes. As part of the Paris Agreement and the universality of climate commitments, this alignment (which we can also call moving closer together, linking or interlocking) has become necessary. Countries must be able to ensure that REDD+ activities implemented on the ground contribute to achieving their NDCs.

Currently, one of the major challenges of REDD+ is to succeed in raising funds to implement the activities. In fact, the main source of financing that had been envisaged for REDD+ (a binding carbon market) never materialized (Angelsen et al. 2018). Instead, a voluntary carbon market has taken over. Its development has been both explosive and substantial. In 2019, forestry projects accounted for 36.7 million metric tons of CO₂e on the voluntary carbon markets, worth around USD 160 million. In financial terms, it is by far the biggest category of voluntary market projects, not only in tCO₂e volume, but also in average sales price per metric ton, which exceeds all the other project categories

(USD 4.3 in 2019). Today, this voluntary market remains one of the main ways to tap into private financing. However, several questions remain unanswered with regard to the relationship between these voluntary markets and the Paris Agreement. Furthermore, financing does not cover needs (Atmadja et al. 2018), and new avenues must be explored to find funds.

International funding for the management of Central Africa's forests

Despite their importance and the organization put in place for their management, the forests of Central Africa are struggling to attract the same level of funding as other 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 percent of financing released for the conservation and sustainable management of tropical forests.

Internally, COMIFAC's operations have been perturbed due to difficulties in collecting contributions from States. Its main source of funding is supposed to be its autonomous funding mechanism; however, the latter is non-operational in most of the countries of the subregion. The amount of unpaid contributions totalled nearly FCFA 3 billion in 2021.

This low level of contributions from its member states makes it difficult for COMIFAC to fulfil its mission fully.

Financial flows come mainly from official development assistance, while contributions from the private sector and from foundations and philanthropic organizations remain very low. The main financial contributors are Germany, the European Union (EU) and the Global Environment Facility (GEF). New funding opportunities emerged at the UNFCCC COP26 – embodied in the declarations made by philanthropic organizations and actors in the private agricultural sector – and must now be harnessed. Indeed, a striking number of philanthropic organizations committed to mobilize USD 1.7 billion for indigenous peoples and local communities for the protection of tropical forests.

A significant share of the international financial flows to Central Africa for the conservation and sustainable management of forests is allocated to individual countries. There are, however, some noteworthy initiatives of subregional scope, including the ECOFAC programme funded by the EU for 30 years, the German COMIFAC support project, and the Congo Basin Ecosystems Conservation Support Programme (PACEBCo)

Financial partners should strive to align their subregional initiatives in the forest and environment sector with the COMIFAC Convergence Plan in the spirit of the 2005 Paris Declaration.

The thematic areas that attract the most funding are biodiversity conservation, environmental policies and forest management policies. In contrast, training and research are neglected, with serious consequences for the subregion, which is severely lacking capacity in this respect.

The forests of Central Africa 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 pledged to mobilize at least USD 1.5 billion for the protection and sustainable management of Congo Basin forests. Central African countries must now seek to clarify the commitments of each donor country, and the mechanisms and arrangements for effectively managing the funds pledged.

COMIFAC must organize equitable fundraising, for a fair deal and a fair share for the Congo Basin. Such funding should amount to USD 6 billion/year to bring in funding commensurate with the contribution of Congo Basin forest ecosystems to the global climate.

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 country level and at the common subregional level. As a first step, Member States must make COMIFAC a priority and pay their agreed annual contributions.

Growing participation by Central African countries in international discussions on forests

The contribution of forests within the context of the UN Sustainable Development Goals (SDGs) and of the UNFCCC Nationally Determined Contributions (NDCs) is followed by all countries of the world. The SOF 2021 report therefore draws attention to these two instruments.

Relationship between the SDGs and the COMIFAC Convergence Plan

In September 2015, the 193 UN Member States adopted the 2030 Agenda for Sustainable Development. This 'Agenda 2030' programme consists of 17 SDGs and 169 targets. It is a people-centred development agenda which seeks to eradicate poverty in all its forms and dimensions, preserve the environment and ensure more peaceful and inclusive societies.

Agenda 2030 recognizes the following: *"Targets are defined as aspirational and global, with each Government setting its own national targets guided by the global level of ambition but taking into account national circumstances. Each Government will also decide how these aspirational and global targets should be incorporated into national planning processes, policies and strategies."*

The COMIFAC Convergence Plan for the conservation and sustainable management of Central African forest ecosystems comprises six priority action areas and three cross-cutting areas. It serves as a reference framework for actions in the forestry and environmental sector in Central Africa.

To better guide Central African countries in implementing Agenda 2030, it is recommended that the Convergence Plan align with the SDGs (see Chapter 6). The nine action areas of the Convergence Plan and the 17 SDGs of Agenda 2030 thus act as a framework for the analyses performed in this report. The mainstreaming of the SDGs into sustainable forest management in Central Africa consisted of reviewing the ways in which the COMIFAC Convergence Plan action areas are linked to the SDGs.

The report thus shows that the COMIFAC Convergence Plan can serve as a reference framework for assessing the contribution of Central African forests to the SDGs. The exercise of aligning the COMIFAC Convergence Plan with the SDGs has once again highlighted the multiple functions performed by the forests of the Congo Basin and the many services they provide to humans and the planet.

However, the range of forest contributions to the SDGs has not been sufficiently understood and reflected in the voluntary national reports produced by the subregion countries. In fact, most countries did not provide detailed information on forest contributions to the SDGs.

The multifunctional approach employed by COMIFAC in monitoring forest contribution to the SDGs goes beyond simply an environmental function. This approach pays as much attention to the economic and social functions of the forest as to their environmental function. It should be made use of more, to aid in identifying the range of services that forest ecosystems provide to achieve the SDGs.

As for future prospects, the production of the Subregional Guidelines for monitoring forest contribution to the SDGs in COMIFAC countries is a significant step towards improving reporting on how these forests contribute to the SDGs. Once these guidelines are adopted by the COMIFAC Council of Ministers, they can be adopted domestically by member countries. To this end, the capacities of countries of the subregion should be enhanced, so that they can assume better ownership and implementation of the principles, guidelines and priority actions needed to improve their reporting on the SDGs and on forest contributions to the latter.

Diverse international commitments by Central African countries in the fight against climate change

Chapter 7 presents all these commitments and provides an overview of how well Central African countries have upheld their commitments under the UNFCCC and on combating climate change in general. More specifically, these are binding commitments such as National Communications, Biennial Update Reports (BURs) and NDCs, as well as voluntary commitments including NAPAs, REDD+, NAMAs, FCPF, UN-REDD, CAFI, AFR100, FLEGT, FIP and HLFD.

All the commitments by the Central African countries represent a reduction of 455.4 MtCO₂e (conditional and unconditional) and represent funding needs of USD 117,882 billion for the commitment period to 2030 in most cases (Fobissie et al. 2016; Eba'a et al. 2018). A recent study has shown that the implementation of these commitments requires greater coordination between sectors within countries (Eba'a et al. 2018).

Under Article 4 paragraphs 2 and 9 of the Paris Agreement, the Parties must submit an NDC every five years. Countries' commitments and their progress towards achieving their NDCs should show growing ambition. Five years after the adoption and ratification of the Paris Agreement by all Central African countries, they embarked on the process of revising their NDCs or preparing new ones for submission to the UNFCCC Secretariat by the end of July 2021. Rwanda and São Tomé and Príncipe met this deadline. In March 2022, the UNFCCC website showed that eight countries had submitted an updated NDC (see Table 7.2). Gabon and Equatorial Guinea had not yet done so. The updated NDCs were submitted in preparation for COP26 in Glasgow, Scotland. These commitments will need to be monitored closely, and a new regional plan of action for the implementation of the Paris Agreement in Central Africa should be drawn up following the submission of the revised or updated NDCs.

The principle of common but differentiated responsibility has enabled Central African countries, which have low greenhouse gas emissions as compared to other countries, to sustainably manage their forest resources as a way to support international efforts to limit climate change. However, their

stated ambitions do not necessarily translate into commitments that are effectively implemented at national level and that would enable them to better fulfil their UNFCCC obligations. While international funding is available to developing countries, including those in Central Africa, the failure of these countries to submit the required national documentation at international level means their access to certain funding is severely curtailed.

Emerging themes

The previous edition of the State of the Forests of the Congo Basin, SOF 2015, focused on climate change. This theme is still topical but has new variants which were of increasing concern to forest management stakeholders between 2015 and 2021. These variants include the implementation of strategies and policies to fight ‘imported deforestation’ and the management of huge peatland areas, whose discovery in the Congo Basin created worldwide sensation. Finally, the COVID-19 pandemic, whose effect was felt around the world during the period this report was written, made it impossible to neglect the links between Central African forests and zoonotic diseases.

Central Africa countries faced with the fight against imported deforestation

Imported deforestation involves imported agricultural products that cause tropical deforestation (see Chapter 8). Countries such as those in the EU can be said to import deforestation (IDDRI 2017), as imports of raw materials or processed products are directly or indirectly linked to deforestation, forest degradation or the conversion of natural ecosystems outside the national territory (Gouvernement France 2017).

There seems to be consensus on the need to combat deforestation among various direct and indirect stakeholders involved in land management in Central Africa. Nevertheless, the policies and approaches adopted and implemented to this end can have serious social and economic consequences for producer and exporting countries in this region.

Importing countries in Europe and America adopt binding consumer-side policies under the influence of activist civil society organizations. At the end of 2021, the EU 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. The products most affected in Central Africa are palm oil; cocoa; rubber; wood; and, to a lesser extent, coffee.

The technical arrangements for implementing these policies and measures to combat imported deforestation in importing countries are still unclear or not yet determined. Barriers to the development of credible implementation strategies include the lack of consensus on how to define forests and, therefore, deforestation. Nevertheless, the certification approach has been applied to timber products for around 20 years and is increasingly applied to palm oil and cocoa. It offers a technical solution, both with regard to production units and territorial entities that have made commitments.

Central African producers and exporters are increasingly aware of and compliant with the new requirements of zero-deforestation policies and measures to combat imported deforestation adopted by developed importing countries. This is all the more relevant, given that Central African

countries understand the threat that such policies pose to their national economies. Central African stakeholders have responded in two ways: 1) by diversifying their markets to export more to less demanding markets, and 2) by adopting sustainable management practices for the production of the commodities concerned, through increasing efforts to eliminate deforestation from production chains. Such approaches in Central Africa are being initiated not just by governments, but also by private-sector and civil society actors.

To limit the negative economic impacts that might be linked to the adoption and implementation of policies on imported deforestation in Europe in particular, Central African governments should prioritize negotiation activities, possibly as part of discussions between the Economic Community of Central African States (ECCAS) and the EU, with the goal of adopting more realistic implementation timetables as well as support measures for the States and various stakeholders of the commodities involved. The FLEGT experience in Central Africa could serve as an example and could be improved. Given that they share similar ecosystems, Central African countries could, as a starting point, include harmonizations in their technical approaches, for example, by agreeing on definitions of ‘forest’ and in determining ways to monitor deforestation.

The growing importance of peatlands in the management of forest ecosystems in the Congo Basin

Peatlands are wetlands with an accumulation of partially decomposed organic matter in the soil; they store the largest amount of terrestrial carbon per unit area (see Chapter 9). They cover almost 3 percent of global land surface, representing more than the total carbon stored in the earth’s vegetation and almost twice as much carbon as found in its forests. Drained and degraded peatlands emit huge amounts of greenhouse gases. Therefore, protection and sustainable management of these natural environments, as well as urgent restoration actions, can help avoid carbon emissions and maintain the carbon stored in the peatland ecosystem.

In Central Africa, the Central Congo peatlands are estimated to cover 145,500 km². They are located across both the Republic of Congo and DRC, making them the world’s largest tropical peatland complex. They are estimated to store approximately 30 Gt of carbon, which is approximately as much carbon as all the above-ground forest biomass in Congo Basin, and equivalent to 15 years of the carbon emissions from the US economy.

To date, this vast peatland area has remained relatively intact, but several potential pressures threaten to disturb these highly sensitive ecosystems. Increases in areas used for logging, hydrocarbon exploration, and agriculture can all cause degradation and destruction of these critical habitats. Disturbances and drainage will not only release a large amount of greenhouse gases into the atmosphere, thereby contributing to global warming, but they will also have severe impacts on the regional climate.

Therefore, more research to inform policies and new intersectoral sustainable management plans and actions for urgent conservation of the Central Congo peatlands are paramount to ensure continuing provision of the ecosystem services and stability they provide.

As partners of the Global Peatlands Initiative, the governments of DRC and the Republic of the Congo are taking action, through national leadership and support from partners to develop consultative, intersectoral and scientifically informed peatlands management policies, strategies and plans. Any peatland policies, plans or investments need to be linked to both countries’ commitments to

regional and international global environmental agreements reinforced by targets of the SDGs. Most critical is that the intersectoral, interdisciplinary and multi-stakeholder participatory processes of developing policies, plans and programmes to conserve, restore and sustainably manage these peatlands needs adequate financing, innovation, institutional strengthening and access to knowledge.

Central African forests and zoonotic diseases

Emerging infectious diseases (EIDs), caused by “pathogens that are rapidly increasing in geographical spread, host range or prevalence”, represent one of the major risks to human health and societies (see Chapter 10). In fact, these EIDs have been increasing in recent decades. More than 60 percent of known EIDs are due to an animal pathogen, and it is estimated that 75 percent of infectious diseases that have emerged in the past three to four decades have been caused by wildlife.

These zoonoses are diseases that are transmitted from animals to humans and triggered by complex interactions between humans, domestic animals and wildlife. In order to design and implement surveillance and control systems for these EIDs, it is essential to understand the mechanisms and factors that lead to this spill-over. Among the factors that cause these diseases, human density associated with anthropogenic and demographic changes is one of the main drivers of EIDs. The wide range of host wildlife is also an important factor to consider. Their predictive model indicates that low-latitude developing countries are the most exposed to EIDs from wildlife or those that are vector-transmitted. New models suggest that the risk of emergence is higher in tropical forest regions that have high levels of mammalian biodiversity and are subject to changes in land use due to encroachment by human populations and agricultural activities.

Landscape changes affecting Central African forests can impact several mechanisms which may or may not favour the emergence and re-emergence of pathogens. Tropical forests are home to a wide diversity of as yet unknown viruses and bacteria that represent a source of emerging pathogens. The transformation of landscapes takes place through human infrastructure development following a temporal sequence: 1) roads, enabling access to areas previously inaccessible to vehicles; 2) settlements or small villages, where wildlife resources can be extracted for local or more distant markets (e.g., urban centres); 3) sedentarization of human populations, which may then be accompanied by peasant or small-scale cultivation of certain areas in the forests that still dominate the landscape; 4) possible development of small urban centres, which little by little transform the surrounding landscape, with a gradual predominance of fields and more commercial crops (e.g., oil palm); and, finally, 5) areas where the forest had been predominant a few years or decades before but which now resemble agricultural land, with a few patches of protected or unprotected forest left.

These gradual landscape changes will have three main consequences on how diseases emerge:

1. An increase in the quantity and quality of human-wildlife contacts, and an intensification of hunting, agricultural practices and commercial exploitation of resources.
2. A transformation in the ecology of animal hosts of pathogens, thereby altering the ecology of diseases.

3. Modification of wildlife communities driven by these modifications/adaptations of species to their environment that come about directly or indirectly (e.g., via interspecies competition). These changes will impact the dynamics of the sylvatic cycles of multihost pathogens and the risks of transmission between wildlife and humans. Thus, a rainforest bat community in a given area will no longer be the same when the landscape is transformed, and it will promote (or not) some pathogens at the expense of others.

The situation of Central African forests is therefore very dynamic, with changing landscapes, increasing human/wildlife contact and wildlife communities that are adapting to these changes. The rate of transformation of these forests will have an impact on the risks of emergence. Efforts to establish surveillance systems and health policies are often under-resourced and therefore complicated, yet they are essential in these forest ecosystems which still host a wide diversity of agents that are potentially dangerous to human and animal health. These surveillance systems should make it possible to contain epidemics as quickly as possible in order to protect local populations, limit the costs of the measures taken and avoid pandemics.

Given the importance of wildlife as a source of protein and income in Central Africa, a considerable part of zoonotic risk management in this region involves setting up surveillance systems within the bushmeat value chain, based on countries' 'One Health Strategies'. Such surveillance systems could easily be set up upstream of a chain, with the collaboration of hunters and the distribution of suitable collection equipment.

This approach, combined with high-performance diagnostic systems, would make it possible to establish an initial health assessment of the main pathogens susceptible of circulating within the most common species among the number of animals bagged. On the basis of this initial assessment, it would then be possible to set up more targeted screening programmes for the detection or monitoring of certain pathogens or species, depending on the risk identified. Information from the detection of circulating pathogens in the hunted animal species would help to identify the main risks to which human populations interacting with these hosts can be exposed. This approach works relatively well in some countries that have skilled human resources and that can effectively utilize well-equipped and efficient research laboratories after EVD epidemics.

Emerging infectious disease outbreaks are occurring with increasing frequency and have growing socioeconomic consequences which are difficult for African governments to cope with. The example of COVID-19 illustrates this. Many African governments have taken measures to prevent the spread of the pandemic. However, the jobs and livelihoods of local people are jeopardized by the simultaneous occurrence of disruptions to domestic supply and production combined with weak external demand, sharp declines in commodity prices, and the disruption of key service sectors such as tourism (ATIBT 2020a). The pandemic has also highlighted the fragility of economies and health systems that cannot cope with such situations and are dependent on donations from rich countries for health equipment and vaccinations.

The COVID-19 pandemic has had an impact on working conditions in the forest sector and disrupted the organization and smooth running of its activities. The result has been considerable repercussions on the social, economic and environmental equilibrium, affecting jobs, source of income, raw material resources, etc. (ATIBT 2020b) and thereby endangering production and trade of essential forest products as well as seriously jeopardizing the livelihoods of local people.

The intensification of the emergence of infectious pathogens has many underlying reasons, all of which are related to the increasing anthropogenic impact on nature in a context of growing social and environmental injustices and inequalities.

Tackling EIDs in the forests of Central Africa requires both symptomatic treatments (e.g., surveillance and control of emerging pathogens and diseases) and substantive treatments that will limit human impact on forests and biodiversity loss. Both approaches are necessary and essential, and the COVID-19 crisis has been a painful reminder of the need for in-depth changes in the way we manage the planet as a whole.

Sustainable management of forests in Central Africa: the issues at stake

Under the current circumstances, it is no mystery that achieving the goal of sustainable management of Central African forest ecosystems faces many challenges. This report focuses on three of these challenges: land use planning, restoration of degraded forest landscapes, and consideration of people's rights.

Land Use Planning

Land Use Planning (LUP) is, generally speaking, a policy that tends to organize human activities in a predetermined geographical area, based on a long-term objective (see Chapter 11). The aim of this policy is to strengthen social cohesion of that area at different levels. On a finer scale, the way in which the territory is organized establishes zones and sub territories, and for each of these it allocates objectives in line with the overall long-term objective of LUP.

The various countries of Central Africa have made significant efforts in developing public policies to enable them to design their LUP, thereby creating the conditions for development compatible with both better management of their resources and economic development to combat poverty.

People's top expectation is for services and infrastructure, whether in the cities or in the countryside. In the latter, people demand roads (to better sell their agricultural products), schools and health centres. A good environment starts with having access to clean water. These demands bring them into conflict with conservation advocates, who, backed by evidence, argue for limiting road development in forest areas (Alamgir et al. 2017). Roads symbolize development and are expected by local stakeholders, but they are criticized by some scientists for their impact on biodiversity. These roads, sometimes initially laid out for logging, agro-industry or mining, are then used for all sorts of activities and especially small-scale subsistence farming, which takes over land along the roads. Today, road development has an undeniable impact on ecosystems, as they contribute to the direct causes of deforestation. This should not be the case. By making road development conditional on local governance models, such as contracts with local people who desperately need the roads for their development, it should be possible to reconcile environmental protection and inclusive development. These new governance models are still under construction but could build on local planning processes such as those being developed in Cameroon.

International agencies, development partners and environmental NGOs act on LUP through the creation of nature reserves, biodiversity corridors and global policies such as REDD+ (and its variations, such as forest landscape restoration). Two programmes have been remarkable in Central

Africa. The CARPE programme has promoted a landscape-wide approach to LUP, with the goal of reconciling conservation and improving people's lives. The EU ECOFAC programme that started in 1993 and has been going on for nearly 30 years takes into account the uses of Central African forest ecosystems. ECOFAC also strives to promote regional coordination processes for conservation while mainstreaming socioeconomic aspects. It is within this framework that it has supported the creation of protected areas decided on by the governments of Central Africa following the Rio Summit in 1992, including transboundary areas. This was the idea that produced the Network of Protected Areas of Central Africa (RAPAC).

Much remains to be done to invent ways of managing the links between the various territorial entities: between cities and countryside, between agricultural and forestry areas, between the interstices nestled between large parks or forest areas, and between countries in the case of transboundary parks or forest areas. Some tools for reconciling interests are already in place. Experiences in Rwanda and Cameroon show that through innovations in local governance it would be possible to implement LUP that allows for both national and local development, while sustainably limiting the degradation of renewable resources and ecosystems.

What are the best institutional arrangements to facilitate LUP implementation? We can see that LUP is very different from one country to another. For example, in Cameroon LUP is under the Ministry of the Economy, while DRC has a ministry solely dedicated to LUP. But which system is more effective than the other: a powerful ministry, or a specialized ministry?

This brief overview of the forms of LUP at work in the Congo Basin should be followed by real comparative studies per country, in order to provide some answers to the issues and questions mentioned above and in particular on their implementation. Despite the efforts already made under some programmes (e.g., CARPE and ECOFAC), we still lack data on the characteristics and effects of current LUP. There is thus a pressing need to provide information and awareness-raising on this critical topic of LUP, targeting policy-makers, the scientific community and the general public.

Forest Landscape Restoration (FLR)

FLR is a long-term process that seeks to limit continued degradation of existing forest ecosystems and/or to repair them (i.e., forest rehabilitation), so as to sustainably improve the living environment of local people (see Chapter 12). Reducing forest degradation involves changing the rules of interaction between natural and social dynamics (e.g., patterns of resource appropriation). FLR may, of course, include forest rehabilitation actions, such as plantations, assisted natural regeneration, or water and soil management (e.g., terraces, anti-erosion ditches, mulching and soil conditioning) on areas that are individually owned or common property. However, FLR cannot be reduced to and confused with these actions. It is a long-term and changing process that involves adaptations to social, demographic or institutional change, or to change in stakeholder perception or environmental conditions.

FLR requires shared vision at various levels, co-construction with stakeholders, and monitoring systems. It must be part of local land management via a decision-making process which precedes the setting out of its objectives and methods of action. This decision-making process determines the framework for long-term restoration of the ecosystems in question.

FLR is rightly seen as a priority for Central African countries. Given the critical mass of threats to the health of forest ecosystems in the subregion, national responses seem to be robust. While it is not a

completely new idea, FLR in Central Africa is triggering new types of processes that build on recent climate change mitigation efforts such as REDD+.

Because we are at the very beginning of these processes, it is not possible to assess them at this stage. Many country commitments and strategies have been initiated within the framework of FLR, significant funding is being put in place, and some smaller projects are already underway. There is an urgent need to establish multicriteria monitoring and evaluation systems in order to steer this rehabilitation process.

In Central Africa, implementation of the FLR process reveals a lack of accompanying research in socioeconomic areas (including value chains) of (i) genetic resource conservation; (ii) species selection; (iii) germplasm improvement; (iv) planting techniques; (v) assisted natural regeneration; (vi) governance (including land-tenure issues and inclusive decision-making processes); and (vii) innovation and evaluation processes, particularly the assessment of ecological and socioeconomic impacts. Some of this research requires long-term arrangements that are difficult to maintain in Central Africa and are very rarely funded.

Forest landscape rehabilitation relies heavily on local populations, as in many cases it involves changes in agricultural and forest resource-management practices. FLR involves investing in developmental aspects that are too costly to be borne by these local populations alone. Meanwhile, governments in the region have great difficulty in providing basic services to their people, such as infrastructure and health care, education, access to electricity and drinking water, and accessible roads.

The financing of FLR therefore relies mainly on donors and the private sector. However, most donors spread out development projects over four to five years, with performance indicators associated with these durations. As rehabilitation is a long-term process, donors must also adapt their practices. Often, they want the local population to be involved, but they are not prepared to allow for the time needed on the ground to consult them beforehand. The financing of FLR may also be based on the principle of compensation or on corporate social responsibility.

Land restoration has long been seen as a way to revive ecosystems and build resilience to climate change, but it can also harbour great economic and business potential. The monitoring of FLR programmes currently being implemented in Central Africa should include indicators that can inform us about these different dimensions of restoration.

Considering local and indigenous populations

Considering indigenous peoples in forestry and conservation policies can no longer be overlooked by those operating in the sector, be they conservation organizations or logging companies. Over the past three decades, public and private initiatives supported by technical and financial partners have gradually strengthened the role of local communities and indigenous peoples in forest management. On this front, subregional and national legal and policy frameworks have become significantly denser. Legal instruments have, among other things, laid down (i) participation; (ii) consideration of usage rights; (iii) benefit-sharing; and (iv) free, prior and informed consent as fundamental requirements for responsible management of natural resources. The implementation of these provisions by private operators, especially certified operators, has had some tangible success through the development of infrastructure projects with socioeconomic benefits.

Such legal progress remains precarious, and implementation is often challenging given that some local communities lack the required managerial capacity. Current trends in development planning, land use planning policies and the consolidation of ultraliberal forest management approaches in the subregion, as well as land grabbing by national elites, suggest that the irrevocable legal recognition of community and indigenous forest rights are being sidelined. In the Congo Basin, occasional outbreaks of violence linked to efforts to claim these rights, coupled with a deep and legitimate desire for (sometimes unsustainable) development, are an ongoing concern.

Yet, there is another better possible path and future. First and foremost, enabling conditions for this optimistic scenario, public and political dialogues could complement the necessary reforms, as part of processes that genuinely mainstream local and indigenous peoples' demands. Secondly, national land use planning programmes, which may use different names, could map out customary lands of village communities and – as far as realistic – the territories on which indigenous peoples

Box C1 NaturAfrica: Mainstreaming the needs of people and the planet to address the conservation and sustainable management of biodiversity in priority landscapes in Africa

Chantal Marijnissen, Philippe Mayaux and Filippo Saracco

The 2019 European Green Deal (Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions (COM/2019/640 final) mentioned that “The EU will launch a ‘NaturAfrica’ initiative to tackle biodiversity loss by creating a network of protected areas to protect wildlife and offer opportunities in green sectors for local populations.” NaturAfrica takes an integrated management approach to extensive landscapes: the Key Landscapes for Conservation and Development (KLCD). It focuses on protected areas but is of particular importance to local communities. NaturAfrica is based on three pillars: (i) conservation of biodiversity in areas of high biodiversity value, (ii) green economy and local development by and for the benefit of local communities and (iii) inclusive landscape governance which respects the opinions and interests of each stakeholder.

This initiative takes an innovative people-centred approach while preserving ecosystems and wildlife that are vital to all.

KLCDs were identified in *Larger than Elephants: inputs for an EU strategic approach to wildlife conservation in Africa*,¹ a publication which followed broad consultation of stakeholders, including national institutions, civil society and the private sector. The EU will concentrate its support to these landscapes and provide visibility to African natural parks via a response that includes fighting against biodiversity loss, creating sustainable jobs, improving security and the rule of law.

In Central Africa, some 20 KLCDs have been identified, ranging from the Sahelian savannas to dense humid forests, not to mention aquatic and coastal ecosystems..

¹ European Commission, 2016. *Larger than Elephants: inputs for an EU strategic approach to wildlife conservation in Africa*, European Commission, 500p, doi:10.2841/123569

depend for their livelihoods (allowing for several uses in the same space). This would not threaten governments' sovereignty over forests and land, but it would allow for local and indigenous peoples' land rights to be mapped out and finally recognized. Thirdly, land titles, or any other means of irrevocably securing the forest lands of local and indigenous peoples, could be gradually given, on a case-by-case basis. It is a compromise scenario, but a win-win one that should appease the most vindictive few at local level and remove a thorn in legislators' and policymakers' side.

These various possibilities underscore the need to better consider the diversity of customary rights in forest land management and to put the government back at the centre of forest management, with regulations tailored to realities on the ground. (see Box C1).

Final remarks

In their present state, the forests of Central Africa are relatively well preserved. They act as a lifeline for all of humanity, faced with the climate crisis and biodiversity loss. The continuity of the human species depends on the sustainable management of these rather fragile ecosystems. The fate of the Congo Basin forests must therefore be viewed as a joint responsibility of the Central African countries and of the international community, which have all for long benefited from these forests and placed their hopes in them for a secure future and a shared well-being.

This is why the forest ecosystems of the Congo Basin should be subject to equitable and fair agreements between, on the one hand, the States and stakeholders of Central Africa (the direct managers of these resources) and, on the other, the international community (including multinational private sector and philanthropic organizations), which provides the financial means and capacities for the protection and sustainable management of those forest ecosystems.