

CHAPTER 5

THE FORESTS OF CENTRAL AFRICA: AN INCREASED CONTRIBUTION TO THE MITIGATION OF CLIMATE CHANGE

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1. Introduction

Forests continue to play important roles for the people of Central Africa, simultaneously at the local level where forests constitute the essential resources base for the livelihoods of rural communities, and at national level where they contribute to aggregate economic indicators. Because of that, the forestry sector has been a major focus of national policies as well as of international development cooperation targeting the region. Traditional forest policies were mostly oriented towards the productive functions of the forests, especially timber production, and the conservation of biodiversity. Yet, during the last 10 years increased attention has been paid to environmental

services provided by these forests, especially services related to climate regulation through carbon sequestration. According to Nasi *et al.*, in de Wasseige *et al.*, (2009), an estimated 46 billion metric tons of carbon are stored in the Congo Basin. Closed evergreen lowland forests represent 60% of the carbon stored in the sub-region while only covering 35% of the area. There is a new thinking to favour traditional policies that additionally provide climate regulation services while internalizing new international initiatives such as Reducing Emissions from Deforestation and forest Degradation (REDD+).

2. Forest based policies and measures to mitigate climate change in Central Africa

Africa ranks amongst the lowest contributors to global CO₂ emissions from fossil fuels, with a 4% of total global emissions. The main relative sources, contrariwise, mainly originate from agriculture and land use change and forestry (LUCF; including deforestation) corresponding respectively to 26% and 35% of the total emissions from the continent, making LUCF-based approaches the key target for the continent.

Timber exploitation is often perceived as a direct and indirect factor of both forest degradation and deforestation. However, provided that it

is conducted in a sustainable way, forest management for timber production can also contribute to fighting deforestation and forest degradation, help maintaining long term carbon stocks and reducing GHG emissions while providing livelihoods.

Mitigation of climate change has been approached by three main sets of policies and measures in Central Africa. These include the adoption of sustainable forest management techniques, the improvement of forest governance and the current engagement in the REDD+ process.



Photo 5.1: Under the forest, there are sometimes oil, such as in Lambaréné in Gabon.

2.1. Sustainable forest management for timber production

2.1.1. Implementing sustainable forest management in Central Africa: the state of the art

The management of forest concessions for timber production in Central Africa has drastically changed since 2000. Since the first approved management plans in the late 1990s, forest concessions implementing forest management plans currently cover 19 million ha, accounting for a 40% of the total area under concessions in the sub-region (Bayol *et al.*, in de Wasseige *et al.*, 2014). Nevertheless, progress towards sustainable forest management varies very widely, according not only to countries and geographical zones but also to the types of actors. Overall, it is expected that the region will experience a substantial increase in concession areas implementing forest management plans in the coming years as the Democratic Republic of Congo is finalizing its logging policy reform.

Additionally, forest concession managers have been increasingly adopting forest certification as a means to show that their management approaches meet international standards. At present, there are over five million ha of FSC certified production forest in the Congo Basin. Furthermore, there are more than three million ha of forest concessions covered by legality certificates granted such as « Timber Origin and Legality (OLB) » by Bureau Veritas or « Timber Legality & Traceability Verification (TLTV) » by SGS. Table 1.2 in Chapter 1, summarizes the current status of long term logging concessions in Central Africa in the light of their progress towards sustainable forest management.

2.1.2. Potentials for sustainable forest management in Central Africa to contribute to climate change mitigation

Sustainable forest management (SFM) is often overlooked in Central Africa. It may at first glance seem less efficient to reach climate change mitigation goals than classical REDD+ projects, because SFM still entails timber extraction, the building of forestry roads, and other degradation or deforestation activities. However, SFM is at present the only means to generate lasting income and employment from forest areas without converting them to other land uses. As such, properly managed forest concessions – which include protection from conversion – can be considered as contributing to avoided deforestation or reducing emissions from deforestation and forest degradation insofar as they reduce the logging impact and also prevent agricultural encroachment, illegal logging or charcoal production (see below). In addition, there are usually opportunities to improve forest management towards reducing the carbon emissions of timber harvesting practices (reduced impact logging), while extracting the same timber volume. Likewise, forest managers can set aside High Conservation Value Forests (HCVF) inside of timber concessions (which can e.g. be part of the FSC certification process) or by converting entire timber concessions into so-called ‘conservation concessions’ with the consequent benefits for carbon sequestration. In sum, Table 5.1 shows an array of SFM options classified according to the Verified Carbon Standard’s

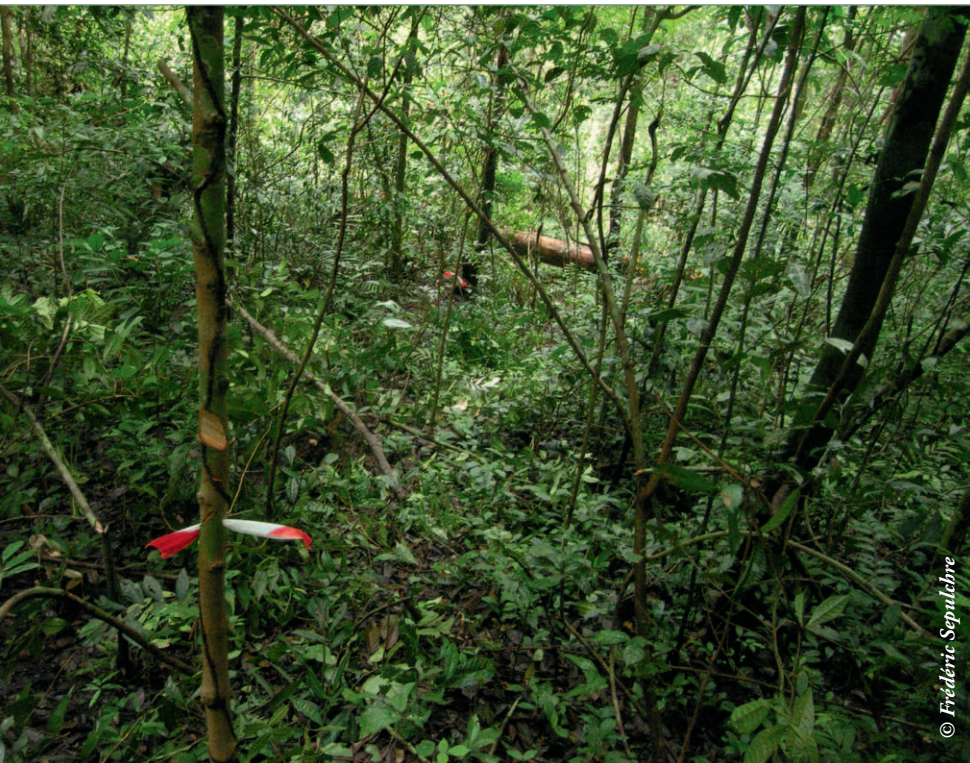


Photo 5.2: Marking a forest track for the realization of inventories.

Table 5.1: Activities to reduce deforestation and forest degradation in logging concessions

Activity that help reduce emissions from deforestation and degradation	VCS project typology	Impact on annual timber production for the concessionaire as compared to the baseline scenario
Conservation concession	Improved Forest Management (IFM) - Logged to Protected Forest (LTPF)	End of logging, no volume harvested
Extended rotation age	IFM - Extension of Rotation Age (ERA)	Decreased volume logged annually
Increased DMA (minimum cutting diameter set by management plan)		
Reduced impact logging	IFM - Reduced Impact Logging (RIL)	No impact on the volume logged annually
Reducing forest conversion and unplanned forest degradation	REDD - Avoided Unplanned Deforestation and Degradation (AUDD)	Preservation of the forest estate (and thus reducing the volume logged annually)

Source: Hirsh *et al.*, 2013

typology with positive contribution for mitigation, some of which may lead to a fall in the volumes of wood produced (or even a total cessation of logging during conservation).

Preliminary analyses of the mitigation potentials of sustainable forest management activities have been carried out in Central Africa, including the Haut Nyong, Cameroon (TEREA, 2013), and Lukenie (Hirsh *et al.*, 2013) and Mai Ndombe (Schmidt, 2014) in DRC.

In the Haut Nyong case study, emission reductions were addressed through a reduction of the annual harvest by increasing minimum girth limits for species to be harvested (IFM-ERA) in a forest concession covering an area of 342,000 ha. It was shown that by adopting a reconstitution rate of 50% for the whole stand, CO₂ emissions could be reduced by more than 600,000 tCO_{2eq} within 25 years. The 50% reconstitution rate is the common practice in forest concessions that implement forest management plans. Although the results from this pilot study cannot be generalized for the whole of the Congo Basin, they suggest that the implementation of a forest management plan over a 20 million hectare forest concession in Central Africa has the potential to reduce emissions by more than 35 million tCO_{2eq} over a period of 25 years.

In DRC, Hirsh *et al.* (2013) estimated that emission reductions through Reduced Impact Logging (RIL) could mainly be achieved by reducing the density of the forestry road network. In detail, this would entail:

- a reduction in primary and secondary road width, both for the actual road as well as for the solar strips; and
- a reduction in secondary road length. To compensate the reduced accessibility, though the length of skid trails would increase.

Schmidt (2014) analyzed the mitigation potential for a conservation concession as well as for a mix of RIL and set-aside of smaller High Conservation Value Forest (HCVF) areas and concluded that additional emission reductions could be achieved by:

- reducing the residual stand damage, e.g. through (improved) directional felling and cutting of vines; and
- reducing the proportion of abandoned timber, i.e. timber that is cut but not processed because it lacks marketable quality. This could be achieved by not cutting trees that show signs of tree rot. Tree rot can be tested relatively easily by chainsaw operators through the 'chainsaw plunge test'.



Photo 5.3: The rivers are not a barrier to logging

No field research has been carried out to estimate the residual stand damage. However, evidence for residual stand damage can be found in the literature. Measurements e.g. by Brown *et al.* (2005) in the Republic of Congo estimate that carbon emissions from residual stand damage are 174% of the carbon in felled merchantable biomass. A study by the FAO (2008) in the Republic of Congo finds that on average 17.7 trees in the residual stand are uprooted or at least suffer bark damage when felling one commercial tree.

A sampling analysis of forestry records as described by Schmidt (2014) shows that 5.4% of felled merchantable timber is not forwarded for processing but remain as ‘deadwood’ in the forest due to either tree rot or damage to trees during the felling process (breaking of the stem).

On top of the assumed reduction in the forestry road network, if RIL is implemented at least to cover the five million hectares of certified forest concessions for which 1/30th is logged over each year (about 165,000 ha) the inherent gross emission reduction related to the implementation of RIL might be estimated around 4 million tCO_{2eq} on the annual basis. Such measures are expensive for logging enterprises that may need support from non-market funding sources that seek to encourage carbon-oriented forest management.

The above cited studies lead to the conclusion that the emission reduction potential of SFM practices is real and considerable in the Congo Basin. The actual figures obtained depend significantly on the methodology used as well as the carbon pools and emission sources included. Furthermore, particular biophysical and economic conditions within the different areas across the basin might include further variabilities. Another decisive factor with regard to financial feasibility of individual forestry concessions is the density of merchantable volume, at least when following a LtPF project approach where baseline emissions are determined on available and allowable offtake of merchantable timber stocks.

In general, it may be most beneficial, and also most realistic, to allow forestry companies a stratified or even layered baseline approach, where several baselines – unplanned deforestation, unplanned degradation and planned degradation – are combined, where this is applicable. In the DRC, forestry concessions do not only generate emissions through their timber harvesting operations but also through conversion to agricultural land, charcoal production and illegal logging. Capturing all these emissions in a baseline will provide an incentive for forestry concessionaires to (better) protect their forest resources. The Mai Ndombe REDD+ programme shows that forest concessionaires are interested in all types of forest mitigation projects, depending on the individual situations in their concessions.

The two studies conducted in the DRC show that the implementation of mitigation measures in the forestry sector can yield emission reductions at a relatively low carbon price of \$ 2 to 5 per ton of CO₂. While multilateral carbon funding – e.g. through the FCPF CF in the DRC – could currently match this price (up to \$ 5/tCO₂), achieving such a price in the voluntary market could be a challenge. Forest carbon prices have steadily fallen from \$ 10.3 in 2011, to \$ 7.7 in 2012, \$ 4.8 in 2013 and \$ 4.3 in 2014 (Goldstein *et al.*, 2014; Hamrick and Goldstein, 2015). However, unlike more intrinsically-driven REDD+ projects financed by NGOs or bilateral development cooperation, the long-term financial viability of a forest mitigation project is key for forestry companies. Current prices in the voluntary market are not sufficient or just borderline sufficient, but multilateral carbon funds e.g. the FCPF carbon fund or the BioCarbon Fund can currently offer better prices (though only over a short period of 5 years) and thus play an important role in triggering

participation. This type of funding is however limited to forestry companies that participate in larger jurisdictional REDD+ programs such as e.g. the Mai Ndombe REDD+ Programme¹⁷.

Another incentive for forest concessionaires to participate in a REDD+ program or develop an individual forest mitigation project is the option to combine this with FSC certification. FSC certification often entails introducing RIL and setting

aside HCVF. As such, return from carbon sales could be used (partly) to offset the costs associated with FSC certification.

Finally, it must be said that emission reduction potentials calculated in the cited studies so far remain possible, but hypothetical goals. They are based on feasible assumptions with regard to adapting or changing forestry practices.

17. It should be considered that these considerations are based on the situation before a climate agreement has been reached in Paris in December 2015, and should this agreement materialize, the whole policy landscape around REDD+ and climate finance may shift in currently hardly predictable ways.

2.2 Improving forestry sector governance in Central Africa to enhance climate change mitigation

Recent development in forestry governance in Central Africa should also contribute to climate change mitigation although quantifying such contributions has not been attempted so far. Thomson *et al.* (2011) argue that REDD+ is very much a project of environmental governance. Lessons from the implementation of forest management and Payment for Forest Ecosystem Services (PFES) suggest that progress can be made towards REDD+ outcomes by supporting implementation of existing national and sub-national forest policies in ways that are consistent with the principles of good forest governance (Kanowski *et al.*, 2011). If REDD+ is to work effectively, developing countries such as the ones of the Congo Basin will need support to build capacities required for enforcing their own laws and regulations (Daviet, 2009). Analysing the interactions between FLEGT (VPA) and REDD+, Ochieng *et al.* (2012) suggested that most of these interactions potentially have a positive influence, but much depends on the future implementation of both regimes. Two recent publications provide more detail for policy implementation. Haywood *et al.* (2015) explore the “importance of viewing REDD+ in context”, i.e. addressing REDD+ governance in the context of larger, more encompassing approaches that harmonize climate, livelihood and development outcomes across the landscape. Guidance for developing national policy and legal frameworks is provided in Chapman *et al.* (2015).

For countries of the Congo Basin to benefit from REDD+ efforts, significant improvements in environmental governance is needed, and such improvement can be built in synergy with the ones already underway through the FLEGT-VPA process. In particular, effective emission reductions will require the ability to manage leakage

and ensure permanence, as well as the ability to reliably account for the rate of timber extraction from forests. This in turn will require the capacity to effectively enforce domestic laws that govern forests (Daviet, 2009).

Countries of Central Africa that have embarked in improving forest governance have developed positive momentum for the reduction of forest based emissions. Nevertheless, difficulties to control the informal forestry sector remain a large challenge faced by all the countries of Central Africa.



Photo 5.4: Timber transportation in the spotlight in an advertising campaign.

2.3 Implementing REDD+ in Central Africa

2.3.1 The general REDD+ architecture

The overarching aim of REDD+ is to help mitigate climate change and its effects on humans and the environment by creating incentives for developing countries to reduce emissions of greenhouse gases caused by deforestation and forest degradation. REDD+ foresees compensation for five eligible activities: (a) Reducing emissions from deforestation; (b) Reducing emissions from forest degradation; (c) Conservation of forest carbon stocks; (d) Sustainable management of forests; and (e) Enhancement of forest carbon stocks. For REDD+ to realize its full mitigation potential, the drivers of deforestation and forest degradation must be addressed effectively, requiring national government to undertake reforms of their policies, practices and processes affecting forest management specifically and land management more generally (Chapman *et al.*, 2015).

The implementation of REDD+ consists of three phases (Meridian Institute, 2009). In the first “readiness” phase countries prepare a national REDD+ strategy through inclusive multi-stakeholder consultations, start building capacity in monitoring, reporting and verification (MRV), and design demonstration activities. The second phase is “more advanced readiness”, but the focus is to implement policies and measures to reduce emissions. The third phase is full UNFCCC compliance during which, tropical forest countries are compensated solely for reduced emissions and enhanced carbon stocks relative to agreed reference levels (Wertz-Kanounnikoff and Angelsen, 2009).

While the earlier REDD+ debate emphasized carbon sequestration and avoided emissions from land-use change, it is now widely recognized that REDD+ (hence, the ‘plus’ sign) should also deliver non-carbon benefits (NCBs) related to livelihoods, biodiversity, institutional improvement; other ecosystem services (e.g. nutrient cycling, protection of watershed services, etc.).

A recurrent issue in the REDD+ debate is at which level accounting and providing incentives are to take place. There are three options: direct support to project (subnational level), direct support to countries (national level) or a “nested” approach that combines the two (Angelsen *et al.*,

2008; Pedroni *et al.*, 2009). The global preference goes to a national approach. Nevertheless many project-based REDD+ activities are already underway in response to the call for national demonstration activities to inform the design of a global REDD+ mechanism. A nested approach, the most flexible of the three approaches, allows countries to begin with subnational activities and to move gradually to a national approach (Wertz-Kanounnikoff and Angelsen, 2009). Likewise, countries are encouraged to develop their national MRV capacities in a step-wise approach to allow for an early participation with an adequate pace of capacity development (see below).

2.3.2. The status of REDD+ in Central Africa

The Congo Basin forests are the second largest area of rainforests globally, and hence potentially represent a «prime location» (Fobissié *et al.*, 2014) for implementing REDD+. A recent paper by Assembe-Mvondo *et al.* distinguishes several groups among COMIFAC member countries as far REDD+ is concerned. First, the group of COMIFAC member countries that seems to be a priority for the international community¹⁸. Under the joint goodwill of the World Bank (FIP), UNREDD and to some extent Norway and the African Development Bank, these four countries have adopted and validated their Readiness Preparation Proposal (R-PP). Some of them, like the DR Congo, are in the so-called investment phase after developing and adopting their REDD+ national strategies (Aquino and Guay, 2013). Second is the group of countries that are less endowed with forest potential, but also engaged in the REDD+ process through mitigation programmes and activities with the support of international cooperation¹⁹. This group of countries seems engaged on a voluntary basis since they were not initially targeted as countries that qualified for the REDD+ initiative. In the same vein, Burundi and Chad have officially applied to enter the Forest Carbon Programme Facility (FCPF) managed by the World Bank. Gabon had been listed as a recipient country of the Facility through its Readiness Plan Idea Note (R-PIN), its present official position on REDD+ leans toward renunciation. As for Equatorial Guinea, its attitude is simply passive toward REDD+.

18 These are the DRC, Cameroon, Republic of Congo, and Central African Republic (CAR).

19 Burundi, Chad, Rwanda, and Sao Tome and Principe

The general remark is that, although countries of Central Africa are at different stages in the implementation of the REDD+ process, they all find themselves locked the first phase (readiness phase) as described in the section above.

Most advanced is the DRC, being near to the completion of phase 1, and which has put in place a number of demonstration projects. The DRC has attracted substantial funding for its REDD+ readiness needs at the level of \$ 23 million funded mainly by FCPF and UN-REDD. Additionally the Congo Basin Forest Fund (CBFF) has

committed itself to provide \$ 35 million for the implementation of pilot REDD+ projects, while the Forest Investment Program (FIP), executed by the World Bank and the African Development Bank was committed to provide \$ 60 million to fund REDD+ investment in three large Congolese cities (Kinshasa, Kisangani and Mbuji Mayi – Kananga). Result based payments for emissions reduction are still a future goal (Aquino, 2012).



Photo 5.5: Foliage generously deployed at the top of a straight trunk, so the phenotype often met in the forests of Central Africa

3. Lessons learned from early mitigation initiatives

3.1 Lessons from sustainable forest management

SFM has made significant progress in Central Africa for the last 20 years due to a number of factors that include the following:

Political will from governments of the COMIFAC member countries that has led to the improvement of the institutional and legal frameworks within which timber production and biodiversity conservation are conducted. In fact, since the mid-1990s all timber producing countries have revised their forest legislations to include new elements setting obligations for forest concession managers to develop and implement forest management plans. Additionally the forestry legislation then adopted had provisions for better involvement of local people in sustainable forest management for their own benefits.

The Engagement of the private sector encouraged by market tools such as forest certification to meet demand from environment sensitive market of timber importing countries in Western Europe, the US and Japan. Private sector enterprises were ready to invest in long term forest management strategies that would give access to certified timber market and improve their international image. The investment made included for example: acquiring new expertise in SFM related techniques, but also financing the

design and development of long term strategic forest management and establishing internal remote sensing lab within their structure. Without private sector engagement carbon-oriented forest management would be very difficult to achieve in Central Africa. However, for a better implication of the private sector, the long-term financial viability of a forest mitigation project is key for forest concessions managing companies.

The involvement of the donor community that provided support both to national government and private sector enterprises. On the one hand the international community has provided technical and financial support to government to undertake forest policy reforms. An example of the support provided by the international community to government is given by the support to the government of Cameroon provided by the World Bank (Toppa *et al.*, 2009). In 1994, the government introduced an array of forest policy reforms, both regulatory and market based. The reforms changed the rules determining who could gain access to forest resources, how access could be obtained, how those resources could be used, and who will benefit from their use. This report assesses the outcomes of reforms in forest-rich areas of Cameroon, where the influence of

industrial and political elites has dominated since colonial times.

On the other hand international donors such as the French Development Agency (AFD) have financially supported credible private sector companies that intended to shift their operations towards adopting SFM technique by providing

loans at low interest rates in Gabon, the Central African Republic and Cameroon.

Such multilateral and/or bilateral support to governments and private sector operators can be decisive in current attempts to promote carbon-oriented forest management in Central Africa.

3.2 Lessons from early REDD+ initiatives

Hurdles that have prevented REDD+ to progress faster in Central Africa are mostly linked to the underlying political economy of deforestation and forest degradation in a context of often weak (forest) governance, existing multilevel and multi sectorial coordination challenges, and competitive national development objectives (Martius, 2015). A study of eight subnational initiatives in Africa that included Cameroon (Sills *et al.*, 2014) finds that land tenure and finance are key challenges, but problems with scale, measurement, reporting and verification (MRV), and social safeguards are also relevant. In several initiatives, seed funding from donors ran out before REDD+ finance became viable.

The institutional obstacles can be illustrated by the case of Cameroon which has been involved in REDD+ since 2007 (Brown *et al.*, 2011). Cameroon suffers from conflicting forestry legislation (Somorin *et al.*, 2014). In view of deep-rooted cross-sectoral drivers of forest loss, enforcing REDD+ will require major policy change and reform both within and outside of the forestry sector (Epule *et al.*, 2014). The REDD+ policy process in Cameroon was found to be repeating the weaknesses of the earlier forestry law reform undertaken in 1994, as seen in the minimal ownership of REDD+ by national actor groups (Dkamela, 2011 ; Dkamela *et al.*, 2014), low inclusiveness among actors at both national and local levels, the absence of a national REDD+ coalition and a reduced ability of state agencies to make autonomous decisions about forest resources. Tackling these weaknesses and the inconsistencies between sectoral policies affecting forest resource management are important steps in achieving the policy change needed for REDD+ (Dkamela *et al.*, 2014).

Disadvantageous economics of REDD+

REDD+ will have a hard time competing with more remunerative land-use changes. While

REDD+ may play an important role in stemming biodiversity loss and reducing carbon emissions from tropical deforestation in the near future, in the longer run, reliance on a system that values forests solely for their carbon retention capacities poses a serious risk. It is imperative that the institutions and policies currently being established as part of REDD+ readiness activities are adaptive to future changes in the incentive structures facing tropical forest countries due, for example, to climate policy induced demand for biofuels (Martin Persson, 2012). However, it has been demonstrated that strategic management of, for example, oil palm in Indonesia, can allow both crop yield maximization and attainment of landscape scale conservation goals (Koh and Ghazoul, 2010).

Green Economy

REDD+ contributes to the green economy and low emissions development (LED) options. Many countries around the world are developing explicit strategies to promote «green» or «bio-based» economic transitions to reduce their dependency on non-renewable resources and increase sustainability. «Green economy» (GE) and green growth visions seek to improve human well-being and social equity, while significantly reducing environmental risks and ecological scarcities, thus protecting natural capital (UNEP 2010, 2011). The GE concept specifically recognizes that we are reaching planetary limits and challenges the primacy of growth as a tenet of the current economic model (Rockström *et al.*, 2009 ; CIFOR, 2014a). In this context, LEDS (Low Emission Development Strategies also called low carbon development) describes «forward-looking national economic development plans or strategies that encompass low-emission and/ or climate-resilient economic growth» (OECD, IEA 2010, cited from UN-DESA, 2012).

There is increasing interest from governments, donors and the private sector to advance

the implementation of a GE. Promoted through a global discourse focusing on environmental sustainability, this concept engages with the notion of LED. Greening of commodity supply chains and REDD+ are two broad approaches packaged within LED, and GE more broadly. This discourse filters down from global, to national and subnational levels, and is translated, contested and re-interpreted along the way by different state and business actors pursuing diverse interests and aims. A variety of concepts and approaches has become subsumed under the same umbrella. The effectiveness of such a plethora of approaches is not well understood, neither in terms of avoided deforestation and forest degradation nor in terms of improved local well-being (CIFOR, 2014b; Obidzinski *et al.*, 2014).

Two aspects that link REDD+ to GE/LEDS are important. First, REDD+ is an important element of GE/LEDS (UNEP, 2014), because it is not only a low carbon emissions activity (i.e. it seeks to protect forests), but also potentially a source of economic growth (i.e. it creates economic incentives to protect forest), and it aims to be pro-poor. REDD+ can help to safeguard forest ecosystem services, improve forest governance and protect the rights of indigenous peoples and local communities in the transition to a global green economy. Forest management will be an important part of any GE/LEDS pathway. Second, REDD+ experiences can be particularly important to inform broader policy debates about low emissions development in and around forests. REDD+ policies and mechanisms have been tested and debated for several years now. Lessons from REDD+ highlight the challenges associated with LEDS in the forest sector, and the tradeoffs inherent to many REDD+ decisions (Phelps, 2015). It seems the right moment to reflect on the lessons from REDD+ experimentation and implementation on the ground and how this may inform movements towards GE/LEDS.

Countries should prepare for high flexibility in REDD+ finance. For example, many countries are preparing to become eligible for funding through the Green Climate Fund, which identifies REDD+ as a priority results area for funding. Similarly, efforts to move towards GE/LEDS activities need to consider the level to which they will depend on public or private funding given that market mechanisms have not yet proven to be successful in the case of REDD+.

Measurement, reporting and verification

Being able to reliably measure and monitor the extent of forests, of deforestation and of forest degradation and estimate carbon stocks is a key prerequisite to enable payments for results. As countries move through the REDD+ phases, they must develop reference levels and a national forest monitoring system that quantifies emission reductions.

Emission Level and MRV

Establishing Forest Reference Emission Levels (FRELs) /and/or Forest Reference Levels (FRLs) (see UNFCCC Decision 12/CP.17), and also systems for Measuring, Reporting and Verifying (MRV) emissions reductions and removals (14/CP.19) are therefore formal requirements for countries qualifying to establish a formally recognized REDD+ program. A stepwise or staged MRV framework (Herold *et al.*, 2012) for setting FRELs/FRLs and for measuring REDD+ emissions reductions and GHG removals (i.e. MRV) acknowledges that countries should start with the capacities they have, build on their strengths, and fill the gaps as they progress through the phases of REDD+ implementation. The process for technical assessments of FRELs/FRLs was agreed at the Conference of the Parties (CoP) 19 as a part of the Warsaw Framework for REDD+.

Targeting the drivers

As many REDD+ activities address actions and actors outside forests, monitoring should be broader than forest areas (Salvini *et al.*, 2014), and the data include more than basic environmental and ecological data. Socio-economic information is essential to understand both possible causative agencies of proximate drivers, as well as providing a baseline against which some of the co-benefits of REDD+ can be measured. This may require increased efforts in capacity building.

Countries may choose to include information on drivers of deforestation and on how effective the different activities and policies are in achieving emissions reductions in their national forest monitoring systems (UNFCCC Decision 11/CP.19). Collecting this information and making it available in those systems will be essential to understand what works and what does not under REDD+. This can be valuable information to decide on which of the REDD+ interventions best address the key drivers (Hosonuma *et al.*, 2012). While addressing these international requirements, national monitoring systems can be adapted to the different needs of national implementation, so that



Photo 5.6: Any project in rural areas requires consultation with the local population

REDD+ activities can be tracked by the multiple actors involved. This can then provide the basis for the distribution of REDD+ benefits and the verification of this distribution.

Data needs

Forest monitoring systems require data on activities (i.e. land use), emission/removal factors, and data on drivers of deforestation. The IPCC has outlined a framework for the first two data types that recognizes the countries' different level of capacities to assess and monitor these data (Romijn *et al.*, 2012). Countries that are developing FRELs can make adjustments for their national circumstances.

The lack of country and region specific data of sufficiently high resolution seriously limits our ability to convert area estimates of deforestation, forest degradation and land use into reliable estimations of emissions, sinks and changes in carbon stock for most tropical countries (Verchot *et al.*, 2012) including those of Central Africa. This constraint can be overcome faster if countries make coordinated, targeted investments and develop productive partnerships between the technical services in REDD+ countries, intergovernmental agencies and advanced research institutes in developed countries. Even if data on key elements of REDD+ – deforestation and forest degradation rates, mitigation potentials, aspects of benefit distribution, and safeguards – are available, they are often scattered across agencies and not translated into relevant and comprehensive information that can be used for the design of national REDD+ (Hosonuma *et al.*, 2012; Korhonen-Kurki *et al.*, 2013). Countries need to make better efforts for structured data generation, storage and translation into meaningful evidence, information, guidelines and tools. Critical in this international effort is compatibility between systems, not only in terms of what data is collected, but how it is collated and curated.

Capacity gaps

In a global study of the development status and trends of national MRV capacities, Romijn *et al.* (2012) integrated different global data sources to assess dynamics between 2005 and 2010 in developing countries. The results of the study emphasized that REDD+ monitoring systems need to be designed based on each country's characteristics and capacities and suggested that countries with good capacities could play a larger role in South-South cooperation on that matter. An updated

study of monitoring systems has just been published (Romijn *et al.*, 2015).

Participatory MRV

While the importance of participation of indigenous peoples and local communities in monitoring and reporting has been recognized through the UNFCCC process, participatory approaches remain underdeveloped and underutilized. Involving local communities in national forest monitoring activities has the potential to increase the efficiency of monitoring, and reduce costs, while simultaneously promoting transparency and better forest management (Pratihast *et al.*, 2014), but there may be opportunity costs (e.g. work load and time needed to tend to crops and livestock). These authors could successfully validate the biomass data established through community-based MRV with biomass estimates established by professional experts. However, the ensuing processes of reporting and verification (the «R» and «V» in MRV) require much more attention to develop reliable systems. Research and a growing experience with the approach in many places can help to overcome this gap.

Benefit-sharing mechanisms

Benefit-sharing mechanisms represent a key element for national REDD+ systems to create the incentives needed to successfully reduce carbon emissions and foster joint economic and environmental outcomes (Bouyer *et al.*, 2013). Benefit-sharing mechanisms encompass all institutional means, structures and instruments for distributing finance and other net benefits from REDD+ programs.

Benefits may be monetary or non-monetary. For example, REDD+ implementation can clarify land tenure, support forest management and governance, facilitate technology transfer, and maintain or even improve ecosystem services (Di Gregorio *et al.*, 2012). Fund-based approaches, forest concession agreements, land rent fees (Assembe-Mvondo *et al.*, 2013) and market-based instruments are predominantly vertical. Horizontal approaches include community-based natural resource management and Joint Forest Management. So far, countries have tended to build upon existing models that are most familiar to their context (Pham *et al.*, 2013). This approach can reduce costs and attract political support. However, the effectiveness, efficiency and equity of these models will rely on the accountability, transparency and financial management capacity of the state (central government, often the national Forestry Department)

which can be rather weak in some of the countries studied.

Legitimacy of decision-making institutions, consideration of context and attention to process are critical for stakeholders to perceive benefit sharing as fair (Luttrell *et al.*, 2013). Building this legitimacy requires attention to fair distributional outcomes, procedural equity and consensus on which institutions have the authority to make decisions.

At the local level, cash or in-kind payments are often expected. Yet, the distribution of revenues over a large number of recipients or the relatively low carbon stock in question (e.g. in dry forests) may reduce or dilute the payments. Combining REDD+ payments with additional programs, or using them at jurisdictional levels for creating development outcomes may therefore be more rewarding strategies.



Photo 5.7: Small trees are not the only ones to give place in favor of slash and burn agriculture

Box 5.1: Benefit sharing generated by land management in Cameroon

Samuel Assembe-Mvondo

Most of Central African countries that gained independence in the early 1960s inherited from the colonial period a system of land and forest tenure characterized by a kind of conflicting coexistence between a prominent written law and a marginalized customary law. In fact, the legal reform of the postcolonial administration was not structured. It aimed to adapt the colonial regime to the new status of independent states or to perpetuate the dominance of written law over customary laws (Hesseling and Le Roy, 1990). This gradually eroded customary practices to the benefit of legal system imposed by European colonial authorities. Thus, the postcolonial land-tenure system incorporated customary land, which was considered to be vacant and unoccupied, into state land. Local communities were almost completely stripped of their ancestor lands. Customary ownership were replaced with user rights granted to local communities and indigenous people and the possibility for any economic operator to obtain a land certificate/registration. State monopoly over land was confirmed in legal systems and systematic registration. The inheritance of dual-tenure systems (statutory vs. customary) has continued into the era of independence, and to the present day. Such land tenure systems can really promote both insecure rights and deforestation, contrary of REDD+ objectives and outcomes (Sunderlin *et al.*, 2008; Cotula and Mayers, 2009).

After decades of centralized, authoritarian and poor land governance by postcolonial administrations, some timid measures have been adopted notably in DRC (where customary ownership is constitutional right since 2006); Republic of Congo and Central African Republic (where customary rights are recognized to the indigenous people). Likewise, Cameroon is seen as one of the pioneer country where land management can generate socioeconomic benefits to all the stakeholders. Indeed, the provisions of Decree No 76-166 of 27 April 1976 to establish the terms and conditions for the management of national lands in Cameroon, require that each national land recipient, whether held by grant or lease, must pay annual fees. This revenue is apportioned to the state, the local council and village communities. An assessment by Assembe-Mvondo *et al.* (2013) has shown that one of five agro-industries pays land royalties to: the state (40%); three local councils (40%); and eight villages communities (20%) in which its sugarcane plantations are located. In this regard, the contractual terms of emphyteutic lease concluded between the company and state of Cameroon is complied with the spirit and the letter of the 1976 land regulation. In this respect, the total amount paid as land fees in January 2012 for 15,800 ha was €155,725. The local authorities of the three local councils stated that financial revenues received as payment of annual land fees are part of their ordinary budget expenditure. The revenues contribute to the salaries of council employees at the beginning of fiscal year. For their part, some villages have invested their financial resources in school facilities through the construction and rehabilitation of classrooms and residences for school teachers. Nevertheless, others villages acknowledge that income received during the last three years have been distributed in cash to families for celebrations.

Despite those real socioeconomic opportunities provided by land fees benefit sharing in Cameroon, the mechanism does not fulfill the criteria for effectiveness, efficiency and equity required by REDD+. Indeed, the system is hampered by poor governance trend in overall country and incomplete and poorly designed. Thus, there is need to reform it based on REDD+ safeguards principles.

Safeguards

Results-based financing of REDD+ is conditional on the implementation of national Safeguard Information Systems (SIS) to address social, environmental and governance criteria that go beyond carbon. Countries are required to comply with the seven safeguards articulated in the United Nations Framework Convention on Climate Change (UNFCCC) Cancun Agreement, which focuses on doing no harm, promoting good governance and multiple benefits, and assuring emissions integrity (UNFCCC Decision 1/CP.16). Furthermore, jurisdictions and projects engaged with multi- and bilateral donors and third-party certifiers must consider additional standards for demonstrating good social and environmental performance.

Aside from the international requirement that SIS should be «transparent, consistent, comprehensive and equitable» and «build upon existing systems, as appropriate» (UNFCCC Decision 1/CP.16), countries are not given much guidance on the use of appropriate indicators, data collection methods and reporting frameworks. There is considerable variation in the capacity of countries to implement national-level SIS and monitor the social, governance and environmental impacts of REDD+, and the costs of implementing adequate systems – which extend over a wide range

of sectors – may be prohibitive. The challenges of harmonization, sovereignty, capacity and costs will become even more apparent as the REDD+ safeguards dialogue moves from international discourse to action (Jagger *et al.*, 2012, 2014). Although REDD+ readiness activities of many countries of Central Africa are supported by multilateral donors and beholden to their respective safeguard policies (e.g. World Bank, UN-REDD), on-the-ground progress has been somewhat limited.

Harmonization of various (safeguard) policies is crucial to avoid overlapping and contradicting legislation while REDD+ is being embedded in broader GE/LEDS efforts. Much remains to be done between international and national levels to address these issues efficiently.

Synthesizing lessons from countries' diverse experiences in engaging with multiple international standards, could contribute greatly toward implementing a safeguarded REDD+ that goes beyond «doing no harm» to actively delivering a host of social and environmental benefits. Also, field-based evidence on the social and environmental impacts of pilot REDD+ programs and projects can help to inform our choice of indicators for respecting local rights, ensuring local participation and enhancing NCBs.

4. Challenges and the way ahead

Judging from the evidence about REDD+ in the COMIFAC countries, much remains to be done. A few countries are more advanced with their REDD+ readiness than others. But even the advanced countries are a long way from functional, operation REDD+ systems that are efficient, effective and provides equitable outcomes. Particularly in fragile States, REDD+ will not be able to exist in a 'bubble of transparency and good governance' if all other policy sectors around it are under-performing on these accounts. This is particularly true as REDD+ policies pervade many non-forestry sectors – such as those dealing with agriculture, finance, environment, social welfare – and have to be intertwined with the policies in those sectors. Hence, the question remains what to do about REDD+. REDD+ will only remain a viable option for these countries if they manage to do three things. They need to embed REDD+ in

the broader context of development policies. They need to develop other, non-market based mechanisms that reduce pressure on forests and forest resources. And they need to engage in broad policy reform in all sectors, introducing rule of law, good governance and transparency, and solving pending legal impasses such as the question of rights to land and carbon (Seymour and Angelsen, 2012).

The question remains how the international community can best support the COMIFAC countries on their pathway towards these achievements. If the world is committed to reduce land-based emissions, efforts may be needed to support this goal that go far beyond the current endeavours and are much more encompassing than narrowly focusing on climate policies. However, one should also not forget the lessons from REDD+ policy analysis in Korhonen-Kurki *et al.* (2014) that goes

much farther than REDD+: If there is no strong national ‘ownership’ of the policy process, if such a process is mainly steered by forces outside of the countries and if there are no strong national coalitions underpinning reforms, transformational change is not likely to happen. Developing these takes time and requires national capacity development efforts that can go over decades. Forests of the Congo Basin show lower deforestation rates than those on the other continents may be a fortunate fact that could buy precious time that the policy sector can use to develop governance, infrastructure and capacity in the COMIFAC countries.

The goals underlying REDD+ should be embedded in the broader national agendas for development and poverty alleviation. This is essential if these goals are to be widely implemented and embraced by citizens at all levels of society (Martius, 2015). At the global level, REDD+ discourses emphasize carbon sequestration and avoided emissions from land-use change as the principal benefit, while forest contributions to livelihoods, biodiversity, institutional improvement; other ecosystem services (e.g. nutrient cycling, protection of watershed services, etc.) are externalized as co-benefits. The emphasis reverses at the local level. For local actors – smallholders, communities and decision-makers – the main expected benefits of REDD+ are often cash income or other livelihoods benefits (such as diversification of income source, the advent of extension services, etc.), better infrastructure and services or a palpable increase in indicators of development (e.g. better health, reduced maternal or infant mortality). In Central Africa, rural poverty can be exceptionally high, with poverty itself being an underlying driver of deforestation and forest degradation.

Proponents of the original REDD idea as a mechanism of paying for ecosystem services (PES) expected very low opportunity costs, but these initial economic calculations have for the most part been proven incorrect. Some proponents of pilot REDD+ initiatives have emphasized financial incentives that were then slow to come, creating frustration among stakeholders (Tiani *et al.*, 2015); some project proponents have invested large sums to try to maintain local support while awaiting REDD+ funding (Kowler *et al.*, 2014). REDD+ lacks legitimacy in some local communities where it has not been clearly placed in the context of poverty alleviation (Kengoum and Tiani, 2013; Somorin *et al.*, 2014).

Mismatched expectations are shaped by power relations and have slowed the pace of progress in REDD+ negotiations and implementation. This is a powerful argument for emphasizing poverty alleviation and development goals over climate goals if REDD+ is to be implemented with reasonable expectations for success.



Photo 5.8: Floating timber in Nioki (Bandundu - DRC)