

ANNEXES

ANNEX 1A : Annual deforestation rates (gross and net) of Central African rainforests between 1990 and 2000, and between 2000 and 2010* (with standard error bar).

Country	n	1990 – 2000			2000 - 2010		
		Gross deforestation	Gross Reforestation	Net Deforestation	Gross deforestation	Gross Reforestation	Net Deforestation
Cameroon	45	0.13% (0.04%)	0.04% (0.01%)	0.09% (0.04%)	0.08% (0.03%)	0.02% (0.01%)	0.06% (0.04%)
Congo	65	0.09% (0.02%)	0.03% (0.01%)	0.05% (0.02%)	0.07% (0.02%)	0.00% (0.00%)	0.07% (0.02%)
Gabon	63	0.07% (0.02%)	0.02% (0.00%)	0.05% (0.02%)	0.03% (0.01%)	0.01% (0.00%)	0.01% (0.01%)
Eq. Guinea,	7	0.13% (0.08%)	0.10% (0.06%)	0.03% (0.07%)	0.04% (0.03%)	0.05% (0.03%)	-0.01% (0.02%)
CAR	26	0.11% (0.03%)	0.03% (0.01%)	0.09% (0.03%)	0.06% (0.02%)	0.01% (0.00%)	0.05% (0.02%)
DRC	114	0.24% (0.05%)	0.03% (0.01%)	0.22% (0.04%)	0.20% (0.04%)	0.00% (0.00%)	0.19% (0.04%)
Humid Forests	171	0.19% (0.03%)	0.03% (0.01%)	0.16% (0.03%)	0.14% (0.03%)	0.00% (0.00%)	0.14% (0.03%)

*Preliminary results

Sources: UCL (1990-2000) and JRC (2000-2010))

ANNEX 1B : Annual deforestation rates (gross and net) of Central African dry forests between 1990 and 2000, and between 2000 and 2010* (with standard error bar).

Country	n	1990 – 2000			2000 - 2010		
		Gross deforestation	Gross Reforestation	Net Deforestation	Gross deforestation	Gross Reforestation	Net Deforestation
Cameroon	17	0.23% (0.10%)	0.02% (0.02%)	0.21% (0.10%)	0.10% (0.05%)	0.00% (0.00%)	0.10% (0.05%)
CAR	41	0.17% (0.06%)	0.06% (0.02%)	0.11% (0.06%)	0.39% (0.19%)	0.00% (0.00%)	0.39% (0.19%)
Chad	108	0.81% (0.50%)	0.61% (0.32%)	0.20% (0.46%)	0.57% (0.27%)	0.09% (0.09%)	0.49% (0.23%)
DRC	62	0.42% (0.10%)	0.15% (0.09%)	0.27% (0.12%)	0.47% (0.16%)	0.03% (0.02%)	0.44% (0.16%)
Dry Forests	228	0.36% (0.07%)	0.14% (0.06%)	0.22% (0.08%)	0.42% (0.11%)	0.03% (0.01%)	0.39% (0.11%)

*Preliminary results

Source : JRC

ANNEX 2 : Assessment of projected climate change signals: overview of number of projections used under five climate models and high and low emission scenarios.

	CMIP3	CMIP5	WATCH	RCMs	ALL
“HIGH” scenario	14	10	3	4	31
“LOW” scenario	16	20	3	7	46
Both scenarios	30	30	6	11	77
Detail of the analysed sub-ensembles.	<p>*Models : Projections of 14 (HIGH)/16 (LOW) different global models from the CMIP3-ensemble have been included</p> <p>*Scenarios: SRES A2 (HIGH); SRES B2 (LOW)</p> <p>*Analysed data: Daily data available for periods 1961-1990, 2046-2065 and 2081-2100 on the original global model grids.</p>	<p>*Models : Projections of 8 different global models (r11i1p1-realisation) from the CMIP5-ensemble have been included in both scenario groups. For the MPI-ESM also the r2i1p1 realisations have been used.</p> <p>*Scenarios: RCP 8.5 (HIGH); RCP 4.5 and RCP 2.6 (LOW)</p> <p>*Analysed data: Daily data available for periods 1961-1990, 2036-2065 and 2071-2100 on the original global model grids.</p>	<p>*Models : Bias corrected projections of 3 different GCMs (CNCM3 ; ECHAM5 ; IPSL). The uncorrected projections of all models are part of the CMIP3-ensemble.</p> <p>*Scenarios: SRES A2 (HIGH); SRES B2 (LOW)</p> <p>*Analysed Data: Daily data available for periods 1961-1990, 2036-2065 and 2071-2100 on a regular 0.5 degree global model grids.</p>	<p>*Models : Projections of 2 RCMs (REMO and RCA) each forced with output of two GCMs of the CMIP5-ensemble (MPI-ESM ; EC-EARTH) have been included in both groups.</p> <p>*Scenarios: RCP 8.5 (HIGH); RCP 4.5 and RCP 2.6 (LOW). Note that for RCP 2.6 only the RCA-EC-EARTH projection was available in addition to the two REMO projections.</p> <p>Analysed Data: Daily data available for periods 1961-1990, 2036-2065 and 2071-2100 on the CORDEX-Africa domain with horizontal resolution of 0.44 degree.</p>	

CMIP 3 : Coupled Model Intercomparison Project no. 3 of the World Climate Research Program (WCRP) – Several Global Climate Models (**GCMs**) has been run in this project. Climate simulations of the CMIP3 project are the data base of the 4th Assessment Report of the IPCC.

CMIP 5 : Coupled Model Intercomparison Project no 5 of the World Climate Research Program (WCRP) – Several Global Climate Models (**GCMs**) has been run in this project. Climate simulations of the CMIP3 project are the data base of the 5th Assessment Report of the IPCC.

r11i1p1 and **r2i1p1** is the ensemble identifier of a set of simulations each of the global climate models (**GCMs**) had to do within in the CMIP5 project

ECHAM5; IPSL; CNCM3; MPI_ESM, EC-EARTH are names of global climate models (**GCMs**) which have been used among others in the CMIP3 and CMIP5 projects, respectively.

SRES: Special Report on Emission Scenarios – the **SRES** scenarios define the greenhouse gas emission pathways for the CMIP3 simulations and therefore the base for the 4th Assessment Report of the IPCC. Altogether 4 different scenario groups are available – **SRES A2** defines a high emission scenario; **SRES B2** defines a low emission scenario;

RCPs: Representative concentration pathways – the **RCP** scenarios define the greenhouse gas emission pathways for the CMIP5 simulations and therefore the base for the 5th Assessment Report of the IPCC. Altogether 4 different scenario groups are available – **RCP 8.5** defines a high emission scenario; **RCP 4.5** a medium to low emission scenario and **RCP 2.6** defines a low emission scenario.

More information on the emission scenarios can be found in chapter 3.2 of the final report of the project “Climate Change Scenarios for the Confo basin”: (http://www.climate-service-center.de/imperia/md/content/csc/kongo/raport-final_francais_scenarios-des-changements-climatiques.pdf)

CORDEX is the coordinated regional climate downscaling experiment. In this initiative global climate model (**GCM**) simulations are spatially refined over almost all inhabited regions of the world by using different regional climate models (**RCMs**).

REMO and **RCA** are names of regional climate models which have been used among others in the CORDEX initiative. **RCA-EC-EARTH** defines a simulation with the regional climate model (**RCM**) named **RCA** using data of the global climate model (**GCM**) named **EC-EARTH**

ANNEX 3 : Characteristic ligneous species of plant formations in forest areas other than dense rainforest

Characteristic ligneous species	I (*)	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV
<i>Anogeissus leiocarpus</i>		++				+	++	+							
<i>Abizia zygia</i>		++					++								
<i>Marquesia macroura</i> ,			++												
<i>M. acuminata</i> ,			++												
<i>Berlinia giorgii</i> ,			++												
<i>Lannea antiscorbutica</i> ,			++												
<i>Daniellia alsteeniana</i> ,			++												
<i>Brachystegia spiciformis</i> ,			++		++										
<i>B. wangermeeana</i>			++		++										
<i>Parinari curatellifolia</i>			++												
<i>Isoberlinia doka</i>				++	+										
<i>Monotes kerstingii</i>				++											
<i>Uapaca togoensis</i>				++											
<i>Terminalia laxiflora</i>				+		++									
<i>Grewia mollis</i>				+		++									
<i>Combretum hypopilinum</i>				+		++									
<i>Burkea lophira</i>				+		++									
<i>Daniellia oliveri</i>				+		++	++								
<i>Julbernardia</i>					++										
<i>Burkea africana</i> ,							+	++							
<i>Lophira lanceolata</i>							+	++							
<i>Terminalia glaucescens</i> .							+	++							
<i>Butyrospermum parkii</i>							++								
<i>Balanites aegyptiaca</i>								+	+	++					
<i>Tamarindus indica</i>							+								
<i>Guiera senegalensis</i>								++							
<i>Ziziphus spp</i>								+							
<i>Sclerocarya birrea</i> ,								+							
<i>Hyphaene thebaïca</i>								+	+	++					
<i>Calotropis procera</i>									+	++					
<i>Acacia seyal</i>								+	+	++					
<i>Piliostigma reticulata</i>								+	++	+					
<i>Combretum glutinosum</i>									+	++					
<i>Guiera senegalensis</i>									+	++					
<i>Adansonia digitata</i>							+								
<i>Acacia spp</i>										++					
<i>Maerua crassifolia</i> ,										++					
<i>Salvadora persica</i>										++					
<i>Acacia senegal</i>									+	++					
<i>Boscia senegalensis</i>										++					
<i>Cadaba farinosa</i>										++					
<i>Xeromphis nilotica</i>										++					
<i>Bauhinia rufescens</i>										++					
<i>Acacia polyacantha</i>									++						
<i>Dichrostachys cinerea</i>											++				
<i>Jasminum spp</i>											++				
<i>Euphorbia poissoni</i>												++			
<i>E. kamerunica</i>												++			
<i>Apodytes dimidiata</i>													++		

Characteristic ligneous species	I (*)	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV
<i>Halleria lucida</i>													++		
<i>Ilex mitis</i>													++		
<i>Kiggelaria africana</i>													++		
<i>Nuxia congesta</i> , <i>N. floribunda</i>													++		
<i>Ocotea bullata</i> (including <i>O. kenyensis</i>),													++		
<i>Podocarpus falcatus</i> (including <i>P. gracilior</i>), <i>P. latifolius</i> ,													++		
<i>Prunus africana</i> ,													++		
<i>Rapanea melanophloeos</i> s.l.													++		
<i>Xymalos monospora</i>													++		
<i>Blaeria</i>														++	+
<i>Erica</i>														++	+
<i>Philippia</i>														++	+
<i>Vaccinium</i>														++	+

(*) The ligneous species of the peri-forest savannas are those of the neighboring Guineo-Congolese forest.

- I** Peri-forest or integrated savannas
- II** Dense dry forests in the Sudano-Guinean zone
- III** Dense dry forests in the Guinean- Congolese/Zambezian transition zone
- IV** Clear forests in the Sudanese region
- V** Clear “miombo”-type forests
- VI** Wooded savannas
- VII** Tree savannas (2)
- VIII** Shrub savannas (2)
- IX** Tree steppes
- X** Shrub steppes
- XI** Bushy steppes
- XII** Succulent steppes
- XIII** Undifferentiated Afro-mountainous forest
- XIV** Bushy formation and Afro-mountainous evergreen thickets
- XV** Afro-mountainous shrub formation

(**) Tree savannas and shrub savannas of the Sudano-Sabellian and Sahelo- Sudanese zone.

ANNEX 4 : Enrichment of felling gaps in a productive forest

<i>Title</i> Enrichment of felling gaps in a productive forest in Central Africa	<i>Contacts</i> Kasso Daïno Jean-Louis Doucet
<i>Organization</i> Gembloux Agro-Bio Tech, Belgium	<i>Country</i> Gabon, Cameroon
<p><i>Context and objective</i></p> <p>Throughout Central Africa, the natural stocks of numerous commercial rainforest species appear to decline after the first felling in the absence of management techniques. The enrichment of production forests is aimed at maintaining a good density of these species.</p> <p><i>Effective actions</i></p> <p>A management technique has been used in various forest concessions in Cameroon and Gabon. Briefly, it consists of: (1) georeferencing the forest clearings aged between 4 and 6 months, a sufficient time-lag for seed germination in the soil seedbank; (2) clearing non-commercial forest regrowth species and planting high-value sapling species which have been produced and grown in nurseries; (3) cutting back competing vegetation in the enriched clearings for two years (maintenance).</p> <p><i>Results</i></p> <p>This enrichment technique has proven effective. Evaluations made after 2 to 2.5 years show that the assamela, pao rosa, iroko and the moabi are the species which perform best in the semi-evergreen forests in Cameroon and the okoumé and the padouk are those who adapt best to clearings in Gabon.</p> <p><i>Impacts, lessons and prospects</i></p> <p>Choosing a forest clearing for enrichment depends on the characteristics of the individual forest clearing, the characteristics and behavior of the species to be introduced and the local wildlife that are likely to affect the development of the species in question. As of mid-2013, logging companies in Central Africa were regularly practicing the enrichment of logged clearings. The enrichment of forest clearings supported by forest certification guarantees is both an ecological and cost-effective means of maintaining an abundance of commercial species and the economic role of the tropical forest.</p>	

ANNEX 5 : Enrichment of skidding tracks in *Marantaceae* forests

Title Enrichment of skidding tracks in <i>Marantaceae</i> forests	Contacts Jean-François Gillet Jean-Louis Doucet
Organization Gembloux Agro-Bio Tech	Country Congo
<p>Context and objective To develop forestry activity along skidding tracks where heavy machines have created a breach in the dense canopies of giant <i>Herbaceae</i>.</p> <p>Effective actions This forestry technique has been tested in the certified logging concessions of CIB/OLAM in the north of the Republic of Congo. It is implemented in the recently exploited annual felling quotas and comprises three stages: (1) delimitation, with the aid of GPS, of the <i>Marantaceae</i> pockets to be enriched; (2) the systematic clearing of natural regeneration along skidding tracks, the elimination of competing vegetation and enrichment by planting saplings from nurseries; (3) one year later, new thinning of all saplings introduced.</p> <p>Results Observation has shown that in zones with high wildlife densities the enriched pockets suffer substantial damage, leading to the mortality of about one-third of saplings after two years. When there is less pressure by large wildlife, the success rate is better with 75 % survival of healthy seedlings. With natural regeneration in the absence of wildlife pressure, the species that perform best are ayélé, essessang, limba, bilinga and tali; in the case of planted species, ayous, padouk, afromosia and wengué fare best. These are all rapidly-growing commercial rainforest species.</p> <p>Impacts, lessons and prospects The forestry action proposed has been tested in a pilot project (Gillet, 2013). Before replicating the technique on a large scale, it must be validated by long-term study. The enrichment of the environment with commercial rainforest species would also make it possible to increase the capacity of sparse forest to restore atmospheric carbon.</p>	

ANNEX 6 : ECOMakala Project

Title ECOMakala project	Contacts Thierry Lusenge, Mone Van Geit Geert Lejeune
Organization WWF	Country DRC
<p>Context and objective</p> <p>In North Kivu, the most densely populated province of the DRC, over 90 % of the population depends on firewood for their energy needs. The forestry resources harvested legally are not sufficient to meet the needs of the population. Thus, almost all the forests near the city of Goma have been felled. The great majority of the wood supply currently comes from illegal felling carried out in the Virunga National Park.</p> <p>The ECOMakala Project (EU, IFDC/DGIS, WWF ; 2007-2013) was intended to reforest 5 000 hectares lands belonging to small landowners (plots of 0.25 to 5 ha) on the edges of the Virunga National Park with their collaboration. The main objective of the project is the sustainable production of charcoal to supply the rural populations living near the city of Goma and the National Park.</p> <p>Effective actions</p> <p>Since November 2007, 5 483 ha have been planted (and validated) in cooperation with over 5 000 farmer-planters (private landowners) and with the support of 63 local farmers' associations. The fuelwood needs of the city of Goma could be met by the planting of 19 000 to 24 000 ha of rapidly-growing species.</p> <p>Results</p> <p>Over the years, reforestation has achieved a genuine momentum. Participation in the project by both local associations and communities has been steadily increasing. There is also a strong knock-on effect: famers living next to ECOMakala famer-planters are undertaking new forestation of their own accord. This knock-on effect results from the good growth of the trees and the fact that the plantations are becoming increasingly visible in the landscape.</p> <p>Impacts, lessons and prospects</p> <p>Mobilizing small landowners is an effective approach. Although it is more complicated and costly than working with large landowners, this approach has a greater socio-economic impact. An effective and robust follow-up scheme is necessary to estimate the plantations' biomass and carbon storage. The vitality of the local associations is a crucial factor in the success of such projects, as is the strengthening of capacities (training).</p> <p>The current challenge is to demonstrate that the marketing of charcoal (makala) can be economically viable, but since the planters have no control over the farmgate price, they derive little or no profit from it (break-even or zero-profit operation). It is mainly the market intermediaries who reap the profits. In order to improve the earnings of producers, therefore, more work must be done to group planters in a cooperative structure which will permit the marketing of makala at a remunerative price.</p> <p>The reforestation done through the ECOMakala project and future planting must be incorporated in a REDD+ pilot project entitled "ECOMakala+" which will ensure a coherent and integrated framework of several existing initiatives.</p>	

ANNEX 7 : ALPICAM: Research and development for sustainable management and the certification of ayous plantations

Title ALPICAM R&D Sylviculture strategy integrated in a perspective of sustainable management and certification of ayous plantations	Contacts Didier Bastin (Alpicam) Françoise Plancheron (ONFi)
Organization ALPICAM-GRUMCAM-STBK	Country Cameroon
<p>Context and objective</p> <p>Reafforestations in the forest-savanna contact zone are being carried out jointly by ALPICAM and its partner STBK in Cameroon's Batouri region. The ayous (<i>Triplochiton scleroxylon</i>) is the leading species in this afforestation project covering 1 000 ha of severely degraded grass and low-level scrub savannas.</p> <p>Effective actions</p> <p>A park containing ayous trees has been created in order to supply a nursery cuttings unit. The ayous cuttings are planted in association with teak (stumps) and <i>Acacia mangium</i>. The cultural role of these two accompanying species is to promote the shape and pruning of the ayous. The technical planting practice combines mechanical means (clearing, subsoiling, maintaining spaces between rows) with local manpower (planting in pots, hoeing and cutting of vines from seedlings).</p> <p>Results achieved</p> <p>Over 200 ha have been planted on two plantations. The nursery's production capacity has been increased to 25 000 ayous seedlings a year. This production should permit the development of full plantations in degraded forest zones in the UFAs in the south-east of Cameroon.</p> <p>Impacts, lessons and perspectives</p> <p>In Cameroon, the ALPICAM company (ALPI spa Group) has been engaged in a certification process for several years. It obtained the OLB legality certificate and a CoC FSC traceability certificate in 2009 for all its forest concessions and processing units in Kika, Mindourou and Douala. It is currently pursuing its efforts towards FSC certification. The company has confirmed its desire to proceed further with sustainable management through the creation, in November 2009, of a "Research and Development in Forestry Service" attached to its Management and Certification Unit which was set up in 2006.</p> <p>This R&D program, implemented with the permanent technical assistance of ONFi, comprises several areas of the natural forest. At the same time, the work being done should permit the creation of an ayous plantation in the savanna zone. Ayous is widely used in wood veneer factories in Cameroon.</p> <p>This project, which is being undertaken in the context of the Clean Development Mechanism received the "no-objection letter" on 17 March 2009 from the national compliance authority (MINEP). In the long term, this sustainably managed ayous plantation will enable the two partner companies to limit the need for new forest land to supply their industries.</p>	

ANNEX 8 : The *Acacia senegal* plantations in Northern Cameroon

Title	Contacts
The <i>Acacia senegal</i> plantations in Northern Cameroon	Régis Peltier
Organization	Country
CIRAD	Cameroon
<p>Context and objective</p> <p>The Cameroonian development organizations, notably Sodécoton, through the “Peasant development and land management (DPGT)” and “Water, soil and trees (ESA)” projects encouraged the planting of <i>Acacia senegal</i> between 1990 and 2006 by the farmers whom they were training. The purposes of these plantations were to restore the fertility of soils degraded by constant crop-growing and to produce gum arabic.</p> <p>Effective actions</p> <p>The areas planted annually grew rapidly between 1999 and 2003 and then diminished. In 2009, despite about 700 ha of successful gum tree plantations (SODECOTON-DPA/ESA, 2006), most of these plantations were poorly maintained and above all showed no signs of tap-holes for the gathering of gum.</p> <p>Results</p> <p>The felling of 15-year plantations has on average produced 39.6 m³/ha of useful fresh wood, whose sale as firewood has earned 1 090 €/ha. Over the duration of the plantation, these earnings have been higher than those of gum arabic, which are estimated at 760 €/ha. Crops have been grown after felling of the trees, and maize production (first year) and cotton (second year) are over two times higher than controls in plots that have not been reforested. Being aware of the multifunctionality of this tree (wood, gum, fertility, honey, fodder), many farmers in the Bénoué region (between Garoua and Lagdo) now prefer it to <i>Eucalyptus camaldulensis</i>, which nevertheless produces more wood. This species remains reserved for the production of poles, in 4x4 m plantations, treated in a regular coppice with rotation every 4-6 years. These eucalyptus plantations occupy about 100 ha around the towns of Maroua, Garoua and Ngong.</p> <p>Impacts, lessons and prospects</p> <p>These <i>Acacia senegal</i> plantations are very effective in restoring the fertility of farmland, but the creation of <i>Faidherbia albida</i> tree parks is another possibility for improving agricultural production. Since 1990, more than 1 million young <i>Faidherbia albida</i> trees were protected by the “assisted natural regeneration” method in the alluvial valleys in the far north of Cameroon around the town of Maroua through an initiative of IRAD and CIRAD with the support of the DPGT and ESA projects. Problems now arise with regard to the thinning and pruning of these parks because the agro-forestry species protection law prohibits all felling. It is hoped that the new Rural Code, currently in the approval process, will enable the farmers to benefit from this investment by producing firewood and forage.</p>	

ANNEX 9 : “Unilinear” sylviculture in high wet savannas : case of Western Cameroon

Title “Unilinear” sylviculture in high wet savannas: case of Western Cameroon	Contacts Raphaël Njoukam Régis Peltier
Organization CIRAD/IRAD	Country Cameroon
<p>Context and objective</p> <p>The high wet savannas of Cameroon are situated in the Western Administrative Region, which has a great diversity of landscapes. As a result of human activity, the old landscapes of dense semi-deciduous forest at medium altitudes, the peri-forest savanna and mountain formations have disappeared</p> <p>Effective actions</p> <p>In certain densely populated provinces (180-250 inhabitants/km²), strong pressure on land and natural resources has existed for a long time. Farmers, in their constant search for timber and non-timber products, have integrated trees on their land, notably in the form of quickset hedges. These have evolved over the years, ranging from plantations with a mixture of several multi-use tree and shrub species, to a veritable “unilinear” and mono-specific sylviculture.</p> <p>Results</p> <p>Initially, the quickset hedges are fences consisting of green <i>Ficus sp</i> stakes planted very close together, most of which take root. In order to strengthen them, they are bound together horizontally by raffia palm ribs (“bamboos”) fixed by links made of bark also taken from much younger raffia leaves. Gradually, these hedges are enriched by other species whose principal uses are: vertical “filling” hedges, medicinal uses, occasional forage, fruits or edible leaves, timber, wood for everyday use or firewood, and the use of leaves as organic fertilizer. These hedges also serve to mark property limits. Other hedge systems also exist: <i>Eucalyptus sp</i> and <i>Pinus sp</i> hedges, <i>Polyscias fulva</i>, <i>Podocarpus latifolius ex milanjanus</i> or <i>Entandrophragma candollei</i> hedges.</p> <p>Impacts, lessons and prospects</p> <p>This peasant model of “unilinear” sylviculture, although developed on a small scale is sustainable and integrates well within the environment. The forestry authorities should, by creating incentives, support and encourage these efforts to integrate and manage timber products on the land. Unfortunately, the expansion of such initiatives is often impeded by laws which are unsuited to local situations or are misinterpreted.</p>	

ANNEX 10 : Recreating village forest areas

Title Village plantations for the reconstitution of forest	Contacts Emilien Dubiez emilien.dubiez@cirad.fr
Organization CIRAD/Makala project	Country DRC
<p>Context and objective</p> <p>Very strong pressure is being exerted on the forest areas of the basin which supply fuelwood to the city of Kinshasa. 120 km to the south of the capital near Kisantu (Bas Congo Province), there remain only fruit trees for the production of charcoal. In order to reconstitute multifunctional forest areas, therefore, it is essential to motivate the village communities and give them technical support and training.</p> <p>Effective actions</p> <p>The Makala project has supported endogenous groups (families) in preparing “simple management plans” (PSGs). The families are, in fact, the first beneficiaries and managers of wood as a resource. Seven PSGs have been prepared for seven areas in three villages (Kinduala, Kingunda and Kinkosi). In parallel, 27 tree nurseries have been set up in other villages near Kisantu. Over 60 000 trees have thus been planted in degraded land. Numerous local species have been used, including <i>Millettia laurentii</i>, <i>Maesopsis emini</i>, <i>Pentaclethra macrophylla</i>, <i>Terminalia superba</i>, <i>Ricinodendron heudelotii</i>, <i>Canarium schweinfurtii</i>, etc.</p> <p>Results expected</p> <p>The social communication and training provided under the project should enable the respective families to continue project activities in the long term, from nursery to reforestation. At the end of 2012, the PSGs prepared by the families were finalized, officially approved and marked by sign boards installed on the land indicating the management decisions reached. These PSGs should enable the families to independently pursue the development of their land and the rational management of their forest resources.</p> <p>Impacts, lessons and prospects</p> <p>The persons targeted must master all the technical stages, from the production of seedlings in nurseries to the maintenance of plantations. However, the communities have not yet completely mastered all the stages needed to develop and maintain plantations. The seedling survival rates of approximately 40 % demonstrate the need to continue support to the communities in order to assure the sustainability of their village plantations. The execution of the PSGs and compliance with the rules for the use of managed areas must be monitored with a view to more effectively integrate management principles into the community dynamic. The future of the natural and planted forest areas will be secured only when all the technical stages have been mastered.</p>	

ANNEX 11 : A private operator involved in the management of forest plantations in Gabon

Title Management of forest plantations at Mvoum (Gabon)	Contacts : Philippe MORTIER / Deputy Director pfm@lignafrica.com
Organization PFM (Mvoum Forest Plantation Company)	Country Gabon
<p>Context and objective</p> <p>In 2010, in order to support the industrialization policy instituted by the Head of State, the Ministry of Watercourses and Forests initiated a study on the revival of a reforestation program in Gabon. In this context, a private operator decided to associate himself with the State through the Deposit and Consignment Bank in order to rehabilitate and derive value from old okoumé forest plantations, which were poorly maintained and illegally exploited.</p> <p>Progress of work end May 2013:</p> <ul style="list-style-type: none"> - The preliminary studies to evaluate the resource have been completed and the PRM Management and Development Plan is being drafted; - The 19km of rehabilitated tracks provide access to plantations which have reached maturity and will be exploited as from the second half of 2013; - The personnel for the logging unit have been recruited and trained; - The documents to ensure the traceability and legality of the timber are available; - The commercial contacts have been made and supply contracts concluded; - The nurseries are operational: old greenhouses have been rehabilitated and the orders for plant material have been placed. <p>Results:</p> <ul style="list-style-type: none"> • The PFM company has been established and its structure is being set up; • The resource is known, and the division of the plantation into plots for the next three years has been established and is being put into effect on the ground. <p>Impacts, lessons and prospects</p> <ul style="list-style-type: none"> • Before the end of 2013, 100 or so people will be recruited in the area of the town of Ntoum; • The PFM company will have reached cruising speed by the end of 2013 or early 2014; • The first sowing and cuttings were undertaken in nurseries in the first half of 2013; • The first planting campaign will begin at the end of 2013 and in 2014. The species to be planted are: mainly teak and okoumé, and gmelina, Australian acacias, eucalyptus, etc.; • The first audits for certification purposes will be carried out in early 2014. 	

ANNEX 12: Data for Cameroon

Contribution of the forestry sector to the national economy

Economic data	2006	2007	2008	2009	2010	2011	2012
Contribution to GDP (%)							
Tax revenues (FCFA)			20 485 006 448	10 729 743 182	8 626 200 920	21 301 131 011	18 369 471 958
Direct employments (Nbr)	13 000				13 000		
Indirect employments (Nbr)	150 000						

Log production

Year	Volume (m ³)
2006	2 296 254
2007	2 894 221
2008	2 166 364
2009	1 875 460
2010	2 348 150
2011*	2 440 605
2012*	2 437 300

*Validation workshop excluding

Main timber species harvested in the formal sector (volume harvested in m³)

Species	2005	2006	2007	2008	2009	2010	2011*	2012*
Ayous/Obeché	656 655	799 820	684 560	756 311	480 360	688 465	642 667	633 426
Azobé/Bongossi	97 020	117 265	112 771	107 359	113 343	139 780	156 803	163 733
Dabéma					64 855	51 928		
Fraké/Limba	77 653	86 449	70 682	75 732	65 067	66 891	95 543	122 203
Ilomba	40 552					53 977	66 727	50 418
Iroko	84 669	89 658	89 324	79 632	80 741	95 786	77 940	88 567
Kosipo	41 315	45 367	43 751	46 151	35 267			43 717
Movingui	37 961	50 870	37 662				36 307	
Okan	40 618	87 762	61 683	67 859	118 819	106 605	117 908	132 266
African padauk		45 252	31 136	38 248	48 963	55 977	66 840	73 512
Sapelli	378 756	377 142	395 469	408 068	264 771	343 797	365 446	375 729
Sipo				30 901				
Tali	153 375	159 788	144 989	189 580	181 531	199 802	226 611	237 922
Total other species		436 635	417 391	366 523	421 743	545 141	587 809	515 808
Total	1 608 574	2 296 008	2 089 418	2 166 364	1 875 460	2 348 149	2 440 601	2 437 301

*Validation workshop excluding

Production by type of logging title (m³)

Type	2005	2006	2007	2008	2009	2010	2011*	2012*
Timber recovery permit (timber salvage authorization and timber removal authorization)	141 743	154 830	215 919	189 942	257 437	186 406	46 419	7 313
Timber concession	1 683 045	1 866 228	1 757 056	1 559 092	1 397 174	1 842 176	1 831 443	1 628 056
Provisional concession				374 188	171 830	86 999	55 590	82 107
Sales of standing volume	157 336	275 195	116 447	43 141	49 019	232 568	488 256	695 381
Communal forests							18 897	24 443
Total	1 982 124	2 296 253	2 089 422	2 166 363	1 875 460	2 348 149	2 440 605	2 437 300

*Validation workshop excluding

Production of the 10 most important companies (m³)

Company	2005	2006	2007	2008	2009	2010	2011*	2012*
ALPICAM	75 183		78 444	86 259	62 945		92 380	61 547
CAFECO SA						53 998		
CAMBOIS	102 119		98 697	48 832	110 268	100 528	71 340	
CFC	71 744	91 767	73 827	93 220		94 799	66 632	63 102
CIBC		66 757						
CUF		85 436			66 297	147 593	135 078	82 854
FB							68 363	
FILIERE BOIS			59 293					
FIPCAM				68 218	67 670			
GRUMCAM		105 893	91 737	135 144		85 305	66 537	84 332
GWZ	90 774	71 857			68 478			
Ingénierie Forestière	81 057							
LOREMA							90 609	87 555
PALLISCO	67 742	97 943	90 416	140 702	94 354	118 386		84 932
PANAGIOTIS MARELIS			57 540					
PLACAM	61 172							
SEFAC	99 918	84 972	94 723	91 918	94 163	127 566	75 967	116 219
SFID	79 634	65 194		211 195	81 042	106 291		85 677
SIBAF	64 535	65 848						
SIM								62 975
STBK		93 386	116 726	134 311	61 405	115 904	147 782	162 758
TRC			81 106	65 916	86 227	65 071	67 017	
Other companies						1 332 709	1 558 896	1 545 352
Total	793 878	829 053	842 509	1 075 715	792 849	2 348 150	2 440 601	2 437 303

*Validation workshop excluding

Processed products (m³)

Products	2005	2006	2007	2008	2009	2010	2011*	2012
Sawnwood	660 000	601 000			912 462		993 000	
Peeled veneer	4 980	4 290			62 000		54 790	
Sliced veneer	63 000	57 000			1 826			
Plywood	23 000	18 000			22 700		23 110	
Total	750 980	680 290			998 988		1 070 900	

Exports by type of products (m³)

Products	2005	2006	2007	2008	2009	2010	2011*	2012*
Logs	146 000	316 000		257 578	413 000	607 647	582 301	496 871
Sawnwood	660 000	601 000		524 632	343 118	696 166	593 363	591 222
Planed sawnwood				52 887	21 867	40 945		
Peeled veneer	4 980	4 290		2 843	31 220	52 548	44 790	37 606
Sliced veneer	63 000	57 000		59 408	1 000	78	210	0
Plywood	23 000	18 000		17 983	11 350	17 084	13 114	17 942
Total	896 980	996 290		915 331	821 555	1 414 468	1 233 778	1 143 641

Export destinations (m³)

Region	2006	2007	2008	2009	2010	2011*	2012*
COMIFAC countries	1 904		3 771	4 095	4 305	693	806
Africa excluding COMIFAC countries	43 384		50 726	30 210	57 529	140 768	51 921
North America	19 435		16 369	9 574	14 732	25 351	27 129
Asia	277 956		289 857	435 686	606 861	613 614	583 241
European Union	632 020		550 841	340 520	730 707	445 058	472 649
Other destinations	19 530		3 431	1 087	832		4 372
Total	994 229		914 995	821 172	1 414 966	1 225 484	1 140 118

*Validation workshop excluding

Management of forest concessions

Management status	2007		2008		2009		2010		2011		2012*	
	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)
Total annual cutting range (AAC)	91	247 758			78	199 940					101	264 135
Forest already classified					52	3 533 008	86	3 533 008			62	3 947 981
Process not initiated					13	1 396 884						
Under definitive agreement (management plan approved)			65	4 207 862	75	5 341 895	86	5 341 895			92	5 637 731
Under provisional agreement (management plan in preparation)			38	1 866 171	21	1 039 789	11	1 039 789			12	669 734
Total	91	247 758	103	6 074 033	239	11 511 516	183	9 914 692			267	10 519 581

Processing units

Type of units	2007		2008		2009		2010		2011*		2012	
	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)
Industrial sawmill	51	519 941			67		51		108			
Peeling plant	5	64 286			7		5		3	44 000		
Slicing plant	4				66		4		4			
Total	60	584 227			140		60		115	44 000		

Protected area in 2011*

Protected area type	Number	IUCN category	Total area (ha)
National park	18	II	2 860 531
Wildlife reserve	6	Ib	702 995
Zoological garden	3	--	6
Botanical garden	1	Ia	44
Wildlife sanctuary	3	III	95 667
Flora sanctuary	1	Ia	1 000
Forestry reserve	77	Ia	492 072
Total	109		4 152 315

*Validation workshop excluding

ANNEX 13 : Data for Gabon

Contribution of the forestry sector to the national economy

Economic data	2007	2008	2009	2010	2011*	2012
Contribution to GDP (%)	4.3	3.02	4.50	1.7	1.8	
Tax revenues (%)						
Direct employments (Nbr)	12 868	12 420	14 121	11 275	20 000	
Indirect employments (Nbr)			5 000	2 000		

Log production

Year	Volume (m ³)
2005	2 769 902
2006	3 220 957
2007	3 350 678
2008	2 057 537
2009	3 947 231
2010	1 861 116
2011*	1 597 889
2012*	1 709 413

*Validation workshop excluding

Main timber species harvested in the formal sector (volume harvested in m³)

Species	2005	2006	2007	2008	2009	2010	2011*	2012*
Andoung							8 994	6 248
Azobé						74 261	68 067	73 056
Bahia						14 841		
Beli						10 493	38 447	23 785
Bilinga							11 801	12 632
Bubinga (Kevazingo)							12 241	47 151
Gombe						14 141		
Movingui						11 741	8 732	8 221
Okan						54 232	53 541	62 322
Okoumé	1 772 737	2 061 412	2 144 434	1 130 535		1 045 151	920 890	991 898
Padouk						29 625	53 906	51 930
Tali (Missanda)						26 001	27 703	15 790
Total other species	997 165	1 159 544	1 206 244	1 818 900		580 630	393 567	416 380
Total	2 769 902	3 220 956	3 350 678	2 949 435		1 861 116	1 597 889	1 709 413

*Validation workshop excluding

Production by type of logging title (m³)

Type	2007	2008	2009	2010	2011*	2012
CFAD	527 478		1 885 648	1 410 949	1 410 949	
CPAET					186 940	
Lots ZACF	9 157					
PFA	566 275		798 973	445 167		
PGG				5 000		
PI	508 056		668 739			
PTE	1 128 147		258 026			
Other	611 565					
Total	3 350 678		3 611 386	1 861 116	1 597 889	

Production of the 10 most important companies (m³)

Company	2007	2008	2009	2010	2011	2012
Bois et sciages de l'Ogooue	119 794					
Bonus Harvest			266 424			
Compagnie des bois du Gabon	118 930					
Compagnie Equatoriale des Bois	323 975		259 689			
Compagnie forestière des abeilles	132 023		291 020			
Cora wood	78 896		263 674			
Exploitation gabonaise des grumes	82 681					
GEB	87 308					
HTG	195 506					
RFM			266 302			
Rougier Gabon	390 778		322 670			
SBL			265 251			
SEEF			384 719			
SFIK			264 127			
TBNI			306 242			
Toujours vert	107 747					
Other companies	1 713 040		903 308			
Total	3 350 678		3 793 426			

*Validation workshop excluding

Processed products (m³)

Products	2005	2006	2007	2008	2009	2010	2011*	2012
Sawnwood	200 151	200 239	296 406	280 379	196 423	337 741	439 022	
Planed sawnwood				1 269	3 299	921	1 547	
Peeled veneer	237 501	180 717	180 516	202 282	183 124	281 615	295 660	
Sliced veneer	2 856		1 285	0	0	0	0	
Plywood	819 122	32 900	84 795	140 931	76 724	71 000	91 408	
Total	1 259 630	413 856	563 002	624 861	459 570	691 277	827 637	

*Validation workshop excluding

Exports by type of products (m³)

Products	2005	2006	2007	2008	2009	2010	2011*	2012
Logs	1 586 228	1 768 080	1 938 079	1 649 309	1 631 374	0	0	
Sawnwood	152 724	158 250	157 856	222 739	150 591	278 236	469 621	
Planed sawnwood					1 139	971	834	
Peeled veneer	171 899	188 213	144 135		130 902	196 804	210 934	
Sliced veneer	2 256		1 889		0	0		
Plywood	87 177	29 906	28 384		802 99	54 707	44 758	
Total	2 000 284	2 144 449	2 270 343	1 872 048	1 994 305	530 718	726 147	

*Validation workshop excluding

Export destinations (m³)

Region	2005	2006	2007	2008	2009	2010	2011*	2012
COMIFAC countries					125	119	0	
Africa excluding COMIFAC countries	73 628	86 594	140 635		77 588	71 828	75 227	
North America					2 944	9 544	0	
Asia	1 033 117	1 290	1 377 571		3 017	67 090	191 993	
European Union	479 398	391 392	419 872		245 266	338 336	298 788	
Other destinations					33 992	43 801	89 423	
Total	1 586 143	479 276	1 938 078		362 931	530 718	655 431	

*Validation workshop excluding

Management of forest concessions

Management status	2007		2008		2009		2010		2011*		2012	
	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)
Total annual cutting range (AAC)	12	74 392			13	100 383	15	114 891	23	178 034		
Forest already classified	1				14	3 012 375	1	493				
Process not initiated									59			
Under definitive agreement (management plan approved)	10	3 025 173			12	3 419 475	19	4 606 248	26	6 173 350		
Under provisional agreement (management plan in preparation)	33	6 018 597			22	6 473 759	33	5 845 652	31	5 538 638		
Total	56	9 118 162			61	13 005 992	68	10 567 284	139	11 890 022		

Processing units

Type of units	2007		2008		2009		2010		2011*		2012	
	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)
Planed sawnwood (parquets, moldings)					1	2 952	1	0	2			
Plywood plant	4	236 000			5	122 000	5	108 000	5	241 000		
Industrial sawmill	60	1 013 487			72	1 033 750	74	1 031 515	97	2 001 756		
Peeling plant	12	673 600			10	466 824	10	445 392	10	514 000		
Slicing plant	1	10 000			0	0	1	2 000	0			
Total	77	1 933 087			88	1 625 526	91	1 586 907	114	2 756 756		

*Validation workshop excluding

Protected area in 2010

Protected area type	Number	IUCN category	Total area (ha)
National park	13	II	3 013 842
Wildlife reserve		Ia	
Wildlife and flora sanctuary		--	
Integral Reserve		--	
Hunting zone		IV	
Zoological garden		--	
Botanical garden		--	
Total	13		3 013 842

ANNEX 14: Data for Equatorial guinea

Contribution of the forestry sector to the national economy

Economic data	2006	2007	2008	2009	2010	2011	2012
Contribution to GDP (%)		0.22		0.01			
Tax revenues (%)							
Direct employments (Nbr)	2 000			490			
Indirect employments (Nbr)							

Log production

Year	Volume (m ³)
2006	
2007	524 799
2008	88 097
2009	13 760
2010	309 849
2011*	337 223
2012*	375 843

*Validation workshop excluding

Main timber species harvested in the formal sector (volume harvested in m³)

Species	2006	2007	2008	2009	2010	2011	2012
African mahogany			2 093	701			
Azobé	9 528	28 387	10 431	1 322			
Dabema	1 663	57 541					
Dibétou	6 525						
Doussié	3 598						
Eyong		5 693	2 972				
Ilomba	7 652	31 313	28 683	2 081			
Iroko	9 856		2 127	629			
Kosipo		8 189					
Limba			2 329				
Movingui			1 446				
Okan		33 020					
Okoumé	242 560	247 133	13 482	1 886			
Onzabili	2 153						
Ozigo				567			
African Padauk		17 878	7 307	760			
Sapelli		15 005		930			
Sipo				417			
Tali	114 377	22 212	5 972	846			
Wengué	1 632						
Total other species	6 438	48 055	11 256	3 622			
Total	405 983	514 426	88 098	13 761			

Production by type of logging title (m³)

Type	2007	2008	2009	2010	2011	2012
Community forest	84 262	0				
Rental contract for logging	420 074	88 097	13 760			
Timber concession	20 463	0				
Total	524 799	88 097	13 760			

Production of the 10 most important companies (m³)

Company	2006	2007	2008	2009	2010	2011*	2012*
ATO	3 089	1 816					
CHILBO	15 755	23 457	8 980		11 519	9 176	
COMALI	20 357	31 838	18 400	3 048	18 587	23 741	
MATROGUISA	1 782	1 123	630				
RIO MUNI TIMBERLAND	7 856	32 036			25 462	14 489	
SAFI	187						
SHIMMER INTERNACIONAL	286 702	309 369			127 944	158 188	
SIJIFO	2 913	9 991	24 053	2 028	34 319	42 403	
SINOSA	4 153	12 541					
SOFMAL	63 188	102 628	36 034	8 685	73 784	50 621	
Total	405 983	524 799	88 097	13 760			

*Validation workshop excluding

Processed products (m³)

Products	2006	2007	2008	2009	2010	2011	2012
Sawnwood	1 432	784	1 385	5 576			
Sliced veneer	25 989	27 644					
Peeled veneer		293	17 503	11 214			
Total	27 421	28 721	18 888	16 790			

Exports by type of products (m³)

Products	2006	2007	2008	2009	2010	2011*	2012*
Logs	450 061	547 299	142 676	23 385	234 455	237 928	301 335
Sawnwood	403	600		3 375			
Planed sawnwood							
Peeled veneer				8 388	19 288	15 625	13 036
Sliced veneer	31 819	31 101					
Plywood							
Total	482 283	579 000		35 149			

*Validation workshop excluding

Export destinations (m³)

Region	2006	2007	2008	2009	2010	2011	2012
COMIFAC countries							
Africa excluding COMIFAC countries	12 515	10 680		1 565			
North America				35			
Asia	373 942	492 705		16 472			
European Union	92 276	77 240		17 046			
Other destinations				31			
Total	478 733	580 625		35 149			

Management of forest concessions

Type of units	2007		2008		2009		2010		2011	
	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)
Total annual cutting range (AAC)										
Forest already classified										
Process not initiated										
Under definitive agreement (management plan approved)										
Under provisional agreement (management plan in preparation)			1	50 000						
Total			1	50 000						

Processing units

Type of units	2006		2007		2008		2009		2010		2011	
	Nbr	Capacity (m ³)	Nbr	Capacity (m ³)	Nbr	Capacity (m ³)	Nbr	Capacity (m ³)	Nbr	Capacity (m ³)	Nbr	Capacity (m ³)
Industrial sawmill			1				2					
Plywood plant			2				2					
Peeling plant			5				4					
Slicing plant	4	27 471										
Total	4	27 471	8				8					

Protected area in 2009

Protected area type	Number	IUCN category	Total area (ha)
Naturel Monument	2	III	39 000
National Park	3	II	303 000
Scientific reserve	2	Ib	51 500
Natural reserve	6	IV	192 500
Total	13		586 000

ANNEX 15: Data for Central African Republic

Contribution of the forestry sector to the national economy

Economic data	2007	2008	2009	2010	2011	2012
Contribution to GDP (%)			13	10		
Tax revenues (%)						
Direct employments (Nbr)			4 000	4 000		
Indirect employments (Nbr)				6 000		

Log production

Year	Volume (m³)
2005	454 402
2006	624 861
2007	
2008	555 143
2009	348 926
2010	324 283
2011*	424 447
2012	

Main timber species harvested in the formal sector (volume harvested in m³)

Species	2005	2006	2007	2008	2009	2010	2011*	2012
African mahogany	8 075	4 841	1 926	2 024				
Azobé				603				
Aningré	42 228	29 327	34 506	26 059	18 717	6 452	8 510	
Ayous	108 577	93 557	81 279	111 020	67 952	31 182	59 718	
Bété		1 033	840	819				
Bossé	4 263	5 177	5 122	3 544				
Dibétou	1 270	9 419	8 390	14 066	10 482	13 758	17 652	
Doussier		4 051	3 059	1 791				
Fraké				2 093				
Iroko	32 062	18 620	22 458	20 398	11 228	12 035	17 623	
Kosipo	6 786	17 174	24 033	30 921	12 548	16 798	22 050	
African Padauk		2 019	6 195	9 314		9 675	12 312	
Pao rosa		17 538	1 107	830				
Sapelli	215 220	335 604	295 954	271 283	188 206	185 619	215 616	
Sipo	21 896	28 909	21 098	28 329	17 359		13 937	
Tali						3 045		
Teck				456	1 616			
Tiama	3 095	14 399	14 561	16 493	5 176	5 931	17 623	
Total other species	10 931	43 193	17 469	15 100	15 183	35 396	39 406	
Total	454 403	624 861	537 997	555 143	348 467	319 891	424 447	

*Validation workshop excluding

Production by type of logging title (m³)

Type	2005	2006	2007	2008	2009	2010	2011*	2012
Logging and management permit	454 402	617 578	526 122	545 613	347 559	323 208	423 606	
Harvesting special permit		7 283						
Harvesting special permit (SEBOCA)			11 875	9 529	502	842		
SETEC					865	133		
Teck exploitation							841	
Total	454 402	624 861	537 997	555 143	348 926	324 183	424 447	

*Validation workshop excluding

Production of the 10 most important companies (m³)

Company	2005	2006	2007	2008	2009	2010	2011*	2012
IFB	67 429	87 489		77 930	60 087	53 848	83 930	
SCAD	56 003	69 746		55 896	21 947	20 905	31 523	
SCAF	36 339	44 153		23 654	10 372			
SCD				7 223	10 246	14 880	12 970	
SEBOCA		7 283		9 529	502	842		
SEFAC							185 396	
SEFACA	42 229							
SEFCA	131 493	222 351		223 656	151 032	152 714		
SESAM	8 688							
SETEC					865	133		
SOFOKAD	56 635	40 888		12 391	7 624			
THANRY	16 665	32 411		44 373		3 790	33 805	
VICA	76 922	120 540		100 491	86 252	77 171	75 983	
Other companies							841	
Total	492 403	624 861		555 143	348 927	324 283	424 448	

*Validation workshop excluding

Processed products (m³)

Products	2005	2006	2007	2008	2009	2010	2011*	2012
Sawnwood	454 402	624 861		73 675	61 849	45 138	54 176	
Planed sawnwood								
Peeled veneer	4 686	84 304						
Sliced veneer								
Plywood	1 434	805		194	863			
Total	460 523	709 970		73 869	62 712	45 138	54 176	

*Validation workshop excluding

Exports by type of products (m³)

Products	2005	2006	2007	2008	2009	2010	2011*	2012
Logs	145 912	192 259		155 301	111 464	147 893	152 278	
Sawnwood	52 940	70 779		62 233	40 477	36 657	38 413	
Planed sawnwood								
Peeled veneer		6 270						
Sliced veneer								
Plywood	5	475		72				
Total	198 856	269 783		217 606	151 941	184 550	190 691	

*Validation workshop excluding

Export destinations (m³)

Region	2005	2006	2007	2008	2009	2010	2011*	2012
COMIFAC countries	4 896	15 166			1 474		889	
Africa excluding COMIFAC countries						114	772	
North America								
Asia	22 106	64 420		58 541	45 011	49 574	60 050	
European Union	113 491	111 499		92 475	64 568	98 206	90 591	
Other destinations	5 418	1 174			412		25	
Total	145 911	192 259		151 016	111 465	147 894	152 327	

*Validation workshop excluding

Management of forest concessions

Management status	2007		2008		2009		2010		2011*	
	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)
Total annual cutting range (AAC)			14	106 271	17	129 463				
Forest already classified			1	27 956	1	27 956			1	27 956
Process not initiated			3	674 561	3	674 561			3	675 245
Under definitive agreement (management plan approved)			7	2 454 000	7	2 454 000	11		11	3 021 773
Under provisional agreement (management plan in preparation)			3	582 789	3	582 789				
Total			28	3 845 577	31	3 868 769	11		15	3 724 974

*Incomplete data and validation workshop excluding

Processing units

Type of units	2007		2008		2009		2010		2011*	
	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)
Planned sawnwood (hardwood floors, moldings)										
Plywood plant			1	15 000	1	864	1		1	
Industrial sawmill			8		7	500 000	7		6	
Peeling plant			1		1	700	1			
Slicing plant										
Total			10	15 000	9	501 564	9		7	

*Validation workshop excluding

Protected area in 2010

Protected area type	Number	IUCN category	Total area (ha)
National park	5	II	3 272 700
Presidential park	1	II	170 000
Special reserve	2	IV	314 815
Integral reserve	1	Ia	86 000
Wildlife reserve	7	VI	3 030 000
Total	16		6 873 515

ANNEX 16 : Data for Republic of Congo

Contribution of the forestry sector to the national economy

Economic data	2006	2007	2008	2009	2010	2011	2012*
Contribution to GDP (%)	5.6			7.6	8.8	1.6	3
Tax revenues (%)							0.22
Direct employments (Nbr)				5 020	5 822	7 305	7 305
Indirect employments (Nbr)				5 000			

*Validation workshop excluding

Log production

Year	Volume (m³)
2005	1 386 473
2006	1 330 980
2007	1 331 951
2008	1 212 118
2009	974 529
2010	1 314 281
2011	1 462 990
2012*	1 405 421

Main timber species harvested in the formal sector (volume harvested in m³)

Species	2005	2006	2007	2008	2009	2010	2011	2012*
African mahogany	14 840	11 874	24 633					
Agba/Tola					7 158	924	1 313	1 647
Aniégré	331	5 545	2 199					
Bilinga				11 508	13 970	25 128	30 731	17 356
Bossé	59 229	41 214	45 146	25 337	15 772	24 202	17 814	25 695
Dibetou					5 934	2 772	7 090	7 122
Iroko	42 014	30 601	16 983	15 018	12 978	22 505	22 372	20 398
Kosipo	4 320	12 177	29 641	13 269				
Moabi	5 417	4 266	5 167					
Niové					4 950	2 815	4 208	3 448
Obeché				21 068	17 989	4 976	40 929	52 036
Okan								
Okoumé	343 632	316 098	295 221	343 652	412 406	540 563	546 440	449 456
Sapelli	496 547	539 264	575 591	197 838	158 708	399 850	370 400	407 283
Sipo	72 906	75 971	80 076	35 749	128 530	53 641	49 035	52 379
Tali/Kassa				10 584				
Tiama								
Wengué	16 604	16 594	25 862	21 766				
Total other species	313 371	276 355	211 386	516 329	196 134	236 905	372 658	368 601
Total	1 369 211	1 329 959	1 311 905	1 212 118	974 529	1 314 281	1 462 990	1 405 421

*Validation workshop excluding

Production by type of logging title (m³)

Type	2005	2006	2007	2008	2009	2010	2011	2012*
Management and processing convention (CAT)	1 300 209	1 264 267	915 624		899 354	1 205 903	1 288 122	1 329 587
Industrial processing convention (CTI)	36 617	58 055	50 776		69 681	77 247	78 657	8 554
Exploitation contract (CEF)					5 172	12 620	13 299	14 464
Special permit					322	18 511	82 912	16 926
Other								35 890
Total	1 336 826	1 322 322	966 400		974 529	1 314 281	1 462 990	1 405 421

*Validation workshop excluding

Production of the 10 most important companies (m³)

Company	2005	2006	2007	2008	2009	2010	2011	2012*
ASIA Congo				71 604	116 599	163 436	201 468	91 051
Bois et Placages De Lopola (BPL)	45 574	48 636	54 403		26 795	29 791	28 926	37 551
Compagnie Industrielle des bois du Niari (CIBN)	170 330	154 522	188 459	143 304	154 146	153 182	131 289	93 145
Congolaise industrielle des Bois (CIB)	341 681	359 546	374 510	298 252	158 568	175 206	189 458	200 711
FORALAC	57 086	41 139	32 337		39 327	40 258	48 026	54 379
Industrie de Transformation des Bois de la Likouala (ITBL)	37 045	35 386	19 892	20 181				
Industrie Forestière de Ouessou (IFO)	175 648	162 804	163 639	146 616	164 670	200 598	186 028	187 904
Likouala Timber (LT)	165 728	67 124	94 618	74 961	56 594	52 463	65 513	75 205
Mokabi SA	74 043	98 848	126 099	96 114	13 918	100 301	105 285	111 023
Sino Congo Forêt (SICOFOR)				79 247	78 793	136 908	161 557	149 797
Société Thanry Congo (STC)	20 319	42 247	57 231	27 721				
Taman Industrie	78 239	167 703	53 715	54 673	84 616	116 963	99 659	126 181
Other companies				199 445	80 503	145 175	245 781	278 474
Total	1 165 693	1 177 955	1 164 903	1 212 118	974 529	1 314 281	1 462 990	1 405 421

*Validation workshop excluding

Processed products (m³)

Products	2005	2006	2007	2008	2009	2010	2011	2012*
Sawnwood	219 932	258 679	212 719	196 553	199 283	178 228	227 649	288 072
Peeled veneer	14 376	2 224	44 826	31 537	33 468	35 021	33 788	46 261
Sliced veneer	0	0	0					
Plywood	6 390	7 456	8 665	8 612	22 101	25 060	18 620	24 525
Molding products		9 953	11 300					
Logs		163 183	248 648	416 174				
Chips				164 301				
Other					347 307	351 524	258 213	237 123
Total	240 698	441 495	526 158	817 177	602 159	589 833	538 270	595 981

*Validation workshop excluding

Exports by type of products (m³)

Products	2005	2006	2007	2008	2009	2010	2011	2012*
Logs	709 710	632 665	522 497	528 688	546 005	798 954	855 739	738 146
Sawnwood	163 075	181 365	209 122	174 937	93 014	132 187	147 478	161 795
Planed sawnwood	0	0	0	0	0			
Peeled veneer	13 040	3 968	15 307	21 775	19 153	18 038	22 152	20 275
Sliced veneer	0	0	0	0	0			
Plywood	1 974	2 980	1 755	660	113	167	5 443	1 573
Other	17 731	135 282	250 746	341 924	354 171	323 193	199 812	194 872
Total	905 530	956 260	999 427	1 067 984	1 012 456	1 272 539	1 230 624	1 116 661

*Validation workshop excluding

Export destinations (m³)

Region	2005	2006	2007	2008	2009	2010	2011	2012*
COMIFAC countries		3 289	1 450	3 559	2 500	100	5 239	284
Africa excluding COMIFAC countries	26 135	26 785	11 962	103 137	6 825	31 588	8 983	48 403
North America	15 870	11 226	22 773	13 710	7 366	11 703	13 945	13 956
Asia	483 137	444 311	400 491	459 774	514 437	68 292	43 489	783 851
European Union	386 549	319 210	295 679	333 025	460 483	533 833	210 232	233 584
Other destinations	--	151 439	267 071	154 775	20 845	632 023	948 736	36 572
Total		956 260	999 426	1 067 980	1 012 456	1 272 539	1 230 624	1 116 650

*Validation workshop excluding

Management of forest concessions

Management status	2006		2007		2008		2009		2010		2011		2012*	
	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)
Total annual cutting range (AAC)													29	493 824
Forest already classified														
Process not initiated							17	4 031 603	15	2 739 143	15	2 739 147	15	2 739 137
Under definitive agreement (management plan approved)	3	1 907 843	3	1 907 843			1	195 510	6	3 260 783	7	3 504 159	8	3 536 689
Under provisional agreement (management plan in preparation)					22	637 1718	19	504 7367	21	633 9823	22	609 6447	20	6 119 010
Total	3	1 907 843	3	1 907 843	22	6 371 718	37	9 274 480	42	12 339 749	44	12 339 753	72	12 866 097

*Validation workshop excluding

Processing units

Type of units	2007		2008		2009		2010		2011		2012*	
	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)
Industrial sawmill	25	1 000 000			26	199 283	26	1 100 000	26	1 100 000	26	1 100 000
Peeling plant	6	210 000			4	33 468	4	210 000	4	210 000	4	210 000
Slicing plant					2	22 000	2	22 000	2	22 000	2	22 000
Plywood plant	4	30 000			3	22 101	3	30 000	3	30 000	3	30 000
Molding plant					2	10 000	2	10 000	2	10 000		
Total	35	1 240 000			37	286 852	37	1 372 000	37	1 372 000	35	1 362 000

* Validation workshop excluding

Protected area in 2012*

Protected area type	Number	IUCN category	Total area (ha)
National park	3	II	2 286 350
Community reserve	1	VI	438 960
Wildlife reserve	3	IV	675 000
Biosphere reserve	2	-	136 000
Gorilla sanctuary	2	-	79 000
Chimpanzee sanctuary	2	-	7 000
Hunting zone	2	-	65 000
Forest reserve	1	-	74
Total	16		3 687 384

* Validation workshop excluding

ANNEX 17 : Data for the Democratic Republic of Congo

Contribution of the forestry sector to the national economy

Economic data	2006	2007	2008	2009	2010	2011*	2012
Contribution to GDP (%)			0.26	0.17	0.08	0.08	0.02
Tax revenues (%)							
Direct employments (Nbr)	15 000				13 000		
Indirect employments (Nbr)							

**Validation workshop excluding*

Log Production

Year	Volume (m³)
2005	
2006	220 680
2007	310 000
2008	353 247
2009	373 284
2010	249 539
2011*	329 013
2012*	147 376

**Validation workshop excluding*

Main timber species harvested in the formal sector (volume harvested in m³)

Species	2005	2006	2007	2008	2009	2010	2011*	2012
African mahogany	4 497	7 468	13 576	19 101	14 807		4 945	
Afrormosia	18 680	11 043	31 138	29 009	25 273	1 217	21 391	
Bomanga (Evène)			13 370			9 402		
Bossé clair		5 581		10 319		10 010	5 220	
Iroko	34 475	17 923	24 036	29 818	33 116	32 526	30 153	
Kosipo	4 189			8 303	12 768			
Limba (Fraké)		3 717						
Sapelli	34 792	65 465	60 914	56 542	62 079	68 561	79 811	
Sipo	20 565	31 773	26 952	30 537	39 356	15 964	15 902	
Tchitola	3 979		9 385		15 725	7 158	8 762	
Tiama	9 669	11 992	10 986	15 716	17 312	10 416	5 714	
Tola	16 141	23 939	24 134	25 701	27 093	9 627	111 130	
Wengué	7 691	16 905	51 971	55 722	61 005	34 160	27 217	
Total other species	15 257	24 875	43 514	72 479	64 751	39 542	18 769	
Total	169 935	220 680	309 976	353 247	373 284	238 585	329 013	

**Validation workshop excluding*

Production by type of logging title (m³)

Type	2005	2006	2007	2008	2009	2010	2011*	2012
Artisanal cutting permit			24 966	96 122	15 215	34 098		
Industrial cutting permit	487 477	489					26 365	
Ordinary cutting permit (ACIBO)			309 976	708 326	539 914	638 590	816 467	
Total	487 477	489	334 942	804 448	555 129	672 688	842 832	

**Validation workshop excluding*

Production of the 10 most important companies (m³)

Company	2005	2006	2007	2008	2009	2010	2011*	2012
Azimuts Services							2 754	
BIMPE AGRO		8 894	13 794	10 149	8 250			
CFT	5 014	4 178						
FORABOLA	3 608	11 359	17 184	26 251	22 322	20 935	11 093	
ITB	12 831	11 328	36 259	19 310	30 213	20 460	9 674	
LA FORESTIERE DU LAC		3 263		14 570	5 551		12 834	
RIBA CONGO						7 371		
SAFBOIS	18 151		14 643	12 410	5 682	2 361		
SEDAF	13 557	35 500	18 794	22 815	18 326	7 321	2 429	
SICOBOIS			8 063				15 273	
SIFORCO	78 607	87 975	65 740	94 735	93 473	82 254	105 042	
SODEFOR			48 699	64 693	66 597	74 324	10 878	
SOEXFORCO		4 917				4 179		
SOFORMA	14 417	5 910	14 417	25 277	63 135	15 262	17 222	
TM-BOIS	7 288	37 428	48 442	35 085	31 977	5 724	32 716	
MISALA YA BA NTOMA	4 121							
SAFO	5 396							
Other companies	6 950			27 952	27 758	9 349		
Total	169 940	210 750	286 035	353 247	373 284	249 539	219 915	

*Validation workshop excluding

Processed products (m³)

Products	2007	2008	2009	2010	2011	2012
Sawnwood		28 645				
Planed sawnwood		4 300				
Peeled veneer		3 330				
Sliced veneer		840				
Total		37 115				

Exports by type of products (m³)

Products	2005	2006	2007	2008	2009	2010	2011*	2012
Logs	111 243	150 883	208 087	189 086	124 038	124 038	123 431	
Sawnwood	25 704	26 192	30 382	28 645	25 838	25 838	29 738	
Planed sawnwood	5 134	891	1 152	970	225	225		
Peeled veneer					0	0		
Sliced veneer	1 171	2 549	1 392	840	0	0		
Plywood		5 525	6 762	3 330	0	0		
Other	785	890 748	1 152			98		
Total	144 037	1 076 788	248 927	222 871	150 101	150 199	153 169	

*Validation workshop excluding

Export destinations (m³)

Region	2005	2006	2007	2008	2009	2010	2011*	2012
COMIFAC countries					0	0		
Africa excluding COMIFAC countries	16 058	15 695	11 876	42 540	12 835	12 835	11 869	
North America	4 584	5 126	5 146	55 221	1 749	1 749	3 115	
Asia	9 780	16 750	35 021	50 128	46 207	46 207	111 938	
European Union	138 940	176 767	221 251	137 292	184 680	184 680	89 217	
Other destinations	1 027	75	6 431		0	0		
Total	170 388	214 412	279 725	285 181	245 471	245 471	216 139	

*Validation workshop excluding

Management of forest concessions

Management status	2006		2007		2008		2009		2010		2011*		2012	
	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)	Nbr	Area (ha)
Total annual cutting range (AAC)														
Forest already classified	28	22 653 178												
Process not initiated														
Under definitive agreement (management plan approved)														
Under provisional agreement (management plan in preparation)			46	6 590 628										
Total	28	22 653 178	46	6 590 628										

*Validation workshop excluding

Processing units

Type of units	2007		2008		2009		2010		2011	
	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)	Nbr	Capacity (m³)
Industrial sawmill										
Peeling plant										
Slicing plant										
Total										

Protected area in 2010

Protected area type	Number	IUCN category	Total area (ha)
National Park	7	II	8 250 000
Natural reserve	11	IV	6 440 250
Hunting zone	54	VI	11 104 750
Botanical garden	4	III	531
Zoological garden	3	III	10
Total	79		25 795 541

ANNEX 18 : Data for Chad

Protected area in 2010

Protected area type	Number	IUCN Category	Total area (ha)
National Park	3	II	687 520
Wildlife reserve	7	IV	2 594 300
Biosphere reserve	1	IV	195 000
Total	11		3 476 820

ANNEX 19 : Data for Rwanda Republic

Protected area in 2010

Protected area type	Number	IUCN Category	Total area (ha)
National park	3		229 093
Ramsar site	1		
Natural reserve	2		1 700
Total	6		230 793

ANNEX 20 : Data for Burundi

Protected area in 2011

Protected area type	Number	IUCN Category	Total area (ha)
National park	2	II	90 800
Natural reserve	6	Ib	19 832
Protected landscape	4	V	13 335
Natural monument	2	III	742
Total	14		124 709

ANNEX 21 : Data for São Tomé-et-Príncipe

Protected area in 2013

Protected area type	Number	IUCN Category	Total area (ha)
National park	2	II	29 500
Wildlife reserve	-	-	-
Biosphere reserve	1	-	14 200
Total	2		35 200

The area of the Natural Park of Príncipe is included in the Biosphere reserve and in the Natural Parks. This explains the total of 35 200 ha.