



**Forest Carbon Partnership Facility (FCPF)
Carbon Fund**

Emission Reductions Program Idea Note (ERPIN)

Country: Democratic Republic of the Congo

ER Program Name: Maï Ndombe REDD+ ER Program

Date of Submission or Revision: 07 March 2014

Disclaimer

The World Bank does not guarantee the accuracy of the data included in the Emission Reductions Program Idea Note (ERPIN) submitted by a REDD+ Country Participant and accepts no responsibility whatsoever for any consequence of their use. The boundaries, colors, denominations, and other information shown on any map in the ERPIN do not imply on the part of the World Bank any judgment on the legal status of any territory or the endorsement or acceptance of such boundaries.

Note: The REDD+ National Coordination (REDD+ NC) thanks the many contributors who provided valuable comments and precious advices to this ERPIN throughout its development. The REDD+ NC bears the full responsibility for the content of the document.

Guidelines:

1. The FCPF Carbon Fund will deliver Emission Reductions (ERs) from activities that reduce emissions from deforestation and forest degradation, conserve forests, promote the sustainable management of forests, and enhance forest carbon stocks in developing countries (REDD+) to the Carbon Fund Participants.
2. A REDD+ Country Participant interested in proposing an ER Program to the Carbon Fund should refer to the selection criteria included in the Carbon Fund Issues Note available on the FCPF website (www.forestcarbonpartnership.org) and to further guidance that may be communicated by the FCPF Facility Management Team (FMT) over time.
3. ER Programs shall come from FCPF REDD+ Country Participants that have signed their Readiness Preparation Grant Agreement, using this ER Program Idea Note ('ERPIN') template.
4. The completed ERPIN should ideally not exceed 40 pages in length (including maps, data tables, etc.). If additional information is required, the FCPF FMT will request it.
5. Please submit the completed ERPIN to: 1) the World Bank Country Director for your country; and 2) the FCPF FMT (fcpfsecretariat@worldbank.org).
6. As per Resolution CFM/4/2012/1 the Carbon Fund Participants' decision whether to include the ERPIN in the pipeline will be based on the following criteria:
 - i. **Progress towards Readiness:** The Emission Reductions Program (ER Program) must be located in a REDD+ Country Participant that has signed a Readiness Preparation grant agreement (or the equivalent) with a Delivery Partner under the Readiness Fund, and that has prepared a reasonable and credible timeline to submit a Readiness Package to the Participants Committee;
 - ii. **Political commitment:** The REDD+ Country Participant demonstrates a high-level and cross-sectoral political commitment to the ER Program, and to implementing REDD+;
 - iii. **Methodological Framework:** The ER Program must be consistent with the emerging Methodological Framework, including the PC's guiding principles on the methodological framework;
 - iv. **Scale:** The ER Program will be implemented either at the national level or at a significant sub-national scale, and generate a large volume of Emission Reductions;
 - v. **Technical soundness:** All the sections of the ERPIN template are adequately addressed;
 - vi. **Non-carbon benefits:** The ER Program will generate substantial non-carbon benefits; and
 - vii. **Diversity and learning value:** The ER Program contains innovative features, such that its inclusion in the portfolio would add diversity and generate learning value for the Carbon Fund.

1. Entity responsible for the management of the proposed ER Program

Please provide the contact information for the institution and individual responsible for proposing and coordinating the proposed ER Program.

Name of managing entity	Ministry of Environment, Conservation of Nature and Tourism (MECNT)
	General Secretaryship to the Environment
	Mr Vincent KASULU SEYA MAKONGA
	General Secretary
	15, PAPA ILEO Street, Kinshasa Gombe
	+243814510594/ +243999905957
	kaseyamak@yahoo.fr www.mecnt.cd
Type and description of organization	Ministry of Environment, Conservation of Nature and Tourism (MECNT)
	General Secretaryship to the Environment
	Mr Vincent KASULU SEYA MAKONGA
	General Secretary
	15, PAPA ILEO Street, Kinshasa Gombe
	+243814510594/ +243999905957
	kaseyamak@yahoo.fr www.mecnt.cd

2. National REDD+ focal point contact information

Please provide the contact information for the institution and individual who serve as the national REDD+ Focal Point and endorses the proposed ER Program, or with whom discussions are underway

Name of entity	REDD+ National Coordination (REDD+ CN) Ministry of Environment, Conservation of Nature and Tourism (MECNT)
Contact	Victor KABENGELE wa KADILU
Title	National Coordinator
Address	64, Colonel Monjiba Street, Kinshasa/Ngaliema
Telephone	+ 243 811 711 889 / +243 998 66 37 80 +243 999995462 / +243 898152282
Email	cnredd.rdc@gmail.com abckab@gmail.com
Website	www.redd.cd



"The elaboration of the Idea Note for a Program of Emissions Reductions for the Districts of Plateau and Mai Ndombe in the Province of Bandundu, will facilitate the implementation of activities which not only reduce the anthropogenic pressure on the forest resources in the Province, but also most importantly, improve the livelihoods of the population, especially for the indigenous peoples, living in the area, as well as enhance the resilience of the forest ecosystems and biodiversity. The Government of DRC, through the Ministry of Environment, Nature Conservation and Tourism, fully supports this large scale program."

Mr. Bavon N'sa Mputu Elima
Minister of MECNT, February 2014

2.1 Endorsement of the proposed ER Program by the national government

Please provide the written approval for the proposed ER Program by the REDD+ Country Participant's authorized representative (to be attached to this ERPIN). Please explain if the national procedures for the endorsement of the Program by the national government REDD+ focal point and/or other relevant government agencies have been finalized or are still likely to change, and how this might affect the status of the attached written approval. ER Program) must be located in a REDD+ Country Participant that has signed a Readiness Preparation grant agreement (or the equivalent) with a Delivery Partner under the Readiness Fund, and that has prepared a reasonable and credible timeline to submit a Readiness Package to the Participants Committee

The approval of the Government of the Democratic Republic of Congo of the ER- Program of the Mai Ndombe region is clear and unequivocal through the National REDD+ Coordination (CN-REDD), under the authority of the Ministry of the Environment, Conservation of Nature and Tourism (MECNT). The national procedure for the endorsement of the program has been initiated by MECNT with the full participation of a wide range of stakeholders, with a final ER-PIN validation workshop on 21 February 2014, presided over by the Minister himself.

2.2 Political commitment

Please describe the political commitment to the ER Program, including the level of support within the government and whether a cross-sectoral commitment exists to the ER Program and to REDD+ in general.

The Congolese national government has shown consistent political commitment to the ER Program at the very highest level as demonstrated by the following:

- **October 2011** - His Excellency, Head of State, President Kabila hosts a High-Level Forum on Forests and Climate Change, which establishes the goal of sustainable forest management and climate change mitigation in the DRC, including a goal of Green Development in the DRC by 2035;
- **December 2011** – Minister of Environment presented on ER Program concept at an official DRC side event at COP 17;
- **June 2012** - Initial presentation of the ER Program concept to the FCPF Carbon Fund meeting in Santa Marta, Colombia;
- **December 2012** - Vice Prime Minister presents the DRC National Strategy, National REDD+ Fund and ERPIN at COP 18 in Doha, Qatar;
- **February 2013** - Minister of MECNT, Mr. Bavon N'sa Mputu Elima, with participation of the Governor of Bandundu and provincial Minister of the Environment oversee a CN-REDD workshop to finalize the ERPIN held in Kinshasa;
- **March 2013** - The Cabinet approves the ERPIN v1 to be presented at the Carbon Fund Participant's Committee meeting in Paris on 24-25 June.
- **March 2014** – The Cabinet approves ERPIN v2 for review by the Carbon Fund PC.

This Program is seen as a step towards national implementation of the DRC REDD+ strategy as well as an opportunity to provide input into and test the UNFCCC process on REDD+ on the African continent.

The ER Program also benefits from necessary political support from the government of the province of Bandundu, whose commitment is represented by a provincial REDD+ focal point working closely with the provincial government and other stakeholders at the local level. The Provincial Environment Minister has been deeply engaged in the ER Program design process thus far, and with a background in addressing corruption, is committed to the transparent and effective implementation of the Program in his province.

Provincial government staff members have participated in all formal stakeholder meetings and workshops, providing valuable input into Program design. Initial workshops for government and civil

society have been held in the province, with priority plans to begin a more comprehensive provincial engagement process during the Design Phase.

3. Partners and other entities involved in the proposed ER Program

3.1 List of existing partner agencies and organizations involved in the proposed ER Program

Please list existing partner agencies and organizations involved in the development of the proposed ER Program or that have executive functions in financing, implementing, coordinating and controlling activities that are part of the proposed ER Program. Add rows as necessary.

Name of partner	Contact name, telephone and email	Core capacity and role in the proposed ER Program
GOVERNMENTAL ENTITIES		
National Coordination REDD+ (CN-REDD)	Victor KABENGELE WA KADILU abckab@gmail.com	<i>Coordinating the REDD+ Process in DRC and the design of the ERPIN</i>
Direction of Sustainable Development (DDD)	Benjamin Toirambe, Director be_toirambe@yahoo.fr	<i>Responsible for the National Inventory of greenhouse gas emissions.</i>
MECNT – Direction of Inventories and Forest Improvement (DIAF)	Sébastien MALELE Director of Inventory and Forest Management semalele@yahoo.fr	<i>In charge of the national MRV system and leading the deployment at the ER Program level</i>
Ministry of Finance, Committee for Technical Reform	Félicien Mulenda Coordinator, Committee for Technical Reform Fmulenda2000@yahoo.fr	<i>Focal point for the fiduciary management of ER Program</i>
Province of Bandundu – Ministry of environment	Louison Ngwo Provincial Minister of Environment; Jean Jacques Bambuta REDD+ provincial Focal Point jjbambuta@yahoo.fr	<i>Responsible for coordinating the deployment of the national REDD+ strategy at the provincial level, and for following up on national reforms (governance, land tenure, etc.)</i>
CIVIL SOCIETY		
Groupe de Travail Climat REDD+ (GTCR)	Guy Kajemba, kajembaguy@yahoo.com	<i>Coordination of national and provincial civil society participation in ER Program</i>
IIASA – Observatoire de la Gouvernance Forestière (OGF)	Benoît Thuairé, Benoit.thuairé@gmail.com, Essylot Lubala, essylot@yahoo.fr	<i>Implementing the project “Improving Forest Governance through Independent Monitoring in DRC” / Moabi Platform”. Partners supporting forest governance</i>
Satellite Observatory of Central Africa Forests (OSFAC)	Landing Mane lmane@osfac.net	<i>Technical support to national and provincial MRV system development</i>
WWF	Flory Botamba, fbotamba@wwfcarpo.org Bruno Perodeau Bperodeau@wwfcarpo.org	<i>Partner in Program Implementation; Carrying the R-PAN project in the territory of Bolobo and FIP in the Program area</i>
PRIVATE SECTOR		
Federation of Wood Industries (FIB)	Gabriel Mola, Président, gabrielmola58@yahoo.fr	<i>Network of industrial logging companies in the DRC</i>
NOVACEL	Olivier Mushiete, olivier@mushiete.cd	<i>Carrying the pilot REDD+ NOVACEL South Kwamouth funded by CBFF</i>
SOGENAC	Van Braekel; vbk@vodanet.cd	<i>Owner of a cattle-ranching concession in Bolobo and Mushie. Candidate for the sectoral activities on its concession.</i>

Wildlife Works Carbon (WWC)	Bolambe Bwangoy-Bankanza Bwangoy.Bankanza@sdstate.edu Tracy Johns tjohns@wildlifeworks.com	<i>Partner in Program Implementation; implementing a REDD+ project approved under VCS and CCB Standards</i>
DONORS AND TECHNICAL PARTNERS		
Congo Basin Forest Fund (CBFF)	Clotilde Mollo Ngomba c.ngomba@afdb.org	<i>Funding South NOVACEL Kwamouth project</i>
Forest Investment Program (FIP)	Clément Vangu Lutete, Coordinateur, vangulutete@gmail.com	<i>Technical and financial support for the development of enabling activities</i>
JICA/JAFTA	SHU MIZUSHINA Senior advisor, International Cooperation group smizushina@jafta.or.jp	<i>Technical and financial support for DIAF implementation of Bandundu Province forest inventory and monitoring of forest cover</i>
NORAD	Jostein Lindland Jostein.Lindland@mfa.no	<i>Financing initiative of WWF and VCS to deploy and test REDD+ jurisdictional approaches</i>
UN-REDD program	Leslie Ouarzazi (UNDP/DRC office, Kinshasa), leslieo.cnredd@gmail.com , Josep Garí (UNDP/Africa, Nairobi), josep.gari@undp.org , Philippe Crete (FAO/Rome), philippe.crete@fao.org , Julie Greenwalt (UNEP/Nairobi), julie.greenwalt@unep.org	<i>Technical and financial support for the design and implementation of REDD+ policy and institutions, and to foster transition to REDD+ implementation and investments. This comprises support to the national MRV system, the national REDD+ Fund and the national registration and safeguard-monitoring measures.</i>
USAID/CARPE	Ken Creighton, kcreighton@usaid.gov	<i>Financial support through NGO implementing partners and other agencies for participatory land use planning, community-focused REDD+ awareness and fire management focused on building local capacity for implementing REDD+ with close attention to social and environmental safeguards.</i>
Verified Carbon Standard (VCS)	Carolyn Ching, CChing@v-c-s.org	<i>Supporting the development and implementation of a robust jurisdiction-wide REDD+ accounting framework and the successful application of the VCS JNR Requirements combined with Carbon Fund Methodological Framework (MF).</i>

3.2 Capacity of the agencies and organizations involved in implementing the proposed ER Program

Please discuss how the partner agencies and organizations identified in section 3.1 have the capacity (both technical and financial) to implement the proposed ER Program

- **Bandundu Provincial Government:** The provincial government has been involved in the development of the ER Program concept, and has participated in the workshops where the program has been discussed. In addition, the Bandundu province has participated in the national REDD+ process, and has designated a REDD+ focal point for the province, who has been working with stakeholders and Program managing partners as well as the national government in establishing the ER Program.
- **DIAF:** DIAF, with the support of FAO/UN-REDD and JICA, has been leading the development of the national MRV system for REDD+ since 2009. In this role, DIAF will also direct the design and implementation of the provincial MRV program, and will guide its implementation, to ensure it meets all requirements of the national program, and integrates with the national system and registry.
- **FIP:** is a project of the Government of the DRC, based in CN-REDD, and funded by the Forest Investment Program, one of the tools Climate Fund. The part of the FIP-DRC conducted by the World Bank (\$ 36.9 million), in the Supply Basin of Kinshasa, funds an "Integrated REDD+ Project" of the Plateau district, for a total of about 13 million dollars. The current district board will include one component of the Mai Ndombe ER Program. Its goal is to reduce overall emissions in the district while improving the living conditions of the population.
- **GTCR:** Congolese civil society Organizations are organized into a platform that serves as a mechanism of participation, called the Climate Task Force REDD+ (GTCR). This platform gathers several local organizations and networks, at a provincial and national level, including indigenous peoples, minorities and vulnerable people including women and children, to address the issues of environmental protection, human development, etc. This platform is a priority partner of CN- REDD+ for civil society. GTCR's active participation in the early discussions on REDD+ in the DRC had an influence on the content at all the key steps: the ERPIN, the R-PP and national REDD+ strategy framework. Topics such as land rights of indigenous peoples and local communities, participatory planning of land use, community forest management and good governance benefitted from attention they would not have had without the participation of civil society. Due to its broad representative structure and deep engagement on REDD+, GTCR is a credible organization with expertise and capabilities that can be capitalized on in this ERPIN.
- **JICA:** JICA is supporting the Government of DRC in the province of Bandundu with the implementation of its forest inventory and in the development of capacity in Monitoring, Reporting and Verification (MRV).
- **National REDD+ Fund:** DRC's National REDD+ Trust Fund was established in November 2012 by the signing of a Memorandum of Understanding (MOU) between the Ministry of Finance and the Multi-Partner Trust Fund (MPTF) office of UNDP (Administrative Agent) to serve as the financial arm for the implementation of the National REDD+ Strategy and thus of the ER Program. The National REDD+ Fund will ensure coordinated allocation and provide a transparent channel for funding while ensuring alignment of the ER Program with national REDD+ priorities.
- **NORAD:** The Government of Norway has endorsed the Joint Declaration of Intent on REDD+ in the Congo Basin, endorsed in Durban on 7 December 2011, and has made a commitment to substantially scale up its financial support to REDD+ in the Congo Basin. Norway is currently in the process of supporting a UNDP REDD+ project that is working on the operationalization of the National REDD+ Fund and the elaboration of a concrete REDD+ investment programme. Additionally, Norway is financing the Verified Carbon Standard (VCS) to test the VCS Joint Nested REDD+ (JNR) standard in the Bandundu Province and the WWF "REDD+ for People and Nature" (RPAN) Project.
- **Novacel:** Novacel is envisioned to be a REDD+ project implementer in the ER Program, bringing expertise in community forestry, agroforestry, and community-level carbon sequestration projects.

Currently, the project of NOVACEL South Kwamouth (NSK) is one of the six Congolese REDD+ pilot projects funded by the Congo Basin Forest Fund (CBFF).

- **OGF:** A Congolese organization dedicated to the establishment of an independent monitoring of the forest activities. In September 2013, the MECNT officially appointed OGF as Independent Monitor as part of the FLEG process (IM-FLEG). OGF implements the activities of the "Improving Forest Governance" Project, in the Mai Ndombe district. Based on its IM-FLEG experience, OGF develops an independent monitoring methodology for the REDD+ process, which involves the civil society. The information collected by local observers (from the civil society) will then be available to all REDD+ stakeholders through the [Moabi](#) DRC platform. Thus, the OGF-Moabi partnership will contribute to the establishment of a transparent REDD+ mechanism.
- **SOGENAC:** A major cattle ranching concessionaire inside the Program area, SOGENAC has participated in studies to improve their land use management in order to reduce emissions. SOGENAC has expressed interest in participating in the ER Program as an activity implementer.
- **The Federation of Wood Industrials (FIB):** Created in 2006, the Federation of Wood Industrials is a syndicate comprising 13 companies with approximately 80% of logging concessions which were considered legal following the decisions of the Inter-ministerial Commission in charge of the legal review. Its mission is to implement a code of ethics, ensure the defence of the rights of industrial enterprises, promote and encourage any investment policy for a high value-added processing, foster and promote training, and implement an information policy for a better understanding of economic and environmental phenomena.
- **UN-REDD Programme:** Since 2009, the UN-REDD Programme directly supports the Government in the design and implementation of the national REDD+ process in DRC. It provides funding and technical assistance for the development and consolidation of the national program and methodologies (National REDD+ Strategy, Registry, National Fund, SIS, etc.). FAO has been the main supporting UN agency of DIAF in establishing a national MRV system and expects to continue doing so throughout the ER-Programme period. In addition, FAO will welcome the opportunity to extent its support for the development of a sub-national MRV system should resources be made available.
- **USAID/CARPE:** USAID is financing village-based land use planning, participatory micro and macro zoning and outreach/sensitization of local communities about REDD+. This program will invest in the in the Lac Tumba and Salonga landscapes, which overlap with the ER Program area. In addition, the US Forest Service support introduction of a methodology to reduce fire damage within the District.
- **VCS:** VCS is providing funding, under a NORAD/NICFI grant, to key civil society partners to develop a pilot JNR program that can meet the requirements of the VCS JNR framework and the Carbon Fund Methodological Framework, thereby maximizing funding opportunities for implementing and sustaining the jurisdictional REDD+ program. VCS provides technical and crediting expertise to support key components of program development, including issues related to carbon accounting and the establishment of a crediting framework that rewards national and subnational REDD+ policies and programs and projects nested within the jurisdiction.
- **WWC:** WWC is providing technical expertise in MRV and standards implementation and validation/verification. In partnership with the DRC government, WWC has implemented a VCS and CCB validated and verified emissions reduction project within the ER Program area, and in partnership with Africa Wildlife Foundation, has initiated a new REDD+ project in Equateur province. In addition, WWC's flagship Kasigau Corridor REDD+ Project in Kenya is recognized globally as a pioneer, and example of how REDD+ can deliver sustainable development, employment, forest conservation, and biodiversity protection on the ground. WWC therefore brings demonstrated expertise in the design and implementation of all aspects of sizeable and scalable REDD+ activities.
- **WWF:** WWF DRC has been working on conservation activities in the DRC for over a decade, both on national level and on local level in the field with Indigenous People, local communities, private sector and authorities. WWF has been supporting the DRC Government on REDD+ since 2009. In the area of REDD+, WWF has an expertise in social and environmental benefits and safeguards, MRV, land-use

planning as well as in designing participative framework uniting stakeholders. WWF is working on three large projects on REDD+ in the DRC. The RPAN financed by Norad / NICFI, the “Carbon Map and Model Project” (Co2 M&M) financed by the German International Climate Initiative, ICI, and Central Africa Forest Ecosystem Conservation financed by USAID and Norway. All these projects are aligned with national REDD+ strategy in the ER Program area.

4. ER Program location and lifetime

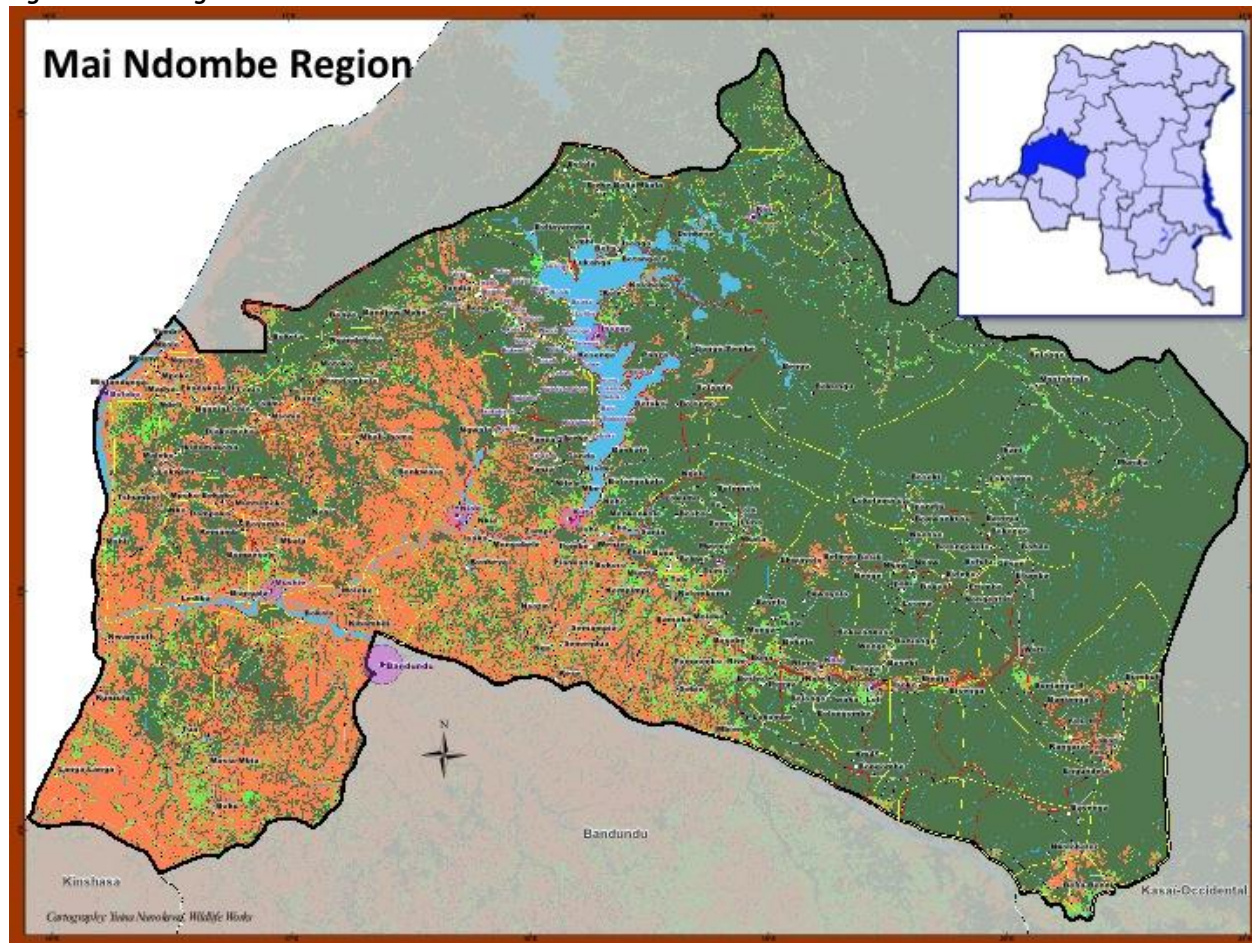
4.1 Scale and location of the proposed ER Program

Please present a description and map of the proposed ER Program location and surrounding areas, and its physiographic significance in relation to the country. Indicate location and boundaries of the proposed ER Program area, e.g., administrative jurisdiction(s).

The Emission Reduction (ER) Program is located within the present-day Province of Bandundu in central-western DRC. It will be developed at the scale of the districts of Plateaux and Mai Ndombe, that is to say, the scale of the future Mai Ndombe province, as defined by the new Constitution that was adopted by referendum and came into force in February 2006. This combined area is hereinafter referred to as the “Mai Ndombe region”.

The ER Program is based in the Province of Bandundu and the decentralized territorial entities (territories) that have authority over the area. The future creation of the Mai-Ndombe Province, which includes the current district of the same name and the District of Plateau, is already being realized in governmental structures, including the establishment of the Provincial Health Division of the Mai Ndombe, the Provincial Executive Secretariat (SEP) of the Independent Electoral Commission in the Province of Mai Ndombe, and others. Regardless of the timing of the eventual creation of the Mai Ndombe Province, the seat of the Program will remain the same, and the provincial and territorial governments are already putting in place the long-term structures needed to implement the Program at its envisioned scale.

Figure 1 – ER Program Location



With an area of a little more than 12.3 million hectares, the Mai Ndombe region is 66% covered by forest, about 8 million hectares. It lies to the east of the Congo River and to the north of the Kasai River with the exception of the Territory of Kwamouth. The area is characterized by large plateaus of wooded savannahs crossed by many rivers lined with gallery forests. The Northeast area is characterized by the dominance of dense tropical wet forests or wetlands. These forests are mostly open along access roads and major rivers (including the Kasai River).

Table 1 – Vegetation Cover in the future Mai Ndombe jurisdiction (Source: Hansen et al, 2013)

Land Cover Strata			
Hansen et al. Stratification	Stratification ER Program	Crown Cover (%)	Area (ha)
Primary Forest	Primary Forest (PF)	75% - 100%	8 834 641
Secondary Forest	Secondary Forest (SF)	51% - 75%	1 012 909
Woodland	Non Forest (NF)	26% - 50%	1 919 435
Non Forest	Non Forest (NF)	1% - 25%	521 483
Water and Other Non Forest	Non Forest (NF)	0%	348 471
Total			12 288 468

The Mai Ndombe Region contains - or is close to - several areas of major ecological interest:

- Lake Mai Ndombe, at the heart of the area and, together with the surrounding swamp forests, forms the southern part of the Ramsar site Tumba-Ngiri Mai Ndombe – the world’s largest Ramsar site;
- The priority CARPE landscape of Lake Tele-Lake Tumba;
- The classified forest of Domaine de Chasse Oshwe;
- The Salonga National Park and Tumba-Lediima Nature Reserve

The landscape of Lac Tumba and the Salonga National Park are home to iconic but threatened species such as the bonobo (*Pan paniscus*) and chimpanzee (*Pan troglodytes*). Elephant (*Loxodonta Africana Cyclotis*), buffalo (*Syncerus Caffer*), hippopotamus (*Hippopotamus amphibious*) and leopard (*Pantherapardus*) are also present among many other species. The activities of the ER Program will expand and protect the habitats of these wild species, in part thanks to the maintenance of ecological connectivity between areas of high conservation value.

The Bantu ethnic group is the main ethnic group represented in the area with a score of tribes that still coexist with particularly vulnerable Baka (pygmy) populations and are in the northern area (Ministère du Plan, République Démocratique du Congo, 2005). This region's forests are under increasing development pressure from the city of Kinshasa, most importantly due to its growing population of almost 8 million people who depend on a reliable source for the supply of charcoal and timber products (see Section 5.1 of this document).

Table 2 – Demographic data for the Program Area

Monography of the Bandundu Province (Ministry of plan, 2005 – data since 2003)					Households Survey (Minagri, UE, ISCO, 2011)			
District	Territory	Total Population	Surface area (km ²)	Density (hab/km ²)	Population registered	Households Number	Agricultural households	Density (hab/km ²)
Mai Ndombe	Inongo	373 534	23 000	16.2	252 467	50 285	47 343	10
	Kiri	201 727	12 000	16.8	No data			
	Kutu	450 936	17 000	26.5	462 746	96 307	90 967	25
	Oshwe	233 867	43 000	5.4	No data			
Plateau	Bolobo	121 270	3 451	35.1	88 285	18 151	17 934	22
	Kwamouth	152 709	13 946	11.0	69 087	14 048	13 369	5
	Mushie	135 774	10 505	12.9	73 488	16 943	16 108	3
	Yumbi	186 292	2 549	73.1	78 953	15 548	15 008	60

4.2 Expected lifetime of the proposed ER Program

Please describe over how many months/years the proposed ER Program will be:

- prepared; and
- implemented (including expected start date of the proposed ER Program).

The ER Program will be integrated permanently into the implementation plan for REDD+ within the future Mai Ndombe Province and the DRC. At the local level over the long-term, it will contribute to the adoption of a sustainable development policy that takes account of climate change and the need to mitigate its effects.

The Program is envisioned to begin in 2014, with Program Design Phase expected to last 6-12 months, and implementation from 2015. Despite the limited life of the ERPA (until late 2020), the program will be developed and implemented with a long-term perspective (up to 2050) and with an objective of economic value (carbon and other assets) extending beyond the ERPA with the FCPF-CF.

5. Description of activities planned under the proposed ER Program

5.1 Analysis of drivers and underlying causes of deforestation and forest degradation, and conservation or enhancement trends

Please present an analysis of the drivers, underlying causes and agents of deforestation and forest degradation. Also describe any policies and trends that could contribute to conservation and enhancement of carbon stocks. Please distinguish between both the drivers and trends within the boundaries of the proposed ER Program, and any drivers or trends that occur outside the boundaries but are affecting land use, land cover and carbon stocks within the proposed ER Program area. Draw on the analysis produced for your country's Readiness Preparation Proposal (R-PP) and/or Readiness Package (R-Package).

The Sources and Agents of Deforestation and Forest Degradation in the Mai Ndombe Region

Hansen et al 2013 reports a deforestation rate for the DRC of approximately 0.34% during the 2000-2010 period. Other prominent studies indicate similar, if not higher results, including 0.35% by *Tyukavina et al, 2013*. This deforestation was not distributed evenly throughout the country, but is particularly concentrated in locations near large cities. Deforestation is known to be particularly higher in locations near large cities such as Kinshasa's savannah belt, which includes the Mai Ndombe program area. The ER Program focuses on one of these areas starting 200km from Kinshasa, where the savannah belt meets rainforests. As the closest major rainforest to Kinshasa, this region is under significant pressure for food, wood energy, and timber products to support a large and rapidly increasing urban population and rural communities.

The UN-REDD (2012) report lists the main national direct drivers of deforestation and degradation (DD) as (1) itinerant slash and burn agriculture, (2) artisanal wood exploitation, (3) wood energy and charcoal production, and (4) mining activities. Underlying causes of these drivers include demographic growth, civil wars, governance, infrastructure and urbanization, as well as unemployment and poverty. Particularly notable is that firewood and charcoal energy sources represent nearly 95% of national energy needs (MECNT, *Stratégie-Cadre Nationale REDD+ de la R.D. Congo, 2012*) and are an important fuel source to the Kinshasa supply basin. According to the study, deforestation and degradation are closely linked to forest fragmentation due to population growth in both rural and urban areas, expansion of the road networks, shifting subsistence agriculture, and proximity to villages. "(Q)ualitative studies note that industrial forest exploitation is a relatively important cause of deforestation in four Provinces (Equateur, Bandundu, Orientale and Bas-Congo) (MECNT 2012, *Etude qualitative sur les causes de la déforestation et de la dégradation des forêts en République Démocratique du Congo*)."

No fully adequate assessment of drivers at the Provincial scale exists. However three preliminary studies at the scale of the Province (Ngoy and Mukungu July 2011, Freund et al 2012) identify drivers and underlying causes for deforestation and degradation, which mirrors the picture on the national level. These drivers are exacerbated by enabling conditions including ease of transport due to proximity to major rivers, roads, and markets (Kinshasa), and access to efficient deforestation machinery. The conclusions of these studies are summarized in the table below.

Table 3: Direct and indirect drivers of deforestation and forest degradation at Provincial and local scale

Mai Ndombe District	Territory of Bolobo	Lac Mai Ndombe REDD+ Project
<p>Direct drivers</p> <ol style="list-style-type: none"> 1. Slash and burn agriculture 2. Wood energy/charcoal 3. Bushfire 4. Industrial logging 5. Artisanal logging <p>Underlying causes - Poverty, Demographic growth, Governance, Urbanization, Political and institutional factors</p>	<p>Direct drivers</p> <ol style="list-style-type: none"> 1. Slash and burn agriculture 2. Uncontrolled bushfires for grazing and hunting 3. Artisanal wood exploitation 4. Charcoal production / wood energy near rivers and roads done by in-migrants 5. Cattle ranching activities 6. Logging <p>Underlying causes - Demographic growth (increase of local people and immigration for economic opportunities), Governance, Infrastructure development, Poverty and limited employment opportunities, Lack of knowledge on site stable cultivation techniques, Lack of knowledge of National Forest Code</p>	<p>Drivers of Deforestation</p> <ol style="list-style-type: none"> 1. Slash and Burn Agriculture 2. Legal Logging 3. Charcoal Production & Fuelwood Gathering 4. Artisanal Logging <p>Underlying causes – Cascade of deforestation occurs when a primary agent (commercial logging company) creates infrastructure, that allows secondary agents access to the forest. These secondary agents practice slash and burn agricultural techniques, representing the majority of the emissions under this scenario and also cut fuel for cooking and engage in artisanal logging activities.</p>

The following section lists drivers at Provincial and Territorial level in order of impact area and discusses causes, agents and potential actions to mitigate them.

1. Slash and burn agriculture

Slash-and-burn agriculture for crop production and livestock, firewood and charcoal production (mainly for Kinshasa market), is a major source of emissions from deforestation and forest degradation in Mai Ndombe, showing that in many respects the national-level assessment is largely representative of the pressures on forests at the provincial level. The process that begins with degradation by commercial logging, and is followed by deforestation by secondary agents, has been defined as “cascade deforestation” by WWC in the Project Document describing the Mai Ndombe REDD+ project (Freund *et al*, 2012). This cascade process could be an important driver of deforestation in the jurisdiction and should be further investigated in the remaining logging concessions in the Program Area. Activities and policies developed at the jurisdictional level will be beneficial for the refinement of the National Framework Strategy, and the development of associated investment plans, policies, and measures.

2. Wood energy production

Given an increasing population, urban migration and low access to alternative sources of energy, reliance on biomass energy is expected to increase over the medium-term. In Kinshasa alone, over 5 million people consume biomass energy, resulting in a yearly consumption of around 4.7 million m3 of wood coming from peri-urban forests, involving over 300,000 people and generating around US\$150 million in business - more than three times the value of all formal timber exports per year (PAD FIP DRC 2014). Charcoal is one of the very few quick and secure means to earn cash revenues for school fees or health costs – especially in the areas where charcoal is a by-product of slash-and-burn agriculture expansion, as in the Mai Ndombe Province.

3. Uncontrolled bushfires

Fire is a common tool in shifting agriculture but one that is having increasing impact on forests as population increases (USFS/USDA-ARS 2013). High winds during dry seasons fuel fires and can cause fire escape into surrounding forests resulting in the burning of large forest areas. The practice involves cutting approximately ha patch of forest during the month of May. The biomass is allowed to dry until August and then burned. This results in a hot fire which consumes the cut biomass, but may sometimes burn larger areas - during hot, dry and windy conditions.

4. Industrial forestry

Primary tropical wet forests in the Congo Basin, such as those found in the Mai Ndombe region, are difficult to penetrate without prior industrial access, and are less likely to produce significant emissions from small-scale deforestation. Commercial logging operations penetrate the forest with access roads, use mechanized equipment to selectively remove the largest trees, and increase population densities through employment and secondary economic opportunities.

These factors make the forests inside and around the concessions vulnerable to a range of secondary agents and drivers of degradation and deforestation. The commercial logging operations themselves generally lead to degradation of forested lands within the concession boundaries, and relatively low emissions. However the ensuing secondary degradation and eventual potential deforestation by other agents through slash and burn or illegal logging and charcoal production generates significantly higher emissions (see wood energy production and slash and burn agriculture below).

In Figure 1, the boundaries of logging concessions within the Mai Ndombe region are shown over a current FACET landcover map. The pattern of deforestation can clearly be seen to be radiating northeast from Kinshasa into the Mai Ndombe region. Figure 1 also shows that a significant amount of historical deforestation has occurred within logging concession boundaries. It is likely that many of those areas showing deforestation outside of either 1990 or 2010 logging concessions were first opened up by commercial logging concessions further back in history.

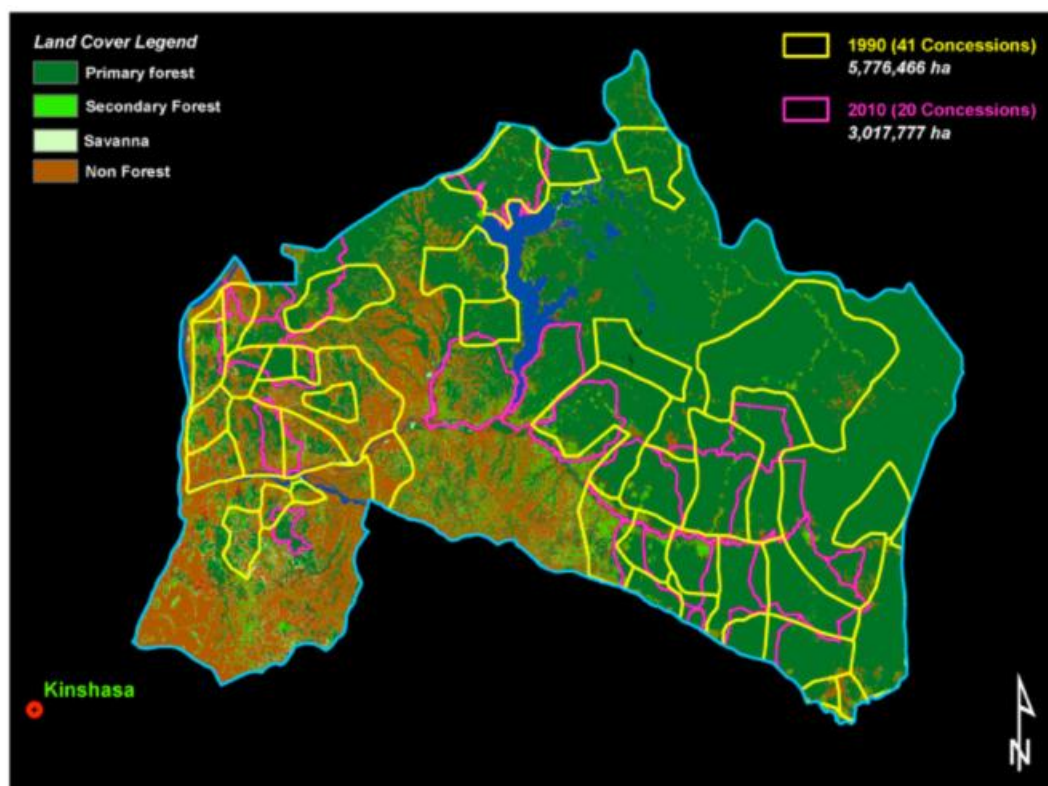


Figure 2: An overview Map of 1990 and current (2010) logging concessions in the Mai Ndombe region. Note the difference between the two concession sets. Some 1990 Concessions have experienced significant deforestation, whereas the vast majority of the 2010 concessions were established in areas of pure primary forest.

The 1990 logging concessions represent concessions awarded prior to 1990 that were still legal concessions as of 1990. Due to the lack of historical satellite imagery before 1990, it is not possible to

represent forest cover in the logging concessions at the time they were awarded, but it is reasonable to assume that forest concessions would only be established over areas that are largely primary forest.

5. Illegal artisanal logging

The forest sector contributes only about 0.7% to the economic development of the country in terms of GDP (www.minfinrdc.com). A moratorium on new titles of industrial exploitation was established in 2002. However, over recent years, the number of artisanal logging permits issued has increased. The DRC Forest Code restricts artisanal logging to individuals of Congolese nationality but this rule is not applied consistently and cutting under illegal artisanal logging permits has been observed by civil society in more than a dozen locations in the Maï Ndombe region (Greenpeace 2013). Illegal logging in this form has reached such extent in DRC that a national coalition is now organized to request the central Government to apply the planned law and regulations. According to DRC Civil Society, in the area of the ER Program, more than a dozen companies operate. To regularize this situation, the following activities must be implemented and supported by the ER program: develop consistent provincial forest regulation; strengthen decentralized forest agent capacity; identify eligible community forests to sustainable artisanal logging in the context of the territory land use planning; support the implementation of a decentralized effective forest control.

Other

Farmers have been granted savannah areas for cattle ranching. This opening has also led to abandoning non-destructive farming practices like the planting of peanuts or maize in order to grow cassava as the forest land provides for more fertility and thus increase in the yields. Thus, a cattle ranching often entails an extension of forests to grow crops which provokes deforestation and degradation

Extractive industries such as mining have an impact on deforestation / degradation due to the infrastructure that is created to support the industry, as well as populations shifting to support the extraction. The impact of such industries is similar to that created by the legal / illegal logging industry. Currently, there is little mining activity within the ER Program area, allowing the ER Program to develop proactive programs for good mining practices, and to work with the legal mining practitioners to develop minimal emissions impact strategies to ensure emissions from such activities are kept to the planned levels.

Though currently low, deforestation and forest degradation rates could escalate rapidly in the future due to several factors inside and outside the forest sector as well as due to the legal, institutional and political framework. A better investment climate, which is being created currently by the increasing stability of the country, will result in improved transportation infrastructure that facilitates access to forests. This, in turn, could lead to increased conversion of forest area to other land uses, logging and wildlife hunting. IIASA simulation through the CongoBiom Model (Mosnier, A., 2012) showed that facilitated road access to forest stocks will generally cause a subsequent increase in deforestation, first by decreasing the production cost of agriculture products, but also by increasing small-scale illegal logging supply to regional and international markets as illicit actors will be able to move swiftly in and out of forested areas.

The following table provides a further summary of these priority drivers (again in order of impact) and presents actions proposed by the Program to address these and achieve emissions reductions. Key risks and their mitigation are also assessed.

Table 4 – Synthesis of main drivers and planned Program activities according to types of lands uses in the ER Program area

Stratification by Land Use	Forest Area (M ha)	Agents	Causes of deforestation, degradation or preventing natural regeneration	Activities ¹ (and area impacted)	Risks	Risk Mitigation
Community Customary Lands (without other specific attribution)	Afforested 4.34	Local Population	Unplanned deforestation: slash and burn agriculture, collection of wood energy particularly to the Kinshasa market.	<ul style="list-style-type: none"> Implementation of enabling activities, clarification of concession boundaries; PES, creation of community forests, strengthening forest control, awareness text, etc (2 Mha). 	<ul style="list-style-type: none"> Populations do not adhere to the program. Inability to manage their space and does not respect commitments. Leakage due to development activities and attraction effect. Non-permanence of the efforts of conservation, grazing and planting. 	<ul style="list-style-type: none"> Demonstration of the benefits of the program building on use and land tenure rights Decentralization and participation of local governance structures PSE adapted to the conditions of the communities Payment on result Link between development plan and land use results.
		Artisanal Loggers	Unplanned deforestation: illegal artisanal logging (without a permit), particularly to feed the Kinshasa market.			
		Artisanal Loggers	Planned degradation: legal artisanal logging	<ul style="list-style-type: none"> Technical training, management of permits, creation of community forests, specific control (0.2 Mha). 		
	Non afforested 2.58	Local Population	Unplanned deforestation: prevention of the natural regeneration resulting from bushfires (hunting, agriculture and livestock production)	<ul style="list-style-type: none"> Support for agroforestry, PSE reforestation, protection anthropogenic savanna; awareness and enhancement of control, etc. (1 Mha). 		
Forest Concession	Production series 2.77	Forests Companies	Planned degradation: logging according to current practices primarily for export. Development of infrastructure to operate (parks for timber, sawmills, roads, etc.) and impacts from exploitation.	<ul style="list-style-type: none"> Reduced Impact logging: development and support for the implementation of the carbon RIL standard by PSE (1.0 Mha) 	<ul style="list-style-type: none"> Non-viability and technical complexity of application of PES. Encroachment of farmland within parts of concessions. 	<ul style="list-style-type: none"> Payment by proxy (number of certified ha). Effective participation of communities in SFM. Conditional support of the program in compliance with LU
		Local Population	Unplanned deforestation: overflow of agricultural series in production series for exploitation or even	<ul style="list-style-type: none"> Implementing CLD, CARG, land use plan, control. PES outside of forest 		

¹ Areas presented are based on the level of information currently available and will be revised during the ER program Design Phase. Current area overlap is approximately 0.46 Mha (difference between total area of jurisdiction 12.64 Mha and stratified areas, which is 13.09 Mha), and will be rectified by the implementation of the enabling activities, particularly by the development of the territories land use plan. The overlaps are due to lack of accurate usage information and titles.

Stratification by Land Use	Forest Area (M ha)	Agents	Causes of deforestation, degradation or preventing natural regeneration	Activities ¹ (and area impacted)	Risks	Risk Mitigation
series			conservation series (river side, biodiversity hot spot, etc.)	concession (see above).		plan and limits, etc.
Protected Areas	2.04	<i>Local Population</i>	Unplanned deforestation: slash and burn agriculture, fuelwood production, small-scale illegal logging, particularly for supplying the Kinshasa market.	<ul style="list-style-type: none"> Strengthening governance, control, synergies with the conservation projects and support to the public-private partnership (2 Mha). 	<ul style="list-style-type: none"> Corruption Non-enforcement of laws. Low capacity of the State. 	<ul style="list-style-type: none"> Strengthening of control, governance, decentralization, promotion of PPPs in PA
Forest Concession being revoked	0.23	<i>Local Population</i>	Unplanned deforestation: incursion into forested areas for artisanal forest exploitation, slash and burn agriculture, wood energy production, etc.	<ul style="list-style-type: none"> Creation of conservation concessions / private or community forest (0.23M ha). 	<ul style="list-style-type: none"> Attribution of a new logging title that could lead to deforestation. 	<ul style="list-style-type: none"> Clarification of rights, sensitization and law enforcement.
Conservation Concession	0.32	<i>Local Population</i>	Planned and Unplanned Deforestation: Strong commercial and anthropogenic pressure creates a cascade to complete deforestation.	<ul style="list-style-type: none"> Implementation of the activities of the REDD+ PDD in WWC concession validated by VCS (0.32M ha). 	<ul style="list-style-type: none"> Community not participating Non-respect of the rights. 	<ul style="list-style-type: none"> Strengthening governance and support PES.
Agribusiness concession and farm owners	0.80	<i>Agribusiness companies, farms owners and local populations</i>	Unplanned deforestation: prevention of the natural regeneration because of bush fires in order to maintain pasture for livestock and for agriculture purposes.	<ul style="list-style-type: none"> Land use plan of the territories and PES applied to support owners. Promotion of certification standards for specific agribusiness (0.4 Mha). 	<ul style="list-style-type: none"> Risk of non-permanence of the stocks fire risk. 	<ul style="list-style-type: none"> Effective community participation in PES implementation. Management of conflict by the CARG and Ombudsman.
Mining concessions and public infrastructures	Less than 0.01	<i>Mining Concessions and the State</i>	Planned deforestation: Destruction of forest cover for mining and public infrastructure such as roads, power lines, etc.	<ul style="list-style-type: none"> Harmonising and strengthening of governance by the follow-up and implementation of the legislation and of the REDD+ and Mining Governance Matrix. (0.01 Mha). 	<ul style="list-style-type: none"> Non-compatible environmental legislation. Corruption Non-enforcement of laws. 	<ul style="list-style-type: none"> Support for the implementation Decentralization Technical strengthening.
Total Mha	13.1			Intervention totals: 7.2 Mha		

5.2 Assessment of the major barriers to REDD+

Please describe the major barriers that are currently preventing the drivers from being addressed, and/or preventing conservation and carbon stock enhancement from occurring.

Barriers to REDD+ are exemplified by the difficulty for all stakeholders, including government, the private sector and local communities, to develop financially viable and competitive alternatives to deforestation and forest degradation (CN-REDD, High-Level Forum, 2011). These difficulties are due in particular to:

1. **Poverty**; lack of economic opportunities and access to credit; low capital access of rural families that prevent initiatives for improved agricultural practices and production
2. Insecurity of tenure that encourages rapid exploitation of resources and discourages investment and sustainable land use practices
3. **Lack of up-front financing**, extension support, and incentives for alternative agriculture and energy options
4. A **poor business climate** that, while improving, remains less attractive due to the post-conflict state of the country
5. **Weak governance and law enforcement** that prevents a clear and uncompromising implementation of the Forest Code and environmental legislation, due to lack of resources and technical capacity
6. **No incentives** exist for the establishment of planted forests to reduce the demand for charcoal production from natural ecosystems.

5.3 Description and justification of planned and ongoing activities under the proposed ER Program

Please describe the proposed activities and policy interventions under the proposed ER Program, including those related to governance, and justify how these activities will address the drivers and underlying causes of deforestation and forest degradation and/or support carbon stock enhancement trends, to help overcome the barriers identified above (i.e., how will the ER Program contribute to reversing current less sustainable resource use and/or policy patterns?)

The overall goal of the ER Program is

to develop a model provincial green development program that provides alternatives and rewards performance to address the challenges of climate change, poverty reduction, natural resource conservation and protection of biodiversity.

As the first large scale REDD+ and green development program in the Congo Basin, the ER Program seeks to initiate climate change mitigation action by instituting a holistic and coordinated land use and capacity building platform from which sustainable development activities will be developed to take pressure off of native forests. This has a further impact of delivering poverty reduction, supporting energetic and food security needs; and enabling natural resource conservation and management to maintain the region's floral and faunal diversity and critical ecosystem services.

The ER Program will seek to address **five objectives** that link to the carbon benefits and non-carbon co-benefits prescribed by the UNFCCC as the basis for all REDD+ actions. These indicators also draw significantly from and seek to link to the FIP Results Framework, as well as the [5 Guiding Principles of REDD+](#) of WWF, Greenpeace and CARE. Indicators for each objective are proposed to measure carbon benefits and non-carbon co-benefits.

Table 4: Objectives and Indicators

Main Objectives by 2020	Indicators (to be confirmed in design phase)
1: CLIMATE. Achieve a reduction in emissions of 28Mt CO ₂ e against the REL in the face of rapidly increasing pressure	<ul style="list-style-type: none"> ■ Mt CO₂ emission reduction committed / achieved ■ Net greenhouse gas emissions from deforestation and forest degradation
2: BIODIVERSITY. Maintain and enhance biodiversity and ecosystem services	<ul style="list-style-type: none"> ■ Change in natural forest cover (overall and core) ■ Change in abundance and distribution of target wildlife species
3: RIGHTS. Statutory and customary rights to lands, territories and resources are recognized, respected and strengthened	<ul style="list-style-type: none"> ■ % of indigenous peoples and local / forest communities with clear legally recognized use and/or tenure rights ■ Number of business sector actors with improved concession tenure ■ Level and quality of community and indigenous peoples participation (by gender) in decision making and monitoring ■ Number of people trained in the FPIC process ■ Ha of land mapped with participatory mapping and number of communities covered
4: LIVELIHOODS. REDD+ benefits are shared equitably and improve long-term livelihood security and well-being of stakeholders with special attention to the most vulnerable groups	<ul style="list-style-type: none"> ■ Amount and type of benefits (monetary and non-monetary) distributed for ecosystem services ■ National poverty assessments show relative improvements in the areas where ER Program activities are implemented ■ Increase in productive employment related to REDD+, including potentially vulnerable or marginalized people
5. FINANCE AND GOVERNANCE: Mobilize immediate, adequate and predictable resources to reward performance in priority forest areas in an equitable, transparent, participatory and coordinated manner	<ul style="list-style-type: none"> ■ Results of external evaluation of ER Program governance mechanisms and Registry ■ Extent of resolution of grievances raised by Ombudsman ■ Funds received and utilized by the ER Program, including funds from transfer of emissions reductions and funds disbursed in the form of payments to reward performance for carbon and non-carbon benefits ■ Uptake of practices from learning activities

Note: The indicators proposed in the table will be revised during the design phase of the program with participation of community and decentralized authorities.

ER Program Structuring

To address the main driver of deforestation and their agents, the ER Program will use a comprehensive integrated REDD+ Jurisdictional approach to support community-level natural resource management and associated investments to improve rural peoples' livelihoods in the Province (see table 5). The ER Program can be considered an umbrella program that will develop overarching plans, priorities, and principles for land use and forest management activities determined to be most relevant to communities, climate change mitigation efforts, poverty alleviation and biodiversity conservation. It will work in close collaboration with ongoing initiatives in the targeted zone funded by donors including USAID/CARPE, FIP, CBFF, WWF, German Cooperation, the European Union, etc.

The table below presents an overview of the ER Program and its intervention strategy. The ER Program is organized according to the Seven Pillars of the National REDD+ Framework Strategy 2012 which are grouped into four **Program Components: (1) Governance and Demography, (2) Land use planning and land tenure, (3) Forests and (4) Agriculture and Energy**. Each of these components will be operational units within the Program, each with a management lead and with a set of activities contributing to Program goals. As such, the Program is organized to directly ensure results are produced in a way that can be rolled up into the National REDD+ Strategy and its monitoring structures.

Table 5: ER Program Activities by Component

	1. Governance and demography	2. Land use planning and land tenure	3. Forests	4. Agriculture and Energy
Enabling and Non Carbon Activities	<ul style="list-style-type: none"> • Socialisation • Local govt support • Compliance and law enforcement 	<ul style="list-style-type: none"> • Socialisation • Land use planning and management • Community map validation • Rights and tenure strengthening 	<ul style="list-style-type: none"> • Socialisation • Biodiv monitoring • Anti-poaching • Ecotourism • Protected areas 	<ul style="list-style-type: none"> • Socialisation
Emission Reducing Activities	<ul style="list-style-type: none"> • Prov policies • Incentive programs 	<ul style="list-style-type: none"> • Prov policies • Protected areas 	<ul style="list-style-type: none"> • RIL • AR • Bushfire control • Protected areas • Community forest management 	<ul style="list-style-type: none"> • Agroforestry • Agricultural intensification • Energy efficiency

- **Enabling and Non Carbon Activities** – establish the basis for being able to achieve emission reduction but do not achieve reductions themselves (e.g. Program management, communications, MRV) and activities which achieve non-carbon benefits as defined by the UNFCCC (e.g. biodiversity studies, awareness activities,
- **Emission Reduction Activities** – directly reduce CO2 emissions (e.g. carbon concessions, fire reduction).

ER Program activities are also organized according to two distinctions: (1) Emission Reduction Activities - which directly produce emission reductions; and (2) Enabling and Non Carbon Activities - which provide the basis for these emission reductions but do not directly produce the reductions. They may also produce non-carbon benefits.

1. Enabling and Non Carbon Activities - *laying the groundwork for emission-reducing interventions and producing non-carbon benefits.* These are vital to improve local governance and stakeholder involvement, including private sector, indigenous peoples and local communities. Priority Activities are envisaged as:

- **1.1 Prioritization of Locations and Activities** - To focus proposed activities carried out within the Program area's 12 million ha landscape, a spatially explicit prioritization process will be undertaken during the design phase to identify hotspot of future deforestation and forest degradation. Identified hotspot locations will be assessed for their ability to address project objectives and goals, especially focused on: 1) potential to avoid maximum emissions from threatened forest; 2) community land use planning priorities; and 3) biodiversity conservation priorities. *[Program Component: 2]*
- **1.2 Climate change and REDD+ socialization.** Ensures free prior informed consent (FPIC) of all stakeholders and to enable effective engagement in ER Program activities. Capacity building for local communities will be carried out with special attention to the vulnerable situation of indigenous people, in the application of FPIC, strengthening land tenure rights for communities and indigenous people, community-based mapping, participatory planning, community management of forests and good governance. Specific capacity building for GTCR, as the national REDD+ civil society platform, will be conducted to support their role in Program design and implementation. *[Component: 1,2, 3, 4]*
- **1.3 Local governance support.** The purpose is to ensure effective participation, representation, ownership and transparency in the implementation of the program, largely undertaken by supporting

local development committees democratically elected to the formal territory administration [Component: 1].

- **1.4 Compliance and law enforcement.** The program will support the decentralized authority to ensure awareness of and compliance with laws and regulations regarding exploitation of natural resources. Community rangers and law enforcement personnel will be trained and equipped. The aim of a pay-for-performance system is to create a new paradigm, under which the local populations fully understand that forests are worth more to them standing than cut down. If the population supports this notion, this will create a feedback loop in which the extractive and logging industries must operate responsibly within the accepted planned emissions profiles, in order to maintain the communities' and governments' support [Component: 1].
- **1.5 Land use planning and management.** . Participative cartography and zoning will be undertaken by communities, with active participation of decentralized authorities, to define areas for limitation of deforestation and degradation and to determine practical actions to achieve these goals. Communities in WWC's Mai Ndombe project are participating in an agroforestry and land intensification program. Results from this program will allow communities to be better informed when land use planning decisions are being undertaken. The land use planning and management process enhances broader commitment and engagement of all stakeholders towards the program objectives. It has the additional benefit of clarifying use and tenure rights over forests and forest resources and is an initial step towards recognition of these rights by the territorial and Provincial administration. [Component: 2]
- **1.6 Land tenure strengthening.** Land tenure activities will follow the main objectives and strategic principles of the National REDD+ Framework Strategy. This includes support for land tenure harmonization and securing rights over the land to ensure that REDD+ investments are attractive and to contribute to the permanence of greenhouse gas emissions reductions, for both project developers and other stakeholders such as rural households. Activities will be done based on the following categories: (1) Reform of the legal and regulatory framework, (2) Clarification of land rights, (3) Registration of land rights, (4) Strengthening of the capacity and (5) Conflict resolution.
- **1.7 Community forest map validation.** Participatory land use planning and monitoring is already being conducted in the Mai Ndombe region through the WWF's RPAN project. This mapping process with the communities and Indigenous People has already led to reducing problems from overlapping usage titles and provided clarity on boundaries of their customary land rights. In some areas, participatory planning also resolved conflicts between neighbouring clans. With this communities can also identify the areas of forest they want to protect and obtain payments for successful emission reductions. In preparation for community participatory mapping of forests and other land use areas WWC's Mai Ndombe project has organized two workshops (theoretical and practical). In these workshops representatives from over 20 communities learned the importance and applications of mapping and its land tenure implications as well as the practical techniques for creating a community land use map. The investment in participatory land use planning is as a cross-cutting activity by the World Bank' Report on Deforestation Trends in the Congo Basin (Megevan et al 2013) and a tool to maximize economic and environmental objectives and reduce land use conflicts. [Component: 2, 3]
- **1.8 Biodiversity and anti-poaching.** To ensure significant biodiversity co-benefits are produced, the ER Program will include monitoring programs to aid in species management and conservation (e.g, locally important or threatened species including bonobo, forest elephant), protection of landscape connectivity for species movement between savannah and forest blocks, and campaigns to reduce overhunting, especially in the case of large mammals. In addition, to address protein needs, a fish farming and restocking program for the depleted Lac Mai Ndombe, as well as training in sustainable fishing techniques, will be implemented. The main current threat to biodiversity in DRC is bushmeat commercialization and wildlife trafficking, as well as the lack of alternative employment .The latter will be addressed as a matter of high and immediate priority with law enforcement over the whole ER program area with local support from communities. Protecting wildlife means mitigating human-

wildlife conflict, which in turn results in improved livelihoods. It also provides the opportunity for employment in many areas that surround the monitoring, reporting and enforcement of wildlife laws, and can lead to increased revenue through wildlife tourism. As each community has an important role to play, this issue will be tackled with a longer-term perspective, following a process summarized as: (1) Environmental education and sensitization, (2) Local governance empowerment, specifically on natural resources management; (3) Capacity building on local biodiversity monitoring (hunting prize, hunting permits, etc.), complemented by scientific support including development of income alternatives to bushmeat hunting;; (4) Anti-poaching and surveillance support for communities; (5) Protein substitution and agricultural intensification programs to provide the community with viable, culturally welcome alternatives to bush meat; (6) Protected area establishment; (7) Ecotourism such as now being developed in Bolobo [Component: 3].

2. Emission-reducing activities that directly generate VERs are planned, and in some cases already initiated, with communities and other stakeholders as part of a payment for environmental services program focused initially on carbon. The entire program will be organized following the principle of results-based performance payments. In many cases, community and other stakeholder performance indicators will involve the use of proxies (ex: number of hectares reforested), while overall activity performance will be measured in terms of carbon abatement, along with social and environmental indicators following the 5 objectives of the ER Program. These activities include:

- **2.1 Reduced-impact logging.** This seeks to enforce legal logging limits through intensified monitoring and application of existing legal mechanisms of enforcement to their full extent. Furthermore, for concessions already in compliance with legal logging limits, the ER Program will provide incentives for logging companies to reduce logging below their current logging profile, and under the legal limit. This can be confirmed through continuous monitoring based on accepted technical standards. Incentives will be provided for legally compliant concessionaires to implement low-impact logging procedures that will be verified by third parties based on widely accepted standards [Component: 3].
- **2.2 Re/afforestation.** Incentives will be provided to stimulate reforestation and afforestation in different land use types, and for different stakeholders, in order to address demands for timber, fuel wood and other wood-based products [Component: 3].
- **2.3 Agroforestry and agricultural intensification.** Specific zones will be identified for perennial culture development such as cacao, café and other agroforestry systems that improve long-term land use management and carbon sequestration. Slash and burn agriculture will be addressed through a set of activities aimed at improving agricultural efficiencies in existing agricultural areas, including agricultural intensification research and local programs / training. In the Mai Ndombe REDD+ project, a trial program which allocates a planned amount of space for local farmers to expand in the future presented an agreeable, sustainable system for both REDD+ Project proponents and local communities. This approach could be utilized in additional communities and projects in the Program area. In addition, agronomy programs will provide training for local farmers to utilize different crop types and new seed strains to improve efficiency, crop success and crop yields. In addition, agricultural expansion into already-deforested lands may be an option for relevant communities, with support by ER Program and specific project proponents [Component: 3].
- **2.4 Bushfire control for protection of natural regeneration.** Protection of anthropogenic savannahs will allow enhancement of carbon stock and reduce deforestation and degradation due to wildfire. In addition, capacity building on fire management will be conducted, as well as awareness raising on alternative hunting practices [Component: 3, 4].
- **2.5 Creation and management of conservation concessions and conservation areas** - As already implemented in the Mai Ndombe REDD+ project, former logging concessions can be converted to conservation concessions, under the management of the logging companies, or other entities. The area was previously categorized as a legal logging concession, but has since been transferred to a

conservation concession by the project proponents. This has prevented the initial logging activity that creates the infrastructure making previously inaccessible forest accessible to slash and burn activity. If legal (or illegal) commercial logging operations can be prevented, impenetrable forests remain impenetrable, and therefore directly prevent slash and burn agricultural activities as well as the more obvious degradation due to logging activities. The ER Program will explore options for these concessions [Component: 3].

- **2.6 Community forest management.** Community forest concessions with the purpose of conservation, NTFP production or legal artisanal logging will be promoted. Forest management schemes resulting from this program will be developed in collaboration with community stakeholder groups, involving participatory mapping to maintain a balance between the interests of the local communities and the government [Component: 3].
- **2.7 Improved energy efficiency.** The ER Program will not seek to stop the marketing charcoal as there is high reliance on this fuel source. However the ER Program will seek to implement an Eco-Charcoal Program to produce an alternative charcoal product made from renewable plantations and sustainably harvested natural degraded forest to substitute for ‘bush’ charcoal and build a sustainable charcoal industry. This program has two strategies to help build a sustainable charcoal industry: (1) Alternatives to inefficient wood energy will be promoted in specific areas, including the use of improved wood stoves in the main cities within the Program area and (2) legalization, training, equipping, licensing and monitoring of sustainable charcoal producers to produce a substitute for destructive “bush” charcoal production that permanently destroys native forest biomass [Component: 1, 2, 3, 4].

The approaches described above will be incorporated into all nested project activities that are initiated within the Program area. The ER Program manager is responsible to ensure that all new activities within the Program area meet these requirements, and the Program will be actively seeking new opportunities for communities to develop partnerships with private sector and NGO’s, that will enable them to break the cycle of deforestation/degradation and poverty concurrently. Further planning will be done during the design phase in order to identify complementary activities that maximize results.

5.4 Activities to address risks of reversal of greenhouse gas benefits

Please describe major risks of anthropogenic and non-anthropogenic reversals of greenhouse gas benefits (from e.g., fire, agriculture expansion into forest, changes in commodity prices). Also describe any activities or design features in the proposed ER Program that are incorporated to minimize and/or mitigate the anthropogenic risks or reversals, and how these activities are consistent with the design features of the (emerging) national REDD+ strategy to address risks of reversal.

Addressing reversal risks is a key factor to the success of the ER Program. This will be achieved by directly addressing the agents and drivers of deforestation and forest degradation and implementing activities that lessen the need for forest destruction. The Program will take part in the Verified Carbon Standard’s (VCS) Jurisdictional and Nested REDD+ standard (JNR). If the requirements of the JNR regarding non-permanence are consistent with those of the Carbon Fund, the ER Program will likely use VCS JNR tools and centralized buffer to manage the risk of non-permanence and will adhere to the requirements of the JNR regarding non-permanence. Non-permanence risk in the Program and nested projects is assessed through the VCS AFOLU Non-Permanence Risk Tool, for projects, and the JNR Non-Permanence Risk Tool, for jurisdictions. Each tool determines the number of credits to be deposited in the jurisdictional pooled buffer account. The jurisdictional pooled buffer account holds non-tradable buffer credits to cover the non-permanence risk associated with jurisdictional programs and nested REDD+ projects.

Major risks to the reversal of the ER Program are identified as follows:

- *Anthropogenic Risks:* Charcoal, Slash & Burn Agriculture, Illegal Logging, Anthropogenic Fires, Political unrest
- *Non-anthropogenic Risks (force majeure):* Wild fires, Disease, Climate Change

Activities to mitigate the identified anthropogenic risks above have been proposed in Table 4 above and in Section 5.3. Regarding non-anthropogenic risks, because of the DRC's moist climatic regime and high tree diversity, its forests feature inherently low susceptibility to catastrophic fires, pestilence and disease. Climate change may impact this but not likely in the timeframe of the ER Program. This region of the country is not considered a conflict area, so conflict is not a major risk to the Program.

5.5 Description of the potential risks of both domestic and international displacement of emissions (leakage)

Please describe the potential risks of both domestic and international displacement of emissions from the proposed ER Program activities. Then also describe how the proposed ER Program activities will minimize the risk of domestic displacement and international displacement (if applicable), via the design of the proposed ER Program and the ER Program activities and the selection of locations. For sub-national programs, pay special attention to identifying domestic risks of displacement of emissions, the proposed ER Program activities to mitigate these risks, which otherwise would contribute to fewer net emission reductions generated by the proposed ER Program, and how these activities are consistent with the design features of the (emerging) national REDD+ strategy to address risks of displacement.

ER Program leakage will be assessed at international, national and possibly intra-jurisdictional levels. Assessment will be based on the distinct concepts of "market leakage", which is associated with reducing the supply of a commodity, such as timber or agricultural products, to the marketplace. Assessment will also incorporate "activity shifting" leakage, or the displacement of non-market emissions, based on the mobility of agents and drivers of unplanned deforestation and degradation within the jurisdiction, and ecological leakage, which occurs when one ecosystem has an effect (positive or negative) on an adjacent ecosystem, such as when a plantation scheme withdraws surface water that causes drought conditions downstream. The following principles must be considered for leakage assessment:

- Estimation and anticipation of the risk of leakage of emissions reductions for each activity and;
- Design of possible leakage mitigation mechanisms that can either eliminate or reduce the risk of leakage, or reduce the leakage severity.

International Leakage. Neither the UNFCCC nor VCS JNR guidance currently requires responsibility for international leakage. As such, this ER Program does not currently plan to address international leakage. In fact, international market leakage is likely to result in increases in logging in the DRC, as supply from Indonesia and Brazil becomes more constrained, and therefore it is considered conservative to ignore it. This argument is supported by a recent peer-reviewed paper (Mosnier et al 2012).

Domestic Leakage - outside of the jurisdiction. The Program will follow the guidance on leakage from the VCS JNR. All relevant leakage from the jurisdiction will be quantified and consider the three types of leakage (activity shifting, market leakage and ecological leakage) described in VCS document AFOLU requirements. Measurement of actual displacement of emissions outside the Maï Ndombe jurisdiction will likely prove extremely difficult and/or be cost prohibitive until such time that neighboring provinces are also under ER Programs, and are globally monitoring their own emissions.

Domestic Market Leakage. Leakage within the DRC, but not defined as shifting of activity, can be addressed in two ways:

- Replacement within the jurisdiction of the supply of timber and/or agricultural product supply reduced by the ER Program, through agricultural intensification, production of timber in woodlots and plantations or production of sustainable charcoal. If required, the ER Program would need to demonstrate replacement in a measurable manner to demonstrate success;
- Constraint of replacement outside the jurisdiction by national legislative moratoriums on new agricultural or logging concessions (i.e. national legislation / policy change).

Domestic activity-shifting leakage. As it is largely unplanned, domestic activity-shifting leakage must be addressed by providing viable alternatives to forest destruction. This will be addressed activity-by-activity within the ER program, and the effectiveness of such leakage mitigation activities need to be directly measured, until such time as aggregated national emissions are measured through national level MRV efforts (NFI).

Under the VCS JNR scenario, each nested project is required to mitigate its own leakage risk as well as quantify potential leakage. The ER Program will therefore take on the role of designing a robust reward / penalty system based on quantified leakage from one ER program or nested project to another.

6. Consistency with national REDD+ strategy and governance arrangements

6.1 Institutional arrangements

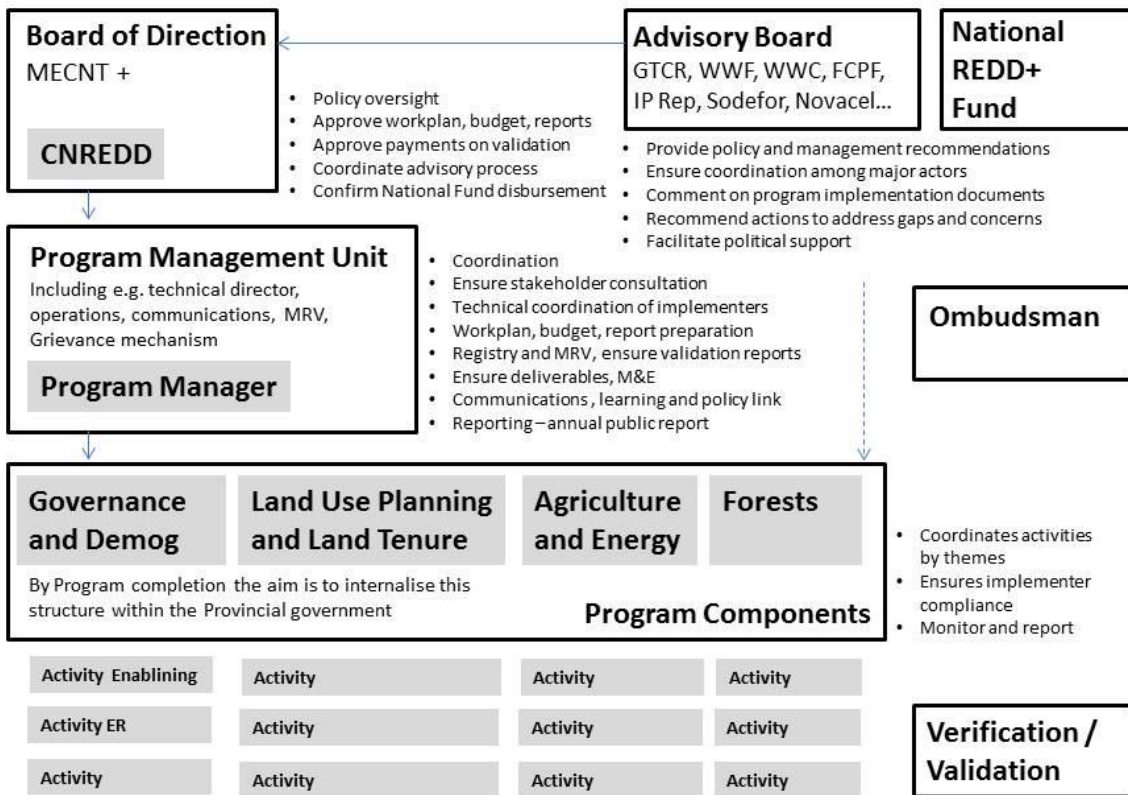
Please describe the governance arrangements anticipated or in place to manage the proposed ER Program (committee, task force), and the institutional arrangements among ER Program stakeholders (i.e., who participates in this ER Program, and how, including the roles of civil society organizations and forest dependent communities).

A draft concept of the management structure of the Program is given in the diagram below. The ER Program will be overseen by a **Board of Direction**, composed of the national government and the provincial government. This structure will provide policy and management oversight and ensure a coordinated approach among major actors in the Mai Ndombe region. In addition, an **Advisory Board** will be instituted, composed of a range of stakeholders, which will be selected during the Design Phase, to provide policy and management recommendations. A **Program Management Unit** will be responsible for day-to-day implementation.

Figure 3: ER Program Management Structure (to be confirmed in the design phase)

ER Program Management Structure

to be confirmed in Design Phase



The **Board of Direction** includes the national (CN-REDD) and provincial government, to be specified during the Design Phase, with a view to well-balanced technical and institutional capacity. The Board of Direction is responsible for overall Program performance, including establishing the overarching goals and priorities, approving management plans, reviewing and endorsing all reports related to Program performance, as well as reports generated by independent third party verifiers. It will also ensure alignment of the ER Program with the National REDD+ Program, in terms of MRV, safeguards, and overall direction. The specific role and function of this Board will be clarified during the Design Phase.

It is envisaged that the **National REDD+ Fund** will channel incoming ER Program revenues into the Program. As a vertical fund, the National REDD+ Fund has fiduciary responsibility but delegates the financial and technical management of each program to the Participating Organizations (i.e. entities which are granted access to the National Fund). The Government of DRC has transferred the fiduciary management of the Fund to UNDP/MPTF, which acts as interim Administrative Agent. Based on the decision of the Steering Committee of the National REDD+ Fund (headed by the Minister of Finance, with representatives from five Ministries, civil society, private sector, donors, UN-REDD, FCPF), the Administrative Agent transfers the funds to the Participating Organizations. The strategic documents of the National REDD+ Fund were approved by the Ministers of Finance and Environment at the end of August 2013 and sent to the Fund Administrative Agent UNDP/MPTF. All the documents are available at: <http://mptf.undp.org/factsheet/fund/3CD00>. A Decree of the Prime Minister setting up the Governance Structure is currently under validation. The mechanism for disbursement through the National REDD+ Fund will be assessed during the Design Phase.

The **Program Management Unit** is responsible for all implementation activities of the ER Program at the subnational scale and for liaison with national entities. It will submit management and activity plans for review by the Board of Direction based on feedback from the Advisory Board. It is responsible for ensuring the effective and efficient implementation of all Program activities according to the priorities identified. It will ensure that all activities meet the standards and requirements applied to the Program, including the national standards as well as the UNFCCC, MF, VCS JNR, REDD+ SES, and any other standards identified by the Board of Direction. It will ensure that carbon and social and environmental MRV are carried out, integrated with the guidance and standards set by the national process. The Unit is expected to include an overall Program Manager, as well as technical and support staff, meeting international hiring standards.

The four **Program Components**, through which specific activities will be organized and implemented, are an integration of the seven pillars of the National REDD+ Framework Strategy. Coordinators for the Program Components may be government, NGO, private sector, or a team of experts to be determined in the Design Phase. Implementation of specific activities will be coordinated through the appropriate Program Components. Program Components will receive support from partner organizations (GTCR, WWF-DRC, WWC and other relevant partners). Activity performance will be aligned with the national environmental and social management program and will be assessed against the relevant REDD+ national registry and ER Program indicators. The information on Program performance that is collected at the field level by the Program Management Unit will be reviewed at the national level by the Board of Direction, before being reported to the technical and financial partners of the Program and the UNFCCC, to ensure alignment and integration with the National REDD+ Program.

During the Design Phase, specific roles of organizations and individuals within the Program Management Unit, including the Program Manager, and Coordinators of the Program Components will be identified, subject to due diligence procedures, as well as to rules on conflict of interest, and capacities of actors to operationalize the Program in an efficient, fully responsible and stable manner. Terms of Reference for each role will be developed during the Design Phase.

An **independent third party verification of ERs** achieved will be ensured in order to avoid conflict of interests. The national forest monitoring system is currently under development at the national level, led by DIAF, with support from JICA, OSFAC, FAO, and other technical partners. The social and environmental MRV system will be developed in collaboration with CCB, with a goal of implementing the REDD+ SES. An ombudsman system providing broad, traditionally customized and open access for individual complaints will be put in place. Its mandate will be further defined in the TORs in the Design Phase.

Indigenous and local communities' engagement in the Program management is fundamental to Program success, and this will be reflected in the Program design. The Advisory Board of the Program will include several seats for local, regional and national civil society representatives, including representatives of the indigenous and local communities affected by the ER Program, who will therefore provide input on Program design, feedback on its implementation, and a formal process for submission of ideas, grievances, and assessment of Program function. Additionally, local communities will be consulted in the design of individual project activities, and will have the opportunity to participate, based upon the process of free prior and informed consent, including in how they will receive benefits from project and Program activities. Indigenous and local communities will also be an integral part of the MRV process, for carbon, social, and environmental impacts of the Program and of specific project-level activities. Furthermore, Indigenous and local Communities will take part into the network of local observers

implemented by the Improving Forest Governance Project. Thus they will play a key role in the reporting and monitoring of the environmental and social safeguards system.

In a step toward the design of the institutional arrangements for the Program, and following on the recommendation of a broad group of local and international stakeholders, an MOU was signed in January 2014 between MECNT, GTCR, WWC, and WWF, formalizing a Secretariat for the revision of the ERPIN and the implementation of the Design Phase of the ER Program, which will be led and directed by CN-REDD, with the support of a dedicated expert for this role. In addition to this completed MOU, a second broader MOU is in progress to formalize the collaboration of all key stakeholders for the ER Program. During this Design Phase, necessary steps will be taken to ensure that the proposed set up will be finalized through a transparent process and not generate any conflict of interest with different partners.

6.2 Linking institutional arrangements to national REDD+ implementation framework

Please describe how the institutional arrangements for the proposed ER Program fit within the national REDD+ implementation framework.

Table 6: ER Program Coherence with National Policy

National REDD Framework Strategy

2035 Goals:

- Forest cover stabilised at 63.5% national territory
- Zero net deforestation from 2030
- 56% reduction in emissions compared to RL ...

National Development Goals (DSCR2)

Goals:

- Double digit average annual growth in GDP
- Eradication of poverty in 2025
- Intermediate HDI by 2025
- MDGs reached by 2020

Mai Ndombe ER Program

Goal - A model provincial green development program that provides alternatives and rewards performance to address the challenges of climate change, poverty reduction, natural resource conservation and protection of biodiversity

Objectives and Indicators

1. **Climate** (Δ CO₂ emissions)
2. **Biodiversity** (Δ forest connectivity, target species)
3. **Rights** (Δ tenure security – community, concession)
4. **Livelihoods** (Δ MDG indicators)
5. **Governance** (Δ institutional capability)

Activities organised by the Seven Pillars of the National REDD+ Framework Strategy

	Governance	Land use planning	Land tenure	Forests	Agriculture	Energy	Demog
Enabling and Non Carbon Activities	- Socialisation - Local govt support - Compliance and law enforcement	- Socialisation - Land use planning	- Socialisation - Local govt support - Community map validation - Compliance	- Socialisation - Land use planning - Biodiv monitoring - Anti-poaching - Ecotourism - Protected areas	- Socialisation - Land use planning	- Socialisation - Land use planning	- Socialisation - Land use planning
Emission Reducing Activities	- Prov policies - Incentive programs	- Bushfire control - AR - Agroforestry - Ag intensific - Protected areas - CFM	- AR - Agroforestry - Agricultural intensification	- RIL - AR - Bushfire control - Protected areas - CFM	- AR - Agroforestry - Agricultural intensification	- AR - Energy efficiency	

Institutional arrangements for the ER-Program are designed to support the continuing development of the national REDD+ implementation framework, under the direction of MECNT. The Program will serve as a pilot of many of the tools, systems and processes established in the national program. In addition, the Program management structure will be designed to build the capacity of local and regional government to administer multi-faceted natural resource management programs, work with international partners from civil society and the private sector, and transparently and effectively engage with local stakeholders.

Table 6: ER Program Coherence with National Policy**National REDD Framework Strategy****2035 Goals:**

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6.3 Consistency with national REDD+ strategy and other relevant policies

Please describe:

- a) How the planned and ongoing activities in the proposed ER Program relate to the variety of proposed interventions in the (emerging) national REDD+ strategy.
- b) How the proposed ER Program is strategically relevant for the development and/or implementation of the (emerging) national REDD+ strategy (including policies, national management framework and legislation).
- c) How the activities in the proposed ER Program are consistent with national laws and development priorities.

As detailed in the R-PP and the National REDD+ Framework Strategy, the construction of the national strategy is based on studies and is intended to be field-tested through pilot projects. To ensure the participation of all stakeholders in the construction of the National REDD+ Strategy, the DRC has established multi-stakeholder committees assigned to 16 thematic areas, 13 of which are addressed by the ER Program. Hundreds of people participated in these Thematic Coordination Groups. The design of the ER Program's strategy is fully in line with the strategic design for REDD+ at the national level. In order to streamline its activities and address the root causes of deforestation, the ER Program will coordinate closely with main activities in the Program area financed by the FIP, CARPE/USAID, KFW/GIZ, EU, the government of Norway, and others. The FIP DRC is perhaps the most important of these.

Integration with the FIP DRC

Component 1 of the FIP DRC is entitled "Integrated REDD+ Sub-Project in the Plateau District (PIREDD Plateau)" and will receive funding of US\$14.2 million. This component will use a comprehensive approach to support community-level natural resource management and associated investments to improve rural peoples' livelihoods in the Plateau District of the Bandundu Province. The project will pilot a coherent and coordinated territorial approach to combat deforestation by targeting key drivers of deforestation and forest degradation. In parallel, the project will also finance various studies to tailor its interventions

to the legal context, in particular regarding land tenure and performance-based payments. PIREDD Plateau has six sub-components which overlay closely with the ERPIN :

- **1a: Strengthening governance for sustainable management of natural resources.** Development and implementation of coherent development policies, structuring multi-sectoral consultation bodies for territorial land management. Support to the CARG, training on forest law.
- **1b: Capacity building for decentralized technical services.** Validation of management plans, training to ensure smooth implementation of agreements, promoting coordination of three ministries in charge of village land (Agriculture, Environment / Forest, Rural Development).
- **1c: Development investment as defined in plans for territories or districts.** Finance investments in the public interest as defined in terms of the CARGs or districts adjacent to the managed territory e.g. Bridge repair and maintenance, access.
- **1d: Support for CLDs for local level natural resource planning and the implementation of these plans.** Establish land-use plans and community forest mapping (through a participatory process). Investment plans will be negotiated with the communities and contracts established between project promoters and the communities as the basis for payment for results (see 1f).
- **1e: Implementation of planned investments in management plans.** Implementing the CLDs' land use plans and updating the CARGs' development plans. Activities may include (see 1d): improved regeneration, creation of conservation zones, support to non-timber forest products collection, process and marketing, establishment of forest management plans, financing demand-driven NRM sub-projects. Payment-based on activities.
- **1f: Compliance with management plans through results-based contracts.** Contracts with individuals and/or farmers' organizations to maintain project-linked efforts and implement the local natural resource management plans. Results-based payments. The project will pay for environmental services throughout the project subject to periodic monitoring.

The FIP PIREDD Project is therefore closely aligned with the goals of the ER Program and will support proposed ER-Program enabling and emission-reducing activities. Work plans and budgets of both programs will be aligned to ensure fullest possible complementarity.

Table 7: Alignment of ER Program Objectives

National REDD+ Framework Goals	Mai Ndombe ER Program Objectives	FIP PIREDD SubComponents
Forest cover stabilisation	Climate, Biodiversity	All
Poverty eradication	Livelihoods, rights	Investments in management plans, Results-based contracts and PES payments
Improved HDI	Livelihoods, rights	Investments in management plans, Results-based contracts and PES payments
MDG 2020	Climate, Biodiversity Livelihoods, Rights, Governance	All

6.4 National registry

Please include a short description of the relationship of the proposed ER Program to national REDD+ activity management arrangements, and if the proposed ER Program will be part of any system to track REDD+ or other emissions reduction activities (e.g., a REDD+ registry).

Project or programs to generate emission reductions - both voluntary and/or compliance, and/or dedicated carbon funds such as the FCPF Carbon Fund - are supervised by the order No 004/CAB/MIN/ECN-T/012 of 15 February 2012, fixing the approval procedure of REDD+ projects.

This order has received some criticism, especially from civil society, and in this regard, the government has taken the initiative to conduct a review, and to prepare a revised draft that integrates the concerns from civil society and other stakeholders. This draft will be subject to validation during the 1st quarter of 2014. To support the approval procedure of a REDD+ activity, the REDD+ national registry was created and officially recorded by the same decree.

A pilot version of the [national REDD+ Registry](#) has been developed by CN-REDD with the assistance of UNDP and the Observatory for the Forests of Central Africa. It will be fully integrated into the [National Surveillance System for DRC forests](#). The specific details of how projects and activities can be registered in the Registry are not yet available. FAO has supported the services of a legal expert who is responsible for preparing a draft proposal, which should be publicly available in 2014.

The Registry will be a dynamic tool by which the administration can track the investments received through the ER Program and its social and environmental impacts. It will also ensure transparency and sharing of data generated by the Program. The ER Program will also provide relevant information from the Registry related to deforestation and degradation to the Moabi DRC platform. Moabi will complement the official Registry by hosting a grievance reporting mechanism, a safeguard monitoring system, and a civil society registry. Where practical, the Moabi DRC platform will integrate its databases with the REDD+ Registry and National Surveillance System.

7. Preliminary assessment of the proposed ER Program in the context of the national Strategic Environmental and Social Assessment (SESA) and the Environmental and Social Management Framework (ESMF)²

7.1 Progress on SESA/ESMF

Please describe the country's progress in the implementation of SESA and the development of the ESMF, and their contribution or relationship to the proposed ER Program.

DRC REDD+ SESA Past and Future Steps

Social and Environmental Strategic Assessment (SESA) is a participatory process of identifying potential risks (positive and negative) resulting from the implementation of REDD+ at the national level in order to propose measures to avoid, mitigate or compensate, if necessary, potential adverse effects while strengthening measures to maximize the multiple benefits.

² The SESA is the assessment process to be used in FCPF REDD+ countries during R-PP implementation and REDD+ readiness preparation. The ESMF is an output of SESA that provides a framework to examine the issues and impacts associated with projects, activities, and/or policies/regulations that may occur in the future in connection with the implementation of the national REDD+ strategy but that are not known at the present time.

Finalizing the SESA is one of the key deliverables of the Readiness Package (R-Package), and to meet the commitments assigned by the Government of the DRC through the national plan for REDD+ Readiness (RPP). The Environmental and Social Management Framework first version (ESMF) was developed through a consultation workshop of stakeholders involved in REDD+ in June 2013. Work is ongoing to refine this framework.

REDD+ SESA Past and Future Steps

The REDD+ SESA process is being led by the firm AGRECO, on the basis of an international tender that was launched in February 2012. Since that time, it has gone through steps of:

- February 2012: validation of the Work Plan and methodology by the DRC Monitoring Committee in charge of managing risks on Social and Environmental co-benefits of REDD+;
- April 2012: three weeks of exchanges, at Caritas Center, with more than 200 stakeholders and members of the Coordination Working Group (CWG) on the national REDD+ strategy.
- May 2012: first draft production of the National REDD+ Strategy;
- June 2012: Production of the Strategic Study on REDD+;
- June 2012: Kinshasa consultation on the Strategic Study and first draft of the Strategy;
- July/August 2012: consultations in provinces, including members of the Monitoring Committee in charge of managing Risk and Social and Environmental Co-benefits of REDD+ in the DRC, in the preparation of the Management Framework.
- December 2012-April 2013: Production of SESA Management Frameworks
- June 2013: Meeting of stakeholders extended to other actors in REDD+, including representatives from the provinces as well as government, donors, representatives of indigenous and civil society.
- November 2013-January 2014: consultations in provinces on framework drafts. These consultations allowed each province to make recommendations to improve the Framework.
- February 2014: The recommendations of the provinces were analyzed and processed by a small group of stakeholders
- March 2014: The National Validation Workshop is scheduled with provincial delegates.

The validated recommendations will be incorporated into the final Management Framework for REDD+ in the DRC. The validity of the Framework will be first established by the representative of the Bank responsible for environmental and social issues and by national stakeholders at the workshop.

A more detailed analysis of potential negative impacts arising from the implementation of REDD+ in at the national level was conducted as part of the SESA in DRC, with a series of mitigation measures identified (ESMF, which will be posted to the World Bank website in March 2014), as shown below in Table 8. These measures are to be applied by all REDD+ activities, including the ER Program. Consultations undertaken for the SESA are listed in Annex 1:

Table 8: Major potential negative impacts by activity REDD+ and possible mitigation measure

Activities	Potential negative impact	Envisaged mitigation measure
Animal breeding	Habitat loss and loss of biological diversity due to the replacement of natural forests by pastures.	<i>Implementation of regional development plans and macro and micro zoning</i>
	Water pollution by manure, erosion by trampling of river banks, erosion into streams	<i>Protection of watercourses by a band of intact vegetation, animal housing on suitable sites</i>
	Overgrazing of grasslands	<i>Rangeland management, planting of fodder shrubs, macro and micro zoning</i>
	Soil compaction by animals	<i>Rangeland management</i>
	Disease transmission from livestock to wild animals	<i>Animal prophylaxis, vaccinations, veterinary checks</i>
	Social conflicts due to land use	<i>Land reform. FPIC, macro and micro tribute</i>
Plantation crops	Habitat loss and loss of biological diversity due to the replacement of natural forests by agriculture.	<i>Implementation of regional development plans and macro and micro zoning</i>

Activities	Potential negative impact	Envisaged mitigation measure
(perennial) (coffee, cocoa, bananas, citrus, palm oil, rubber, etc.).	Land grabbing	<i>Land reform</i>
	Soil erosion	<i>No-till agriculture</i>
	Introduction of invasive species	<i>Establishment of regulations on invasive species</i>
	GMO seeds	<i>Establishment of regulations on GMOs</i>
	Risk of increasing the amount of crop pests due to greater production and monoculture	<i>Implement phytosanitary control</i>
	Pest products management: contamination of soil and water	<i>Preparation of management plans for pests and pesticides</i>
Annual crops	Crops and implantation sites unsuitable	<i>Development of sustainable agriculture</i>
	Pest products management: contamination of soil and water	<i>Preparation of management plans for pests and pesticides</i>
	Risk of proliferation of pest problem in monoculture	<i>Preparation of management plans pests and pesticides</i>
	Management of soil fertility: risk of over-fertilization and pollution of watercourses	<i>Preparation of a guide for agro-environmental practices</i>
	Pesticide poisoning	<i>Preparation of management plans pests and pesticides</i>
	erosion	<i>Preparation of a guide for agro-environmental practices</i>
Improved artisanal charcoal production	Improving the competitiveness of some producers at the expense of other	<i>Establish a national carbonization policy to integrate carbonization process in the formal sector, to develop and disseminate training manuals for improving charcoal production</i>
	Accelerated degradation. Some people could benefit from the opportunity to develop large-scale farms in protected forests or other.	<i>Land use and zoning plan, verification of production sites</i>
Semi-industrial and industrial furnaces	Disturbance of the labor market in growing areas	<i>Develop suitable training programs, support firms with micro-credit</i>
	Air contamination	<i>Implement air purification systems and / or dust collection</i>
	Deterioration of living conditions of small coal producers	<i>Support small formal producers</i>
	accelerated deforestation	<i>Set production quotas from natural forests, require energy reforestation settlements</i>
Establishment of plantations for wood energy	Habitat loss and loss of biological diversity due to the replacement of natural forests with plantations composed of a limited number of species	<i>Development plan and prior zoning</i>
	Competition with food crops	<i>Planning and Zoning Plan, support to agricultural producers</i>
	Other impacts: see agricultural activities	
Waste production	air pollution	<i>Implement systems for emission reduction</i>
	Waste production	<i>Implement management systems for waste</i>
	Effluents disposal	<i>Establish systems for effluent treatment</i>
Industrial Transport of Biofuels	If pipeline (typical Impacts of Linear Projects)	
	If trucking: Risks related to temporary storage, transportation of explosive materials contamination	<i>Establish a national system of risk management for the transport of hazardous materials</i>
Building of Micro / mini hydropower plant	Risk of land grabbing	<i>Encourage facilities over water, optimize design to limit land use</i>
	Soil erosion	<i>Optimize design, implement and maintain natural erosion control systems</i>
	Change in the quality / quantity of water	<i>Maintain natural flows; remove organic matter from water</i>
	Increased risk of STD transmission (displaced workers)	<i>Information, education and monitoring</i>
Micro / mini hydropower plant (operating)	Increase / occurrence of waterborne disease	<i>biological control of vectors of waterborne diseases</i>
	Reduced availability of water	<i>Maintain natural flows,</i>
	Loss of agricultural production due to the loss of land	<i>optimize the design to minimize land use, organize farmers so they can get better returns on smaller area</i>
	Spontaneous migration to production sites to gain access to energy	<i>Establish electrical distribution plans that promote small communities, finance photovoltaic lighting in villages, including grid connection is too expensive</i>
Manufacture	Price inflation of basic materials (metals, welding	<i>Ensure that developers have access to a pool of material</i>

Activities	Potential negative impact	Envisaged mitigation measure
of improved home	equipment, etc.)	<i>sufficient to ensure their ability to import</i>
	Specialized labor shortage for other economic activities	<i>Develop suitable training programs</i>
Reforestation	Habitat loss and loss of biological diversity due to the replacement of natural forests with plantations composed of a limited number of species	<i>Planning and zoning plan, strengthening of existing protected area network especially for protected areas of high biodiversity</i>
	Harm to natural ecosystems and biodiversity, risk of vermin proliferation.	<i>Maintenance of natural forests. Use of degraded priority areas for reforestation</i>
	Loss of forest products from local trees.	<i>Establish a research network to study local endemic species. Establish a centre for the production and conservation of national forest seeds</i>
	Spread of species outside the plantation creating competition with local species.	<i>Buffer zones around the plantations, banish invasive species</i>
	Risk spay / acidification / soil depletion depending on the species used	<i>Multispecies reforestation and agroforestry promotion, not allowing too large of reforestation scale</i>
Plantation Management	Use of fertilizers, pesticides and herbicides with harmful effects on soil quality and local water	<i>Establish good practice guides. Preparation of management plans for pests and pesticides</i>
	Chemical and biological transformation of the soil as litter comprised of one or a few dominant species alters the decomposition process	<i>Multispecies reforestation and agroforestry promotion, not allowing too large of reforestation scale</i>
	Increased sedimentation in rivers	<i>Establish riparian zones</i>
	Migration of people wanting to take advantage of employment and development of small business	<i>Macro-and micro-zoning, Improving local governance</i>

It is likely that projects will implement many of these activities simultaneously; therefore a combination of impact must be taken into account. The development of national capacity to evaluate compliance of each activity with national and international social and environmental standards must be prioritized.

7.2 Incorporation of SESA outputs and/or outcomes into the proposed ER Program

Based on the progress outlined in 7.1, please describe how the proposed ER Program is expected to make use of the outputs and/or outcomes of the SESA process. Provide an analysis of the ways in which activities planned under the proposed ER Program will rely on the measures and procedures included or to be included in the ESMF. Are there likely to be any gaps or issues regarding the compliance of the proposed ER Program activities with applicable safeguard standards, including the UNFCCC safeguards?

Tools and methods have been recommended in the SESA ESMF REDD+ to ensure effective integration of environmental and social considerations in the implementation of REDD+ activities at the national level. Based on information provided by the project sponsor in the National REDD+ Registry, a number of requirements will be submitted through the Information System backups (SIS DRC) proposed in the SESA ESMF. Thus, management frameworks corresponding with backups from the World Bank have been prepared under the SESA and will be triggered depending on the nature of the project.

- The ESMF, which deals mainly with questions of governance of the program and improvements, carries out operational recommendations that are contained in the Environmental and Social Management ESM;
- IPPF: Indigenous Peoples Policy Framework, as its name indicates (to the extent that the project is carried out in an area where indigenous peoples live).
- Functional Framework (Process Framework), which deals with how to take into account the socio-environmental impacts in relation to protected areas (to the extent that the project will be subject to restrictions of use);
- Resettlement Policy Framework (RPF), it will be triggered when specific project plans include resettlement of populations: Although it is likely that the displacements due to REDD will be

extremely rare, it has been decided not to totally exclude this topic, and therefore the production of a CPR was agreed ;

- A Framework for the Management of Cultural Heritage - To respect sacred sites such as cemeteries, monuments, sacred forests, etc.);
- A framework on the use of pesticides; (to control the use of pesticides)

On the basis of these " frames ", when a project operating in DRC REDD+ seeks inclusion in the REDD+ Registry , it must prepare two different types of tools: ESIA (Studies of Environmental and Social Impacts) which describe concrete impacts of specific projects REDD+ and backup plans (when ESIA will say we need to trigger such a backup). It is at this time only that extensive consultations with stakeholders through concrete projects consultations will take place, based on the relevant prescribed frames and thresholds. It is essential to understand that REDD+ is not a project but a program, which will host many projects.

Through the Program requirements, the scope of the socio-environmental management, and integration with the National REDD+ Registry, it is possible to compile and analyse information quickly and disseminate to the public. The following procedures should be observed by the project proponent in accordance with the social and environmental requirements:

- I. The project proponent submits the project description to register via the web portal
- II. Depending on the type(s) of activity/ies and the magnitude of the project, the registry automatically provides a model management and monitoring plan (PGS) for the project.
- III. The project establishes its PGS and returns it to the register.
- IV. The register transmits the completed PGS to the authority responsible for approving (institutional arrangement to be specified).
- V. Analysis of quality control of a completed PGS is made.

If the project is approved, the project manager uses the GSP for the management and monitoring of social and environmental impacts.

8. Stakeholder Information Sharing, Consultation, and Participation

8.1 Stakeholder engagement to date on the proposed ER Program

Please describe how key stakeholder groups have been involved in designing the proposed ER Program, and summarize issues raised by stakeholders, how these issues have been addressed in the ER Program to date, and potential next steps to address them.

The idea of developing an integrated REDD+ program across the district of Maï Ndombe stemmed from the workshop to launch the REDD+ project for People and Nature (NEBP) implemented by WWF-DRC and funded by Norad, which was held in Malebo in the Chiefdom Batéké, Northern territory Bolobo, in Bandundu province. The participants included customary authorities of the community land Chiefdom Batéké North, political and administrative authorities of the Bolobo territory, District of Plateau and Bandundu Province, representatives of local communities, the wood private sector, breeding of cattle and conservation concession, representatives of national and international civil society as well as donors. During this process, some difficulties were encountered and solutions have been proposed, including:

Table 9: Issues and Proposed Solutions

Issues	Proposed Solutions
<ul style="list-style-type: none"> ▪ Intervention area too large and incompatible financial means for the size of the area ▪ Message on REDD+ creates expectations among local communities and indigenous peoples ▪ Misinformation campaign – made by politicians from project area during elections ▪ Lack of capacity of civil society on REDD ▪ Lack of validated national public consultation tools including standards 	<ul style="list-style-type: none"> ▪ Work first in a pilot/test area ▪ Strengthen IEC on issues of climate change, adaptation and mitigation measures at local, provincial and National level as well as that of REDD+ Process ▪ Presentation of the project at all levels and awareness campaign of political and administrative authorities ▪ Resort to the expertise of GTCR to build the capacity of local stakeholders on climate change and REDD+ process which in turn form the NGOs and local associations ▪ Organize consultations and IEC campaign of indigenous peoples to ease their participation in the design and implementation of ER 'Program ▪ Training of trainers from national NGOs on climate change and REDD+, which in turn form the NGOs and local associations ▪ Participatory development tools for FPIC, SESA, communication (Integrated Communication Plan for REDD) ▪ Participatory development tools for CLIP, SESA, communication (Integrated Communication Plan for REDD)

8.2 Planned outreach and consultation process

Please describe how relevant stakeholder groups will participate in further design and implementation of the proposed ER Program and how free, prior and informed consultation leading to broad community support for the ER Program and key associated features, including the benefit-sharing arrangement, will be ensured. Please describe how this process will respect the knowledge and rights of Indigenous Peoples and local communities, by taking into account relevant international obligations, national circumstances and laws.

Extensive consultations will be conducted through the GTCR platform, with deep engagement of other civil society, during the phase of implementation of the program based on the FPIC and other tools, and an IEC campaign will be conducted at a local level financed by the FCPF Readiness Fund to continue the process of preparing the ER- Program. The partnership with EFI, in order to implement the national education, communication and information (IEC) plan is underway, and will involve local educators delivering information and education on the REDD+ process at the local level. FPIC will be operational over the entire area covered by the ER Program, following the methodological guidance produced and

validated by the national REDD+ Committee. The DRC Moabi platform will host an independent reporting tool that will allow Indigenous People and local communities to report problems related to the respect of FPIC. Socio-environmental impacts will be identified and mitigation measures will be taken to improve the well-being of indigenous peoples and local communities in the Program Area. The DRC Moabi website will provide an additional independent method to check how the social and environmental measures are implemented.

Discussions continue at the national level on benefit-sharing arrangements. A complete roadmap for outreach and consultation will be developed at the beginning of the Design Phase, and will include input from the FIP, GTCR, REDD+ pilot projects in the area such as Novacel, WWC, WWF, and CAFEC, among others, taking into account the consultation plans of other organizations. The Program is exploring the use of the REDD+ SES standard, and therefore CCB will be involved in the Design Phase of the Program.

Recognizing the potential impacts of increased income into communities, special consideration must be given to empowering women, and to support their active role in the success of the Program. The consultation process will ensure effective participation of women in the design and implementation of Program activities.

Given the role and vulnerability of indigenous peoples in the Program Area, their participation and role must be addressed separately, and a special effort will be made to ensure their participation, access to information, and representation in the decision making process. A thorough study will be done to identify the indigenous peoples in the area and their objective situation. A mapping of vulnerable groups, will also be done, and actions to address and support these groups will be prepared as part of the Design Phase.

Given that many of them live a traditional lifestyle, dependent on and with special knowledge of the forest, the ER Program will ensure that their customary rights are recognized and respected in accordance with the UN Declaration on the Rights of Indigenous Peoples and the UNFCCC Safeguards. By conducting capacity building activities with the different groups, this program will empower them to participate actively in the implementation of the Program, and, their free, prior and informed consent will be sought at all stages of the implementation of the Program.

8.3 Feedback and grievance redress mechanisms

Please describe the mechanism(s) that are or will be put in place to resolve any disputes regarding the proposed ER Program.

A mechanism for management of grievances specific to REDD+ is being developed at the national level. A draft of this mechanism was discussed at a workshop October 30, 2012 and consultations have already started to lead to a formal validation mechanism and its operational implementation.

A similar grievance mechanism will be developed at the Program level, and will provide a service to communities and indigenous people, to collect their grievances and give them feedback, represent their issues, recommendations and ensure their full access to this mechanism. This may be implemented in partnership with local NGO's.

The entire ER Program will be subject to this grievance mechanism. An independent ombudsman will be placed at the provincial level and an escalation system will be set up with local contacts to avoid logistical impediments that could introduce difficulty discussing a problem with a complainant. The local customs and situation will also be considered in the development of this grievance mechanism to allow different methods of submission of grievances, feedback and recommendations. A decree on approval was revised; various questions of civil society have been integrated and working on the draft that will be shared with experts from the SC before the start of the meeting in consultation with other stakeholders.

This mechanism will strengthen and integrate into the appeal mechanism provided by the National REDD+ Fund, which provides a national ombudsman whose office will investigate complaints from various stakeholders. It is of course elementary that the use of an ombudsman is free of charge and allows for anonymity.

9. Additional Benefits

9.1 Expected social and environmental benefits

Please describe the environmental and social benefits, other than emission reductions, that the proposed ER Program is planning to achieve; and any other ways in which the ER Program would contribute to broader sustainable development.

Beyond its goal of reducing emissions and increasing sequestration, the ER Program was designed as a true local development program and displays a clear concern for the preservation of biodiversity and environmental services. Additionally, this program will seek to provide alternative and sustainable livelihoods to forest dependent communities and to improve their standard of living. The strategic framework of the ER Program should guarantee that the activities developed in the framework of the ER Program would provide a number of environmental and social safeguards.

Outcomes and short-term impacts resulting from Program implementation will include increased local knowledge and skills with respect to participatory, democratic decision-making and management-oriented processes related to community development. An added benefit is the increased awareness by indigenous peoples of their rights, such as the right to FPIC. Short- and medium-term impacts resulting from this increase in knowledge and skills include communities' ability to collectively and locally respond to community issues, and an increased local capacity for governance, administration, and problem solving. Ultimately, as these skills are developed, assisted, and enhanced, the long-term result will be improved community wellbeing.

Both health and education infrastructure development have been identified by engaged communities in the Maï Ndombe region as high-priority focal areas for activities. Infrastructure developments such as these are expected, over the longer term, to increase the quality and accessibility of health and education.

Accessibility of both education and health are key Program outcomes as specific project activities are expected to increase the numbers of students who have access to schools and who will graduate in areas where these activities are given priority in community planning; more people will have access to timely medical care, rather than walking many kilometres for care or reverting to non-medically proven remedies.

Agricultural improvement and diversification activities that increase food availability and sustain economies are also expected as key aspects of Program implementation. The establishment of tree nurseries, agroforestry, and agriculture demonstration plots and the construction of domestic animal enclosures have all been implemented in the Maï Ndombe region, resulting in increased quantity, diversification, and value of crops for market. As well, agricultural techniques are expected to become more sustainable and the nutritional value of harvests is expected to improve. Ultimately, these activities are estimated to have the long-term impacts of improved food security and resilience for communities.

Conservation activities noted in Section 5.3 will be developed to take into account biodiversity conservation as a part of the ER Program, building on existing conservation programs in the region

(notably the work being carried out in protected areas, the Maï Ndombe REDD+ project, the WWF R-PAN project, among others). To capitalize on co-occurring carbon and socio-economic benefits, the ER Program will allocate resources and funds to integrate forest and wildlife species monitoring, landscape connectivity planning, poaching enforcement, and education programs that protect biodiversity as a part of protecting native forest and savannah lands.

A mechanism for supporting and rewarding results in non-carbon benefits will be prepared in the design phase. This will particularly focus on activities that meet the four non-carbon objectives of the project (Objectives 2-4 in s5.3 above – 1. Biodiversity, 2.Rights, 3.Livelihoods and 4.Governance) and for measuring performance against the indicators related to each of these objectives. Expected social and environmental co-benefits from the ER Program are outlined below.

Table 10: Expected Co-benefits by Stakeholder Groups

CO-BENEFIT	Local Community	Private Enterprise	Government	Indigenous Peoples
1. Biodiversity	Controlled hunting, ↑ Security of water, ↑ NTFP ↑ Medicine from forest	Extended rotations, Green Image, Market access	↑ Forest cover, ↑ Carbon stock, ↑ Water flow, ↑ Key species protected, Protects 50% of CARPE landscape	As for local community NWFP, materials for shelter
2. Livelihood	↑ Jobs, ↑ income, ↑ Health quality, ↑ education, ↑ skills ↑ Markets	↑ Business opportunity, ↑ jobs, ↑ workers benefits	CO ₂ \$, ↑ obs, ↑ Training, Poverty alleviation, MDG results, ↑ GNP	As for Local Community, Protection of traditional lands, primary resources for subsistence
3. Right	↑ forest tenure ↑ community land tenure, Legal recognition of community institution	↑ security of investment	Carbon right clarified, Forest co-ownership recognized	As for local community & FPIC
4. Governance	Local institutions, Representation in province LUP, Women & Youth in Less conflict	↑ security of investment ↑ relation & communication, ↓ conflict and clearer roles	International recognition, Partnerships, ↑ law enforcement, ↓ conflict with stakeholders and government	As for local community

9.2 Diversity and learning value

Please describe the innovative features of the proposed ER Program and what learning value the Program would bring to the FCPF Carbon Fund.

The ER Program is a pilot program in many ways. It will help to nurture and strengthen the national strategy including proposing a sub-national implementation of this strategy and operational system of pay for performance. This will provide valuable lessons for the DRC for the CF-FCPF and REDD+ in general. In addition and in parallel, the ER Program will initiate one of the first pilot sites for nested (JNR) initiative of the VCS and thereby has value as a pilot and demonstration project to other jurisdictions in the country and world.

The Mai Ndombe region includes many types of tropical forest threat, as well as both deciduous and humid forests, and hosts incredible biodiversity. It is also home to indigenous forest dwelling peoples representing a range of models of community-forest dependencies and interactions. The types of threat to forests within the ER Program range from increasing smallholder expansion in agriculture, charcoal production and cattle grazing to logging operations and the threat caused by expanding infrastructure and access created by logging concessions. Therefore the strategies and tools brought to bear on this

complex situation will have learning value not only throughout the Congo Basin region, but will offer lessons for forests facing similar threats around the world.

The DRC's decision to partner with private sector and NGO partners in Program implementation, and to nest specific activities under a jurisdictional program offers a range of innovation opportunities, and the basis for providing many lessons valuable to the FCPF countries.

10. Benefit Sharing

10.1 Rights to territories and land, and mitigation benefits

Please describe the land use and land tenure context of the proposed ER Program, and if and how rights to territories and land and mitigation benefits from REDD+ are reflected in traditional practices and codified in legal and/or regulatory frameworks.

The DRC currently allows local community members and indigenous people customary access to their forests for individual / artisanal usage. It is the right of every Congolese citizen to be able to use their forests for personal resources. There currently are not any national forest management systems that dictate forest usage. Customary tenure is therefore the system that most Congolese farmers use to manage and access land and other natural resources. The villages and their 'mayors' (called "capitans") fall under the modern government administration. However it is the chiefs of the clans, the ancient traditional land managers that still hold the power over the land and make resource use decisions on the land of their clan-owned forest. These forests overlap and include the villages. For the most part (with some conflict), these clan-owned forests have clear boundaries and clan leaders, chief de terre (chiefs of the land). And these chief de terre are consulted for access to the forest for hunting, agriculture and any other resource or spiritual needs. Beyond its legal legitimacy, customary power has moral legitimacy, and strong cultural heritage. As a community leader, traditional leader manages the land and its main natural resource, namely the flora and fauna. For example, logging companies must necessarily obtain permission from the chief before undertaking activities under a forest concession. Similarly, farmers who want to operate in an area where traditional tenure there must negotiate with the leader who is accountable to the community. Development activities in the territory of a community are also subject to the approval of the leaders. In the last few generations and even more recently the power of the chiefs has begun to slowly erode with outside resource pressures and modern influences. The Program will explore ways to empower the chief de terres governance over their land as a structure to effectively manage the carbon, biodiversity and other land uses.

Overview of existing Laws and programs addressing Land Tenure and Customary Rights in the DRC:

1. Land Tenure Act 1973

The land tenure system in the DRC is governed by the law of the Land Tenure Act passed in 1973, which stipulates that the State is the owner of the soil and subsoil. The Act distinguishes between a "public and private domain of the State" (Article 54), allowing for the latter that a private individual or Congolese legal entity can benefit from a "permanent concession" or "ordinary concession" on the land. The Land Tenure Act of 1973 also recognizes customary rights (Land Tenure Act, last published 2004).

Nevertheless, the Tenure Law requires a Decree by the Prime Minister for the customary land use right to become effective and be officially transferred. This Prime Ministerial Decree is not yet adopted, leaving local communities without a legal framework to enforce their rights. This has led to a situation where two legal regimes apply in rural areas - customary law and civil law, in which tenure rights may diverge. Under customary law, local communities are the owners, but under the civil law of the State these rights are denied, leading to the possibility of conflicts between states and local communities.

The Decree is in the process of approval, and will likely be implemented in phases, starting with provinces that are not conflict zones. Bandundu province will be an early implementer.

2. The Constitution of the DRC 2006

The 2006 Constitution of the Democratic Republic of Congo provides for the decentralization of power from central government to the provinces and recognizes customary authority as long as it is not in contradiction with the Constitution, the law and moral principles. The Organic Law on Decentralization 2008 clarified the complete decentralization under the Constitution of 2006, organizing the State into provinces, cities, local governments, including Sectors or chiefdoms, and defined their respective areas of authority and power (Constitution of the Democratic Republic of Congo 2006).

A chiefdom is defined as a territorial subdivision, which is usually populated by traditional homogeneous communities organized by custom, headed by a chief appointed by custom and recognized and inaugurated by the provincial governor (Constitution of the Democratic Republic of Congo, 2006). The Organic Law on Decentralization 2008 lists some of the elements that are under the authority of the chief and council to decide, but the law did not foresee the legal protection of local communities relative to the rights of land use on land they inhabit. It only aims to recognize, organize and distribute some authority to local communities.

3. The Forest Code 2002

Another piece of legislation on land use in forests that applies to the ER Program area is the Forest Code 2002 which promotes sustainable management of forests to also increase contribution to economic, social and cultural development of today's generation amongst others (Article 2).

The Forest Code establishes the basic legal framework governing forest user rights in the DRC, including:

- The development of non-extractive forest uses and reward for environmental services (ecotourism, conservation concessions, and bio-prospecting); It allows community forests to be granted some usage rights in protected forests, (pending the Prime Ministerial Decree)
- Consultation of communities through the Ministry of the Environment prior to a change of forest classification (Art. 15);
- Local customs and traditions provide basis for community forest use rights provided they are not contrary to the law (art. 36).
- The issuance of concessions for forest community management, granting customary rights, (pending adoption of an implementing Decree (art. 22 and 111)).
- An allocation of 40% of the annual area fee for community infrastructure (art. 122).

4. Cahier de Charge

The ER program will provide a real opportunity to assess the details of the implementation of the existing "Cahier de Charge" process, which recognizes traditional forest ownership, to ensure that the process is robust and fair. This assessment will include the development of approaches to integrate the formal and informal land title and tenure situation in the Program area, in order to clarify legitimate actors and protect vulnerable communities, and ensure that the groundwork is laid for a fair and transparent benefit-sharing mechanism that respects the traditional role of indigenous and local communities in forest protection, as well as their dependence on the forest for sustainable livelihood.

5. Reducing illegal logging and improving forest governance

The DRC has entered into FLEGT Voluntary Partnership Agreement (VPA) negotiations with the EU in October 2010 and is currently engaged in developing a Timber Legality Assurance System (TLAS) to provide a credible and robust means to ensure that timber products were produced legally. The TLAS in

DRC is still in the development stage. Draft Legality Definitions (LDs) have been completed for industrial concessions and artisanal permits. These are being translated into a practical and efficient Verification System by the VPA Technical Committee under the MECNT, which includes representatives of government agencies, civil society and the private sector.

In parallel, development of a national supply chain control system has been concluded by *Société Générale de Surveillance SA* (SGS) and MECNT in 2012 under the name Programme for Control of Wood Production and Commercialisation (PCPCB). Since early 2013, forest operators have had to make mandatory declarations of their current stocks. These are complemented by inspections and reconciliations by SGS and the Department for Internal Supervision and Verification (DCVI) at selected control points in the Kinshasa area. Mandatory quarterly declarations of inventory and production data, as well as decentralized inspections, will gradually be phased in. The supply chain control system is gradually becoming operational, despite remaining issues with system design and enforcement, and the availability and reliability of forest industry data is expected to improve significantly over time.

Draft Legality Definitions and different steps in the development of the supply chain control and the verification system will be applied in the ER Program area, contributing to addressing illegal logging issues and resulting emissions in the area of the program. The application of the LDs and TLAS in the ER Program area will also feedback ‘local level’ experiences and lessons to the negotiation and implementation of the VPA, informing the development of the national TLAS system.

Role of Land Tenure Rights under ER Program

The ER Program will improve and strengthen the traditional ownership and management of forests through participatory mapping of land use. Previous work on participatory mapping of land use in Mai Ndombe has demonstrated that it will strengthen the support within the community for the ER Program and increase the chances of success. Through work done by WWF, almost one million hectares have been mapped, approximately 146 territories have been engaged, and nearly 350 Local Committees for Development and Conservation (CLDCs) have already been organized. Community forest maps have a fundamental importance in the Program as

- they provide clarity on boundaries of customary lands and reduce land use conflicts;
- forest management plans that link to provincial forest management planning;
- a basis for community forest emission reduction actions.

Participatory mapping, identified as an “enabling activity” (see section 5), will be promoted by the ER Program. It is envisaged that community maps developed will be embedded into a provincial framework endorsing customary land use rights in the absence of the Presidential Decree (see above #1).

A Review of the progress of national laws recognizing land tenure rights, such as the Forest Community Decree, will be conducted as part of the annual Program planning process, and action will be taken to adjust the Program according to this status.

10.2 Description of envisioned benefit-sharing arrangement for the proposed ER Program.

Please describe the benefit-sharing arrangements that are envisioned to be used for this proposed ER Program.

The ER Program, in the design of its benefit sharing mechanism will review work already done by the government of the DRC, and past experiences of WWF, WWC and other stakeholders to design the benefit sharing mechanism. These include the initiative to prepare the implementation of the principle of free, prior and informed consent (FPIC) in the REDD+ process in the DRC, the DRC’s first “Cahier de Charge” process completed for a conservation concession by ERA-WWC in the Lac Mai Ndombe REDD+ project, and the experience of WWC in designing and implementing the REDD+ benefit sharing for the

Kasigau Corridor REDD+ project in Kenya, which has 2 years of REDD+ benefit sharing experience. In addition, valuable lessons on benefit sharing have been learned through the experience of the WWF Eco-Makala and Luki projects, and the Proambientale PES program of Acre State, Brazil, among others (WWF 2013).

The benefit sharing mechanism will be implemented on a pay-for-performance model, based on emissions reduced and carbon sequestered, or proxies related to these metrics. In addition, the ER Program will set aside funds earned through emission reductions for enabling and non-carbon-based activities that contribute to the capacity of the Program to reduce emissions overall.

- Section 11 proposes a stratified approach for REL establishment according to land cover, land use and activity.
- The performance of actors within a specific stratum will be measured against the reference level for that stratum.
- This performance will determine the amount of benefits assigned to each actor.

As a full Benefit Sharing Mechanism for the ER Program will be prepared during the Design Phase, all stakeholders agreed that this Mechanism will adhere to the following principles specifying both the jurisdictional level and the individual project or activity level.

- The design and implementation of benefit-sharing mechanisms will be taken after consultation with stakeholders, based on the principle of free, prior and informed consent (FPIC) and will follow the criteria laid out in the FCPF Carbon Fund Methodological Framework.
- Financial benefits to be shared under the ER Program refer to revenues from selling ERs to the Carbon Fund and other buyers i.e. after the subtraction of emission reductions for the non-permanence buffer and transaction costs.
- Existing contracts and legal agreements between the DRC Government and program actors must be honoured or adapted with consent of all contract parties for acceptance into the ER Program (to be determined in Design Phase).
- The revenues from the ER Program will be managed by the National REDD+ Fund, which will be accountable for distributing the funds to single projects and programs based on their performance.
- The design of criteria for performance-based payments and other forms of benefit sharing should be adapted to the specific actors involved and their context, to ensure that incentives are adequate, appropriate and capable of producing the expected change.
- Each mitigation initiative aiming to generate ERs under the ER program must be included into the national REDD+ registry. Agents that are not included in the registry cannot receive Program crediting, nor take part in the benefit-sharing mechanism. It is understood that entities (NGO's, community groups, private sector, etc.) can represent multiple specific communities or smaller projects, so that it is not required for each community to register its activity directly in the registry.
- The design phase will specify how to share benefits if:
 - The ER Program performs badly but one or several individual projects perform well, i.e. available benefits do not allow to fully reward projects for their performance.
 - The ER Program and the individual projects perform well, and after distribution of benefits to single projects according to their performance, a surplus of revenues is available, including stipulations for rewarding non-spatially explicit mitigation actions (e.g. policies improving the efficiency of charcoal production or improving fire management at province level).
- Payments to communities and other program stakeholders should be transparent, including the basis for calculation of any payments for performance or proxy.

- When payments are not directly based on verified emission reductions, they must be based on proxy verification. Proxy measurements will be defined before the implementation of the respective activities, in consultation with stakeholders from the Provincial Advisory Council on Forests.
- PES contracts will clearly describe what proxy measurement was used, and it should specify the frequency and method of the monitoring procedure.
- Social and environmental impacts must be taken into account when calculating the total profits, therefore, costs of behaviour change should not be deducted from community benefits. On the other hand, the additional benefits recognized by communities and/or stakeholders may be taken into account in the balance of benefit sharing.
- The revenue-sharing mechanism will include training and involvement of indigenous and local communities in monitoring and benefit management, to the extent possible and using a phased approach.
- The majority of revenues received by the ER Program must be dedicated to Program goals – a specific requirement regarding this principle will be developed during the Design Phase
- A single registered mitigation activity must not receive a disproportionate amount of total net carbon revenues. A specific requirement regarding this principle will be developed during the Design phase, but could be set up so that in the case of multiple successful ER activities, each activity sells the amount of ER's achieved by the lowest-achieving activity. If credit revenues remain, then each remaining activity sells the full amount of ER's achieved by the next-lowest achieving activity, and so forth until all revenue has been shared.

Figure 4: Two key principles of benefit sharing in the ER Program

1. The smallest Activities are favoured



To avoid domination by larger Activities, each Activity and Agent will be able to sell equal amounts of credits. This allows smaller Activities to sell out fastest.

2. Sales can be delayed until Activities mature



Some activities will develop faster than others. Total sales may be held until later years to allow all Activities and Agents to mature.

- In the case that the option exists within the ERPA to allocate credit purchases to later years within the ERPA term, the ER Program may consider delaying a full sale of ER's until later in the ERPA period, to allow later-beginning activities to benefit from the CF purchase.
- Any action and/or activity which does not comply with the social and environmental requirements in the National Standards and World Bank standards will not be eligible to receive a benefit from the ER Program

In addition to funding for enabling activities and compensation for REDD+ performance, other non-monetary benefits will also be generated. These include progress in recognizing the rights of stakeholders and dissemination of improved agricultural and forestry technologies.

Recognising that some actors will be unable to take the full burden of Activity financing, the ER Program will consider (through the Benefit Sharing Mechanism) the application of payments in advance for ER producing activities based on key indicators such as hectares of trees planted or hectares of forest included in community forest management maps. These payments provide an advance on future ER payments, which will then be subtracted from the full payment and be used as a revolving fund to support advance payments for other ER-producing activities.

Arrangements for benefit sharing within specific programs or projects (e.g. within a conservation concession) may be agreed among the participants in the activity or project, but must comply with DRC's legal and ER Program / FCPF Methodological Framework requirements for benefit sharing.

Each program or project which aims to generate ERs under the ER Program, must develop a benefit sharing plan specifying details of revenue disbursement with regards to:

- a) area and beneficiaries,
- b) activities identified/measures financed and
- c) time period for the envisaged benefit sharing/funding.

This plan must be reviewed and approved by the ER Program Management Body prior to granting the implementing entity the right to be listed in the National REDD+ Registry. During the Design Phase, a process for facilitating the inclusion of existing projects into the Program will be initiated, taking into account existing legal agreements and contracts endorsed by MECNT.

This will require more consulting work, but preliminarily, there may be two types of benefit sharing within the ER Program:

- 1) Activities funded directly by the ER Program that address specific drivers of deforestation, such as agricultural intensification, substitution of wood, low impact farming, improvement of fish stocks, prevention and control against fire, strengthening security.
- 2) Programs funded by the communities with their share of the proceeds, which should be defined and approved by the communities, such as: construction of schools, tuition for high school and college, improved access to health care and alternative jobs that do not depend on the forest.

While many details remain to be addressed during the Design Phase, the process by which benefits reach the actors on the ground is key to the functioning and success of the Program, and some consideration of broad design features has been discussed. As explained in more detail in Section 11, benefits will be awarded to actors on the ground through a stratification of activity types that allows those contributing specific emission-reducing activities, such as intensified agriculture or wood energy substitution, to have their performance measured against a baseline for that specific activity. This allows for a disaggregation of the potential benefits, ensuring that there is opportunity for all relevant actors to both contribute to the goals of the Program, and be awarded for their performance. While this approach begins to address the issue of ensuring benefits delivered at the jurisdictional scale reach those responsible for the actual emissions reductions, it does not address the specific mechanisms by which these benefits reach the individual communities and actors engaged in specific projects. This level of arrangements will be agreed among the proponents of specific activities, but must comply with the principles formally established at the start of the Program.

In addition, during the Design Phase, an analysis of specific deforestation and degradation drivers within the Program area will be conducted, to complement and localize the national DRC report on the drivers of deforestation mentioned above in Section 4.

10.3 Link between the envisioned benefit-sharing arrangement and the activities in the proposed ER Program.

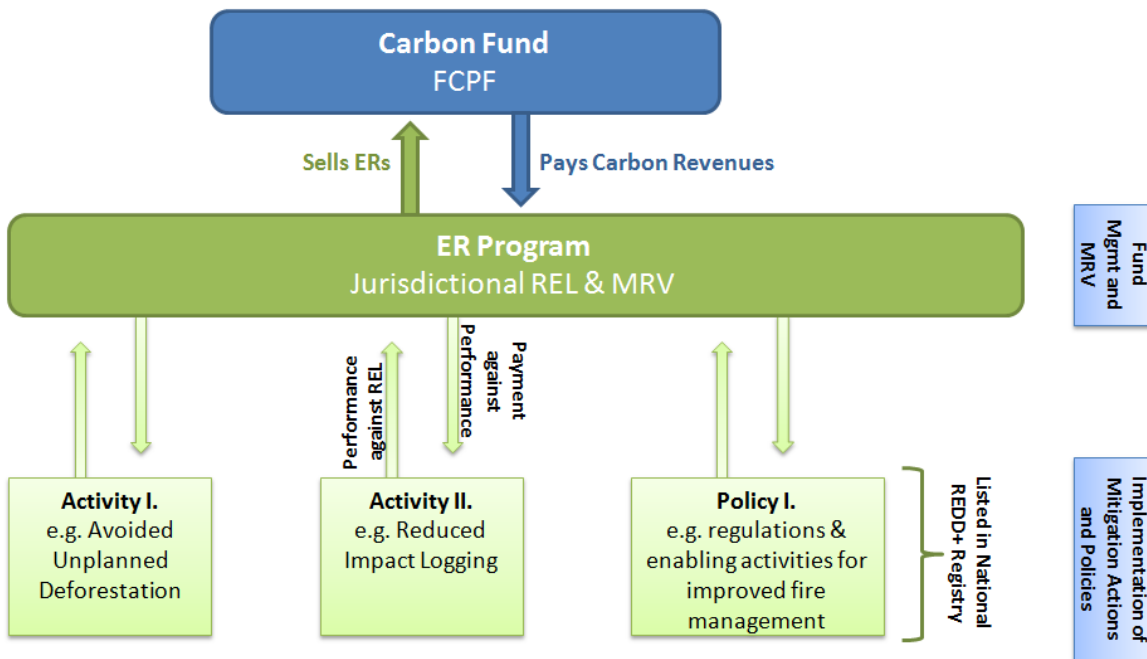
Please explain how these benefit-sharing arrangements would support the activities identified in section 5.3 to address the drivers of deforestation and forest degradation. Identify, if possible at this stage, potential issues or constraints that may emerge in development of the ER Program that could need additional progress in order to effectively implement the benefit-sharing mechanisms.

The link between funding disbursed to the ER Program and the individual mitigation activities and/or policies will be created by implementing a performance-based mechanism, as outlined in Section 10.2:

- The carbon revenues generated by selling ERs to FCPF’s Carbon Fund or other buyers could be managed by the National REDD+ Fund or fiduciary management entity to the National Fund
- Each single mitigation activity and/or policy must be listed in the National REDD+ Registry. Only activities listed in this registry will be entitled to generate ERs and claim related revenues based on performance.
- The jurisdictional REL will be stratified (e.g. unplanned deforestation, planned degradation etc.). This stratification will be spatially explicit (e.g. the historic emissions of planned degradation will be assigned to those areas leased by industrial logging companies, please refer to Section 11.1 for more details).
- The performance of any mitigation activity and/or policy shall be assessed against the specific module assigned to the area of operation of the mitigation activity/policy.

This linkage between ER Program funding and individual activities and policies will be fully operationalized during the Design Phase. This approach will ensure a flexible and equitable disbursement of funds and is illustrated below.

Figure 5: Link between ER Program and Mitigation Activities and Policies



Open issues include regulations of under- and over-performance. This includes the formulation of rules for the disbursement of funds inter alia for the two below scenarios:

- How are individual activities to be rewarded if the jurisdiction performs badly and single activities perform well (i.e. revenues are not sufficient to fully remunerate individual activities based on individual performance)?

- How are funds to be disbursed if the jurisdiction performs well and individual activities perform well (i.e. there are revenues left after the remuneration of individual activities)? Specific rules for the remuneration of spatially inexplicit policies are to be formulated.

Assuming successful implementation of emissions-reducing activities in the ER Program, it is possible that in any given year, the Program may have more emissions reductions to sell than can be contracted. In anticipation of this possibility, the ER Program will, in its design phase, develop a process for equitable allocation of carbon revenues, and will assess the applicability of a “stock and flow approach (Cattaneo, 2009, IPAM 2012)” as applied in the subnational REDD+ program in Acre/Brazil which is supported by the World Bank, WWF, Amazon Fund, Government of Norway, and Sky TV UK and also part of the German REDD+ Early Mover Program.

10.4 Progress on benefit-sharing arrangements

Describe the progress made thus far in the discussion and preparation of the benefit-sharing arrangements, and who has been participating in this process.

Efforts have been made to contribute to the design of the benefit-sharing arrangement, such as initial activities on implementation of free, prior and informed consent (FPIC) process in the DRC. Moreover, in 2011, WWF launched a study (conducted by ONFI) on the institutional arrangements and the sharing of benefits of REDD+ in the area. Progress in the preparation of a future benefit sharing mechanism has continued through the multi-stakeholder ERPIN development, and will be a priority for the ER Program Design Phase. The principles listed in section 10.2 have been developed through the multi-stakeholder ERPIN process, and have been validated in several public workshops attended by a wide range of local, national and international stakeholders.

11. Reference Level and Expected Emission Reductions

11.1 Approach for establishing the Reference Emission Level (REL) and/or Forest Reference Level (FRL)

Please briefly describe how the REL/FRL for the proposed ER Program has been or will be established. Describe how the approach for establishing the REL/FRL is consistent with UNFCCC guidance available to date and with the emerging Methodological Framework of the FCPF Carbon Fund, and with the (emerging) national REL/FRL (or with the national approach for establishing the REL/FRL).

REL Design Principles

The calculation of a Reference Emission Level is a key aspect of any Emission Reduction Program. As such, definition of and adherence to design principles is of utmost importance. Based on multiple stakeholder input, the REL will be designed consistent with the following principles:

- Environmental and climate integrity shall be respected ensuring the avoidance of double counting;
- The REL will be based on a historical deforestation analysis;
- The REL/FRL will be designed in order to be seamlessly monitored by the national MRV system (and its ER Program level version). The approach to develop the REL shall be compatible with the approach developed at national level (i.e. in terms of data, tools and method) and should be easily incorporated within existing tools and those under development;
- The jurisdictional REL/FRL, and the MRV system based thereupon, will be designed to be consistent with the national MRV system, and where appropriate, should incorporate existing and/or under-development tools at the national level. The jurisdictional REL should also inform and reinforce work that is underway at the national level.
- The REL will be established for the entire jurisdiction.

- The jurisdictional REL will be stratified by land-use, land-cover and sub-activities.
- For each stratum a specific REL will be developed. All strata will be spatially delineated and the total area will sum up to the total area of the Mai Ndombe region.
- This will result in a stratum specific baseline, which will serve as reference emission level for mitigation activities tackling specific drivers and agents of deforestation and degradation (e.g. avoided unplanned deforestation activity or Reduced Impact Logging Activity in industrial forest concessions).
- A consistent approach should be used to measure carbon stocks throughout the jurisdiction. This approach should be consistent with the National Forest Inventory (IFN), being developed by DIAF. As the ER Program is designed prior to the start of the National Land Cover Stratification scheme, the national stratification will be reviewed to ensure that the ER Program adequately describes all forest types throughout the jurisdiction. Each stratum will be described by a single carbon stock figure;
- The approach to developing the REL should be appropriate for large-scale analysis and should offer a robust solution to address cloud cover issues;
- When a national REL is available, the jurisdictional REL must be integrated with the national REL;
- The REL must meet the requirements of the Methodological Framework of the FCPF Carbon Fund;
- In line with the guiding principles of the UNFCCC, the ER Program REL/RFL must be consistent with respective national and international principles, such as: Transparency, Accuracy, Consistency, Completeness, and Comparability.

Adherence to IPCC Guidelines

The program will use a combination of Tier 2 and Tier 3 methods, with a majority of Tier 3, as described in IPCC 2006, Vol. 4, CH 1. The historical analysis is fully consistent with IPCC Approach 3, as described in IPCC 2006, Vol. 4, CH 3.

Forest Definition

All subsequent calculations and activities are based directly or indirectly on a definition of forest. The Democratic Republic of the Congo submitted a host country specific definition to UNFCCC that could be applied in the Design Phase of the Jurisdictional ER Program. The respective minimum values for crown cover, tree height and area are listed in the table to the right.

Forest Definition of the DRC	
Item	Value
Minimum Crown Cover (%)	30%
Minimum Land Area (ha)	0.5
Minimum Tree Height (m)	3

Table 1 of Section 4.1 describes the forest strata used for ERPIN and is derived from Hansen et al. The forest/non-forest threshold for this strata scheme is 50% crown cover, as compared to 30% given by the DRC definition (i.e. everything with crown cover below 50% is considered non-forest). These strata therefore set a more conservative threshold for the definition of forest than the definition of the DRC.

Stratification Approach

The following areas are associated with the ER Program:

Table 11: Stratification in Mai Ndombe			
Area Description	Primary Forest (PF)	Secondary Forest (SF)	Total
Total Mai Ndombe region			12,636,939
Total Forested Area	8,834,641	1,012,909	9,847,550
Unplanned Deforestation Stratum	6,894,152	790,428	7,684,580
Planned Deforestation Stratum	12,811	1,318	14,280
Planned Degradation Stratum	1,717,141	196,874	1,914,014
WWC Concession (forested)			248,956
Afforestation/Reforestation Stratum	N.A.	N.A.	11,305

The table above shows firstly the total area of the Jurisdiction for the entire ER Program. We next show the total area of the Jurisdiction that is forested, subdivided into primary and secondary forest. Then we break the forested area into the separate land-use strata for which each portion of the REL is calculated (eventually, these portions are aggregated into a single Jurisdictional REL). These land-use strata are described as follows:

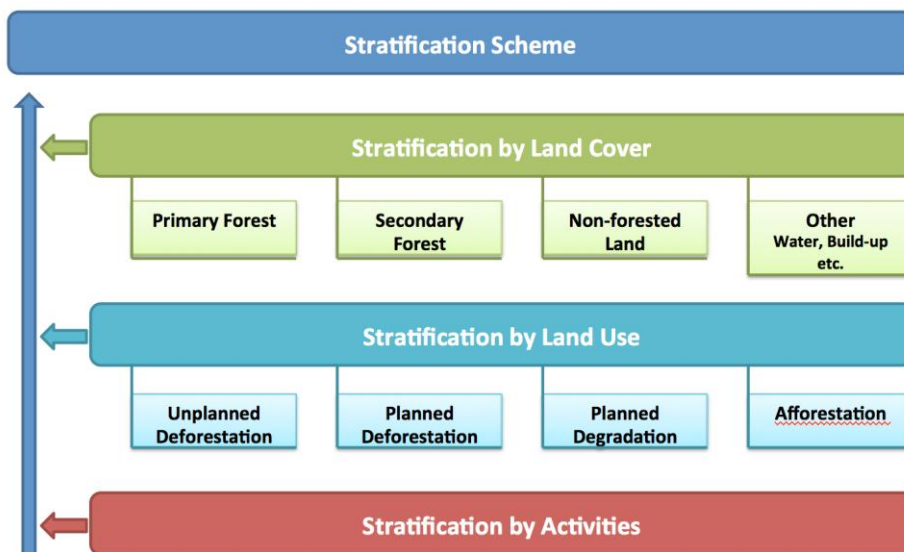
- WWC strata: The forested area applied to the Lac Maï Ndombe REDD+ Project
- Planned Degradation: The total area allocated to concessions is 3,017,777 ha. We subtract the forested WWC concession area (248,956 ha). Next, we determine the proportion of concessions that are forested by applying the provincial ratio of forested to non-forested land.
- Planned Deforestation: The total area that is deforested due to planned activities that result in non-forest (e.g. road construction, Agroforestry, Palm Oil etc.) This stratum could include activities that might have residual carbon, which will be included in the mean carbon stocks for this stratum.
- Unplanned Deforestation: The remainder of forested land is assigned to the Unplanned Deforestation stratum.

The Jurisdictional REL will be developed using a stratified approach. The jurisdiction will be stratified into separate land-use activities, and simultaneously into land-cover categories. These two stratification schemes will be overlaid in the REL calculation process, but it is envisioned that both stratification schemes shall be described as follows (note that the list of land-use and land-cover strata is preliminary, and may be modified as more data become available for the various types of land-use in the Jurisdiction).

In addition to the major land-use and land-cover categories listed above, other sub-strata will be used where they will improve the program's ability to manage the pay-per-performance system. This not only improves the REL's accuracy, but also enables the monitoring of individual mitigation activities against specific baselines (e.g. a Reduced Impact Logging activity shall be credited against the baseline for planned degradation).

In order to capture this change as accurately as possible, the relevant edges will be identified for each land-use stratum using a buffering technique, and each land-use stratum will then be separated into its "core" and "edge" components. This process serves to isolate the heavy forest conversion that often occurs within these edge buffer areas (Bucki et al 2012).

Figure 6: REL Stratification Approach for the Jurisdiction



This stratified REL approach presents a fair and equitable system for each land use type to demonstrate that it has reduced emissions against a business-as-usual scenario that is appropriate for that land-use. In addition, this allows for investments in emission-reducing activities to be focused where they are most needed to achieve successful emission reductions. Rewarding performance below the REL and penalizing emissions above the REL, within the boundaries of each land use category is essential so that the respective agents relevant to each category understand how to control their respective rewards. Agents should only be rewarded or penalized for the reductions or emissions for which they are responsible. RELs for individual strata will provide a clear indication of potential carbon revenues, so that stakeholders may take an informed decision on whether or not they participate in ER Program.

Emission Factors

An emission factor, as described in Appendix 2 of the FCPF CF Methodological Framework (MF), is “a coefficient that quantifies the emissions or removals of a gas per unit REDD+ activity. Emission factors are often based on a sample of measurement data, averaged to develop a representative rate of emission for a given level of land use change related to forests under a given set of operating conditions”.

It can therefore be surmised that:

- Emission factors are an estimate of the emissions that would occur if the forest stock were lowered (either via degradation or deforestation).
- Emission factors are specific to land cover classes (i.e. primary forest, secondary forest, wooded savannah, etc.) and will be used in conjunction with a stratification scheme to estimate accurate emission estimations over a heterogeneous landscape.
- Multiplying a given area (in ha) by its corresponding emission factor yields total carbon stock loss for that area in tonnes of CO₂e.

Several studies examine carbon stock levels for the forest types observed throughout the Mai Ndombe landscape, including a study conducted by the European Union Joint Research Center (EU-JRC), results from the forest inventory conducted for WWC’s Lac Mai Ndombe REDD+ Project, and several studies that offer remotely-sensed estimates for forest carbon stock. These studies have produced highly variable results. For the remainder of the ERPIN, the following approach was followed:

- The average carbon stocks of primary and secondary forest types were calculated, considering the available studies described above.
- The residual carbon stocks refer to the final carbon stock after degradation or deforestation. This value is based on measured and validated ground data from the WWC concession.
- The difference of carbon stocks and residual stocks allows for determination of emission factors for primary and secondary forests, respectively.

Preliminary findings are presented in the table below:

Table 12: Emission Factors for the Mai Ndombe Jurisdiction

Land Cover Stratum	Initial Carbon Stock (tC per ha)	Residual Stock (tC per ha)	Emission Factor (tC per ha)	Data Source
Primary Forest/ Forêts primaires /	256.4	N.A.		Bastin 2011
Residual Stocks		38		WWC REDD+ Project Biomass Inventory
Chosen Value	256.4	38.0	218.4	
Secondary Forest / Forêts secondaires	158.3	N.A.		Bastin 2011
Residual Stocks		38	120.3	WWC REDD+ Project Biomass Inventory
Chosen Value	158.3	38	120.3	

The above-described approach will be expanded and refined during the design phase. The ER Program is committed to using the most accurate and current data available. IPCC Tier 3-compliant will be preferred for application to corresponding sub-strata. The following additional forest carbon stock data sources are likely to be considered:

- A comprehensive carbon stock estimation program is being conducted currently with funding from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), called the Carbon Map & Model Project. The project shall establish a wall-to-wall national forest carbon stock benchmark map. This will be achieved by aerial campaigns based on Light Detection and Ranging (LiDAR). Flights will cover swathes of 10 km length and 2 km width. This information will be calibrated with existing and new forest biomass ground measurements. The calibrated data will then will be extrapolated to other areas not covered by LiDAR flights with remote sensing techniques. This will result in a carbon stock map covering the Mai Ndombe region, with an anticipated accuracy of 80-83%.
- The Japanese Governmental organization JICA is responsible for conducting the provincial forest carbon stock inventory for Bandundu province. This study feeds directly into the National Forest Inventory, hosted by DIAF. This will be considered as an additional valuable data source for the ER Program's carbon stock inventory.

Calculation of the Reference Emission Level

The REL Mai Ndombe Jurisdiction will be calculated using the general approach described below. It is described in more detail in the corresponding sections following. In consistency with the MF, deforestation and degradation land-use strata and sub-strata shall be treated individually. As stated previously, however, all sub-strata are ultimately aggregated, yielding a single adjusted REL for the Jurisdiction:

Calculating the REL – Deforestation Component

1. Stratify the Jurisdiction according to major land-use and land-cover categories.
2. Overlay land-cover strata and establish major land-use/land-cover strata pairs.
3. Calculate total historical emissions for each land-use stratum within the jurisdiction (t/ha) using an appropriate remote sensing-based land-use/land-cover change detection technique.
4. Apply strata-specific Emission Factors (EFs) to each land cover stratum to establish total carbon dioxide emissions per stratum
5. Aggregate all land-use and land-cover strata to achieve a single estimate for CO₂e emissions throughout the historical reference period
6. Divide by the number of years in the historical reference period to determine tonnes of CO₂e emitted throughout the reference period (historical emission rate/REL).
7. Apply REL adjustment(s) over the historical reference period, yielding the REL adjustment for the Jurisdiction.
8. Add the calculated adjustment from step 7 to the base REL from step 6 to yield an adjusted REL for the Jurisdiction.
9. Calculate uncertainty in accordance with MF Indicator 7.2, and IPCC GPG 2003. For wall-to-wall analysis, an error matrix approach is preferred (CP. Oloffson et al 2013).

Calculating the REL – Degradation Component

1. Delineate areas appropriate for degradation analysis (i.e. logging concessions)
2. Calculate degradation for each area based on a modelling approach that accepts pre-degradation carbon stock inputs and assumes a modelled stock loss.

Below is a description of the specific methods that will used to stratify the jurisdiction (land-use and land-cover), calculate RELs for each stratum, aggregate to achieve a single REL for the jurisdiction and then apply the HFLD adjustment currently allowed under the FCPF Methodological Framework.

Land-Use Categories

The above section “Approach for Stratification” considers, stratification by land-use, land cover and activities. This shall lead to the delineation of major strata categories, as follows:

Unplanned Deforestation. Unplanned deforestation is described as administratively unplanned conversion of forest land to non-forest land. Because of the lack of administrative records and/or forest management plans, unplanned deforestation is typically observed empirically using remote sensing techniques. Unplanned deforestation typically follows a spatial pattern that is dependent on forest type and ease of access. Drier, more easily penetrable forests tend to support mosaic type unplanned deforestation, as slash & burn agents are able to convert according to their preference. In dense, humid tropical regimes, which are impenetrable without the use of heavy-duty machinery, edge deforestation dominates. Edge deforestation typically follows previously established infrastructure that penetrates dense forests, allowing access to subsistence farming and charcoal agents.

Planned Deforestation. Planned deforestation is described as administratively planned conversion of forested land to non-forest land. This type of deforestation is associated with a documented management/development plan, which can be used to estimate deforestation rates. Planned deforestation occurs primarily as a result of infrastructure development (roads, hydropower, other industrial complexes, urban spread), agriculture, palm oil plantations and mining.

Unplanned Degradation. This type of degradation is associated with fuelwood collection, charcoal production and certain farming activities. Typically, unplanned forest degradation goes hand in hand with unplanned deforestation, a stepwise effect can be observed:

- Chopping of some trees and branches for fuelwood (degradation)
- Cutting of all smaller trees and piling-up for charcoal production. Burning of the area for cultivation (if large trees remain and crown cover remains over 30%, then still degradation)
- Eventually removal of the large trees for fuelwood or charcoal production (deforestation).
- Frequent burning in subsequent years to keep the area open for cultivation, grazing or better accessibility.

The stratification in deforestation and degradation, as stipulated in the MF, requires ex-ante a consistent delineation, i.e. the single strata must not overlap. Considering above processes, the ex-ante differentiation of areas subject to unplanned deforestation and unplanned degradation is problematic and may involve substantive costs (cp. VCS Methodology 006, ‘rural appraisal mechanism’). Consequently all stakeholders of the ER Program decided to exclude unplanned degradation. This is expected to result in two effects:

- The ER Program will not account for emissions related to unplanned degradation for those degraded sites that remain forest, which is considered to be conservative.
- The emissions from forest degradation will be covered under unplanned deforestation, once the land cover does not qualify as forest in terms of height and crown cover. This will result in a delay of the accounting of emissions, which is considered to be conservative.

Planned Degradation. Planned degradation is the phenomenon whereby forested land is degraded, but the final state still meets the definition of forest. It is important to note that if the definition of forest for a particular country is quite low (i.e. low crown cover, height and minimum patch size), then emissions from degradation can be quite significant. In the Mai Ndombe jurisdiction, the vast majority of planned degradation happens inside logging concessions and is performed by commercial interests. A small additional amount of planned degradation can be attributed to artisanal logging.

REL Calculation Methods

Unplanned Deforestation. Evidence suggests that the majority of emissions in the Mai Ndombe region can be attributed to unplanned deforestation. This phenomenon is described as administratively unplanned conversion of forest land to non-forest land, and typically must be observed empirically due to the inherent lack of administrative and/or management plans.

For the Mai Ndombe ER Program, estimation of historical emissions within the unplanned deforestation stratum will be performed using a remote sensing approach that adheres to IPCC 2006 Tier 3 approach). For estimation at the ER Program level, the FACET dataset was previously considered. However, the decision was made not to continue through ER Program deforestation estimation using this dataset for 2 reasons: First, the FACET dataset includes too broad of a definition of secondary forest, covering everything from lightly degraded forests in forest concessions, to heavily degraded forests, and even in some cases agroforestry. This means that deforestation is being significantly underestimated. Second, FACET uses underlying forest area maps that are composites of several images from different years. This composition was done to produce cloud-free forest area maps. However, as the composites are based on images with a time range of +/- 5 years, the forest area maps do not present a single point in time but merely a time period. This renders the analysis as inappropriate for jurisdictional baseline establishment.

The historical deforestation rate from Hansen et al.'s "Global Maps of 21st Century Forest Cover Change" study is used as the estimate for this ERPIN, and is presented in section 11.3 below. This study uses historical Landsat data and a wall-to-wall pixel-level change detection method to estimate yearly forest loss, and has been shown to accurately capture forest conversion on a yearly basis resulting in an annual deforestation rate of 0.34% (Hansen et al. 2013).

Two additional recently published studies indicate a similar deforestation rate:

- The update of the FACET analysis (to be released) reports a deforestation rate of 0.34% p.a.
- Popatov et al. (2012) indicate a deforestation rate of 0.35% p.a. using a crown cover of 30%.

A particular sub-stratum existing under the unplanned deforestation category is the process identified as the "cascade of deforestation", which represents early-action avoided unplanned deforestation. This land-use category must be separated from all empirically observed unplanned deforestation that occurred during the historical reference period. The contribution for this sub-stratum is described in the PD for the Lac Mai Ndombe REDD+ Project (Freund et al 2012). The contribution to the REL from this sub-stratum generated a variable-level REL corresponding to the actual deforestation observed in a historical reference scenario. For the purposes of the Mai Ndombe ER Program, we use the calculated average REL, in adherence with the MF criteria.

Steps for calculating the Unplanned Deforestation portion of the REL (REL_{UNDEF}):

1. Stratify the unplanned deforestation land-use type into appropriate sub-strata, yielding an area per sub-stratum. Sub-stratify into "core" and "edge" sub-strata to observe activity in strata edges.
2. Apply emission factors to each sub-stratum area, yielding carbon stock per hectare for each sub-stratum (CO₂e/ha)
3. Aggregate all sub-strata to yield a total carbon stock estimate for time period 1 (latest image date).
4. Repeat for time period 2 (earliest image date)
5. Subtract total carbon stock of time period 1 from time period 2 to achieve total change in carbon stock over the historical reference period
6. Divide the result from step 5 by (time 2 – time1, or the total number of years between the first image and the second image) to achieve an unplanned deforestation element of the REL for the Mai Ndombe Jurisdiction.
7. Calculate accuracy (uncertainty) for the unplanned deforestation land-use type in accordance

with MF Criteria 9, and IPCC GPG 2003.

Planned Deforestation. Planned deforestation occurs primarily due to planned infrastructure development such as roads, dams and mines. This type of deforestation is almost always accompanied by a management plan that is either in the public domain or can be readily obtained. As such, this type of deforestation cannot be estimated using an historical baseline. It is by definition “planned” and therefore will happen in the future according to the management plan.

The ER Program will assess the emissions from planned degradation (REL_{PLDEF}) based on the approach below:

1. Obtain all official infrastructure development plans for the jurisdiction covering e.g. plans for road construction, village development, extension of mining and creation of palm oil plantations. Forest conversion must be quantified and spatially mapped.
2. Such infrastructure development plans will undergo due diligence prior to be considered as baseline emissions. For the due diligence, the following provisions may be required:
 - a. A license to convert or an approval letter that allows the holder to put the aforementioned plan into practice. For public administration projects: documented evidence of the administrative approval (executive or legislative decision).
 - b. In case a license / approval letter is not yet issued, a bankable feasibility study.
 - c. Financial records of license holder. This is to demonstrate that the license holder has the financial capacities to realize the project. In case of public administration projects: evidence that the infrastructure project has been included in the public budget.
3. Based on results of step 2, estimate the land area for each infrastructure type to be deforested.
4. Multiply each area by the selected emission factor to yield estimated emissions for each infrastructure category.
5. Aggregate the results from step 3 to obtain an estimate of total emissions from planned deforestation.
6. Calculate uncertainties using an approach that adheres to MF Criteria 9, and IPCC GPG 2003.

Please note, Annex 2 presents a detailed methodology concept envisaged for REL establishment for planned deforestation under the ER Design Phase. For the purposes of ex-ante estimation of emissions from planned deforestation (REL_{PLDEF}) we have assumed that the area for mining, exploitation and public infrastructure projects will be completely deforested over the life of the ER Program (by 2020).

Planned Degradation

Table 13: Logging Concessions within Mai Ndombe Jurisdiction (2010)			
Lease Holder	Area	Lease Holder	Area
SODEFOR	121,645	ONATRA	107,415
RIBA CONGO	37,534	SODEFOR	201,870
SODEFOR	248,272	MAISON NBK SERVICE	80,151
SODEFOR	162,073	SODEFOR	196,454
SODEFOR	237,227	SODEFOR	301,434
SODEFOR	36,505	SODEFOR	241,005
SODEFOR	224,664	LA FORESTIERE DU LAC	186,758
SIFORCO	195,805	ITB	119,967
SODEFOR	169,644	COMPAGNIE DES BOIS	149,354
Total Area (ha)	3,017,777		

Source: MECNT, WRI 2013

Planned degradation is a significant component of emissions in the Mai Ndombe ER Program area, because of the presence of 18 legal logging concessions, covering approximately 3M hectares within the jurisdiction (please refer to the data below, for vintage 2010). Concessions are typically leased by industrial logging companies operating under a 25 year rotation period.

As a result, the approach for calculating REL for planned degradation is a “bottom up” approach to estimate emissions from each legal logging concession during the ER program period. This analysis uses the available information on Allowable Annual Cut (AAC) from each concession, or a proxy in the event that AAC is not available, for one or more concessions, to calculate the emissions caused when extracting the legal harvest volume.

Planned degradation is defined as the process of planned industrial timber extraction on forest land remaining forest land, for which the timber extracting company holds a valid concession license. This process includes industrial logging, which is defined as the process of establishing logging infrastructure (haul roads, log landings, skid trails) inside of sanctioned industrial timber concession areas. It entails a permanent or temporary conversion of forest land to non-forest land.

Timber extraction that leads to a reduction of crown cover below the threshold used in the national forest definition is considered unplanned deforestation and covered elsewhere. Timber extraction on forested land remaining forested land without a valid concession license or outside of a legally sanctioned concession area is considered illegal logging and is not covered here.

The following carbon pools are included in the baseline calculation. All other carbon pools are omitted, which is deemed conservative.

- Above ground carbon in trees / woody biomass
- Below-ground carbon as it relates to road construction
- Carbon stored in harvested wood products
- Carbon stored in deadwood (logging slash, not naturally accumulating deadwood)

Methodologically, and in terms of data, the baseline calculation is largely based on the following sources: VCS Methodology VM0010 Version 1.2, VCS Methodology VM0011 Version 1.0, (here only the residual stand damage factor was used), a report by Hirsh et al. (2013), which quantifies (among other things) baseline emissions from industrial logging in several SODEFOR concessions in Mai Ndombe region and a draft methodology paper by Burian and Schmidt, which proposes a modular approach to calculating baseline emissions for Mai Ndombe region.

The following algorithms describe the proposed approach:

$$REL_{PLDEG} = \sum REL_{PLDEG\ Conc\ 1-x}$$

Where:

REL_{PLDEG} are the jurisdictional baseline emissions from planned degradation over the baseline period, in t CO₂e

$\sum REL_{PLDEG\ Conc\ 1-x}$ is the sum of all baseline emissions from all individual timber concession areas inside the jurisdictional area over the baseline period, in t CO₂e

The baseline emissions of individual timber concessions inside the jurisdictional area are then calculated based on the biomass of extracted timber, emissions from residual stand damage and logging infrastructure (such as roads, skids, etc.) Please refer to Annex 2 for details on the calculation.

Once the REL for each concession has been established, each concessionaire will be given the opportunity to implement formal emission-reducing activities within their concession. Examples include Reduced Impact Logging (RIL), Improved Forest Management (IFM) or conversion to a conservation concession.

Should the concessionaires elect to implement these activities under a formal commitment, they will then be eligible for pay-for-performance from the ER Program, provided annual MRV indicates their success in reducing emissions. In the event that a concessionaire chooses not to enter into such an emission-reducing agreement with the ER Program, they shall not be eligible for any pay (for performance), regardless of whether or not annual MRV suggests that they have reduced emissions. This is to ensure that inactive logging concessions are not eligible for pay-for-performance while *not* under official agreement to reduce emissions (i.e. concessions not participating in the ER Program), as if the inactive concession suddenly becomes active, any pay per performance benefits would need to be reversed.

Unplanned Degradation

As discussed under the Section 'Consideration of Deforestation- and Degradation Categories - Unplanned Degradation' above, this category will be excluded from the REL calculations.

Removals/Afforestation

It is proposed that the ER Program includes afforestation/reforestation (A/R) programs. These programs involve the sequestration of carbon through the planting of trees and/or the assistance of naturally regenerating (ANR) forest. Such afforestation programs, in addition to accounting for removals, may provide an important leakage mitigation function to the ER Program.

Some projects/programs under development are planning to do afforestation on non-forest areas (i.e. lands must be non-forest 10 years prior to afforestation). There are currently 3 programs under development / implementation based on an agroforestry scheme with fast growing and leguminous tree species (Acacias intercropped with cassava) in order to (i) provide an alternative to slash and burn agriculture and charcoal production when it is implemented with communities on individual fields (reduction of unplanned deforestation) and (ii) to produce cassava and charcoal at a large scale (pseudo industrial) to supply Kinshasa with sustainable agricultural and energetic products. Hence, plantations will be cut down periodically to produce charcoal and allow production of cassava. During growth, those plantations are sequestering carbon.

Afforestation/reforestation removals are calculated as follows:

$$\Delta C_{AR-CDM,t} = \Delta C_{ACTUAL,t} - \Delta C_{BSL,t} - LK_t$$

$\Delta C_{AR-CDM,t}$ = Net anthropogenic GHG removals by sinks, in year t ; t CO₂-e

$\Delta C_{ACTUAL,t}$ = Actual net GHG removals by sinks, in year t ; t CO₂-e

$\Delta C_{BSL,t}$ = Baseline net GHG removals by sinks, in year t ; t CO₂-e

LK_t = GHG emissions due to leakage, in year t ; t CO₂-e

<i>Table 14: Afforestation / reforestation</i>	ANR	Agroforestry		
Project/program	Novacel	Novacel	FIP	Total
Areas of implementation into the program (ha)	1,000	1,305	10,000	11,305
Scheduled first year of plantation	2,014	2,014	2,015	
Mean removal (tCO₂/y - mean over 30 years)	8,972	3,273	25,430	37,675
Total removals after 10 years (tCO₂)	107,276	7,966	71,480	186,722
Total removals after 30 years (MtCO₂)	0.27	0.10	0.76	1.13

Annex 3 describes the detailed calculation approach for A/R.

REL Aggregation

The previously calculated REL elements shall be aggregated to achieve a single REL for the Mai Ndombe Jurisdiction:

$$REL = REL_{UNDEF} + REL_{PLDEF} + REL_{PLDEG}$$

Uncertainty Aggregation

The individual uncertainties calculated above for each REL element shall be aggregated to achieve a single uncertainty value for the Jurisdictional REL, in accordance with the MF Criteria describing Uncertainty Calculations.

HFLD Adjustment Factor

The context of the DRC in general and of the Mai Ndombe region in particular indicates that deforestation and degradation will accelerate compared to the deforestation and degradation of the past, as described above by the definition of HFLD. The DRC represents the most globally impactful example for justification of specific measures to incentivize HFLD countries to reduce emissions from forests, due to its relative potential impact on climate change. Several other factors strongly suggest that historical deforestation and degradation are a poor predictor of future emissions in the DRC, due to the dramatic changes occurring within the country. Political stability has been achieved over recent years, and this has led to an influx of investment into the country, improving infrastructure and access to more and more parts of the country that have been largely inaccessible in the past. An even greater indicator of strongly increasing pressure on forests is the magnitude of current and expected population growth. The IISD, in its 2013 study on the DRC's present and predicted future emissions profile, predicts an *annual* population growth of 2.7 per cent between 2010 and 2030 for the DRC, which corresponds to a **54% population growth over those 20 years**. (Stiebert,2013). Using locally-derived estimates for hectares deforested for subsistence slash and burn agriculture per household (between 0.5 and 0.75 ha/household) and for the duration of fallow usually adopted (5 years), an estimation of potential new areas opened due to demographic pressure on forests has been developed. Considering the results of this preliminary modeling estimate, and also taking into account expert opinion on the additional potential contribution of improvements in road quality and water transportation among other factors, a 0.38 - 1.00% annual deforestation rate over the next ten years is considered possible in the absence of intervention. It is further assumed that there is a 50% / 50% split between rural and urban contributions to the estimated increase in deforestation, but this ratio may vary significantly in specific locations.

The ER Program area is under important demographic pressure, exacerbated by its proximity to Kinshasa. The projections of population growth (see table below) indicate an increase in the demand for agricultural land, construction wood and charcoal. Slash and burn agriculture which has a short fallow (4.0

Table 15: Average Annual Population Growth

Years	2010-2015	2015-2020	2020-2025
DRC	2.62%	2.47%	2.29%
DRC – rural zones	1.77%	1.55%	1.30%
DRC – urban zones	4.19%	3.97%	3.72%

Source: UN Department of Economic and Social Affairs, 2011

years - fields of forests and 4.5 years - fields in Savannah) following 2.0 years of cultivation (cp. Lukawasa et al. 2012) will continue to increase and take land from forest and wooded savannah. Charcoal production, notably in the south of the program area and along the river will also increase to supply the growing population of Kinshasa. In the same way, artisanal exploitation will continue to increase to supply construction wood to Kinshasa. Due

to the clear evidence for a dramatically increased future deforestation rate without significant intervention, the DRC proposes an adjustment to its historical reference level of 0.057%, to be revisited

during the Design Phase as described below. The current number is arrived at by a goal to keep the adjusted REL under 30, in consideration of the recommendation given by the EU.

During the Design Phase, it is proposed to refine the calculation of the adjustment factor based on economic regression analysis in the next design phase of the ER Program. The following approach is envisaged:

- The forest area benchmark maps provide measurements of deforestation for the periods between maps.
- For each time period, key data will be collected. Based on current information on drivers and agents of deforestation, prices of manioc, charcoal, maize and cattle as well as population growth will be included.
- Economic regression analysis will allow for the assessment of the explanatory value of the above parameters for the measured deforestation rate.
- In the future, the above parameters will be monitored, allowing for the determination of a future business as usual deforestation rate. This new rate will be subtracted from the historical REL, yielding the adjustment factor.

If successful (i.e. high explanatory value), this approach would allow for the calculation of the adjustment factor based on a transparent, verifiable and reproducible approach. Still, the success of this approach will be bound to data availability and to the extent on which structural changes in DRC in general, and Maï Ndombe region specifically, affect the deforestation rate. More details on this approach are included in Annex 2.

11.2 Expected REL/FRL for the ER Program

Please provide an estimate of the REL/FRL for the proposed ER Program area. Even a very preliminary estimate would be helpful.

The tables below represent a preliminary estimate of REL values developed using the land use-based approach described in section 11.1 above. More analysis will be required during ER Program design to provide final REL using this method.

The following table shows parameters used for the calculation of the unplanned deforestation REL (REL_{UNDEF}):

- As outlined under Section 11.1 above, the total area subject to unplanned deforestation amounts to 7,684,580 ha (6,894,152 ha for primary forest and 790,428 ha for secondary forest)
- Hansen et al. reports on a deforestation rate of 0.34% per annum, which results in annual forest losses presented in the table below.
- Emission factors are described in Section 11.1. They are calculated as the difference between unconverted and residual carbon stocks for both, primary and secondary forests.
- To calculate annual emissions, we multiply the emission factors by the annual forest losses. The results are reported in the table below (column on the right).
- For the WWC conservation concession, the actual annual emissions calculated total 5,176,858. However, a conservative value of 5Mt CO₂e/yr. is applied.

Table 16: Calculation of REL for Unplanned Deforestation				
Sub-stratum	Annual Forest Loss (ha/yr)	Carbon Stock (tC/ha)	Emission Factor (tC/ha)	Annual Emissions (tCO ₂ e/yr)
Primary forest (75%-100%)*	15,849	224	187.9	12,691,817
Secondary forest (51%-74%)*	3,577	74.2	54.6	1,577,638
Conservation concession	4,885	289	251	5,000,000
Total REL_{UNDEF}	24,898			19,269,454
<i>*excludes conservation concessions</i>				

Planned deforestation (REL_{PLDEF}) is calculated as follows:

As stated in Section 11.1, the total area subject to planned deforestation is estimated as 14,280 ha over 10 years. To calculate the annual emissions from planned deforestation, the emission factor is defined as the difference of unconverted carbon stocks and residual carbon stocks (it is assumed that e.g. mining and palm oil plantations have significant residual carbon stocks). Below ground biomass (BGB) is included and calculated using a root-to-shoot ratio (0.37) taken from IPCC GPG 2006. Annual emissions are calculated as the product of the emission factor and annual forest loss.

Table 17: Planned deforestation REL calculation			
	Annual Forest Loss assuming 10 yr timeframe (ha/yr)	Emission Factor (tC/ha)	Annual Emissions (tCO ₂ e/yr)
Primary Forest	1,281	218.4	1,025,919
Secondary Forest	147	120.3	64,790
Total			1,090,709

The results of the preliminary calculation of emissions due to planned degradation (REL_{PLDEG}) are provided below. The calculation is based on two sub-modules:

- Emissions from logging operations are constrained to AGB
- Affiliated emissions from logging infrastructure development include AGB and BGB.

Please consider that Annex 2 provides detailed discussion of input parameters and data sources.

Table 18: REL_{PLDEG} - Calculation of Annual Emissions from Planned Degradation				
REL _{PLDEG} - Emission related to Baseline Logging Operations				
Parameter	Description	Value	Units	
ΔCNET BSL(1)	net change in carbon stock across all parcels in the baseline scenario in the first year since harvest in the baseline scenario	873,065	tC	
ΔCNET BSL(2-10)	net change in carbon stock across all parcels in the baseline scenario in years 2 - 10 since harvest in the baseline scenario	7,186,807	tC	
ΔCNET BSL(11-20)	net change in carbon stock across all parcels in the baseline scenario in years 11 - 20 since the start of the project activity	818,889	tC	
ΔCNET BSL(1+)	net change in carbon stock due to forest regrowth in all parcels that have been harvested in the baseline scenario	-1,838,275	tC	
t*	1, 2, ..., 10, time elapsed since the start of the project, in years	300	years	
ΔCNET BSL,t*	net change in carbon stock across all parcels in the baseline scenario in the year t* since the start of the project activity	7,040,485	tC	
GHGNET BS,t*L	net greenhouse gas emissions in the baseline scenario in the year t* since the start of the project activity	25,815,113	tCO ₂ e	
44/12	ratio of molecular weights of carbon dioxide and carbon	3.67	tCO ₂ e tC-1	
Subt-total	Average Annual Baseline Emissions from PLDEG - Logging Operations	1,032,605	tCO ₂	

REL _{PLDEG} - Emission related to Baseline Logging Infrastructure		
Description	Value	Units
Total Surface of primary Haul Roads	53,710	ha
Total Surface of secondary Haul Roads	34,468	ha
Surface of Skid Trails	78,757	ha
Biomass Loss on primary and secondary Haul Roads – Baseline Scenario	100%	%
Biomass Loss on Skid Trails	9.00%	%
Ratio of Molecular Weights of Carbon Dioxide and Carbon	3.67	tCO ₂ e tC-1
Default root-shoot-ratio value	0.37	dimensionless
Total Baseline Emissions AGB	78,244,776	tCO ₂
Total Baseline Emissions BGB	28,950,567	tCO ₂
Total Baseline Emissions AGB + BGB (over 25 years)	107,195,342	tCO ₂
Annual Average Baseline Emissions AGB + BGB	3,441,506	tCO ₂
REL _{PLDEG} – Total Emissions from Planned Degradation		
Annual Average Baseline Emissions from Logging Operations	1,032,605	tCO ₂
Annual Average Baseline Emissions from Logging Infrastructure	3,441,506	tCO ₂
Total REL_{PLDEG}	4,474,111	tCO₂

Please note, the expected emission reductions associated with Afforestation/Reforestation are discussed in Section 11.3 ‘Expected Emission Reductions’. They are not considered here as they do not relate to historic emissions.

Ultimately the aggregation of the REL and REL Adjustment is shown below:

<i>Table 19: REL Estimate</i>	<i>REL</i>
Unplanned Deforestation REL _{UNDEF}	19.27
Planned Deforestation REL _{PLDEF}	1.09
Planned Degradation REL _{PLDEG}	4.47
Unplanned Degradation REL _{UNDEG}	0.00
TOTAL Mai Ndombe REL	25.02
Adjustment (assumed to be 0.08% of carbon stocks, MF Indicator 13.4)	4.92
Total Adjusted REL (AREL)	29.94

The table above presents the output of the adjustment calculation. The table on the right lists the details of this calculation. Primary- and secondary forest areas are multiplied by their respective carbon stocks (AGB+ BGB) to yield total carbon stocks for the Mai Ndombe region. The adjustment is then calculated as a percentage of this total stock.

Calculation of the Adjustment	
Adjustment Factor (in %)	0.057
Primary forest (ha)	8,834,641
Secondary Forest (ha)	1,012,909
Carbon Stock PF (in tC)	256.4
Carbon Stock SF (in tC/ha)	158.3
Carbon Stock PF (in tC)	2,265,201,952
Carbon Stock SF (in tC)	160,343,495
Total Carbon Stock (in tC)	2,425,545,447
Stock (tCO ₂ e)	8,893,666,639
Adjustment (in tCO ₂ e/yr)	4,919,018

Development of Forest Reference Level (FRL)

The approach used to measure FRL will use a ground based fixed-plot sampling scheme, overlaid on the FACET land cover map for the baseline year (2010 or 2012), to calculate a biomass/GHG inventory from field forest plot measurement. This approach has the advantage of initiating fixed plots that can be used during MRV to measure degradation. This will be particularly important in analyzing the emissions performance within planned logging concessions.

11.3 Expected Emission Reductions (ERs)

Please provide an estimate of the expected impact of the proposed ER Program on the REL/FRL (as percentage of emissions to be reduced). Based on this percentage, also estimate the volume of ERs, as expressed in tonnes of CO₂e, that would be generated by the ER Program:

- up to December 31, 2020 (currently the end date of the FCPF)
- for a period of 10 years; and
- the lifetime of the proposed ER Program, if it is proposed to continue longer than 10 years.

The following table represents a preliminary estimate of potential emission reductions and is based on the following:

- It is assumed that the ER Program will become operational in July 2015.
- The expected annual emission reductions are based on both a low- and high scenario of abatement. The underlying assumptions for both scenarios are provided for each module below the table.

Finally, the table provides average estimates (i.e. the average of the low- and high scenario) of the expected emission reductions a) up to 2020, b) over ten years, and c) for the total lifetime of the ER Program. It is assumed that the ER Program is operational until 2050, which is in line typical with the typical lifetime of REDD+ Programs under the VCS.

REL Module	AREL per Module (MtCO ₂ e)	Low ER Scenario (MtCO ₂ e)	High ER Scenario (MtCO ₂)	Average ERs (MtCO ₂ /yr)	ERs (MCO ₂ over 10 years)	ERs up to 2020 (MtCO ₂ e)	ERs up to 2050 (MtCO ₂ e)
Unplanned Deforestation	19.27	4.82	9.63	7.23	72.26	32.52	249.30
Planned Deforestation	1.09	-	0.05	0.03	0.27	0.12	0.94
Planned Degradation	4.47	0.22	0.97	0.60	5.97	2.68	20.58
Afforestation	0.19	0.05	0.14	0.09	0.93	0.42	3.22
Totals	25.02	5.09	10.80	7.94	79.43	35.74	274.04

Below section outlines the underlying assumptions for the performance of various deforestation and degradation categories.

Unplanned Deforestation: The “low” assumption is based on limited success in reducing emissions from illegal logging, charcoal production and slash and burn agriculture in the unplanned deforestation stratum and medium success in the early action REDD+ project. It is assumed that emissions may be reduced by 25% under this scenario. The “high” assumption is based on strong success in reducing those emissions by providing viable alternatives to affected communities. It is assumed that emissions may be reduced by up to 50% under this scenario.

Planned Degradation: The range of assumptions here is based on a variety of projected success levels for reduction of measured degradation inside of logging concessions. Success will depend on how many concessionaires agree to reduce the emissions from their concessions below their legally agreed REL.

- Under the low scenario it is assumed that 10% of concessionaires will participate in the ER Program and are capable of reducing their emissions by 5%.
- Under the high scenario it is assumed that 33% of concessionaires will participate in the ER Program and are capable of reducing their emissions by 22%.

Afforestation/Reforestation GHG Removals: Section X proposes four A/R activities. In the low scenario it is assumed that 25% of the expected removals may be realized, whereas under the high scenario it is assumed that 75% of the planned removals may actually be sequestered.

Uncertainty and Reversal Buffer Removal

We will calculate uncertainties for the REL and make subsequent subtractions, according to FCPF MF Indicators (Indicator 6.1). The REL will also be adjusted for MF Indicator 19.1 to account for reversal buffer reserve. It is assumed that majority of the removals will be due to the risk of reversal analysis, as the ER Program intends to adhere to high quality standards for REL calculation and MRV measurements. A preliminary estimated of that value is set at 20%, and these net emission reductions are shown below.

Table 21. Estimated Net Emission Reductions for the ER Program

REL Module	AREL per Module (MtCO ₂ e)	Low Scenario (MtCO ₂ e)	ER High Scenario (MtCO ₂)	ER Average ERs (MtCO ₂ /yr)	ERs (MCO ₂ over 10 years)	ERs up to 2020 (MtCO ₂ e)	ERs up to 2050 (MtCO ₂ e)
Unplanned Deforestation	19.27	3.85	7.71	5.78	57.81	26.01	199.44
Planned Deforestation	1.09	-	0.04	0.02	0.22	0.10	0.75
Planned Degradation	4.47	0.18	0.78	0.48	4.77	2.15	16.46
Afforestation	0.19	0.04	0.11	0.07	0.75	0.34	2.58
Totals	25.02	4.07	8.64	6.35	63.55	28.60	219.23

11.4 Volume proposed for the FCPF Carbon Fund

Please explain the portion of the expected ERs that would be offered to the Carbon Fund, and if other carbon finance providers or buyers have been identified to date, the portions of the expected ERs that would be offered to them.

The ERs generated by the ER Program shall be offered to a range of buyers, either by the government, through the National Fund (with possible support of the program manager), or directly by individual projects that have been approved for direct crediting. This will be done avoiding double counting.

The Government of the DRC reserves the right to sell ERs to the Carbon Fund, if they meet the CF's standards and the distribution of funds is fair and equitable. An outline of the portion of expected ER's that would be offered to the Carbon Fund are described in the table below:

Table 22. Annual Proposed Volume of ER Sales to Carbon Fund (in Mt CO₂/yr.)							
Year	2015	2016	2017	2018	2019	2020	Total
Proposed Program Sales to the Carbon Fund	1.00	2.00	1.50	1.50	1.50	1.5	10.00
Existing Program Sales Outside of the Carbon Fund	3.18	6.35	6.35	6.35	6.35	6.35	34.95
Total	4.18	8.35	7.85	7.85	7.85	6.35	42.45

12. Forest Monitoring System

12.1 Description of approach and capacity for measurement and reporting on ERs

Please describe the proposed approach for monitoring and reporting the emission reductions attributable to the proposed ER Program, including the capacity of the proposed ER Program entities to implement this approach.

MRV Principles

The ER Program MRV system will be based on the framework of the national MRV system. It will therefore integrate the tools and methods of nested projects into the national system to ensure consistency between jurisdictional and nested project-level MRV.

The following agreed-upon principles describe, and will significantly enhance the MRV system:

National Forest Monitoring System: All stakeholders and program participants will use a compatible forest monitoring system. The ER Program will be consistent with the tools and methodologies developed at the national level, which includes, [SLMS](#), a tool of collecting and assessing over time AD related to forest land and the NFI to collect the information relevant for estimating emissions and removals and provide the EF. Together, this information could provide the basis to compile a GHG inventory.

The ER Program and all nested projects should use methodological approaches similar to those being used for the National Forest Inventory. Data sharing and sampling plot design should be shared amongst stakeholders, such as DIAF, JICA, WWF, WWC/ERA, Novacel, etc.

Reporting (I-GHG, National REDD+ registry): All future carbon stock (inventory) data and details of undertaken REDD+ activity should be monitored and reported in a manner that enables full and complete incorporation into the current national MRV system. This will provide the information of reporting elements in line with the UNFCCC guidance (so far for National communication). It should be noted, however, that in the partial operation of the MRV system at the national level, jurisdictional approaches must be able to move forward with their MRV efforts, and may use individual tools at their discretion.

Verification and Integration with Communities: Considering criterion 16 of the FCPF-CF methodological framework, all stakeholders and the Government of the DRC agree upon, and strongly emphasize, the importance of local communities' expertise and skill in the design and implementation of the MRV system. This includes MRV activities ranging from field carbon data collection, to biodiversity and social monitoring. Third party tools are being developed in the DRC - such as the [MOABI](#) system - which utilizes the concept of crowdsourcing to allow participation by the communities on the ground in the overall validation / verification process.

The national Monitoring system has been implemented and on progress of operation. The MRV methodological requirements by the FCPF-CF will be thoroughly reviewed by the stakeholders and the

DRC government in order to ensure the ER program conforms to those requirements. The MRV system for the DRC will be: transparent; accurate; consistent; complete and; comparable with other systems, including nested MRV systems and databases.

MRV function in NFMS

The proposed ER Program monitoring system under development in the of Mai Ndombe ER Program area will integrate data collected and assessments made at various scales, from the community level to the entire jurisdiction and will ultimately be integrated into the NFMS.

National Forest Monitoring System (NFMS)

The key element of the MRV system is the DRC's National Forest Monitoring System (NFMS) which is entirely consistent with COP 19 MRV decision. The DRC NFMS, managed by DIAF/MECNT in collaboration with FAO, JICA and the INPE, etc. has a [web interface](#) as one of the type of monitoring approaches described by UN-REDD NFMS strategies, to monitor the REDD+ activities and provide the result of overall NFMS in compliance with the principles of consistency, completeness, comparativeness, accuracy, and transparency, as recommended by the IPCC. The plan of DRC NFMS by FAO/DIAF is programed from 2014 to 2016 by covering all procedure of developing, implementing, and operationalizing.

This fulfils to compile, integrate and analyze a wide range of data, including deforestation statistics, calculated through interpretation of satellite data and field carbon inventories. The NFMS can also integrate other data from nested REDD+ projects / programs as well as forest concession data, data from protected areas, mining concessions, etc. For example national carbon stocks data by LiDAR technique (Light Detection and Ranging) and participatory mapping data from WWF's "Carbon Map and Model" project, data from WWC/ERA conservation concession, reforestation activity data from Novacel South Kwamouth project, etc. may be contributed to the system. All the data will be collected in a manner that ensures ease of integration into the national system. NFMS will also provide an interface allowing robust stakeholder participation for the purposes of data validation.

The NFMS is based on three pillars:

- **Pillar 1:** Satellite Land Monitoring System (SLMS)
- **Pillar 2:** The National Forest Inventory (NFI)
- **Pillar 3:** The National Greenhouse Gas Inventory (I-GHG)

Pillar 1 : Satellite Land Monitoring System: TerraCongo

TerraCongo provides a combination of tools, including an open-source database, user interface and algorithms that are being adapted to the specific needs of the DRC. This provides forest change data assessed by satellite representation (Landsat, FACET, and Land cover map of UCL, etc.) in the methodology of detecting the changes from 1999 to 2010 with FACET data and annual or bi-annual change from 2012. This should be monitored and verified by field or satellite data with a higher resolution. For ER Program, this methodology would be adapted to monitor changes in the region every year. Airborne LiDAR data or forest cover map by *Matt Hansen* from University of Maryland can be used to enhance the accuracy of this assessment.

Pillar 2 : National Forest Inventory (NFI)

The National Forest Inventory requires a comprehensive land cover map to be used as the basis for the stratification of the sampling activities. Such a map has been produced by DIAF/MECNT in partnership with The Catholic University of Louvain (UCL) for the national pre-inventory. At the ER Program level, a finer stratification could be considered for the establishment of specific emission factors. As new data become available (for example airborne LiDAR data by WWF), they will be assessed and incorporated into the NFI in order to continually assess stratification quality.

It is proposed that inventory work for the ER Program will be carried out by the Division of Forest inventories, a subsection of DIAF/MECNT, currently in charge of the National Forest Inventory, with collaboration from other nested ER Program stakeholders currently involved in MRV activities within the jurisdiction. Forest inventory data collection will comply with the standards required by the UNFCCC REDD+ mechanism. The NFI will include:

- A detailed land cover stratification map depicting forest lands;
- A pilot sampling campaign for forest lands;
- Assessment and update of stratification based on the pilot sample campaign;
- A complete sampling of forested lands, including evaluation of carbon stocks and carbon stock changes.

The methodologies of the pre-inventory in DRC under UN-REDD program has been developed by FAO/DIAF and validated in 2012. With this guideline the National Forest pre-inventory for total 65 sites in overall DRC is underway since 2013 by DIAF with corporation with FAO for the whole project and JICA/JAFTA for the Bandundu province and completed data from the pre-inventory will be the base to calculate the number and type of plots and sites by strata in the National Forest Inventory.

Pillar 3: National GHG Inventory

To achieve at greenhouse gas equivalent (tCO₂e) results, the ER Program will use standardized allometric approaches that comply at least with a Tier 2 level approach under the IPCC 2006 guidelines. Allometry will derive from a combination of literature and field-collected data. This will include data generated not only for the NFI but also by ER Program stakeholders such as the Mai Ndombe REDD+ Project, Novacel's South Kwamouth project, WWF/RPAN and the Carbon Map and Model described previously. It is envisioned that these datasets may be used for calibration and/or verification of per-stratum carbon estimates. The ER Program will also explore the use of novel approaches as they become available in order to generate more accurate emission factors. These currently include techniques like LiDAR-assisted carbon mapping. The DDD/MECNT has taken the role of DRC National GHG Inventory which eventually requires the input of NFI and SMLS and they have built capacity building by being trained by FAO and UNFCCC how to calculate the average emission rate of a given GHG for a given source.

A main goal for the GHG-Inventory is to develop an intelligent scheme for sampling biomass as well as for tracking deforestation and degradation over the complete jurisdictional spatial extent. A coarse-to-fine resolution is being considered as an efficient way to emphasize the collection and generation of data for those areas that are or are likely to be most dynamic within the jurisdiction. This system is based on net change (measured by GHG inventories) between ER Program monitoring periods.

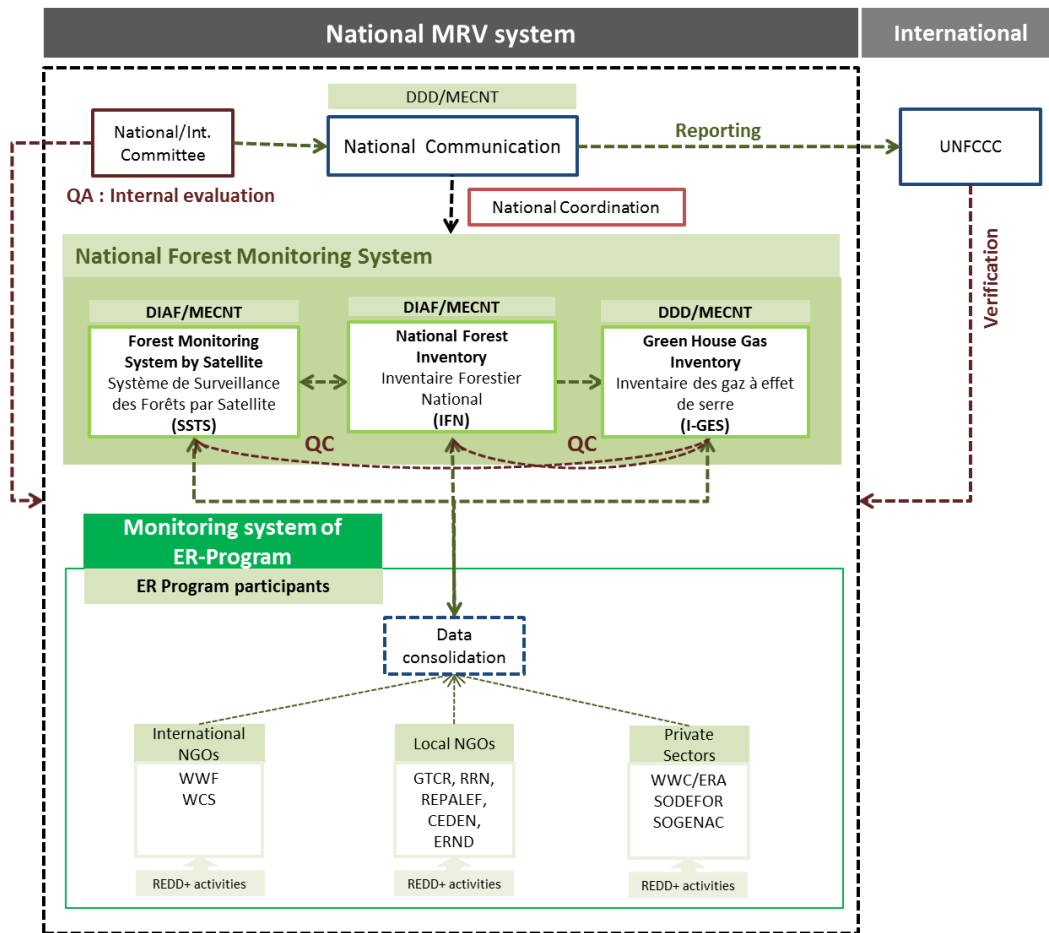
It will be inclusive, incorporating data and techniques from nested projects and activities, and will also be comparable to national and international MRV systems. The final development of the MRV system will be completed during ER Program design, in consultation with DIAF, DDD, FAO, JICA, CN-REDD, OSFAC, local project developers and the FCPF-CF.

12.2 Describe how the proposed ER Program monitoring system is consistent with the (emerging) national REDD+ monitoring system.

As described in detail above in section 12.1, this ER program intends to fit seamlessly with the models being developed at the national level. Current nested ER interests are working in close conjunction with the national entities responsible for the NFMS, NFI and GHG inventory programs described above.

It is expected that all monitoring data from ER area can be fed to the national MRV program and vice versa, and at the end, this ER MRV program will integrate into the National MRV program currently underway of implementation by using remote sensing technologies and traditional in-situ biometric forest measurement techniques for NFI to calculate the estimate of emission. Currently the NFMS compares mainly the FACET data and land cover map (from UCL) to detect the forest change in the past and other additional satellite data to monitor it regularly as more accurate ones are available. This is verified by field data and Google Earth tool.

Figure 6: Proposed Monitoring system in ER program integrated to the NFMS



As the ER area is smaller area than national surface, to fill the scale gap, integration of certain methodologies and use of higher resolutions data are recommended, such as the season’s analysis, specific data of concession area, LiDAR data, and/or Land cover map by *Matt Hansen*, etc. In addition the strata used for NFMS may need to be reviewed, concerning the land cover characteristic of the Mai-Ndombe area. As the national systems are advancing, current nested emission reduction efforts can be used for pilot and calibrate the national systems, with the ultimate goal of all ER program-related data integrating into the national systems.

12.3 Describe how the proposed ER Program monitoring system is consistent with UNFCCC guidance available to date and with the emerging Methodological Framework of the FCPF Carbon Fund.

The ER Program will adhere to the Verified Carbon Standard (VCS) Jurisdictional and Nested REDD+ (JNR) standard, which is aligned with the UNFCCC guidelines and FCPF Carbon Fund Methodological Framework

and will incorporate all applicable guidance from the FCPF Carbon Fund's Methodological Framework (Criterion 14, 15, 16) into the ER Program's monitoring system.

The both emission reduction activities and the calculation of emission factors under this program must conform to the national MRV approach following UNFCCC guidelines. The activity data in the program area (AD: in the LULUCF sector, data on land area, management systems, lime and fertilizer use are included) will be generated in accordance with approach 3 of UNFCCC, which is characterized by spatially explicit observations of land use categories and land use conversions, often through sampling at specific geographical points and/or complete ('wall-to-wall') mapping. Moreover the use and analysis of satellite during this procedure will enable to meet the reporting requirements indicated in Approach 3 for the representation of lands following LULUCF Good Practice Guidelines by using and analyzing satellite data. The emission factors in ER program will be consistent with the methodological approaches in the national MRV, guided by the UNFCCC tier 2 or tier 3.

12.4 Describe any potential role of Indigenous Peoples or local communities in the design or implementation of the proposed ER Program monitoring system.

Local and indigenous communities will be involved in the development and implementation of the monitoring system at several levels, which could result in non-carbon benefits and development of the social safeguard, described as follows:

- Through their representatives on the advisory committee of stakeholders to develop the policy and procedural framework of the ER program, which will assist in framing the MRV system, including the question of the involvement of local communities and indigenous projects as well as for monitoring the populations of individual ER projects;
- They will be mobilized on the ground through a network of local observers trained by the Improving Forest Governance Project to monitor the indicators of project performance, including the monitoring of project proxy areas and social and individual performance metrics. For example, the Moabi will host community mapping data collected by other organizations through the mapping platform and establish community mapping baselines for all REDD+ pilot projects;
- They will be deeply integrated into program MRV efforts, particularly for forest inventory efforts. Tree species identification is the most difficult aspect of forest inventory work. Often, local forest communities possess extensive, unparalleled knowledge of forest biodiversity. It is vital to program success that these groups are heavily engaged in carbon inventory work, both for technical purposes as well as to provide the tangible community benefits. This employment of local forest peoples will create important stakeholder acceptance of the ER program.
- They could be participated in more various scopes of ER program to validate data, to integrate the mitigation actions with their management plans, and to design mitigation actions and their stewardship, etc.

12.5 Describe if and how the proposed ER Program monitoring system would include information on multiple benefits like biodiversity conservation or enhanced rural livelihoods, governance indicators, etc.

The ER Program must conform to the Safeguard Information System (SIS) under development at the national level. As such, the program will develop a jurisdictional-scale system for monitoring these safeguards with the support of the Improving Forest Governance Project, conforming to all national documentation requirements.

At the project level, more advanced and specific safeguard efforts will be considered. As a contribution to the work reported on and planned for in the mid-term progress report, WWC has worked with ICRAF and the Learning Initiative on Social Assessment for REDD+ (LISA-REDD+), to develop a best practice social impact assessment process. WWC's social and biodiversity impact assessment process as implemented at the Kasigau Corridor REDD+ project in Kenya, reflects this effective collaboration, and has been cited often as a model program. The outcome of this collaboration will help to inform the ER Program. In the case of biodiversity safeguards, WWF is currently working with DIAF and FAO to incorporate collection of biodiversity data as part of the NFI. Conservation stakeholders will work with the Government of the DRC to develop the MRV biodiversity component.

13. Summary of Progress on REDD+ Readiness

13.1 Brief summary of major achievements of readiness activities in country thus far

Please briefly provide any additional updates on REDD+ readiness activities not described above, using the component categories of the R-PP as a guide. If public information is available on this progress, please refer to this information and provide a link.

In January 2009, a primary joint mission gathered in Kinshasa under the direction of the DRC Ministry of Environment, Conservation of Nature and Tourism (MECNT), including international partners (FCPF, UN-REDD, UNDP, FAO and UNEP) and national (Civil Society). This mission led to a primary commitment by multilateral partners to the DRC REDD+ process (0.2M\$ from FCPF, 1.8M\$ from UN-REDD). The process has continued as described below:

- **May 2009**, implementation of the REDD+ National Coordination
- **August 2009**, the process had been officially launched during a workshop in Kinshasa, moderated by the Minister for the Environment.
- **November 2009**, promulgation of the Prime Minister's Decree creating the REDD+ process governance structures in DRC, described as follows:
 - The National Committee, governing and control body of the process
 - The Inter-ministerial Committee, responsible for the implementation of the REDD+ process
 - The National Coordination, the daily management body
- **March 2010**, the DRC became the first African country to obtain the approval of the national readiness plan for REDD (R-PP) by the UN-REDD orientation Board and the FCPF Participants Committee.
- **December 2010**, Presentation of Orientation documents (Mai Ndombe Pilot projects) in Cancun at COP 16.
- **June 2011**, the FIP investment plan for the DRC is approved for \$60M
- **August 2011**, grant agreements are signed for 6 pilot projects geographically integrated with the Congo Basin Forest Fund
- **October 2011**, High Level Forum on "Climate and Sustainable Development" in the DRC
- **December 2011**, launch of the national forest monitoring system in Durban for COP 17
- **February 2012**, the Decree establishing the REDD+ Registry (currently under revision)
- **June 2012**, an independent mid-term evaluation and Provincial Focal Point deployment in provinces
- **August 2012**, national consensus on the drivers of deforestation
- **September 2012**, world initiative (for parliamentary reform)

- **November 2012**, National Framework Strategy formally adopted in a Council of Ministers and National REDD+ Fund officially created; both presented in Doha for COP18 (December) by Deputy Prime Minister, by Minister of Finance and Minister of Environment
- **February 2013**, Workshop to finalize the ERPIN
- **May 2013**, Government of DRC integrates five REDD+ criteria in its Economic Governance Matrix (tool for the follow-up of reforms implementation with Bretton Woods Institutions): the Government commits in implementing three major reforms (land-use planning reform, land tenure, REDD+ norms in mining and oil sectors), achieving R-Package, and operationalizing the REDD+ National Fund.
- **June 2013**, presentation of the first version of ERPIN Mai Ndombe in Paris at the 7th session of the CP CF/FCPF
- **August 2013**, restitution workshop on presentation of Paris
- **January 2014**, workshop revision of the ERPIN
- **February 2014**, validation workshop of the revised ERPIN.

13.2 Current status of the Readiness Package and estimated date of submission to the FCPF Participants Committee (including the REL/FRL, REDD+ Strategy, national REDD+ monitoring system and ESMF).

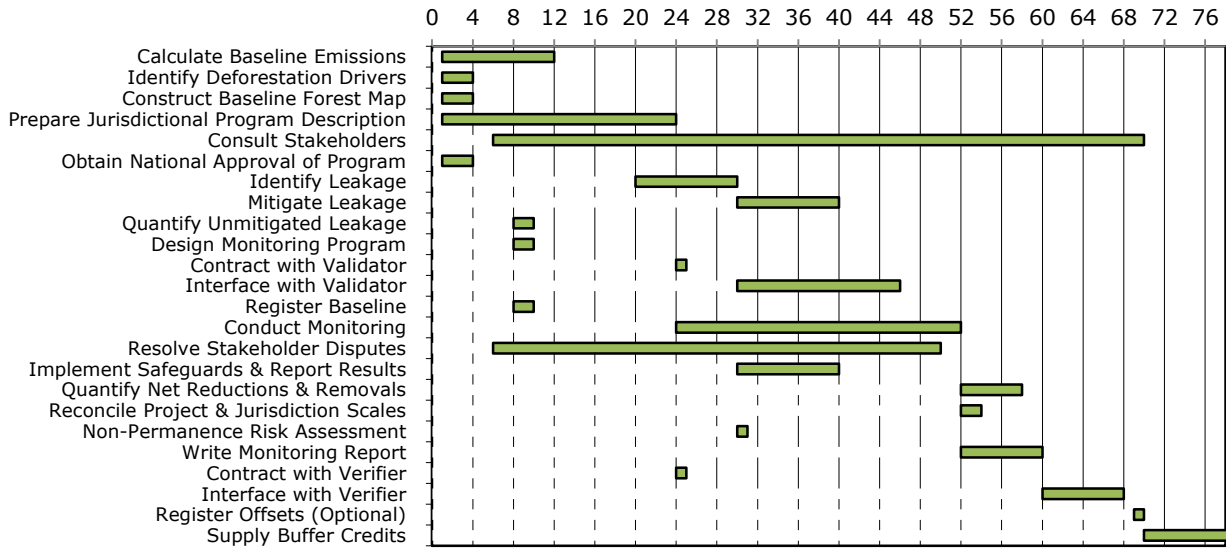
Progress of the DRC under the R-Package was analyzed by an independent evaluator under the mid-term REDD+ process in DRC. The chart below provides the current status of the individual elements.

1) Accountability and transparency	Yellow	19) Integration with relevant strategies and policies	Green
2) Operating mandate and budget	Yellow	20) Adoption of legislation and regulations	Green
3) Coordination with national or sector policy frameworks	Green	21) Transparent and equitable framework	Yellow
4) Technical supervision capacity	Yellow	22) National REDD+ information system or registry	Yellow
5) Funds management capacity	Yellow	23) SESA coordination and integration arrangements	Green
6) Feedback and grievance redress mechanism	Yellow	24) Analysis of safeguard issues	Green
7) Engagement of key stakeholders	Green	25) REDD+ strategy design with respect to impacts	Green
8) Consultation processes	Green	26) Environmental and Social Management Framework	Green
9) Information sharing	Green	27) Clear, step-wise methodology	Yellow
10) Implementation of consultation outcomes	Green	28) Historical data, and adjustment for national circumstances	Yellow
11) Assessment and analysis	Green	29) Consistency with UNFCCC/IPCC guidance and guidelines	Yellow
12) Prioritization of direct and indirect drivers	Green	30) Documentation of step-wise approach	Green
13) Links between drivers and REDD+ activities	Green	31) Demonstration of early implementation	Green
14) Actions plans to address natural resource right, land tenure, governance	Green	32) Institutional arrangements and capacities	Yellow
15) Implications for forest law and policy	Green	33) Identification of non-carbon aspects	Yellow
16) Presentation and prioritization of REDD+ strategy options	Green	34) Monitoring and reporting capabilities	Yellow
17) Feasibility assessment	Green	35) Information sharing	Yellow

	<i>Complete</i>
	<i>Underway and well advanced</i>

13.3 Next steps to finalize the proposed ER Program implementation design (REL/FRL, ER Program monitoring system, financing, governance, etc.). Provide a rough timeline for these steps.

Figure 8: Mai Ndombe - Jurisdictional ER Program Timeline



14. Financing plan (in US\$ million)

Please describe the financial arrangements of the proposed ER program including potential sources of funding. This should include both near-term start-up cost and long-term financing. If the proposed ER program builds on existing projects or programs that are financed through donors or multilateral development banks, provide details of these projects or programs, including their financing timeframe.

Please refer to budget spreadsheet below.

Annex I: Financing Plan Summary

Mai Ndombe Emission Reduction Program, DRC

Draft 07 March 2014

Expected Costs for the Design Phase and Expected Operational Costs														
EXPECTED USES OF FUNDS	Description	Breakdown by Calendar Year												
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	SubTotal
Costs related to developing the ER Program	Preparation of Full Program Design	0.6	0.6											1.2
	REL Development	0.3	0.2											
	Stakeholder Consultation	0.1	0.1											0.1
	VCS Validation	0.0	0.2											0.2
	SUBTOTAL (USD M)	1.0	1.1											2.1
Operational and implementation costs	Annual PMU Costs		0.5	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	9.5
	Monitoring - Remote Sensing (OSFAC supported by UCSB/UMD)	0.0	0.0	0.1	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4.2
	Monitoring - Field (DIAF)	0.0	0.9	1.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8
	Stakeholder Engagement		0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	8.4
	VCS Verification Costs		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2.2
	Program Activities - Proxy Investments		2.7	3.4										6.1
	SUBTOTAL (USD M)	0.0	4.6	6.7	2.8	2.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	33.2
Total Fixed Costs	1.0	5.7	6.7	2.8	2.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	35.3	

Expected Financing Costs Ecluding Performance Based Payments														
Financing costs (e.g., interest payments on loans)	Program Activities - Enabling and Non Carbon	3.7	8.8	7.8	5.6	4.4	3.0	0.7	0.7	0.7	0.7	0.7	0.7	37.5
	Program Activities - Proxy Payments from revenues				4.8	7.5	9.7	9.7	9.7	9.7	9.7	9.7	9.7	80.1
	Program Activities - Performance Payments from revenues		13.7	25.7	23.3	22.0	20.9	21.0	15.2	15.2	15.2	15.2	15.2	202.9
	Interest on Loans													0.0
Other Costs	VCS Issuance Fees		0.1	0.1	0.1	0.1	0.1	0.1	0.7	0.7	0.7	0.7	0.7	4.1
	Sales & Marketing Expenses		0.4	0.5	0.5	0.6	0.6	0.6	1.5	1.5	1.5	1.5	1.5	10.6
	Total Variable Costs	3.7	23.0	34.2	34.4	34.6	34.3	32.1	27.8	27.8	27.8	27.8	27.8	335.1
	Total Fixed and Variable Costs	4.7	28.7	40.9	37.2	36.8	36.7	34.5	30.2	30.2	30.2	30.2	30.2	370.4

Expected Sources of Funds														
EXPECTED SOURCES OF FUNDS	Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	SubTotal
Grants (including parallel grants for enabling activities)	Carbon Fund design grant	0.65												0.7
	FIP PIREDD		4	3	3	2	2.2							14.2
	CAFEC	1.5	1.5	1.5	1.5	1.5								7.5
	Germany - Carbon Mapping	0.7	0.7	0.7										2.1
	Private Investment /CBFF	1.5	1.5	1.5										4.5
Loans	FCPF Upfront Investment @ 10%		2.5	2.5										5.0
Revenue from REDD+ activities (e.g., sale of agricultural products)**	(please name sources)	Revenues other than ER revenues will not be managed by the ER Program. N.A.												
Revenue from sale of Emission Reductions (contracted)	FCPF ERPA	0.0	4.5	9.0	9.0	9.0	6.8	6.8	0.0	0.0	0.0	0.0	0.0	45.0
	Voluntary Market													0.0
	Total Sources	4.4	14.7	18.2	13.5	12.5	9.0	6.8	0.0	0.0	0.0	0.0	0.0	79.0

Expected Revenues from Selling ERs														
Revenue from sale of additional Emission Reductions (not yet contracted)	Sovereign Funds		14.9	25.3	25.3	23.3	25.3	25.3						139.4
	Voluntary Market		5.0	8.4	8.4	7.8	8.4	8.4	3.7	3.7	3.7	3.7	3.7	64.8
	Compliance Market					2.7	2.9	2.9	33.0	33.0	33.0	33.0	33.0	173.8
	Total at risk income (before taxes)	0.0	19.9	33.7	33.7	33.7	36.7	36.7	36.7	36.7	36.7	36.7	36.7	378.0

Net revenue before taxes (=total sources – total uses)	(0.4)	5.9	11.0	10.0	9.4	9.0	9.0	6.5	6.5	6.5	6.5	6.5	6.5	86.6
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15. List of acronyms used in the ERPIN

Please include an explanation of any institutional or other acronyms used. Add rows as necessary.

Acronym	Meaning
AAC	Allowed Annual Cut
AFD	Agence Française de Développement
AFOLU	Agriculture, Forestry and Others Lands Use
AGB	Above Ground Biomass
ANR	Assisted Natural Regeneration
APD	Avoided Planned Deforestation
AREL	Adjusted Reference Emission Level
ARR	Aforestation, Reforestation and Revegetation
AUDD	Avoided Unplanned Deforestation and Degradation
BGB	Below Ground Biomass
BSL	Baseline scenario
CARPE	Central African Regional Program for the Environment
CBFF	Congo Basin Forest Fund
CCB	The Climate, Community and Biodiversity
CCBA	The Climate, Community & Biodiversity
CI	Conservation International
CIFOR	Centre Internationale de Recherche Forestière
CIRAD	Centre Internationale de Recherche Agronomique pour le Développement
CL&PA	Communautés locales et Peuples Autochtones (Local Communities and Indigenous People)
CLD	Comité Locale de Développement (Local Development Committee)
CN-REDD	REDD National Coordination
CODELT	Conseil pour la Défense Environnementale par la Légimité et la Traçabilité
COLO & PA	Local Communities and Indigenous People
COP	Conference of the Parties to the UNFCCC
CSO	Civil Society Organization
CT	Thematic Coordination
DCVI	Direction de Contrôle et de Vérification Interne
DDD	Sustainable Development Direction
DIAF	Direction of Inventories and Forest lands use
DRC	Democratic Republic of the Congo
ER	Emission Reductions
WWC	Wildlife Works Carbon
ER-PIN	Emission Reduction Program Idea Note
ERPA	Emission Reductions Payment Agreement
ER Program	Emission Reduction Program
ESMF	Environmental and Social Management Framework
EU	European Union
FACET	Forêts d'Afrique Central par Télétection
FAO	Food and Agriculture Organization
FCPF	Forest Carbon Partnership Facility
FCPF-CF	Forest Carbon Partnership Facility-Carbon Fund

FIB	Fédération des Industriels du Bois (Federation of Industrial Wood)
FIP	Forest Investment Program
FPIC	Free, Prior and Informed Consent
FRL	Forest Reference Level
GHG	Greenhouse Gas
GPG	Good Practice Guidance
GSP	Generalized System of Preference
GTCR	Working group on Climate and REDD of the Civil Society
HDI	Human Development Indicators
HFLD	High Forest Low Deforestation
ICCN	Congolese Institute for the Conservation of Nature
IFM	Improved Forest Management
IFM-LPF	Improved Forest Management – Logged to Protected Forest
IFN	National forest inventory
IGCE	Intergovernmental Experts Group on Climate
I-GHG	Inventory of Green House Gases
IM-FLEG	Independent Monitors as part of the FLEG process
IMREDD+	Independent Monitors as part of REDD process
IPCC	Intergovernmental Panel on Climate Change
IPFC	Informed, Prior and Free Consent concept
IP Rep	Indigenous People Representative
ICRAF	World Agroforestry Center
ISCO	Impressa Servizi Coordinati
JAFTA	Japan Forest Technology Association
JICA	Japan International Cooperation Agency
JNR	Jurisdictional and Nested REDD+
EU-JRC	European Union Jointed Research Center
KWf	Reconstruction Credit Institute (Germany)
LIDAR	Light Detection and Ranging
LISA-REDD	Learning Initiative on Social Assessment for REDD+
LUCUCF	Land Use, Land Use Change and Forestry
MDG	Millennium Development Goals
MECNT	Ministry of Environment, Conservation of Nature and Tourism
Minagri	Ministry of Agriculture
MPTF/UNDP	The Multi-Partners Trust Fund Office
MRV	Measuring, Reporting And Verification
NFI	National Forest Inventory
NFMS	National Forest Monitoring System
NGO	Non Governmental Organization
NORAD	Norwegian International Agency for Development
NOVACEL	Nouvelle Société d'Agriculture et Elevage
NSK	NOVACEL South Kwamouth
OGF/Moabi	Observatoire sur la Gouvernance Forestière
ONFI	National Forestry Office International (France)
OSFAC	Observatoire Satellitaire des Forêts d'Afrique Central
PD	Project Document
PF	Primary Forest
REL	Reference Emission Level

REPALEF	Local and Indigenous Population Network for the Sustainable Management of DRC Forest Ecosystems
RIL	Reduced Impact Logged
RL	Reference Level
R-PAN	REDD for People And Nature
R-PP	Readiness Preparation Plan
SEP	Provincial Executive Secretariat
SESA	Social and Environmental Strategic Assessment
SF	Secondary Forest
SIS	Safeguard Information System
SIFORCO	Société Industrielle et Forestière du Congo
SLMS	Satellite Land Monitoring System
SODEFOR	Société de Grands Elevages de Ndoma en Afrique Central
SOGENAC	Société de Grands Elevages de Ndoma en Afrique Central
TS	Technical Secrétariat
UCL	Louvanium Catholic University
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States of America International Agency for Development
US-FS	United States Forest Services
VCS	Verified Carbon Standard
WRI	World Resources Institute
WWC	Wildlife Works Carbon
WWF	World Wide Fund for Nature
WWF-FCI	Climate-Forest Initiative of WWF
WWF-FCP	Climate-Forest Program of WWF

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ANNEX 1: Consultations for the SESA

Emissions Reduction Program Idea Note for the Mai Ndombe Region, DRC

07 March 2014

Consultation	Goals	Participation
2010, October Malebo, Bolobo	Inception workshop of the WWF RPAN project	Local and provincial authorities
2010, December UNFCCC COP 16, Cancún, Mexico	Presentation of the program Idea during the DRC "side event "	Several governments Representatives, NGOs & CSOs, private sector
2011, FPIC <i>Methodology</i>		
June-July: Stakeholders analysis of Free Prior and Informed Consent and on ground experience sharing	Development Methodology FPIC Stakeholder analysis of Free Prior and Informed Consent.	MECNT, private Sector, National and International NGOs
September-October: Consulting Mission of local communities of North Batéké Chiefdom.	Consultation with indigenous peoples and local communities on FPIC.	MECNT, CSOs, Private Sector, NGOs CSOs, LC&IP, local and traditional administrative authorities;
End of October: First draft available	Producing the first draft of the FPIC methodology.	Consultant
Early November, validation of FPIC draft by stakeholders and submission to the National Committee REDD+	The validation of the FPIC draft by stakeholders and submission to the REDD+ National Committee. The adoption of the FPIC draft methodological guide by the REDD+ National Committee.	MECNT & CN-REDD, Private sector, GTCR of OSCs, Member of the REDD+ National Committee (representatives of the Government, CSO and private sector) and Consultant
End of November the adoption of the draft methodological FPIC by the REDD+ National Committee		
2011, July-September: Participatory Micro-zoning	The meaning of the participatory micro-zoning and its links with the process of local governance	Representatives of local communities
End August to September, Communication at the REDD+ national level Summer University, Kinshasa	Presentation of REDD+ opportunities in the future province Maï Ndombe, local governance and community MRV	Students, Private Sector, Government, PA, CN-REDD, NGOs, Civil Society Organizations,
October 2011, Communication at the international level, Berlin, Germany	Presentation of ERPIN draft 1	FCPF participants and international stakeholders.
2011, December, UNFCCC COP 17, Durban, South Africa	Presentation of the ERPIN during the "side event" of the DRC and USAID/ CARPE. Agreement with Bolia communities on improved forest management.	Representatives of several governments, NGOs & CSOs, private sector Local communities and indigenous peoples of Inongo.
Fin Octobre 2010 – Avril 2012, ERA/WWC	Leadership training on FPIC by applying the methodological guidelines approved by the REDD+ National Committee.	CSOs, private sector, local community and indigenous peoples, traditional and administrative authorities.
2012, January – March, ERA/WWC	FPIC guide Implementation with communities in the territory of Inongo.	
2012, June, FCPF Carbon Fund meeting at Santa Marta, Colombia	Report of the progress to mid-term Memorandum of Congolese Environmental Civil Society on the REDD+ process in DR	PC of the FCPF, NGOs

	Congo Statutes of Progress in preparation REDD+ in DRC	
	Sharing of experiences in the four provinces	
2012, August, FPIC, Kinshasa	Next Steps for FPIC, Development of the roadmap and improving procedures of consultation with local communities, indigenous peoples, traditional authorities and political and administrative.	MECNT/CN-REDD, Private Sector, CSOs
2012, October, FPIC, Chiefdom Batéké Northern Bolobo Territory	Field test in four communities	National CSOs, local NGOs, local communities, local administration
2012, September, CN-REDD, MECNT, Kinshasa	Focus meeting for the rest of the ERPIN	CN-REDD, MECNT, forest private sector, civil society, NGOs, IPs
2012, October, NOVACEL.	Dialogue with local authorities in South Kwamouth	Local communities, local government
2012, November, CLIP, Kinshasa	Official presentation of the national roadmap for FPIC Discuss how to implement the roadmap	DDD, CN-REDD, OSC, Private Sector, NGOs
2012, December, UNFCCC COP 18, Doha, Qatar	Presentation of the National REDD+ Strategy Framework and REDD+ National Fund of the DRC; Presentation of Case Study of integrated REDD+ across the province of future Maï Ndombe - WWF	DRC Government Side Event in the presence of Vice-Prime Minister in charge of the Budget, of Environment Minister, and of DRC Vice – Minister of Finance and some important key donors and organizations
2013, Feb/March, MECNT, CN-REDD, ERPIN Workshop	Workshop to finalize the ERPIN	MECNT, CN-REDD, Governor of the Province of Bandundu, NGOs, CSOs, CL & PA, Private Sector
2013, September-December	Multi-stakeholder working groups developed ERPIN revision recommendations	CN-REDD, GTCR, WWC, WWF, additional local NGO's, OGF (MOABI), OSFAC
2014, January	Stakeholder workshop to review working group recommendations	MECNT, CN-REDD, Environment Minister of the Province of Bandundu, NGOs, CSOs, CL & PA, Private Sector
2014, January	MOU publicly approved and signed with MECNT for ERPIN and Design Phase Secretariat role of GTCR, WWC and WWF	MECNT, CN-REDD, Environment Minister of the Province of Bandundu, NGOs, CSOs, CL & PA, Private Sector; MOU signed by MECNT, GTCR, WWC, WWF

Annex 2. A Methodology Concept for Planned Deforestation Module

For the baseline setting, we propose a demonstrated-evidence approach, i.e. the jurisdiction and potential private sector license holders (mining, agriculture, tree plantations) have to provide documented evidence of forest conversion within the baseline period. This evidence is defined as:

- A spatial-temporal plan describing the construction / establishment of infrastructure / plantations and associated conversion of forest land over the next five years (baseline period). Forest conversion needs to be quantified and spatially pinpointed.
- A license to convert or an approval letter which allows the holder to put the aforementioned plan into practice. For public administration projects: documented evidence of the administrative approval (executive or legislative decision).
- In case a license / approval letter is not yet issued, a bankable feasibility study.
- Financial records of license holder. This is to demonstrate that the license holder has the financial capacities to realize the project. In case of public administration projects: evidence that the infrastructure project has been included in the public budget.

The documented evidence should be submitted to and approved by a designated jurisdictional or national authority (such as e.g. CN-REDD). The planned deforestation baseline complements the unplanned deforestation baseline, unless it is set to zero. If the planned deforestation baseline is **NOT** set to zero, then areas that were subject to planned deforestation in the period used for the historical unplanned deforestation baseline need to be excluded to prevent an overestimation of baseline emissions. In case a spatially-explicit modelling approach is used for calculating the unplanned deforestation baseline, then areas that are subject to planned deforestation are excluded from the unplanned deforestation baseline area.

The jurisdictional baseline emissions for planned deforestation is calculated as follows:

$$BE_{PIDefJR} = \sum BE_{PIDefproj1-x} \quad \text{Equation (1)}$$

Where:

$$BE_{PIDefJR} = \text{sum of all baseline emissions from all individual planned deforestation 'projects' inside the jurisdictional area over the baseline period, in t CO}_2\text{eq}$$

$$BE_{PIDefproj1-x} = \text{jurisdictional baseline emissions for planned deforestation over the baseline period, in t CO}_2\text{eq}$$

The baseline emissions of individual planned deforestation 'projects' inside the jurisdictional area is calculated as follows:

$$BE_{PIDefproj1-x} = A_{PICon} \times EF \quad \text{Equation (2)}$$

Where:

$$BE_{PID,ef,proj1-x} = \text{The baseline emissions of individual planned deforestation 'projects' in the baseline period, in t CO}_2\text{eq}$$

$$A_{PICon} = \text{the total area of forest land to be converted during the baseline period, in ha}$$

EF Emission factor for all forest land to be converted during the baseline period *c*, in t CO₂ eq

For reasons of simplicity, it is assumed that 100% of both AGB and BGB are emitted instantly. We assume that for the first baseline period AGB and BGB can directly be derived from the forest carbon benchmark map developed by the 'Carbon Map & Model' project currently implemented by WWF RDC / Germany and GFA Consulting Group. If no updated benchmark map will be available for subsequent baseline periods, then stratification of forest areas may be necessary to calculate baseline emissions.

Annex 3. Methodology Concept for Afforestation and Reforestation

Afforestation is defined as the process of planned conversion from non-forest land to forest land. It must be proven that the land subject to afforestation has been non-forest land before 2010.

Afforestation, especially with fast growing species for charcoal production may be an important strategic element for a successful jurisdictional REDD+ strategy. Apart from the carbon sequestered by planted trees and other associated benefits of afforestation, the plantation trees may serve for – in terms of wood supply – sustainable charcoal production. This would allow substituting charcoal supply to the local and regional market from other unsustainable sources, which would reduce the deforestation pressure on natural forest lands. Consequently, the afforestation component may serve as leakage mitigation activity for the other four modules having positive co-benefits.

The net anthropogenic GHG removals by sinks is calculated as follows:

$$\Delta C_{AR-CDM,t} = \Delta C_{ACTUAL,t} - \Delta C_{BSL,t} - LK_t \quad \text{Equation (3)}$$

Where:

- $\Delta C_{AR-CDM,t}$ = Net anthropogenic GHG removals by sinks, in year *t*; t CO₂-e
- $\Delta C_{ACTUAL,t}$ = Actual net GHG removals by sinks, in year *t*; t CO₂-e
- $\Delta C_{BSL,t}$ = Baseline net GHG removals by sinks, in year *t*; t CO₂-e
- LK_t = GHG emissions due to leakage, in year *t*; t CO₂-e

GHG emissions resulting from removal of herbaceous vegetation, combustion of fossil fuel, fertilizer application, use of wood, decomposition of litter and fine roots of N-fixing trees, construction of access roads within the project boundary, and transportation attributable to the project activity shall be considered insignificant and therefore accounted as zero

The actual net GHG removals by sinks is calculated as follows:

$$\Delta C_{ACTUAL,t} = \Delta C_{P,t} - GHG_{E,t} \quad \text{Equation (4)}$$

Where:

- $\Delta C_{ACTUAL,t}$ = Actual net GHG removals by sinks, in year t ; t CO₂-e
- $\Delta C_{P,t}$ = Change in the carbon stocks in project, occurring in the selected carbon pools, in year t ; t CO₂-e
- $GHG_{E,t}$ = Increase in non-CO₂ GHG emissions within the project boundary as a result of the implementation of the A/R CDM project activity, in year t , as calculated in the tool “Estimation of non-CO₂ GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity”; t CO₂-e

The baseline net GHG removals by sinks shall be calculated as follows:

$$\Delta C_{BSL,t} = \Delta C_{TREE_{BSL,t}} + \Delta C_{SHRUB_{BSL,t}} + \Delta C_{DW_{BSL,t}} + \Delta C_{LI_{BSL,t}} \quad \text{Equation (5)}$$

Where:

- $\Delta C_{BSL,t}$ = Baseline net GHG removals by sinks in year t ; t CO₂-e
- $\Delta C_{TREE_{BSL,t}}$ = Change in carbon stock in baseline tree biomass within the project boundary in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; t CO₂-e
- $\Delta C_{SHRUB_{BSL,t}}$ = Change in carbon stock in baseline shrub biomass within the project boundary, in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; t CO₂-e
- $\Delta C_{DW_{BSL,t}}$ = Change in carbon stock in baseline dead-wood biomass within the project boundary, in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; t CO₂-e
- $\Delta C_{LI_{BSL,t}}$ = Change in carbon stock in baseline litter biomass within the project boundary, in year t , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; t CO₂-e

Leakage emissions shall be estimated as follows:

$$LK_t = LK_{AGRIC,t} \quad \text{Equation (6)}$$

Where:

- LK_t = GHG emissions due to leakage, in year t ; t CO₂-e
- $LK_{AGRIC,t}$ = Leakage due to the displacement of agricultural activities in year t , as calculated in the tool “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity”; t CO₂-e

Annex 3. Methodology Concept for the Planned Degradation Module

Table 23: Important assumptions made for the calculation of baseline emissions from logging (planned degradation) and logging infrastructure (planned deforestation)			
Data for model input	Assumption	Data Source	Comment /rationale by the consultant
Total industrial concession area (17 concessions)	3.017.777,00 ha	WRI,MECNT	The forested area of the WWC concession.
Total actual harvesting area (over 25 years)	2.444.399,37 ha	Hirsh et al. (2013)	The actual area to be harvested is smaller than the granted concession area, as agricultural areas, low productive areas and inaccessible areas are excluded; A 19% reduction of actual concession area size is assumed, which is based on an average value derived from forest inventories in SODEFOR concessions.
Size of mean annual harvesting area	97.775,97 ha	Total actual harvesting area divided by 25	
Programme duration	25 years		Should fit with (remaining) concession license (unless renewable) and ERPIN requirements
Mean carbon stock across all concessions	246,31 tCO ₂ eq	Please refer to discussion of carbon stocks in Section 11.1	Hirsh et al. (2013) reports on lower carbon stocks for part of the concession areas. In the Design Phase data from the LiDAR program and/or the Bandundu Carbon Stock Inventory shall be applied.
Harvesting intensity per ha [m ³]	3	Hirsh et al. (2013) ITTO Tropical Forest Update 14/4, 2004	Hirsh et al. (2013) report very low logging intensities in SODEFOR concessions varying between 0.7 – 1.9 m ³ / ha / year ITTO reports logging intensities of 5 m ³ / ha / year, but this figure is 10 years old. In consequence, an average value of 3 m ³ / ha / year is assumed.
Residual stand damage factor	1.74	Brown et al. (2005) as cited in Approved VCS Methodology VM0011 (IFM-LtPF), Version 1.0, by Carbon Planet Limited	
Mean annual harvest	293,327.92 m ³ /year	n.a.	Size of mean annual harvesting area times harvesting intensity per ha
Main merchantable tree species	<ul style="list-style-type: none"> • Wenge (<i>Millettia laurentii</i>) • Species of Entandrophragma such as Sapelli / Sapele (<i>Entandrophragma cylindricum</i>) and Utile / sipo (<i>Entandrophragm</i> 	CCBS Project Design Document of the Maï Ndombe REDD+ Project; Wildlife Works and Ecosystem Restoration Associates, 2012. ITTO Tropical Forest	Harvested tree species in a previous logging concession area of SOFORMA that today is a conservation concession and VCS validated REDD+ project.

	<p>a utile); Ntomba name: Ipake</p> <ul style="list-style-type: none"> • Black Guarea or Dark Bossé (<i>Guarea thompsonii</i>); Ntomba name: Bosasa • Iroko (<i>Milicia excelsa</i> / <i>Chlorophora excelsa</i> and <i>Milicia regia</i>); local name: Kambala • Ayous (<i>Triplochiton scleroxylon</i>) 	Update 14/4, 2004	
Wood densities from merchantable tree species (the arithmetic mean of all wood densities was used = 0,53)	<p>Ayous (<i>Triplochiton scleroxylon</i>): 0.32</p> <p><i>Milletia spp.</i>: 0.72</p> <p><i>Entandrophragma utile</i>: 0.53</p> <p><i>Guarea thompsonii</i>: 0.55</p> <p><i>Chlorophora excelsa</i>: 0.55</p>		
Share of merchantable tree species [%]	<p>Ayous (<i>Triplochiton scleroxylon</i>): 20%</p> <p><i>Milletia spp.</i>: 20%</p> <p><i>Entandrophragma utile</i>: 20%</p> <p><i>Guarea thompsonii</i>: 20%</p> <p><i>Chlorophora excelsa</i>: 20%</p>	none	Arbitrarily set in absence of other data
BEF for merchantable tree species	3.4	IPCC GPG 2003	n.a.
Carbon fraction for merchantable tree species	0.47	IPCC AFOLU 2006	n.a.
Forest regrowth after harvesting [tonnes d.m. ha ⁻¹ yr ⁻¹]	3.1	IPCC AFOLU 2006	n.a.
Wood products	Roundwood: 99%	FAOSTAT (accessed 1/2014)	

	Sawnwood: 1%		
Density of primary haul roads – baseline scenario	5.9 m/ha	Hirsh et al. (2013)	
Density of secondary haul roads – baseline scenario	6 m/ha	Hirsh et al. (2013)	
Density of skid trails - baseline scenario	85 m/ha	Hirsh et al. (2013)	
Total width of primary haul roads – baseline scenario	39.3 m	Hirsh et al. (2013)	
Total width of secondary haul roads – baseline scenario	24.8 m	Hirsh et al. (2013)	
Width of skid trails – baseline scenario	4 m	Hirsh et al. (2013)	
Biomass lost on strips next to road – baseline scenario	100% of area affected	Hirsh et al. (2013)	
Biomass lost on skid trails -	9% of area affected	Hirsh et al. (2013)	
Conversion factor C-CO ₂ e	* 44/12		

Based on the assumptions summarized above, we calculate baseline emissions from planned degradation and planned deforestation (from logging) as follows:

Baseline type	Emissions in t CO ₂ e	Methodology	Comment
Mean annual baseline emissions from logging	1,089,676	Undisclosed methodology based on VCS VM0010 and VCS VM0011	Considering emissions from logged volume, decay of logging slash and residual stand damage, harvested wood products and forest regrowth after harvesting
Mean annual baseline emissions from the construction of logging infrastructure	3,441,506	Undisclosed methodology based on Hirsh et al. (2013)	Considering emissions from biomass loss as a result of haul road and skid trail clearing
Combined mean annual baseline emissions from logging and construction of logging infrastructure	4,531,182	Sum of above	

Total baseline emissions from logging (over 25 years)	27,241,895	Undisclosed methodology based on VCS VM0010 and VCS VM0011	Considering emissions from logged volume, decay of logging slash and residual stand damage, harvested wood products and forest regrowth after harvesting
Total baseline emissions from the construction of logging infrastructure (over 25 years)	86,037,652	Undisclosed methodology based on Hirsh et al. (2013)	Considering emissions from biomass loss as a result of haul road and skid trail clearing
Combined total baseline emissions from logging and construction of logging infrastructure (over 25 years)	113,279,548	Sum of above	

Annex 4: Envisaged Approach for the Determination of the Adjustment Factor

In the context of the Copenhagen Accord, UNFCCC/SBSTA has taken first decision on REDD+ methodological guidance. This not only foresees the development of historic Reference Emission Levels, (i.e. a linear extrapolation of historic deforestation rates), but also introduces the concept of adjusted Reference Emission Levels. An adjusted REL is based on the historical REL but is adapted to national circumstances. This is of importance for countries like DRC being characterized by:

- Large forest areas and low historic/present deforestation rates, and
- Where it may be assumed that in the course of future economic development the deforestation rate experiences a further increase.

These countries are classified as High Forest Low Deforestation countries (HFLD). Still, how exactly the historical REL should be 'turned' into an adjusted REL, or in this case jurisdictional baseline, was not decided.

As there is currently no technical guidance on developing adjusted baselines, we propose econometric regression analysis for this purpose. The success of this approach is bound to the availability of appropriate data. This is based on the understanding and assumption that deforestation rates can often be statistically linked to price fluctuations of certain, typically agricultural, products (compare e.g. Barona et al. 2010).

The below function shows the deforestation (i.e. measured based on the change detection) as a function of several coefficients and variables.

$$f(d) = Az_t + By_t + Cx_t + Dw_t + Ev_t$$

Equation (7)

Where:

d	=	Deforestation rate for a given time period
A, B, C, D, E, F	=	Coefficients
z_t	=	Price for manioc for a given time period t
y_t	=	Price for charcoal for a given time period t
x_t	=	Price for maize for a given time period t
w_t	=	Price for cattle for a given time period t
v_t	=	Population growth for a given time period t

Please note, that based on the land use change detection, the deforestation rate is known. This may be combined with historical data, if available, for the single drivers of deforestation. These data are used for the econometric regression analysis calculating:

- The weighting of co-efficient (A, B, C and E), so that the exploratory value of the variables (z, y, x) is maximized;
- The exploratory value of the function as such (e.g. the collected data explain the measured deforestation to 80%);
- In the future the new data for the variables may be collected and feed into the function which allows to determine the baseline deforestation rate, based on a measured explanatory value.

If successful, this assessment would result in an objective, transparent and reproducible approach for establishing adjusted baselines. The future baseline may be assessed by using the above results of the regression analysis and combine it with new data (i.e. prices of manioc, charcoal, cassava, maize and

cattle) which can be monitored e.g. in 2015. Feeding this information into the equation above would allow for the determination of (i.e. ex post) or correct the baseline deforestation rate retrospectively, i.e. based on a measured explanatory value.

Based on historic data (i.e. prices of manioc, charcoal, cassava, maize and cattle from 1990 to 2013) projections can be made into the future (e.g. development of price of manioc from 2014 to 2020). These forecasts may be used to establish an ex-ante estimate of emission reductions. Still the determination of emission reductions, basis for payments shall be based on ex-post data (e.g. in 2020 emission reductions are determined based on real prices for the period 2014 to 2020)

Regression analysis typically allows for the assessment of processes under steady and gradual developments. Considering DRC's status as a post conflict country and the small, possible sample size, it may or may not be that the regression value results in a high explanatory value.