

Scientific and Technical Subcommittee of COPUOS

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Reducing Emissions from
Deforestation and Degradation

Forest and Environmental Monitoring Activities in the Climate Change Process

Dr. Thomas Häusler, GAF AG, Dr. Sharon Gomez, GAF, Dr. Rene Siwe, GAF

Consortium led by:



Project supported by:



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Presentation Outline



- **Background to Development of GSE FM REDD Pilot Projects**
- **Overview of Framework for Implementation-main Tasks**
- **Current Status of GSE FM REDD in Cameroon**
- **New REDD Pilots in Rep of Congo and Gabon**

Background: GSE FM REDD Development



- **The Global Monitoring for Environmental and Security (GMES) is a joint venture between European Space Agency (ESA) and European Union (EU).**
- **Initiated in 2003, aims at providing a response to dynamic and growing global information needs.**
- **The GMES Service Element on Forest Monitoring (GSE FM), led by GAF-AG, Germany provides operational forest services for international environmental policy implementation.**
- **Eg. United Nations Framework Convention on Climate Change (UNFCCC).**

Forests in the Climate Change Process



Deforestation and degradation have become a central issue to the United Nations Framework Convention on Climate Change (UNFCCC) as a major source of Greenhouse Gas (GHG) Emissions.



What is REDD?

- At the Conference of the Parties (COP) 11, Montreal in 2005, a fundamental milestone was achieved when Developing Countries proposed a mechanism for Reducing Greenhouse Gas Emissions from Deforestation in Developing Countries (REDD).
- The basic idea behind Reducing Emissions from Deforestation and Degradation (REDD) is simple:

Countries that are willing and able to reduce emissions from deforestation should be financially compensated for doing so.

GSE FM REDD Services



- **The GSE FM services extended for development of REDD Pilot Projects in Cameroon and Bolivia in 2007.**
- **Strong stakeholder support for projects.**
- **The REDD Pilot Project in Cameroon being implemented between 2008-2010.**

Region and Cameroon Stakeholders



MINEP- Ministry of Environment and Nature Protection, UNFCCC National Focal Point, Chair of National REDD Steering Committee



MINFOF - Ministry of Forestry and Wildlife, Co-Chair of National REDD Steering Committee

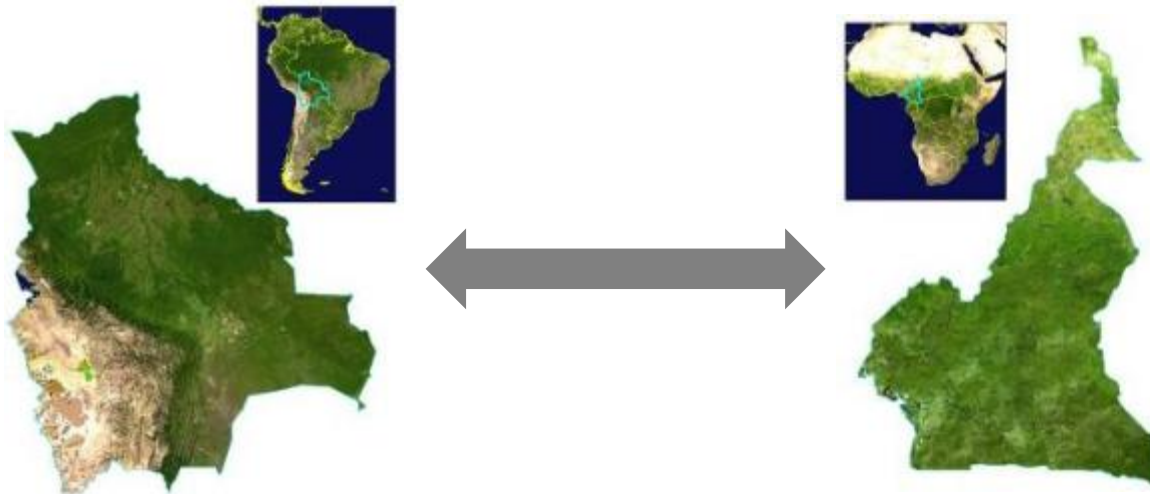


COMIFAC - Commission of Central African Forests

Objectives of the REDD Pilot Projects



- Develop tools to account for national DD emissions
- Identify opportunities for national incentive schemes and strengthen dialogue between stakeholders
- Facilitate the regional and international exchange on learning experiences



Tasks of the REDD Pilots



Task 1:

Stakeholder Analysis and Implementation Framework

Task 2:

*Reference Scenarios/Estimating
Deforestation/Degradation*

Task 3:

Emission Accounting and Scenario Analysis

Task 4:

Capacity Building and Technology Transfer for REDD

REDD Services/Products



- **Products of the services: deforestation and degradation products/maps based on high resolution satellite data.**
- **Production of the Forest/Non-Forest Maps conducted for 3 points in time - the years 2005/2009, 2000 and 1990.**
- **Deforestation Maps for the time periods between 1990-2000, 2000 – 2005 / 2009**
- **The land use change classes based on IPCC 2006: 5 classes: cropland, grassland, settlements, wetlands, other land use**

REDD Service Standards



- Provision of these services are based on the key factors presented in the Intergovernmental Panel on Climate Change (IPCC), Good Practice Guidance (GPG) of 2006.
- The user is thus guaranteed with a standardised service/product being produced and delivered as a unified approach to quality control is applied.

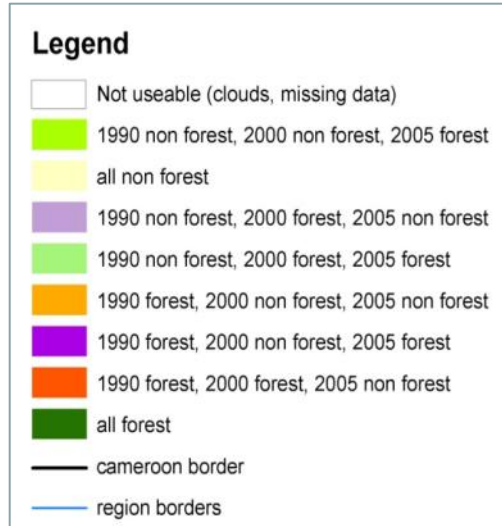
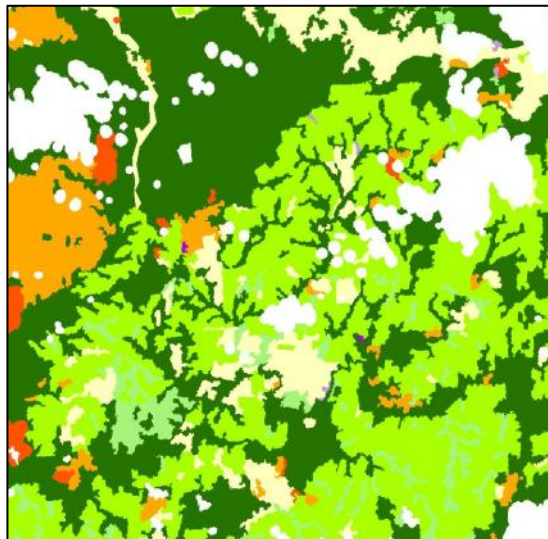
Methods for Deforestation Mapping



Multi-temporal EO Data from various sources

Landsat-TM, DMC,...

Forest and Landuse Change



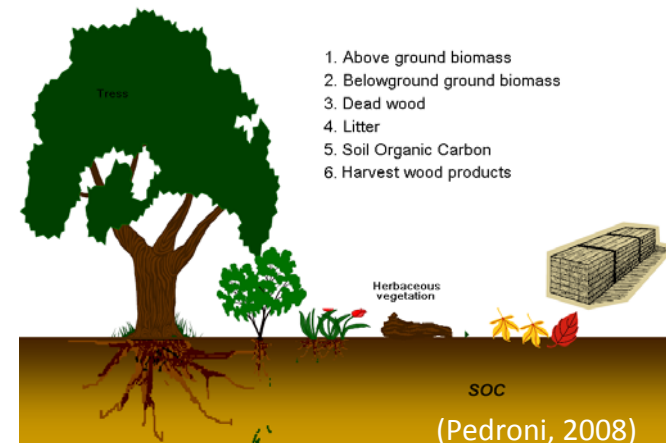
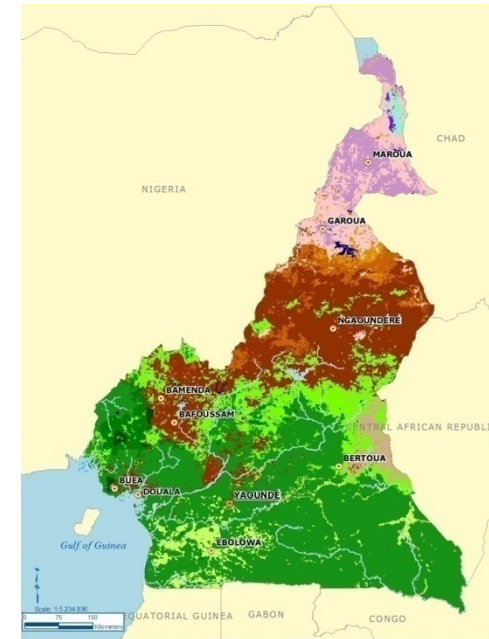
Mapping of
Landuse and
Forest Changes



Input for biomass
counting and emmissions
projection

Biomass Inventory

- **Stratification:**
 - EO Forest, Non-Forest maps
 - Ecosystem Regions
 - Forest Management Systems
- **Selection of Carbon pools to be measured:**
 - Above-ground biomass
 - Below-ground biomass
 - Soil
 - Litter
 - Understory (herbaceous vegetation)
 - Harvested wood products

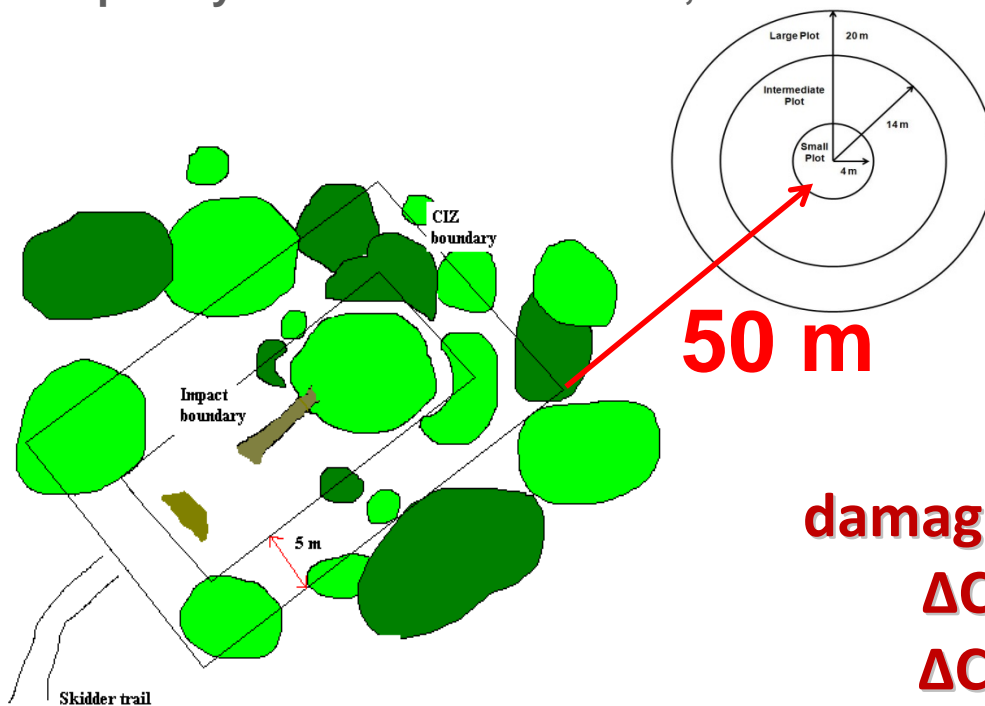


Biomass Accounting Methods



Permanent Plot Design

Developed by Winrock International, modified and implemented by FAN



Circular Plots

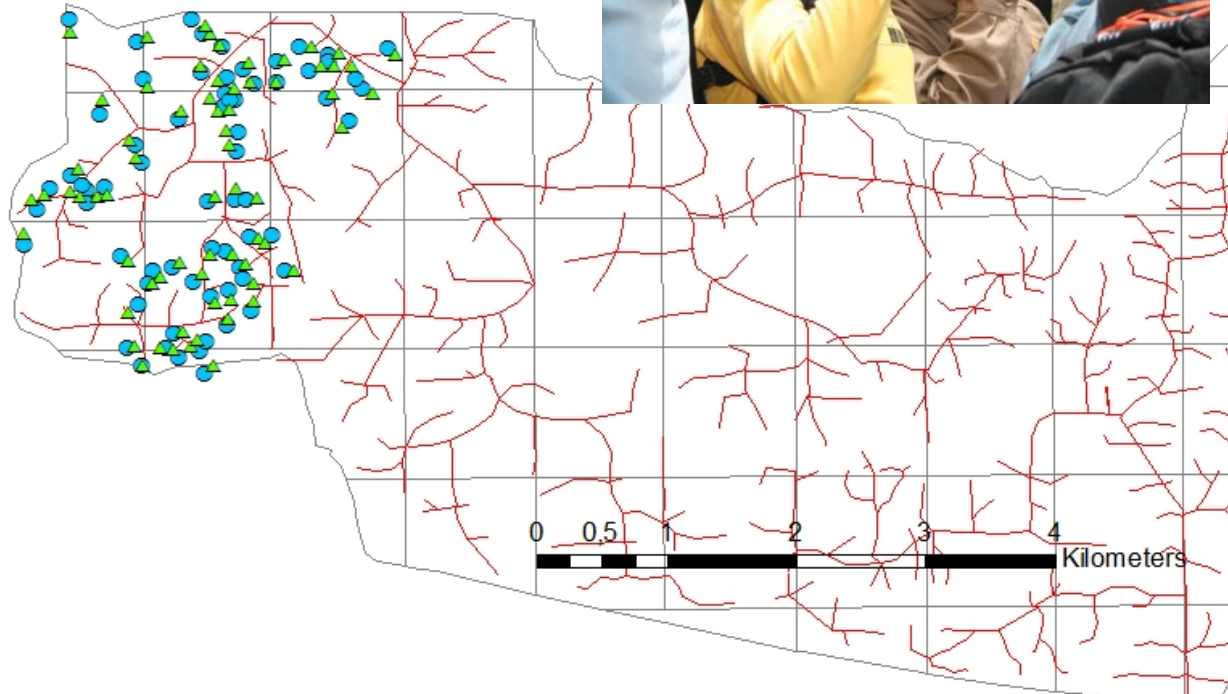
intact carbon stock (5 pools)

damage factor:

$\Delta C/\text{ha}$ \Rightarrow Carbon stock in HWPs
 $\Delta C/\text{m}^3$

Carbon Impact Zone Plots

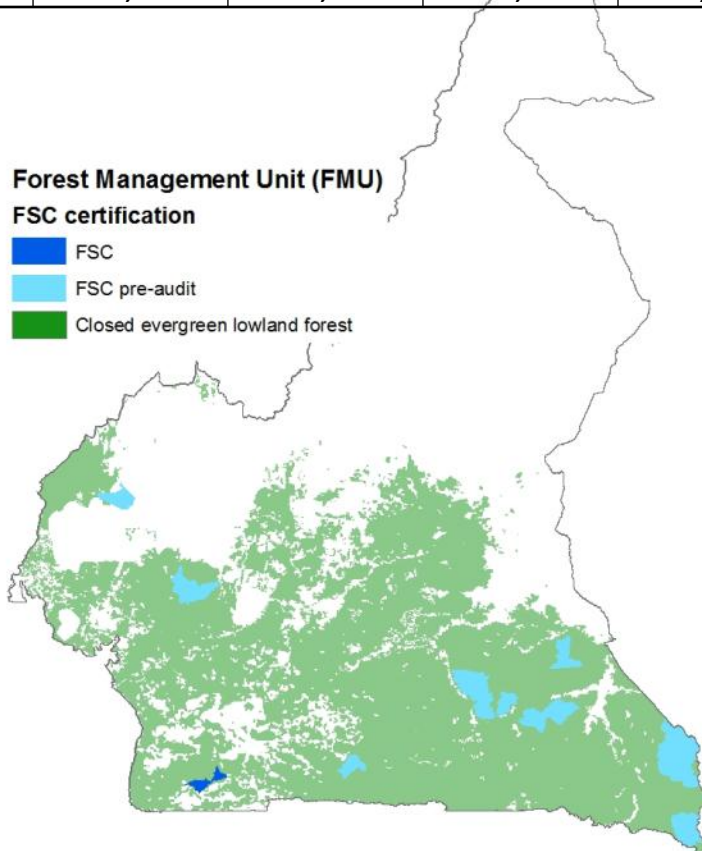




Results



Carbon stock: Closed evergreen lowland forest [tC/ha]							
Wood	lying dead wood	Standing dead wood	Below Ground	Other vegetation	Litter	Soil	Total
211,42	17,97	12,51	42,28	2,64	2,55	41,04	326,12



Damage factor [tC / m ³ extracted]	
mean	2,07
min	0,22
max	8,93
StDev	1,34
No Plots	67,00
SE	0,16
95% CI	0,32



Capacity Building



- **Specific capacity building activities ensure that project results, methodologies and lessons learned are transferred to local counterparts**
- **South-south co-operation facilitates this process**

Technology Transfer and Capacity Building



- **Technology Transfer between:**
 - Bolivia and Cameroon, South-South Co-operation: Emission accounting and Reference emission scenarios
 - European Partners and Cameroon: EO for deforestation/degradation mapping
- **Capacity Building via Workshops and on-the-job-training**
 - Biomass accounting workshop
 - Biomass inventory field training
 - Remote Sensing workshop
 - GIS training workshop
 - Field surveys

GIS & RS Training – Yaoundé, Nov09



Roll-out



Cameroon



gtz

Gabon

Republic
of Congo

New GSE FM REDD Services



- **Based on Cameroon experience-roll out phase supported by ESA.**
- **Users in Rep of Congo and Gabon supported initiation of REDD Pilots in their countries.**

Envisaged Benefits



- **The GSE FM REDD services will provide a frame for wall-to-wall national forest monitoring systems.**
- **The results will provide feasibility assessment of operational national level monitoring of deforestation/degradation**
- **GSE FM REDD services will provide countries with both the technical steps and empirical information to support their negotiations during the COPs.**

Partners and Financiers



KfW provides funding for REDD Pilot in Cameroon



GTZ-COMIFAC programme supports REDD pilot in Cameroon



GAF AG is a globally active Consultancy Company in Germany in the field of development assistance, Earth Observation technology, spatial information systems. GAF AG provides forestry expertise, standards, technical design, dialogue with stakeholders, quality assurance, uncertainty assessment.



European Space Agency supported intitialisation of REDD Pilots



Joanneum Research – Austria. Supports the project with newest technology in satellite image processing



Fan Bolivia has experience from Noel Kempff Mercator Park Project and supports biomass measurements, landuse change scenarios and deforestation emissions projection