

The Carbon Benefits Project Modelling, Measurement and Monitoring

Modelling Component Colorado State University and partners



Carbon Benefits Project: Modelling, Measurement and Monitoring

Carbon Benefits Project: Modelling, Measurement and Monitoring

Welcome Eleanor Milne ([Sign out](#))
Thursday, June 02, 2011

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Select Modelling or Measurement Tools

[Help](#)

Simple Assessment of the impact of a project on carbon stock and greenhouse gas emissions. Requires information on land use changes and/or livestock production in the project area. Suitable for a quick assessment at any stage including proposals. Uses standard information on greenhouse gas emission rates. [More Details](#)

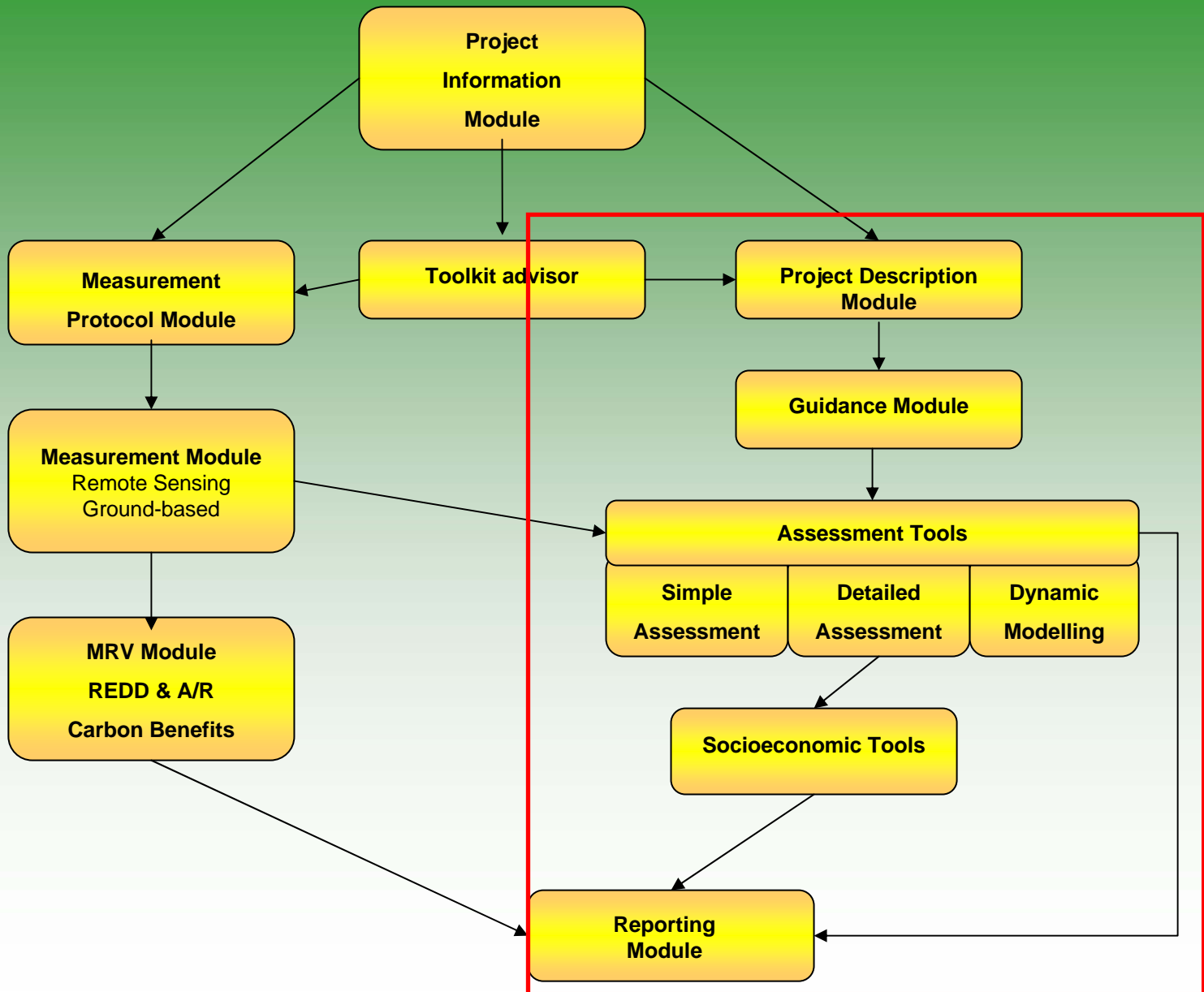
Detailed Assessment of the impact projects have on carbon stocks and greenhouse gas emissions. Requires information on land use changes and/or livestock production in the project area plus can utilize local and project specific field measurements and other local datasets. Suitable for detailed reporting in projects with a reasonable focus on climate change mitigation. [More Details](#)

Dynamic Modelling utilizes the Century Model to assess soil and biomass carbon stock changes. For users with a scientific background who wish to model carbon stock changes in projects with a carbon focus. [More Details](#)

Direct Measurement provides a general protocol and specific methodologies for field, laboratory and remote sensing measurements of carbon stocks and greenhouse gases. Requires extensive field measurements and remote sensing analysis to measure carbon stocks in soil and biomass and monitor their changes over time in the project area. Displays project spatial information in an online information system to manage measurement data in carbon and greenhouse gas projects. Project indicators display a results framework of social, biodiversity and environmental indicators of carbon and greenhouse gas benefits in the project area. The data derived from measurements can be used directly for reporting changes in the carbon and greenhouse gas balance or the measurement data may be used as inputs for CBP modelling assessments. [More Details](#)



Carbon Benefits Project: Modelling, Measurement and Monitoring



Project Description

Carbon Benefits Project:
Modelling, Measurement and Monitoring

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Thursday, June 02, 2011

Project Name **SOCSLM** (Change)
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Start Here → Project Description ▾

→ Guidance ▾

→ Analysis Tools ▾

→ Reports ▾

Help

How do you want to define your Project Activity Areas?

Map

Draw Project Activity Areas on a map.
Use with **moderate to high**
connection speeds.



[Draw Boundaries >](#)

Coordinates

Define Project Activity Areas with
coordinates. Use with **low**
connection speeds.

Latitude

Longitude

Area Units
 ▾

[Enter Coordinates >](#)

Upload

If you already have your Project
Activity Areas defined in a shapefile,
upload it here.

File (required):
 

Name Field:

Group Name Field:

Area Field (required for point file):

[Upload Data >](#)

Project Description

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Tuesday, June 07, 2011
Project Name **GEF Brazil** (Change)
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Start Here → Project Description → Guidance → Analysis Tools → Reports Help

Pan / Zoom

Add Area
by point


Add Area
by polygon

Modify Area

Delete Area

How do I? ▾


Streets Aerial Hybrid



Map data ©2011 MapLink Imagery ©2011 Cnes/Spot Image, DigitalGlobe, GeoEye - Terms of Use

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Project Description



**Carbon Benefits Project:
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Describe Project Land Use

1 Select Project Activity Area or Group


Project Activity Area Group 1 [1550 ha] ▾ [Show Project Activity Areas](#)
(opens in new window)

2 Enter land use area

Land Use Category	Initial Land Use	Baseline Scenario	Project Scenario
Agroforestry	0	0	0
Annual Cropland	0	1000	0
Forestland	1550	550	1550
Grassland	0	0	0
Livestock	0	0	0
Perennial Cropland	0	0	0
Settlements	0	0	0
Wetlands	0	0	0
	1550	1550	1550

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Guidance



**Carbon Benefits Project:
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Monday, June 06, 2011

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Guidance Part 1 – Strategy for tracking carbon and greenhouse gas benefits

[Proceed](#)

Asks general questions about the project to help you determine where to focus efforts when tracking carbon and greenhouse gas benefits. Questions are split into 4 areas which you should click on and work through in turn. Background information and links to useful tables and other resources are provided. It is strongly recommended that you read the background information for each area before completing the questions

Guidance Part 2 – Measuring and monitoring

[Proceed](#)

Provides guidance on measuring and monitoring carbon stock changes and greenhouse gas emissions, including sampling regimes and laboratory techniques where appropriate.

Guidance Part 3 – Analysis tools

[Proceed](#)

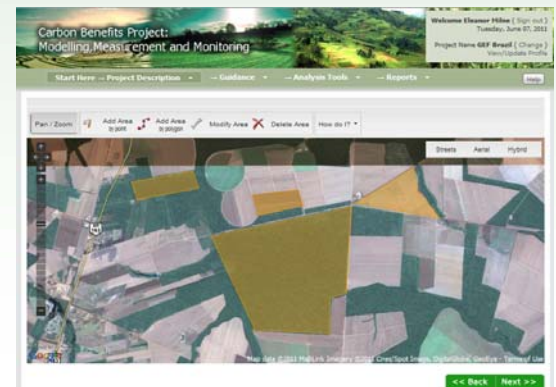
Provides guidance on the most appropriate tool to use to estimate your project's carbon and greenhouse gas balance: a simple assessment, a detailed assessment or a dynamic model.

Simple Assessment


Uses pre-populated information on forest types, cropping, grassland and livestock systems

Users must have:

- Info on project activity areas
- Info on land use/mgt before project started
- A baseline scenario
- A project scenario
- Enough info to choose the most similar forest type, cropping, grassland or livestock system from a drop down list



Simple Assessment



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Project Name **GEF Brazil** (Change)
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1 Initial Land Use x

2 Baseline Scenario x

3 Project Scenario x

Simple Assessment Home

Forestland x

Forest Types and Tree Age Ranges x

Natural Losses and Wood Removal ✓

Grassland ✓

Settlements x

Wetlands ✓

Annual Crops x

Perennial Crops ✓

Agroforestry ✓

Livestock ✓

Goal

The Simple Assessment provides a simple tool to assess the impact of a project on carbon stocks and greenhouse gas emissions. The tool will be most useful to Sustainable Land Management projects involving relatively few land use/management changes on a small area or on relatively few combinations of soil type and climate.

Getting Started

Start by entering information for your Project Activity Areas for the 'Initial Land Use' (the situation at year 0 before your project started). Click on the land use categories in the left hand menu and complete each section in turn. Then do the same for the 'Baseline Scenario' (what would have happened in your project area over the project period without any project activities) and finally the 'Project Scenario'. The project period can be any length of time defined by the user. Information for the baseline and project scenarios should represent the change over the entire period. For further explanation of the scenarios and help with the Simple Assessment click on the 'Help' button, top right.

Simple Assessment

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1 Initial Land Use X 2 Baseline Scenario X 3 Project Scenario X

Forestland Stage 1 of 2: Forest Types and Tree Age Ranges

Forestland X

- Forest Types and Tree Age Ranges X
 - Natural Losses and Wood Removal ✓
- Grassland ✓
- Settlements X
- Wetlands ✓
- Annual Crops X
- Perennial Crops ✓
- Agroforestry ✓
- Livestock ✓

1 Select Project Activity Area or Group

Project Activity Area Group 1 [1550 ha] X [Show Project Activity Areas](#)
(opens in new window)

2 Select a Forest Type and Tree Age Range

Forest Type
Tropical rain forest
[Add to table below](#)

3 Enter Area for each Record

Forest Type	Tree Age Range	Area (ha)	
Tropical rain forest	> 20 years	1500	

Total Area Allocated (ha): 1500/ [Save](#)

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Simple Assessment

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1 Initial Land Use X 2 Baseline Scenario X 3 Project Scenario X

Simple Assessment Annual Cropping Systems

Forestland X

Grassland ✓

Settlements X

Wetlands ✓

Annual Crops ✓

▶ Cropping Systems ✓

Perennial Crops ✓

Agroforestry ✓

Livestock ✓

1 Select Project Activity Area or Group

Project Activity Area Group 3 [298 ha] ✓ [Show Project Activity Areas](#)
(opens in new window)

2 Select an Annual Cropping System

Annual Cropping System
Maize/sorghum/millet legume


Add to table below

3 Describe Selected Annual Cropping Systems

Annual Crop Name	Improved?	Tillage	Amount of N Fertilizer (kg/ha)	% N in Fertilizer	Residue Management	Area	
Maize/sorghum/millet legume	<input checked="" type="checkbox"/>	None	0	0	Grazed	298	

Total Area Allocated (ha): 298/ [Save](#)

Reports



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Project Name GEF Brazil (Change)
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Start Here — Project Description — Guidance — Analysis Tools — Reports — [Help](#)

Please Select One of the Following to Create a Report

1

Please Fill Out the Following to Create a Summary Report

Number of Years for Current Report:

Extend from Previous UNEP Summary Report:

Reporting Period will be ?? Years

Create Summary Report for Review

Send Summary Report to UNEP

2

Please Select One of the Following to Create a Detailed Report

☐ for Analysis of Initial Land Use
☐ for Analysis of Baseline Scenario
☐ for Analysis of Project Scenario

Create Detailed Report

Summary Report

PDF, 7 pages

- Project attributes
- Total and annual C balance in CO₂e for baseline, project and incremental diff
- Tables - C changes by land use classes and emission sources
- Economic Impacts
- Social Impacts

Map 2. Project location - Western Kenya Integrated Ecosystem Management

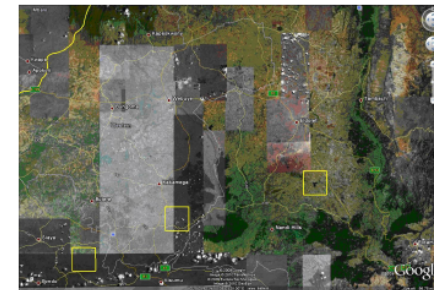


Table 3.2 Expanded Report showing Carbon Emissions by IPCC AFOLU Source Categories. Continued.

Source category	Source sub-category	Without Project (Baseline scenario)			With Project (Project scenario)			Incremental difference (Project scenario minus baseline scenario)		
		tonnes CO ₂ e Total	tonnes CO ₂ e / yr Annual	Uncertainty	tonnes CO ₂ e Total	tonnes CO ₂ e / yr Annual	Uncertainty	tonnes CO ₂ e Total	tonnes CO ₂ e / yr Annual	Uncertainty
	Forest Land	0	0	0	0	0	0	0	0	0
	Grassland/Savanna	0	0	0	-608642.1	-608642.21	0	-608642.1	-608642.21	0
	Annual Cropland	0	0	0	0	0	0	0	0	0

Table 3.1 Simple Summary Report following UNFCCC Common Reporting Guidelines.

Greenhouse Gas Source and Sink Categories	Baseline Emissions (2010)				Project Emissions (2020)				Carbon Benefits		
	CO ₂	CH ₄	N ₂ O	GHGs	CO ₂	CH ₄	N ₂ O	GHGs	Total (tCO ₂ e)	tCO ₂ e / ha	tCO ₂ e / ha / yr
	tonnes CO ₂ e equivalent				tonnes CO ₂ e equivalent						
Agriculture											
A. Enteric Methane		2698.5				6746.25			40477.5	1.686563	0.168656
B. Manure Management		116.34	2046			290.85	5115		32435.1	1.351462	0.135146
C. Rice Cultivation		0				0			0	0	0
D. Agricultural Soils	0	0	2480.93		0	0	6201.86		37209.3	1.550388	0.155038
E. Prescribed Burning of Savannas		0	0			0	0		0	0	0
F. Field Burning of Agricultural Residues		0	0	0		0	0	0	0	0	0
G. Other	0	0	0	0	0	0	0	0	0	0	0
Land Use Change and Forestry											
A. Forest and other Woody Biomass Stocks	0					-63869.63			-63869.63	-26.61235	-2.661235
B. Forest and Grassland Conversion	0	0	0	0	0	0	0	0	0	0	0
C. Abandonment of Managed Lands	0				0				0	0	0
D. CO ₂ Emissions and Removals from Soil	0					-41800			-41800	-17.41667	-1.741667
E. Other	0	0	0	0	0	0	0	0	0	0	0
Total	0	2814.84	4526.93	0	-105669.6	7037.1	11316.86	0	.946574	-39.4406	-3.94406

Detailed Report

Excel spreadsheet

- Breakdown of GHG emissions C stock changes by source (enteric methane, manure methane, manure N₂O etc.....)
- activity area, then land use category
- IPCC equation given
- Uncertainty estimate