

# The Carbon Benefits Project

## Quick Guide

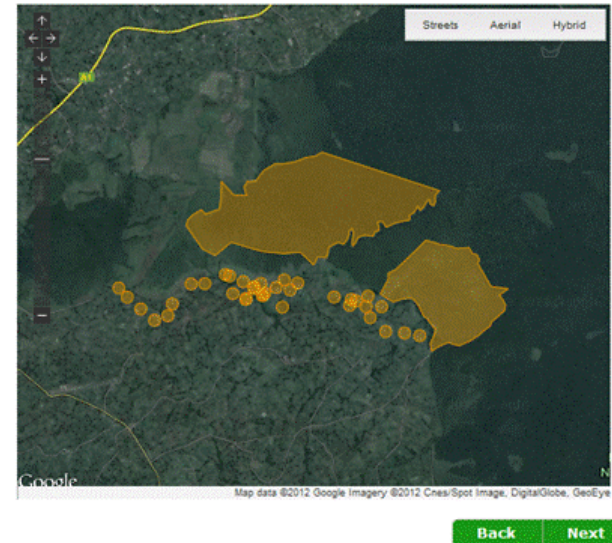
**QUICK START**



## a. What methodology does the tool follow?

The Simple Assessment and the Detailed Assessment both use the IPCC method to give a net GHG assessment.

As the tools starts with a map, they can accommodate projects with multiple different activity areas, involving a wide variety of land use and management combinations and changes.



## b. What are the input and output data?

### Input data

1. Locations of your '**project activity areas**' (the areas where land use or management changes are being made). Users can enter multiple points or polygons or project boundary areas as their 'project activity areas'.
2. For each project activity area the amount of land under different land use categories (forestland, grassland, cropland etc.) plus numbers of livestock.
3. Information for how the land is managed for each land use category in each project activity area.
4. The CBP tools compare net emissions under a project and a baseline scenario. Therefore info for 2 & 3 are needed for initial conditions, a baseline and a project scenario.

# Output data

The CBP produces two types of reports:

1. A PDF summary report which gives net GHG balance for a project compared to a baseline scenario. It also presents results by GHG source/sink category with an associated measure of uncertainty. It presents results in the IPCC and UNFCCC format.

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 <sub>2</sub> e	tonnes CO <sub>2</sub> e / yr	Uncertainty	tonnes CO <sub>2</sub> e	tonnes CO <sub>2</sub> e / yr	Uncertainty	tonnes CO <sub>2</sub> e	tonnes CO <sub>2</sub> e / yr	Uncertainty
		Total	Annual		Total	Annual		Total	Annual	
	Forest Land	0	0	0	0	0	0	0	0	0
	Grassland/Savanna	0	0	0	-60864.21	-60864.21	0	-60864.21	-60864.21	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 <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	GHGs	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	GHGs	Total tCO <sub>2</sub> e	tCO <sub>2</sub> e / ha <sup>2</sup>	tCO <sub>2</sub> e / ha <sup>2</sup> / yr	
	tonnes CO <sub>2</sub> equivalent				tonnes CO <sub>2</sub> equivalent							
<b>Total Bi Carbon t</b>												
Biomass Bur CO												
	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	
<b>Total Bi Burning n</b>												
	<b>Land Use Change and Forestry</b>											
	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	
	C. Abandonment of Managed Lands	0			0				0	0	0	
	D. CO <sub>2</sub> Emissions and Removals from Soil	0			-41800				-418000	-17.41667	-1.741667	
	E. Other	0	0	0	0	0	0		0	0	0	
	<b>Total</b>	<b>0</b>	<b>2814.84</b>	<b>4526.93</b>	<b>0</b>	<b>-105669.6</b>	<b>7037.1</b>	<b>11316.86</b>	<b>0</b>	<b>948574.4</b>	<b>39.4406</b>	<b>-3.94406</b>

# Output data ctd.

## 2. Detailed Reports

These are Excel workbooks with separate sheets for each source and sink category. Results are then further broken down by climate type, soil type, land use category, land management etc. with associated uncertainty. The sheets provide the equations used in the calculations plus explanations of all of the factors.

The screenshot shows an Excel spreadsheet with the following content:

**Equation:**  
12  $SOC = A * SOCref * Flu * Fi * Fmg * CO2-C$

**Legend:**

Abbreviation	Description	Units	Type
A	Area	ha	Quantity Value
AgeRange	Age Range		Stratum
Category	Activity Data Category		Stratum
Climate	Climate		Stratum
CO2-C	CO2-C Conversion Fac	(44 g CO2)/(12 g C)	Constant Value
CropTreeType	Crop/Tree Type		Stratum
Fi	Uncertainty in Fi	Percent	Factor Uncertainty
Fi	Input Factor	unitless	Factor Value
Flu	Uncertainty in Flu	Percent	Factor Uncertainty
Flu	Land Use Factor	unitless	Factor Value
Fmg	Uncertainty in Fmg	Percent	Factor Uncertainty
Fmg	Management Factor	unitless	Factor Value
InputSoilCls	Input Soil Class		Stratum
LUSoilCls	Land Use Soil Class		Stratum
MgmtSoilCls	Management Soil Class		Stratum
Project Activity Area	Project Activity Area Group Name		Stratum
SOC	Mineral Soils C Stocks	tonnes C	Equation Result
SOCref	Uncertainty in SOCref	Percent	Factor Uncertainty
SOCref	Reference Soil Carbon	tonnes C/ha	Factor Value
Soil	Soil		Stratum
SubCategory	Activity Data Subcategory		Stratum
Uncertainty (%)	Uncertainty in Equation #	Percent	Result Uncertainty

**Results:**

Project Activity Area	Climate	Soil	Category	SubCategory	MgmtSoilCls
Introduced Agroforestry	Tropical Montane	Low Activity Clay Miner	Agroforestry	Avacado and Banana w	Reduced Tillage
Reforestation Area 1	Tropical Montane	Low Activity Clay Miner	Forestland	Tropical mountain syste	N/A
Reforestation Area 1	Tropical Montane	Low Activity Clay Miner	Forestland	Tropical mountain syste	N/A
Reforestation Area 1	Tropical Montane	Low Activity Clay Miner	Forestland	Tropical mountain syste	N/A
Avoided Deforestation	Tropical Montane	Low Activity Clay Miner	Forestland	Tropical mountain syste	N/A

Navigation tabs at the bottom: Silvapasture NOx, Timber Loss, Fuelwood Loss, Mineral Soils, Orga

Detailed reports can be produced for the Initial situation, the baseline scenario or the project scenario.

## c. A brief step-by-step guide

### 1. Setting up an account:

To start using the CBP tools go to

[www.unep.org/cbp\\_pim](http://www.unep.org/cbp_pim) and set up an account by clicking on 'Not yet registered'. Create a user name and password and then click on the link sent to you by email.

Carbon Benefits Project:  
Modelling, Measurement and Monitoring

[Provide Feedback](#) [Help](#)

**Please Login** [Not Yet Registered?](#)

Email

Password

[Forgot your password?](#)

Remember me

[Login >>](#)

Welcome to the Carbon Benefits Project (CBP) greenhouse gas inventory toolkit. We request you sign in so that you can store project information for future use. Your login information is for record-keeping purposes only, and will not be released to any other party.

Please note that this is a 'soft release' of the CBP toolkit, while the tools are still under development. The inventory results reported by the tools at this time may change in future releases. Thank you for your interest, and we look forward to your feedback, which you can provide by clicking on the "provide feedback" button in the upper right corner of each page.

UNEP GEF Colorado State WWF ISBIC MICHIGAN STATE UNIVERSITY UEA World Agriculture Centre CIFOR cena IRD University of Leicester ILRI

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## 2. Add a new project and enter some basic information about it

E.g. the name of your project, how long it will last, the country or countries where you are working etc. Choosing the country/ies is very important as this will take you to a map in the next step.

**1** Please enter basic project information

Project Name  
GEF LUSIP

Project ID Code  
3390

Project Status  
Active

Project Start Date  
Month: 01 Year: 2013

Project Duration  
4 Years

Project Country (Countries)  
Hold CTRL, then click to select multiple countries

- Sudan
- Suriname
- Svalbard and Jan Mayen Islands
- Swaziland

Project Region  
Lower Usuthu

Communities/Countries/Provinces Involved  
Htluse, Makhundlu,  
Vovovo, Gucuka

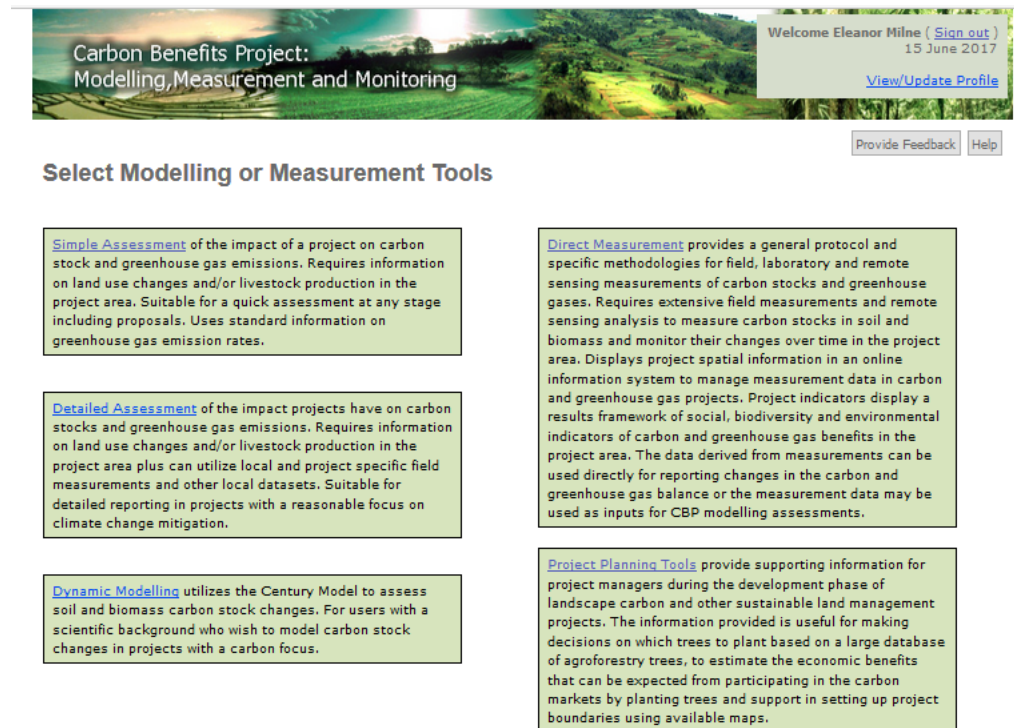
Project Activities  
Introduction of conservation agriculture  
Introduction of permaculture/organic gardens  
Protection of degraded range lands

Brief Summary of Project Goal  
Improve livelihoods in the LUSIP project area in a sustainable way

Summary of any Carbon and Greenhouse Gas Benefit Goals (Optional)

### 3. Choose a tool

Click on 'Tool Kit Advisor' and choose either the Simple Assessment or the Detailed Assessment



Carbon Benefits Project:  
Modelling, Measurement and Monitoring

Welcome Eleanor Milne ( [Sign out](#) )  
15 June 2017  
[View/Update Profile](#)

[Provide Feedback](#) [Help](#)

#### Select Modelling or Measurement Tools

[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.

[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.

[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.

[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.

[Project Planning Tools](#) provide supporting information for project managers during the development phase of landscape carbon and other sustainable land management projects. The information provided is useful for making decisions on which trees to plant based on a large database of agroforestry trees, to estimate the economic benefits that can be expected from participating in the carbon markets by planting trees and support in setting up project boundaries using available maps.



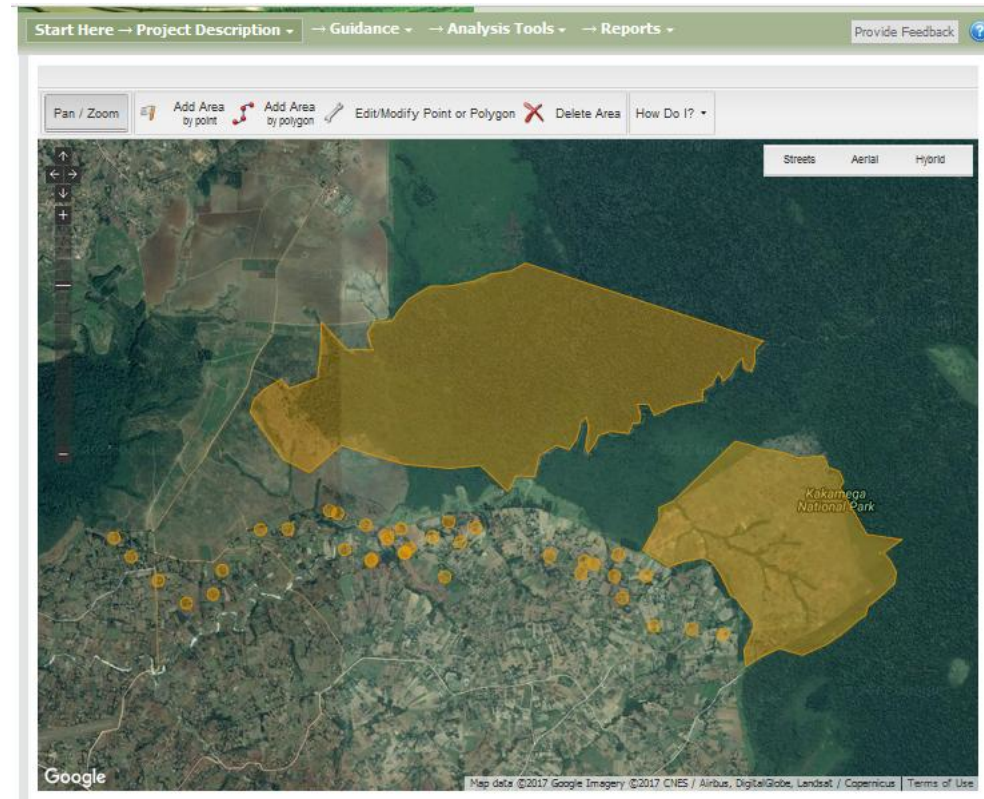
## 4. Define your project boundaries

Go to 'Start here' 'Project Description' to define your project activity areas. You can define multiple areas by drawing points or polygons on a map or uploading point or GIS files.

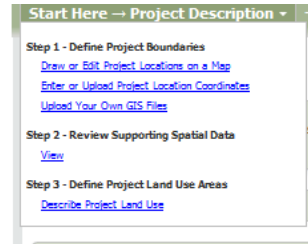
Points are good if you want to represent multiple smallholdings. These can be linked if land use and management is the same for all of them.

Polygons are useful if you want to represent larger areas, for example areas of avoided deforestation.

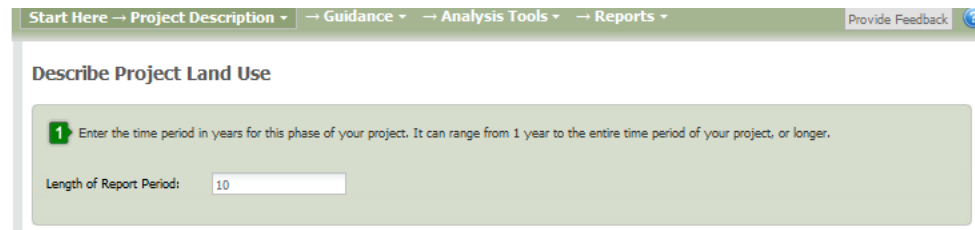
Projects can involve multiple points and polygons and combinations of both.



## 5. Go to 'Project Description' 'Step 3 – Describe Project Land Use'



In box 1, enter the number of years you want to create a report for. This can be equal to, shorter or longer than the length of your project.

A screenshot of the "Describe Project Land Use" form. The form has a header "Describe Project Land Use" and a navigation bar with "Start Here → Project Description", "Guidance", "Analysis Tools", "Reports", and "Provide Feedback". A green box with a "1" icon contains the instruction: "Enter the time period in years for this phase of your project. It can range from 1 year to the entire time period of your project, or longer." Below this, there is a label "Length of Report Period:" followed by a text input field containing the number "10".

## 6. For each polygon, point or group of polygons and points tell the system how much land area is in different land use categories (Project Description Step 3):

This needs to be done for the Initial situation before your project started (**Initial land use**) for the situation at the end of the report period under your **Project Scenario** and what the situation would have been at the end of the report period under a **Baseline Scenario**.

Remember to click 'Save' after every entry!

Start Here → Project Description → Guidance → Analysis Tools → Reports Provide Feedback ?

### Describe Project Land Use

1 Enter the time period in years for this phase of your project. It can range from 1 year to the entire time period of your project, or longer.

Length of Report Period:

2 Select Project Activity Area/Group

[Show Project Activity Areas \(opens in new window\)](#)

3 Enter land use area in ha

Land Use Category	Initial Land Use (ha)	Baseline Scenario (ha)	Project Scenario (ha)
Forestland	1	0	0
Grassland	0	0	0
Settlements	200	201	201
Wetlands	0	0	0
Annual Cropland	0	0	0
Perennial Cropland	0	0	0
Agroforestry	0	0	0
Livestock	0	0	0
<b>Total Area (ha)*</b>	<b>201</b>	<b>201</b>	<b>201</b>

\* The total area includes all of the area in all of the first seven land use categories, but does not include the number of livestock.

Save Back Next

# 7. Go to 'Analysis Tools' and choose either the 'Simple Assessment' or the 'Detailed Assessment'

Start Here → Project Description → Guidance → Analysis Tools → Reports → Provide Feedback ?

### Describe Project Land Use

**1** Enter the time period in years for this phase of your project.

Length of Report Period:

period of your project, or longer.

**2** Select Project Activity Area/Group

[Show Project Activity Areas \(opens in new window\)](#)

**3** Enter land use area in ha

Land Use Category	Initial Land Use (ha)	Baseline Scenario (ha)	Project Scenario (ha)
Forestland	1	0	0
Grassland	0	0	0
Settlements	200	201	201
Wetlands	0	0	0
Annual Cropland	0	0	0
Perennial Cropland	0	0	0
Agroforestry	0	0	0
Livestock	0	0	0
<b>Total Area (ha)*</b>	<b>201</b>	<b>201</b>	<b>201</b>

\* The total area includes all of the area in all of the first seven land use categories, but does not include the number of livestock.

8. You will be taken to the tools home page. Click on 'Initial Land Use' to get started.

The screenshot shows the user interface of the Carbon Benefits Project Modelling, Measurement and Monitoring tool. At the top, there is a header with a landscape image and the text "Carbon Benefits Project: Modelling, Measurement and Monitoring". To the right of the header, it says "Welcome Eleanor Milne (Sign out)", "Language: en-GB", "Friday 16 June 2017", and "Project Name (id): test 22(1000000408) (Change) View/Update Profile". Below the header is a navigation bar with links: "Start Here", "Project Description", "Guidance", "Analysis Tools", and "Reports". There is also a "Provide Feedback" button. Below the navigation bar is a progress indicator with three steps: "1 Initial Land Use x", "2 Baseline Scenario x", and "3 Project Scenario x". The main content area is titled "Simple Assessment Home" and contains two columns of text. The left column is titled "Goal" and describes the tool's purpose. The right column is titled "Getting Started" and provides instructions on how to use the tool.

**Carbon Benefits Project: Modelling, Measurement and Monitoring**

Welcome Eleanor Milne (Sign out)  
Language: en-GB Friday 16 June 2017  
Project Name (id): test 22(1000000408) (Change) View/Update Profile

Start Here → Project Description → Guidance → Analysis Tools → Reports → Provide Feedback

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

### Simple Assessment Home

#### Goal

The Simple Assessment provides a simple tool to assesses 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.

9. You then go through and complete land management information for each 'Project activity area' (points, polygons or groups of these) for the Initial Land Use, the Baseline Scenario and the Project Scenario. Land use categories that require data entry have a red cross ('X') by the side. Land use categories with completed data entry have a green check ('✓') mark by the side:

The screenshot displays the 'Simple Assessment Home' interface. At the top, there is a navigation bar with links: 'Start Here', 'Project Description', 'Guidance', 'Analysis Tools', and 'Reports'. A 'Provide Feedback' button is also present. Below the navigation bar, there are three numbered steps: '1 Initial Land Use x', '2 Baseline Scenario x', and '3 Project Scenario x'. The main content area is titled 'Simple Assessment Home' and features a list of land use categories on the left and two informational boxes on the right.

Land Use Category	Completion Status
Forestland	X
Grassland	✓
Settlements	X
Wetlands	✓
Annual Crops	✓
Perennial Crops	✓
Agroforestry	X
Livestock	✓

**Forestland X**

- Forest Types and Tree Age Ranges X
- Natural Losses and Wood Removal ✓

**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.

# Here is an example of the first page of Forestland in the Simple Assessment

In Box 1 choose your project activity area from a drop down list.

In Box 2 choose the forest types that are present in the area.

In Box 3 choose the age of the forest and the area associated with this forest type.

The screenshot shows a web application interface for "Forestland Stage 1 of 2: Forest Types and Tree Age Ranges". At the top, there is a navigation bar with "Start Here", "Project Description", "Guidance", "Analysis Tools", and "Reports". A "Provide Feedback" button is in the top right. Below the navigation bar, there are three numbered steps: "1 Initial Land Use", "2 Baseline Scenario", and "3 Project Scenario".

The main content area is titled "Forestland Stage 1 of 2: Forest Types and Tree Age Ranges". On the left, there is a sidebar with a tree view showing "Forestland" (expanded) and "Forest Types and Tree Age Ranges" (expanded). Under "Forestland", there are "Natural Losses and Wood Removal" (checked) and "Agroforestry" (checked). Under "Forest Types and Tree Age Ranges", there are "Grassland" (checked), "Settlements" (checked), "Wetlands" (checked), "Annual Crops" (checked), "Perennial Crops" (checked), "Agroforestry" (checked), and "Livestock" (checked).

The main content area has three numbered steps:

- 1 Select Project Activity Area/Group**: A dropdown menu is set to "Introduced Agroforestry [201 ha]". A link "Show Project Activity Areas (opens in new window)" is to the right.
- 2 Select a Forest Type and Tree Age Range**: A "Forest Type" dropdown menu is open, showing a list of options including "Subtropical mountain systems natural vegetation" (highlighted), "Subtropical mountain systems plantation - broadleaf", "Subtropical mountain systems plantation - Eucalyptus spp.", "Subtropical mountain systems plantation - other broadleaf", "Subtropical mountain systems plantation - Pinus spp.", and "Subtropical mountain systems plantation - Tectona grandis". Below the dropdown, there are two input fields: "Age Range\*" and "Area (ha)\*".
- 3**: A section for "Total Area Allocated (ha): /1".

# Here is an example of the second page in Forestland in the Simple Assessment

In these pages the user describes the amount of wood being removed by natural losses (fire, pests etc.) and by people (for fuel and timber)

Start Here → Project Description → Guidance → Analysis Tools → Reports → Provide Feedback ?

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

### Forestland Stage 2 of 2: Natural Losses and Wood Removal

Forestland x

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

1 Select Project Activity Area/Group

Introduced Agroforestry [201 ha] ✓ [Show Project Activity Areas](#) (opens in new window)

2 Enter percent of aboveground biomass affected by natural losses each year

Forest Type	Tree Age Range*	Area (ha)*	Fires (%/yr)	Wind (%/yr)	Pest/Disease (%/yr)	Other Losses (%/yr)
-------------	-----------------	------------	--------------	-------------	---------------------	---------------------

3 Enter volume of wood removed by timber harvest, fuel wood gathering, pruning or any other manmade process.

Forest Type	Tree Age Range*	Area (ha)*	Timber Harvest (m <sup>3</sup> /yr)	Fuelwood Gathering (m <sup>3</sup> /yr)
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# 10. If using the Detailed Assessment users can also add their own stock change and emission factors to improve the estimate.

In the Simple Assessment default Tier 1 factors are used, supplied by the IPCC. These area quite generalised, representing large areas or regions.

In the Detailed Assessment users can enter their own factors which can be taken from local scientific studies or field measurements.

The screenshot shows a web interface for selecting emission factors. At the top, there are navigation tabs: "Start Here", "Project Description", "Guidance", "Analysis Tools", and "Reports". Below this, a progress bar indicates three steps: "1 Initial Land Use" (checked), "2 Baseline Scenario" (marked with an 'x'), and "3 Project Scenario" (marked with an 'x').

The main section is titled "Emission Factors". On the left, there is a sidebar with a tree view of categories: "Forestland" (checked), "Grassland", "Settlements", "Wetlands", "Annual Crops", "Perennial Crops", "Agroforestry", and "Livestock". Under "Forestland", sub-categories like "Forest Types and Age Ranges", "Natural Losses and Wood Removal", and "Emission Factors" are visible.

The main content area is titled "1 Select a Factor" and includes a "Show List of Greenhouse Gas Equations and Factors" link. It contains a list of factors with the following columns: Factor Name, Factor Type, Units, Source Category, and SubSource Category. The factors are color-coded: green for good candidates, black for more complex factors, and red for physical constants.

Factor Name	Factor Type	Units	Source Category	SubSource Category
Bw: Aboveground Biomass Stock	Field Measurement	tonnes dm/ha	Biomass C Stocks	Forestland
BEFT: Biomass Expansion Factor for Fuelwood	Field Measurement	unitless	Biomass C Stocks	Timber Harvest and Fuelw. Gathering
BEFT: Biomass Expansion Factor for Timber	Field Measurement	unitless	Biomass C Stocks	Timber Harvest and Fuelw. Gathering
Fol: Biomass Fraction Left After Harvest	Field Measurement	fraction	Biomass C Stocks	Timber Harvest and Fuelw. Gathering
CF: Carbon Fraction	Complex Measurement	tonnes C/tonnes dm	Biomass C Stocks	Deforestation
CF: Carbon Fraction	Complex Measurement	tonnes C/tonnes dm	Biomass C Stocks	Forestland
CF: Carbon Fraction	Complex Measurement	tonnes C/tonnes dm	Biomass C Stocks	Shifting Cultivation
CF: Carbon Fraction	Complex Measurement	tonnes C/tonnes dm	Biomass C Stocks	Timber Harvest and Fuelw. Gathering
Flu: Land Use Factor	Laboratory Measurement	unitless	Soil C Stocks	Mineral Soils
MF: Mass of Fuel	Laboratory Measurement	tonnes dm/ha	Biomass Burning	Deforestation
MF: Mass of Fuel	Laboratory Measurement	tonnes dm/ha	Biomass Burning	Forestland

At the bottom of the interface, there is a second step indicator: "2 View/Update Factor Values and Confidence Intervals".

11. Once you have described land management for all land use categories in all project activity areas under all scenarios, all options will have a green tick by the side. You will also get a message saying data entry is complete. Users may then run the calculations.

Start Here → Project Description → Guidance → Analysis Tools → Reports → Provide Feedback

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

### Grassland Stage 1 of 3: Grassland Systems

- Forestland ✓
- Grassland ✓
  - Grassland Systems ✓
    - Silvopasture Tree Types / Age Ranges ✓
    - Silvopasture Natural Losses and Wood Removal ✓
  - Settlements ✓
  - Wetlands ✓
  - Annual Crops ✓
  - Perennial Crops ✓
  - Agroforestry ✓
  - Livestock ✓

1 Select Project Activity Area/Group

Reforestation Area 1 [289 ha] ✓ [Show Project Activity Areas](#) (opens in new window)

2 Select a Grassland System

Continuous pasture  Definitions:  
Continuous Pasture  
Silvopasture  
Rangeland  
Continuous Hay Land

**Run Calculations?**

The data entry for your scenarios appears to be complete. Would you like to run the greenhouse gas balance calculations now? It will take approximately 1 minutes. You will need to leave this browser page open while the calculations run.

Before you can generate reports or work with the cost benefit analysis or DPSIR, these calculations will have to be run.

Grassland System*	Condition	Count of N (ha)	% of nitrogen (N) in biomass*	Frequency*	Area (ha)*
Rangeland	Moderately Degraded Grassland	0	0	never burned	270

Total Area Allocated (ha): 270/270

# 12. Once you have run the calculations you can go to 'Reports' and create either a Summary or a Detailed Report.

Start Here → Project Description → Guidance → Analysis Tools → **Reports**

Please Select One of the Following to Create a Report

Rerun Calculations

**1** Summary Report Options

Create Summary Report for Review View Graphs

**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

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 <sub>2</sub> e Total	tonnes CO <sub>2</sub> e / yr Annual	Uncertainty	tonnes CO <sub>2</sub> e Total	tonnes CO <sub>2</sub> e / yr Annual	Uncertainty	tonnes CO <sub>2</sub> e Total	tonnes CO <sub>2</sub> e / yr Annual	Uncertainty
	Forest Land	0	0	0	0	0	0	0	0	0
	Grassland/Savanna	0	0	0	-60864.2	-60864.2	0	-60864.2	-60864.2	0
	Annual Cropland	0	0	0	0	0	0	0	0	0
	Perennial Cropland	0	0	0	-3005.42	-3005.42	0	-3005.42	-3005.42	0
	Agroforestry	0	0	0	0	0	0	0	0	0
	Settlements	0	0	0	0	0	0	0	0	0
	Deforestation	0	0	0	0	0	0	0	0	0
	Shifting Cultivation	0	0	0	0	0	0	0	0	0
	<b>Total Biomass Carbon Stocks</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-638696.3</b>	<b>-638696.3</b>	<b>0</b>	<b>-638696.3</b>	<b>-638696.3</b>	<b>0</b>
Biomass Burning non-CO <sub>2</sub>	Cropland Residue	0	0	0	0	0	0	0	0	0
	Grassland/Savanna	0	0	0	0	0	0	0	0	0
	Forest Land	0	0	0	0	0	0	0	0	0
	Agroforestry	0	0	0	0	0	0	0	0	0
	Perennial Crops	0	0	0	0	0	0	0	0	0
	Deforestation	0	0	0	0	0	0	0	0	0
	Shifting Cultivation	0	0	0	0	0	0	0	0	0
	<b>Total Biomass Burning non-CO<sub>2</sub></b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

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 <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	GHGs	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	GHGs	Total tCO <sub>2</sub> e	tCO <sub>2</sub> e / ha <sup>2</sup>	tCO <sub>2</sub> e / ha / yr
	tonnes CO <sub>2</sub> equivalent				tonnes CO <sub>2</sub> equivalent						
<b>Agriculture</b>											
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		2480.93		0		6201.96		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	0
G. Other	0	0	0	0	0	0	0	0	0	0	0
<b>Land Use Change and Forestry</b>											
A. Forest and other Woody Biomass Stocks	0				-638696.3				-638696.3	-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 <sub>2</sub> 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
<b>Total</b>	<b>0</b>	<b>2814.84</b>	<b>4526.93</b>	<b>0</b>	<b>-105669.6</b>	<b>7037.1</b>	<b>11316.86</b>	<b>0</b>	<b>-946574.4</b>	<b>-39.4406</b>	<b>-3.94406</b>

## d. Advantages of the CBP tools

The CBP tools have a spatial component allowing simultaneous analysis of multiple areas involving a variety of land use and management activities. This makes them ideal for analysing landscape scale projects with a variety of land use types and land management activities.

The CBP includes socio economic tools which allow users to consider land management strategies in terms of economic and social constraints in addition to GHG benefits.

The tools are online and free!

## h. A Case study

The CBP Simple and Detailed Assessments were used to estimate the **'Climate Change Mitigation Potential of Ethiopia's Productive Safety-Net Program (PSNP)'**

PSNP introduced various sustainable land management practices (livestock exclosures, grass bunds etc.) at sites throughout Ethiopia in the 1990s and earlier with the aim of improving food security. The CBP tools were used to estimate the climate change mitigation potential of 28 of these sites over a 20 year period.

Results found the mean carbon benefit of all PSNP sites was 5.7 tonnes CO<sub>2</sub>e /ha /yr. On average, these carbon benefits were primarily due to increases in biomass (40% of total), in soil organic carbon (38%) and reduced livestock greenhouse gas emissions (22%). Extrapolating these results to the whole of PSNP's 600,000 ha of already-established area enclosures would imply that a total carbon benefit in the order of 3.4 million t CO<sub>2</sub>e /ha /yr has already been achieved by PSNP. (Woolf et al 2015). Read the full report here:

<https://ecommons.cornell.edu/handle/1813/41296>