Overview of the Carbon Benefits Project (CBP) tools and Linkages to WOCAT

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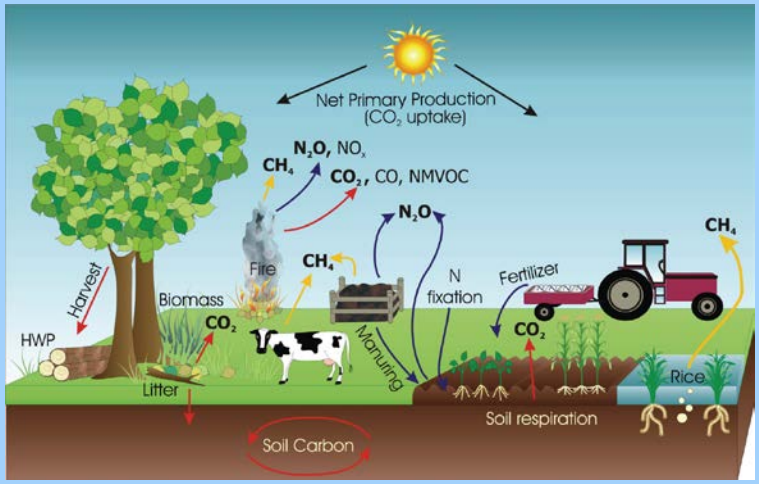
Presentation Outline

- Description of the CBP Tools
- Current Applications
- Linkages to WOCAT
- Contact Information

What is the Carbon Benefits Project?

- Began as a Global Environment Facility Initiative in 2008
- Collaborative effort funded to develop a free and open-to-the-public, online resource for assessing the greenhouse gas mitigation effects of land use and land management changes.
- Tool assesses **agriculture**, **forestry** and **other land uses.**
- **Recommended and backed by:**
  - **UNEP**
  - **UNCCD**
  - **4perMil**

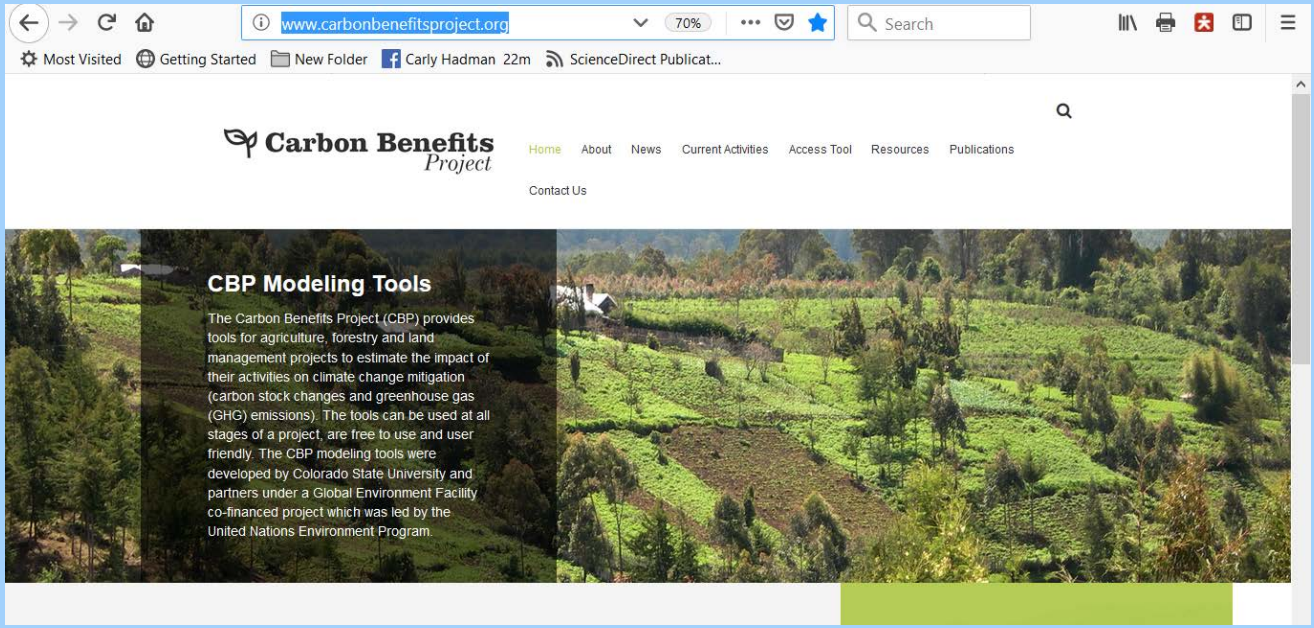


Net GHG Benefit

The tools are available online:

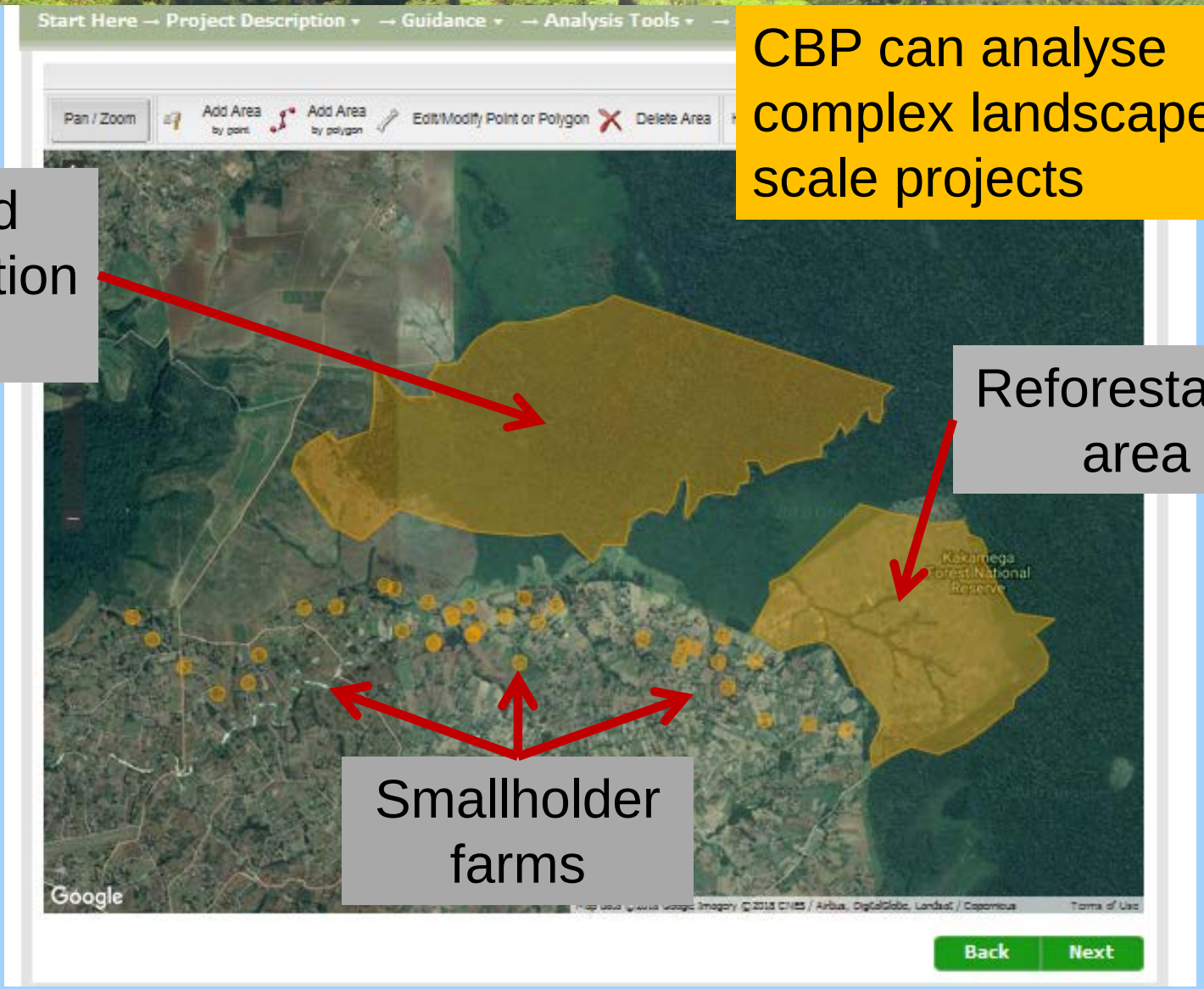
www.carbonbenefitsproject.org

https://cbp.nrel.colostate.edu/



Comprehensive Help, Tutorials, and Support Available Within the Tool

Carbon Benefits Project



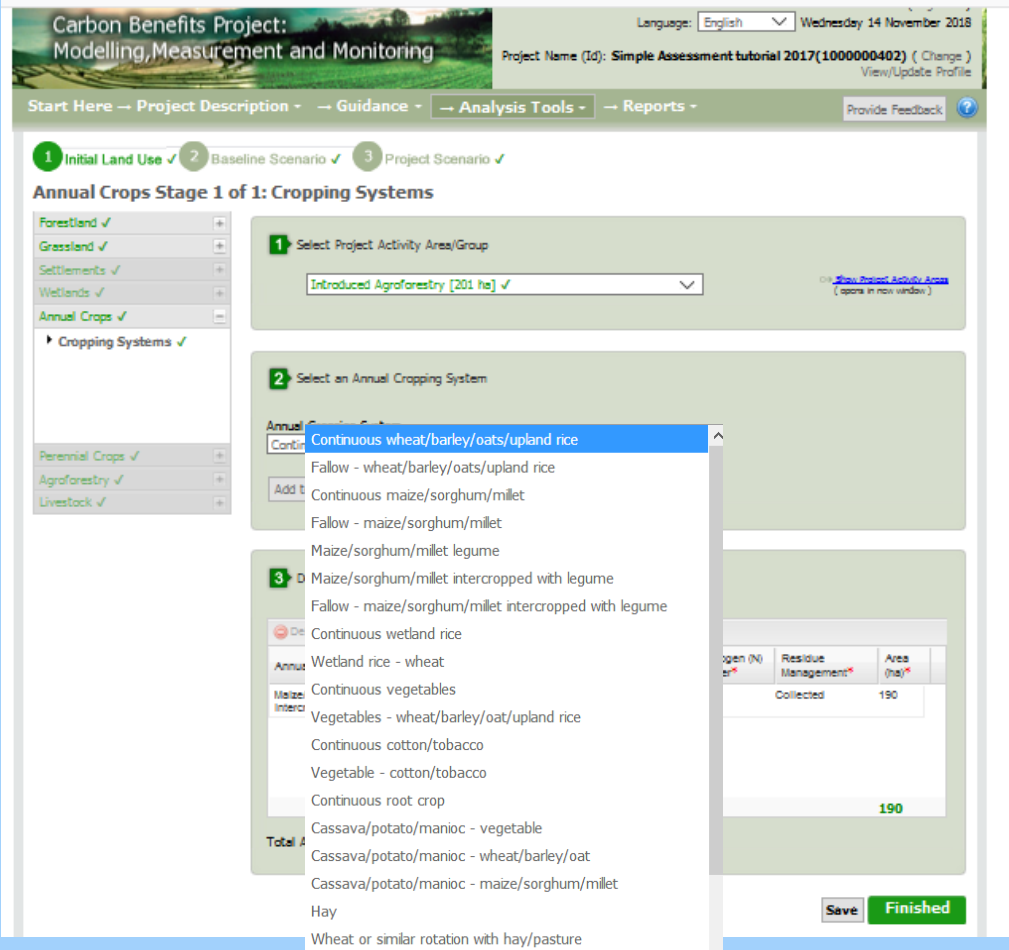
CBP can analyse complex landscape scale projects

Avoided deforestation area

Reforestation area

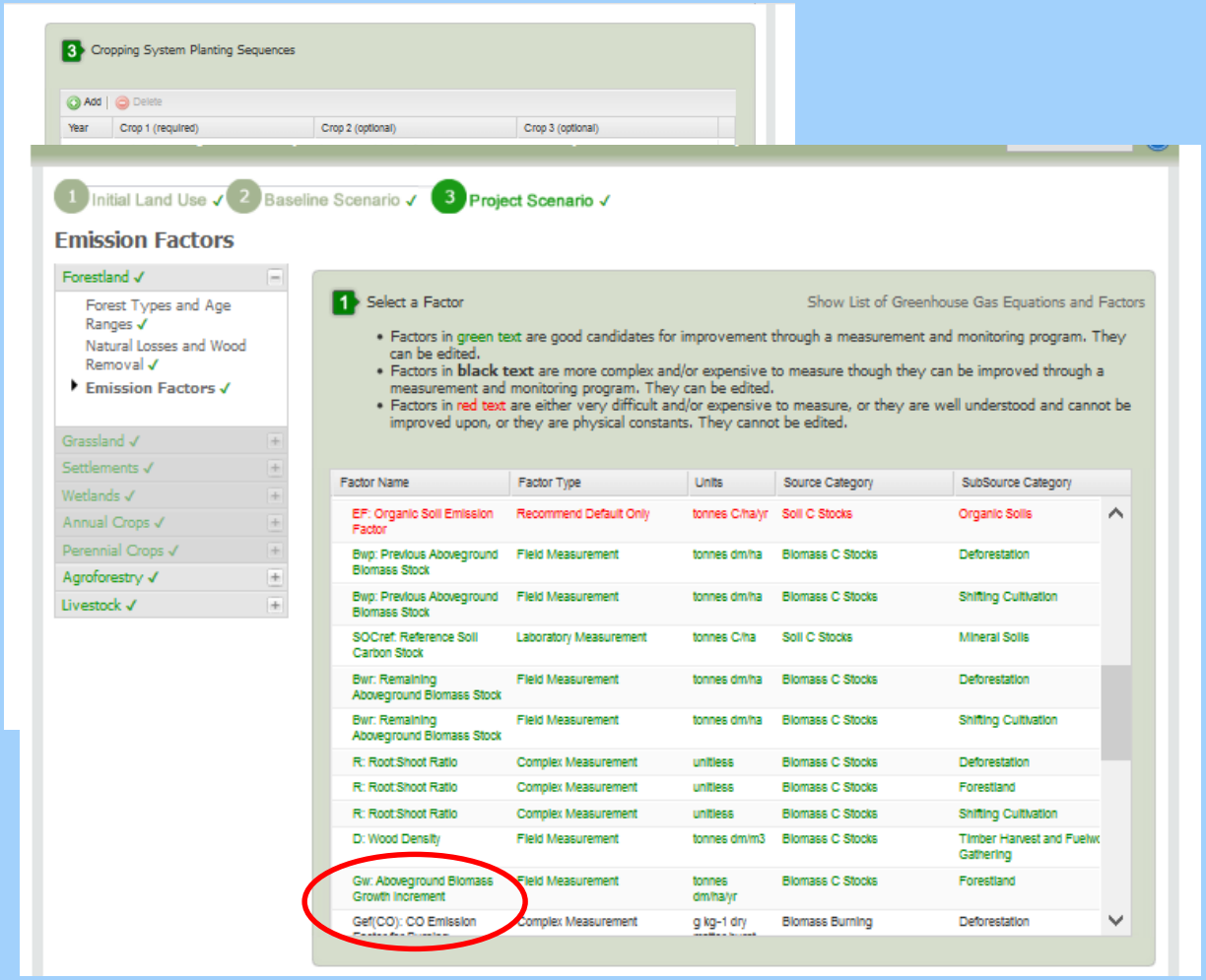
Smallholder farms

Simple Assessment – Rapid Assessment Tool



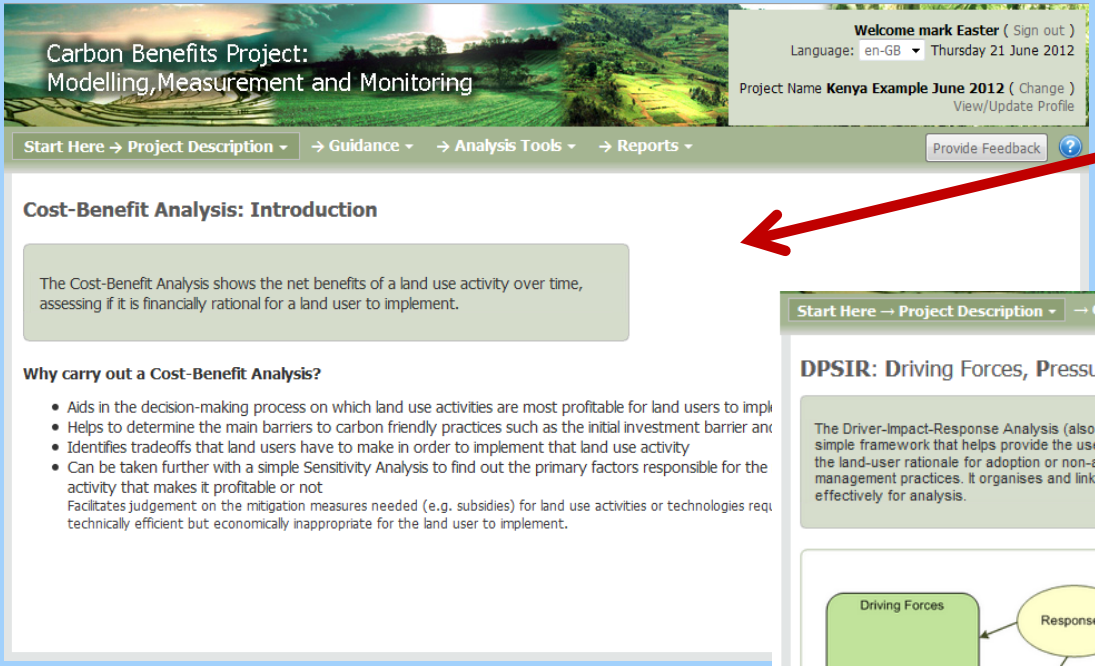
- Simple Data Entry
- Dropdown Lists
- IPCC Tier 1

Detailed Assessment – Allows Deeper Inquiry



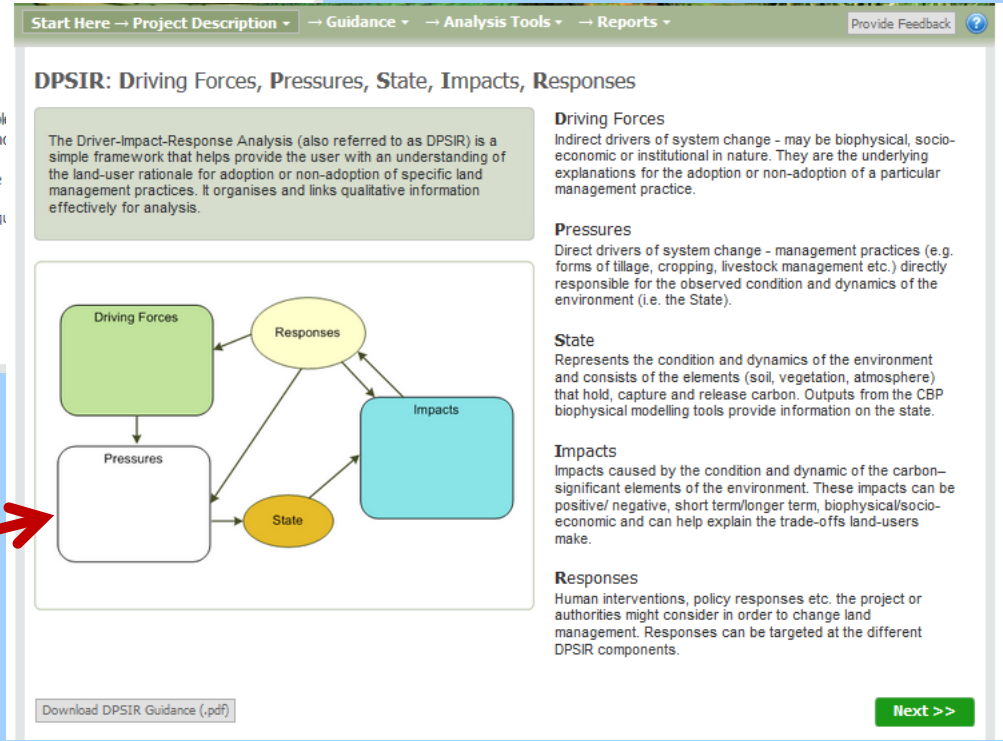
- Greater Flexibility, users may create project-specific trees and crops
- IPCC Tier 2
- Users may either use IPCC emission factors or create their own.

Socio-economic tools



Cost-Benefit Analysis

DPSIR Framework



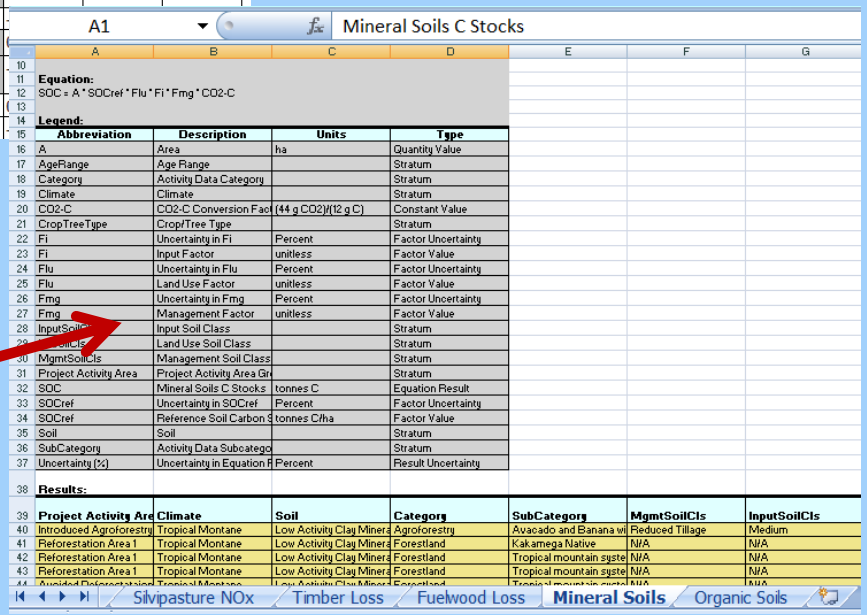
Reporting Capabilities

Table 3.1 Simple Summary Report following UNFCCC Common Reporting Guidelines.

Greenhouse Gas Source and Sink Categories	Baseline Scenario (2018 - 2028) Emissions and Removals				Project Scenario (2018 - 2028) Emissions and Removals				Carbon Benefits		
	CO_2	CH_4	N_2O	GHGs	CO_2	CH_4	N_2O	GHGs			
	tonnes CO_2equivalent				tonnes CO_2equivalent				Total tCO_2e	tCO_2e / ha	tCO_2e / ha / yr
Agriculture											
A. Enteric Methane		0				7659			7659	7.6	0.76
B. Manure Management		0	0			151	3743		3893		
C. Rice Cultivation		0				0			0	0	0
D. Agricultural Soils	0	0	11		0	0	8113		8102	8	0.8
E. Prescribed Burning of Savannas		0	0	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	12263				-48136				-60400	-60	-6
B. Forest and Grassland Conversion	62974	0	0	0	0	0	0	0			
C. Abandonment of Managed Lands	0				0						
D. CO2 Emissions and Removals from Soil	13712				-2344						
E. Other	0	0	0	0	0	0	0	0			
Total	88949	0	11	0	-50480	7810	11856	0			

UNFCCC
Or
IPCC

Detailed Source Category-Level Output



A1 — Mineral Soils C Stocks

Equation:
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
SoilCls	Land Use Soil Class		Stratum
MgmtSoilCls	Management Soil Class		Stratum
Project Activity Area	Project Activity Area Gr		Stratum
SOC	Mineral Soils C Stocks	tonnes C	Equation Result
SOCref	Uncertainty in SOCref	Percent	Factor Uncertainty
SOCref	Reference Soil Carbon S	tonnes C/ha	Factor Value
Soil	Soil		Stratum
SubCategory	Activity Data Subcatego		Stratum
Uncertainty (%)	Uncertainty in Equation F	Percent	Result Uncertainty

Results:

Project Activity Are	Climate	Soil	Categor	SubCategor	MgmtSoilCls	InputSoilCls
Introduced Agroforestry	Tropical Montane	Low Activity Clay Minera	Agroforestry	Avacado and Banana wi	Reduced Tillage	Medium
Reforestation Area 1	Tropical Montane	Low Activity Clay Minera	Forestland	Kakamega Native	N/A	N/A
Reforestation Area 1	Tropical Montane	Low Activity Clay Minera	Forestland	Tropical mountain syste	N/A	N/A
Reforestation Area 1	Tropical Montane	Low Activity Clay Minera	Forestland	Tropical mountain syste	N/A	N/A

Silvipasture NOx | Timber Loss | Fuelwood Loss | Mineral Soils | Organic Soils

CBP Linkages to WOCAT

WOCAT

Carbon Benefits Project

Choose appropriate SLM technologies from the WOCAT database

Estimate the C and GHG impacts of the SLM technologies with the CBP tools

LandPKS

Gather field data on land use and management using mobile phones and feed into CBP or WOCAT

Carbon Benefits Project

1.

Fill in the **WOCAT** questionnaire on SLM Technologies

2.

Automatic data transfer from WOCAT to CBP

3.

Answer the remaining questions of the **CBP tools** (approx. 60% filled with data from WOCAT)

4.

Automatic integration of the GHG assessment into the WOCAT output

Output of WOCAT questionnaire on SLM Technologies

Carbon-enrichment of tropical agricultural soil with organic matter (Brazil)

Enriquecimento de carbono em solo de lavoura com matéria orgânica (Brazil)

DESCRIPTION

Carbon-enrichment of tropical agricultural soils with locally available organic matter in the Cerrado agricultural landscape, Brazil.

In the Carbiocial Project viable land management strategies were explored to optimize the level of carbon in soil and water, helping to maintain and/or improve ecosystem functions, under changing climatic conditions in the Southern Amazon and the Brazilian Cerrado. In the framework of this project, on-farm experiments were performed to enrich tropical agricultural soils in the medium term, with different types of organic matter (OM). In the experiment the effect of different types of OM amendments on soil carbon and macro-nutrients (N, P, and K), soil physical properties (waterholding capacity) and crop yield (soy biomass and grain production) were assessed. The amendments applied are locally available, and are either free (being waste materials) or considered cost-efficient.

The objective of this on-going experiment is to compare the impact of (i) the quality and quantity of OM applied, (ii) and the application methods (directly on the soil surface or incorporation by harrow) on soil chemical and physical properties. It is hypothesized that the addition of OM can enhance crop yields and, potentially, soil biodiversity. The effects of the different OM types, amounts and application methods were evaluated after one, two and three years. From the results, the aim is to provide recommendations for the development of soil OM-enrichment schemes and carbon-friendly landscape management programs for farmers, using local resources.

LOCATION

Location: Campo Verde, Mato Grosso, Brazil

No. of Technology sites analysed:

Geo-reference of selected sites

- -55.0415, -16.17247

Spread of the Technology:

Date of Implementation: less than 10 years ago (recently)

Type of introduction

- through land users' innovation
- as part of a traditional system (> 50 years)
- during experiments/ research
- through projects/ external interventions

		Without Project (Baseline scenario)			With Project (Project scenario)			Incremental difference (Project scenario minus baseline scenario)		
		tCO_2e	tCO_2e/yr		tCO_2e	tCO_2e/yr		tCO_2e	tCO_2e/yr	
Source category	Source sub-category	Total	Annual	Uncertainty (%)	Total	Annual	Uncertainty (%)	Total	Annual	Uncertainty (%)
Soil Carbon Stocks	Mineral Soils*	13488	2248	24	101					
	Organic Soils	0	0	0	0					
Total Soil Carbon Stocks		13488	2248	24	101					
Total Greenhouse Gas Emissions		-291369	-48561	72	-308					

GHG assessment from the CBP tools

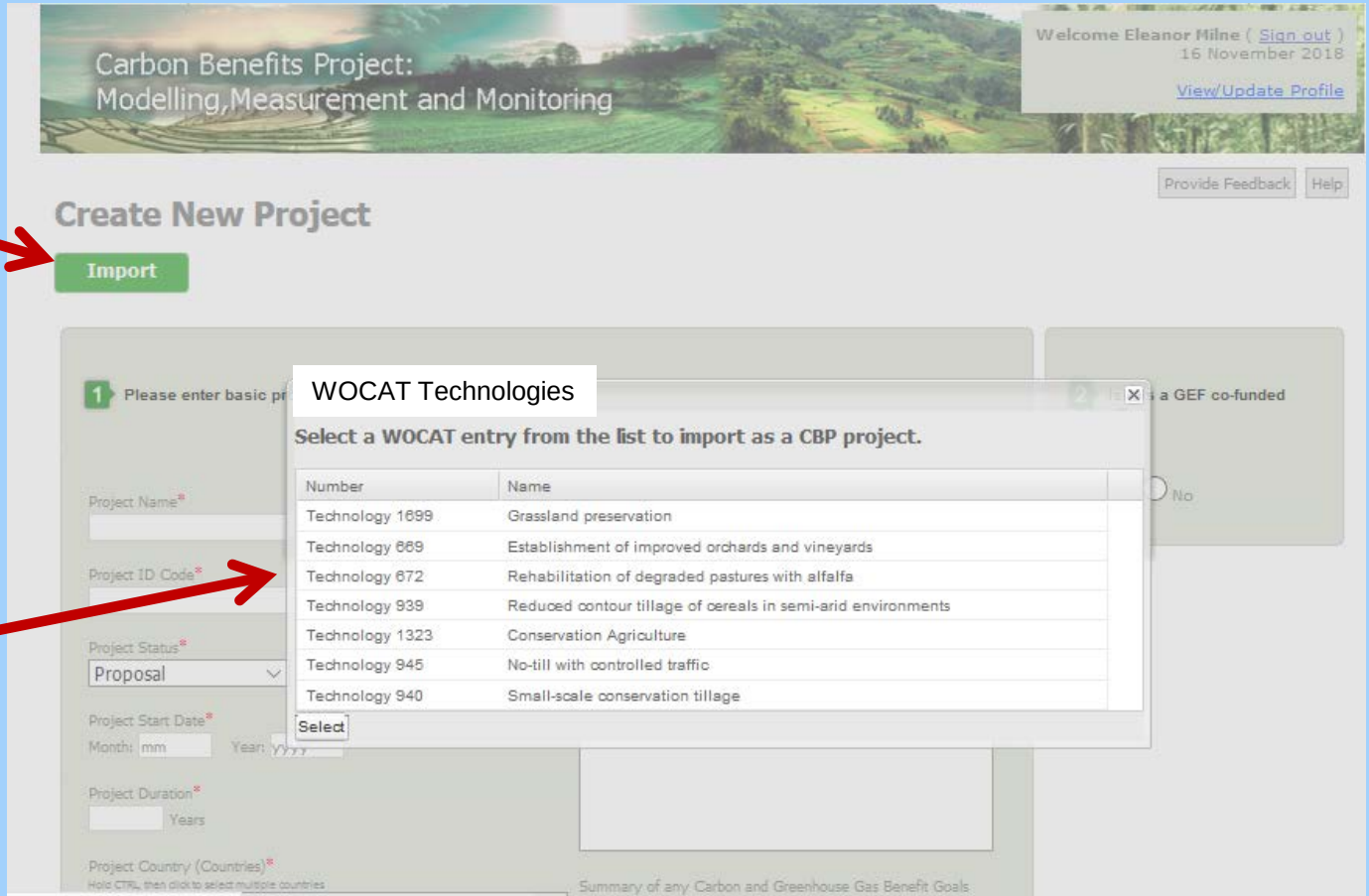
TL, 2019

For further information please contact: Tatenda Lemann (WOCAT) tatenda.lemann@cde.unibe.ch or Eleanor Milne (CBP) Eleanor.Milne@ColoState.EDU

Import Technologies from WOCAT Directly to CBP Tools (Late 2019)

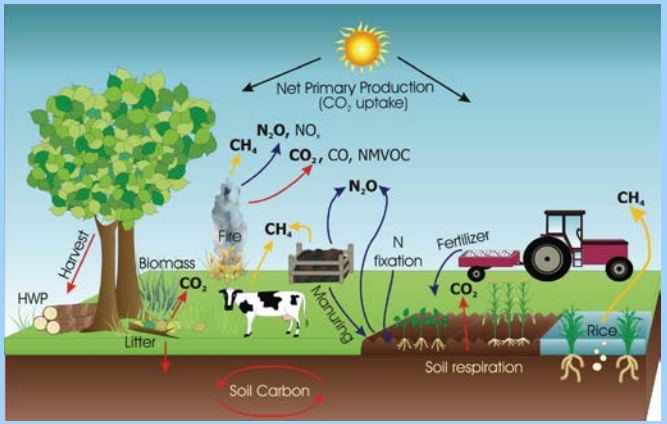
Import from Here

WOCAT Techno-logies



Summary

- The Carbon Benefits Project is a GEF-funded, UNEP-implemented initiative.
- Map-based, free and open-to-the-public on the internet.
- Predicts greenhouse gas mitigation benefits of conservation practices.
- Recommended and backed by UNEP, UNCCD, 4perMil.
- Linkage to WOCAT to be released end of 2019, Linkage to LandPKS in process.
- Embedded Socioeconomic Tools.



Thank You

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