System Integration

Users can access the Carbon Benefits Project tools through a UNEP website at http://www.unep.org/climatechange/carbon-benefits. Users log into the system to enroll projects and provide basic project information. The website then directs users to project planning tools, online modeling assessments, or guidelines for carbon measurement.

Project Information Module

Measurement Protocol Module — Toolkit advisor — Project Description Module

Guidance Module

Measurement Module
Remote Sensing
Ground-based

Assessment Tools
Simple Assessment | Detailed Assessment | Dynamic Modelling

MRV Module
REDD & A/R
Carbon Benefits

Socioeconomic Tools

Reporting Module
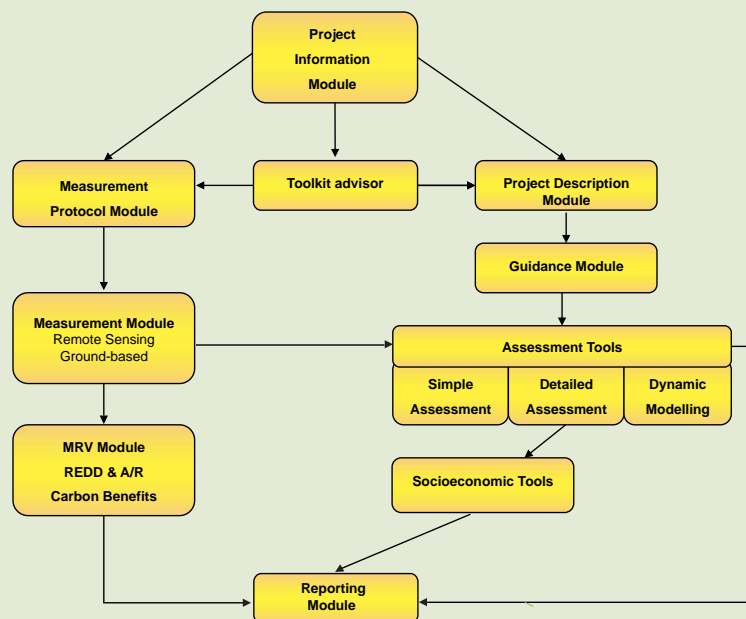
Contact Information

UNEP/DEWA
Nairobi, Kenya
Phone: +254 20 7623282
Email: gemma.shepherd@unep.org

UNEP/GEF
Nairobi, Kenya
Phone: +254 20 7624294
Email: mohamed.sessay@unep.org

Colorado State University
Fort Collins, Colorado, USA
Phone: +44 1530 224334
Email: eleanor.milne@colostate.edu

WWF
24th St., Washington DC, USA
Phone: +1 202 7789622
Email: owen.cylke@wwfus.org

Colorado State University | WWF | MICHIGAN STATE UNIVERSITY | World Agroforestry Centre | IDRC | CIFOR | cena | University of Leicester | ICRAF | ILRI | IRD

THE CARBON BENEFITS PROJECT

Modelling, Measurement and Monitoring

Approximately 30% of greenhouse gas (GHG) emissions come from land use and land use change. Sustainable land management (SLM) projects have the potential to not only reduce GHG emissions, by reducing emissions from biomass burning, biomass decomposition and the decomposition of soil organic matter, but also to sequester carbon (C) through practices that increase biomass production and promote the build up of soil organic matter and therefore provide global environmental benefits.

The Carbon Benefits Project aims to develop scientifically rigorous, cost-effective tools to establish carbon benefits of SLM interventions in terms of protected or enhanced carbon stocks and reduced GHG emissions. The new tool will (1) estimate and model carbon stocks and flows and GHG emissions under present and alternative management, and (2) measure and monitor carbon changes under specified land use and management.

An online toolset has been developed for the Global Environment Facility that is applicable to all projects involving interventions in natural resources management, such as forestry, agroforestry, agriculture and pasture management in all climate zones, soils types and land uses. The suite of tools, with instructions on how to use them, is available via http://www.unep.org/climatechange/carbon-benefits/.

Modelling System

Overview

The modelling system provides tools for project-scale assessments of all major sources and sinks of GHGs related to land use, including soil and biomass C stocks, soil N_2O and CH_4 emissions, enteric CH_4 and emissions from manure management (N_2O, CH_4) and biomass burning (N_2O, CH_4). Tools can be used at all stages of the project cycle from *ex ante* analysis during proposals, tracking and reporting in operational projects, to *ex post* analysis in completed projects. Tools are available for projects with varying levels of data, expertise and resources.

System Features

The system features: a module to process spatial data; guidance on which carbon pools/GHG emissions to track; a Simple Assessment for a quick analysis which uses standard data sets; a Detailed Assessment which can utilize local and project-specific field measurements and other local datasets; a Dynamic Model for projects with a strong carbon focus; and tools to assess the economic and social impacts of C/GHG-friendly land use management strategies.

Measurement System

Overview

The measurement system provides the means to measure carbon stocks and stock changes directly using a combination of remote sensing observations, ground calibration, and web-enabled geographic information systems. The system also provides estimates of CH_4 and N_2O dynamics based on direct field flux measurements. This approach allows for large area landscape assessments of carbon, including below-ground carbon, for REDD, A/R, and Agroforestry systems at very high spatial resolution.

System Features

The system features web-based access to methodologies for *ex ante* landscape carbon calculations and measurement of woody biomass carbon stocks in forest and non-forest land cover using field measurements and remote sensing. The system provides access to a web-based, dynamic carbon inventory assessment system that allows the user to designate evaluation areas in real time on map or satellite imagery and examine the area with respect to carbon quantity, as well as indices of carbon and environmental benefits.