

Integrated Web Site

The modelling, measurement and monitoring tools will be available to project managers from a single web site together with instructions on how to use them. Users will be guided as to which tools are suitable based on the characteristics of the project, availability of existing data, and resource levels. The system will be available for use by SLM projects in GEF5 and others.

Project Partners

The Modelling and Projection component is led by **Colorado State University (CSU)** with the partners: ISRIC - World Soils Information Centre, International Development – UEA, The University of Leicester, Centro de Energia Nuclear na Agricultura, Kenya Agricultural Research Institute, Nigeria-Niger Joint Commission for Cooperation, Foreign Debt Management Office Ningxia Hui Autonomous Region and the GEF/OPI2 Gansu Project Management Office.

The Measurement and Monitoring component is led by **the World Wildlife Fund (WWF)** with the partners: World Agroforestry Centre, Michigan State University and the Centre for International Forestry Research.



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Institutions for contact::

Colorado State University
Fort Collins, Colorado, USA

Phone: +44 1530 224334
Email:
eleanor.milne@colostate.edu

UNEP/DGEF
Nairobi, Kenya

Phone: +254 20 7624294
Email:
mohamed.sessay@unep.org

WWF
24th St., Washington DC, USA

Phone: +1 202 7789622
Email:
owen.cylke@wwfus.org

UNEP/DEWA
Nairobi, Kenya

Phone: +254 20 7623282
Email:
gemma.shepherd@unep.org



The Carbon Benefits Project: Modelling, Measurement and Monitoring



Implemented by
Division of Global Environment Facility

Executed by
Division of Early Warning & Assessment

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PROJECT OVERVIEW

Background: Approximately 30% of greenhouse gas 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.

Problem: The GEF finances a wide range of SLM activities in developing countries from reforestation and agroforestry projects, to projects that protect wetlands or foster sustainable farming methods. The carbon benefits of these and other non GEF SLM projects are likely to be considerable. However at the moment it is difficult to compare the C benefits of different land management interventions as a range of different methods are used to measure them. Equally it is difficult for SLM activities in developing countries to gain the financial rewards they deserve from emerging carbon markets.

Opportunity: GEF and other SLM projects need to know if SLM interventions affect C stocks or GHG emissions. A protocol is needed which guides the user through all stages of delivering an SLM intervention in terms of proving C benefits, from forecasting at the planning stage, monitoring and verification at the implementation stage, to long term projection of future impacts. The CBP is developing such a protocol.

Potential Application: A standardized C benefits protocol will allow the comparison of different SLM projects by the GEF and other donors. It would also bring developing countries closer to being able to gain reward for land management activities that sequester carbon.

Modelling and Projection

The modelling and projection work builds on more than 15 years of experience at CSU of producing carbon inventory tools for the land use sector. It will build on three tools: The Agriculture and Land Use Tool, a national GHG inventory tool, COMET-VR a web-based tool to determine C stock changes at the field scale and The GEFSOC System which estimates national and sub-national scale soil C stock changes in developing countries.

This component will produce a modular web based system that allows users to collate, store, analyze, project and report carbon changes for baseline and project scenarios in a standardized way. Decision trees will guide the user to different options of varying complexity depending on the stage of the project and the level of detail required in terms of reporting C benefits.

Four existing GEF SLM projects are included in China, Kenya, Niger/Nigeria and one non GEF project in Brazil. The projects will help develop a system that meets their C stock and GHG reporting needs (from very detailed to very broad based).

By the end of Phase I (May 2011) the SLM Project Partners will be implementing the CBP system. Phase II of the project will involve workshops to role out use of the CBP system to GEF and non-GEF networks of projects.



Measurement and Monitoring

The Carbon Benefits Project is developing an innovative solution to measuring carbon in complex landscapes. It will provide a cost effective system integrating cutting edge remote sensing technology and analysis, ground based measurement, new rapid laboratory techniques for soil testing, and rigorous statistical analysis. The system will streamline land cover analysis and engage communities in measurement. This component will include best practices that provide information on appropriate land use that can improve livelihoods and help to mitigate climate change. These efforts will provide a gateway to carbon benefits, documenting carbon on the landscape as a global environmental good and enhancing livelihoods.

Project benefits include:

- Measurement of terrestrial carbon on heterogeneous landscapes with many land cover types that include smallholders in developing countries.
- A cost effective and accurate system documenting the mitigation of atmospheric carbon levels as a global environmental public good and thus providing a way to compare and document project performance in climate change mitigation (a global environmental public good).
- The system will facilitate projects that create climate adaptation, mitigation and conservation benefits by reinforcing their ability to demonstrate carbon benefits, thus making projects that include a carbon component more attractive.
- The system will assist land use carbon project developers in selecting methods that combine livelihood benefits with climate change mitigation benefits.