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Estimating Changes in Carbon Stocks and Greenhouse Gas Emissions in Sustainable Land Management Projects: Component A of the Carbon Benefits Project

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Given the fact that human activities currently emit greenhouse gases (GHG) equivalent to over 50 billion tonnes of CO2 yr-1 and that approximately 30% come from land use and land use change, natural resource management (NRM) and sustainable land management (SLM) activities could have a large role to play in climate change mitigation. The types of land management activities covered by such projects vary widely and these activities have different C and GHG impacts. The Carbon Benefits Project (CBP) is working to produce a standardized system for Global Environmental Facility (GEF) and other sustainable land management (SLM) projects to measure, monitor and model carbon stock changes and greenhouse gas (GHG) emissions. These projects vary in size from tens of thousands to tens of kilometres squared. One of the challenges is, therefore, to produce a system that can be applied at a range of different scales including the plot, the watershed and the sub-regional scale. The CBP project builds on existing C-inventory tools, of different methodological complexity, developed over the past 15 years at Colorado State University. The CBP will produce a modular, web-based system which allows the user to collate, store, analyze, project and report net C stock changes and GHG emissions for baseline and project scenarios in SLM interventions. Existing SLM projects in Brazil, China, Kenya and the transboundary area between Niger and Nigeria are being used as test cases.