METHODS AND TECHNIQUES FOR MONITORING REDUCTIONS IN GHG EMISSIONS FROM AVOIDING DEFORESTATION

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Land-use change and forestry activities play a critical role in the global carbon cycle. Whereas ongoing changes in the management of lands and the expansion of forests in the mid-latitudes remove carbon dioxide from the atmosphere, ongoing deforestation and forest degradation in the tropical latitudes continue to be a source of GHG emissions –about 20-25% of global carbon dioxide emissions. Given the magnitude of emissions from tropical forests, activities that lead to a reduction in the rate of deforestation and degradation present a significant opportunity to have a marked effect on the atmosphere while at the same time providing multiple co-benefits to meet environmental and socioeconomic goals of sustainable development. I will review existing methods and techniques that can be used to precisely and accurately monitor deforestation and degradation and estimate changes in carbon stocks through time. Methods for accounting for changes in carbon stocks from activities related to forest clearing and degradation are extensively reviewed, well established, and tested, e.g., the IPCC 2003 Good Practice Guidance Report, the soon-to-be-released IPCC GHG Emissions Inventory methods, and the US DOE Technical Guidelines for Voluntary Reporting of Greenhouse Gases. Acquisition of data for use in the accounting procedures poses some challenges, however, advances in remote sensing technology and analyses for monitoring change in land use and carbon stocks overcome this hurdle for most tropical countries where deforestation and degradation is a major source of GHGs. Satellites can provide consistent, transparent, and cost-effective measurements of forest cover and change in high spatial and temporal detail over large geographic areas in the tropics. And, advances in digital aerial imagery combined with field measures of key metrics for new allometric equations result in cost-effective and precise measures of forest carbon stocks. To enable monitoring of emission reductions from slowing tropical deforestation and degradation to be a reality is a commitment by the developed world to assist developing countries increase their capacity to acquire and analyze the needed data and tools.