

Planning of Remote Sensing based National Forest Inventory: Comparison of alternative Materials and Data Sources in tropical area

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Reducing Emissions from Deforestation and forest Degradation (REDD) is a global commitment to mitigate carbon emissions and to compensate tropical forest countries for their efforts in achieving REDD targets. A central issue in setting up a workable REDD scheme is a balance between compensation and the cost and feasibility of accurately verifying the carbon stored. Estimating above ground carbon content in the tropical forests pose uncertainties due to the spatial coverage of the heterogeneity in forest and inherent difficulty of field based inventories.

Alternative data sources and materials were compared with two-phase sampling scheme in Lao PDR. The previous National Forest Inventory (1991-99) data and Land Use Maps (based on the SPOT satellite images) were used in describing and studying forest population. Information about spatial forest biomass variation and time studies of field work were used to determine suitable practice for field work. Alternative remote sensing materials were compared and respective need for field work was estimated for cost estimation using various R^2 assumptions in multiphase sampling approach. Modifications for ground truthing were proposed and cost of alternative remote sensing based REDD inventory systems were compared. According to current price assumptions, the most price efficient way is to use ALOS data, laser-scanning and field sample plots.