

Smallholder Agroforestry Systems as a Significant Strategy for Carbon Storage

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■ Abstract

Many smallholder agroforestry systems in Southeast Asia are species-rich and tree-rich systems that produce non-wood and wood products for both home use and market sale. Due to their high biomass, these systems may contain large carbon © stocks. While the agroforestry systems of individual farmers are of limited size, on a per area basis smallholder systems accumulate significant amounts of C, equaling the amount of C stored in forests over similar time periods. Their ability to simultaneously address smallholders' livelihood needs and store large amounts of C makes smallholder agroforestry systems viable project prototype under the Clean Development Mechanism (CDM) of the Kyoto Protocol, which has the dual objective of reducing greenhouse gas emissions and contributing to sustainable development. Smallholder agroforestry systems promoted through a CDM project must be economically viable independent of C payments (environmental services transfer payments). Any income received from C payments should be considered a bonus of the system, not a necessity. Although most often smallholder systems are environmentally and socio-economically viable, to enhance productivity and profitability smallholder-focused CDM projects should provide farmers with technical and marketing assistance. To assure success, project sites should meet a set of preconditions, including: a paucity of accessible forests; smallholders interested in tree farming; underutilized low-biomass landuse systems that are not degraded beyond the point of rehabilitation; accessible markets for tree products; a supportive local government and sufficient infrastructure; and a transparent and equitable relationship between project partners. Questions of leakage and additionally can be addressed through the project design and establishment of quantifiable and equitable baseline data. However, smallholder-focused CDM projects would have high transaction costs. The subsequent challenge is thus to develop mechanisms that reduce these costs: (a) the costs associated with information (e.g., technology, markets) more accessible to multiple clients; (b) facilitating and enforcing small-holder agreements and (c) designing feasible monitoring systems.

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