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Sharing Benefits from Carbon Finance: Lessons from the Guangxi CDM project

Carbon Finance and Development

Carbon finance projects are often intended to be both a payment for an environmental service (PES) and an instrument to facilitate sustainable development in developing countries. To enhance livelihood objectives, these projects should benefit rural land users, provided they are willing and able to participate. This holds particularly true for forest carbon initiatives. However, high transaction costs and large uncertainties often bar local communities from making what are inherently long-term and often expensive investments. Uncertainties arise from ambiguous property rights, vague or rapidly changing government policies and unknown carbon market prices. Additionally, there are risks from human-induced and natural disasters. Since many small-scale poor land users in developing countries have only small plots of land and serious cash-flow or liquidity constraints, they cannot easily absorb negative shocks. Thus, risk acts as a formidable barrier to project participation.

Pooling individual activities and signing collective contracts with groups of smallholders spreads both benefits and transaction costs over a large group and can be a practical means for small-scale land users to participate. Nonetheless, pooling requires collective action, the success of

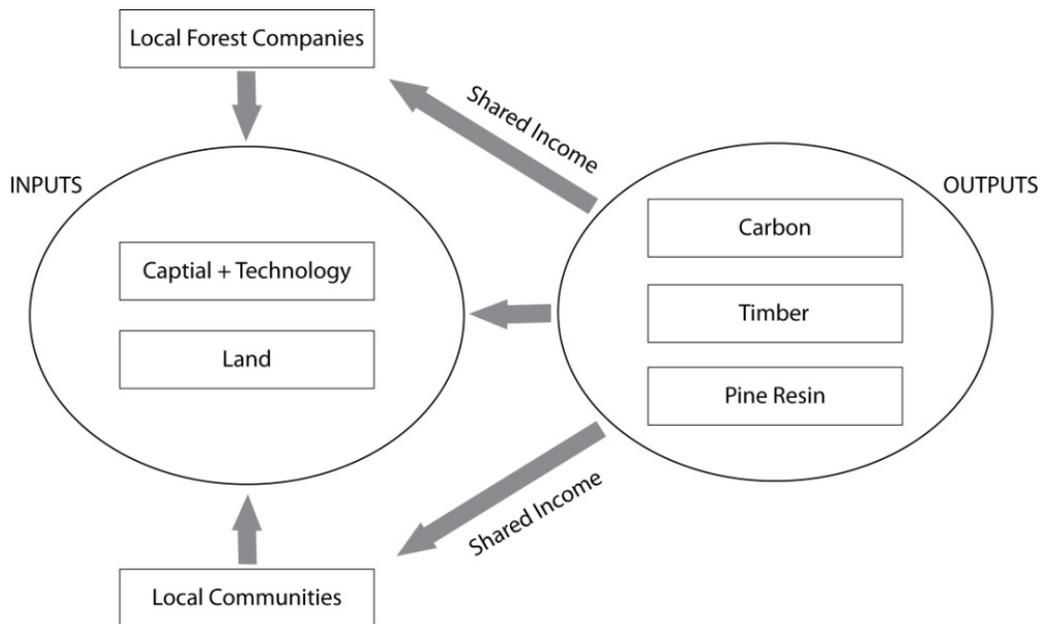
which often depends on a mix of property rights, contracts and social capital. These three components are not independent. Contracts operate within a regime of property rights and social capital can determine individuals' ability to enforce contracts through social structures. Thus, to design a successful forest carbon project, we need to understand the important roles played by social capital, property rights and contractual rules in facilitating participation.

The Guangxi Project¹

The Guangxi Project is designed to reforest 4,000 ha of multiple-use forests on seriously degraded and remote lands in Cangwu and Huanjiang Counties in China's Southern Province of Guangxi. It aims to achieve multiple environmental and developmental objectives, including carbon sequestration, biodiversity enhancement, soil erosion control and the improvement of local livelihoods. The multiple-use forests have been established using a combination of six tree species, and the estimated total amount of carbon to be sequestered is 0.77 megatons (Mt) of CO₂ equivalent (CO₂e) over a 30-year crediting period (2006-2035). Developed in early 2005, the project became the world first registered CDM forest project in 2006.

¹ The full name of the project is "Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin"

Figure 1: Benefit-Sharing in the Guangxi Project



Benefit-Sharing System

Design

Key features of the Guangxi Project are the pooling arrangement and the share-holding system: The pooling arrangement bundles barren lands from 27 villages from Cangwu and 12 from Huanjiang, to form the total project size of 4,000 ha. The share-holding system was created between the local land users and three local forest companies, and has two components:

- 1) The local forest companies are fully responsible for paying project development and monitoring costs, production costs (including capital and labor) needed for reforestation and forest management, and take all responsibility for harvest and product sales, and provide necessary technical support and training to the local land users regarding the carbon project. Local land users only need to contribute their individually managed or communal barren lands.
- 2) Local land users will receive 40% of the income from the future sales of timber, pine resin and 60% of the income from sales of carbon credits. To pool the carbon credits and reduce transaction costs, collective contractual arrangements are signed between buyers and sellers. The collective contracts were signed in three stages:
 - First, the buyer, the World Bank's BioCarbon Fund, signed a contract with Luhuan Forestry Development Company from Huanjiang County, who acts as an intermediary, and represents all sellers under the share-holding system.
 - Next, the Luhuan Forestry Development Company signed individual contracts with the other two forest companies, Kuangyuan and Fuyuan Forest Farms from Cangwu County.
 - Finally, for communal lands, all three forest companies signed contracts with village leaders, who determined how revenue from the communal lands would

be shared among their community members. For individual lands, the forest companies signed the contracts directly with household heads.

The agreements follow a commodity model rather than an investment model: The BioCarbon Fund pays a price of US\$4.5/ton of CO₂e to the sellers at the time of purchase of certified emission reductions (CERs). This payment method does not differentiate among designated lands that have heterogeneous site qualities and establishment costs. No upfront payment is made to the sellers, who carry all risks until CER purchase.

Implementation

The Guangxi Project's benefit-sharing system facilitated local participation in two ways: First, it spread the benefits and risks through the pooling mechanism. Without such a system, individual communities or households would not have been able to afford the cost associated with the reforestation and related investments. The Guangxi Project also promoted a more equitable distribution of benefits by including some of the most marginalized communities in remote areas. In addition, over 1,600 households from four ethnic minority groups, who have few alternative economic opportunities, are involved in the project. Their participation not only brings economic benefits to them, but also empowers them in their interactions with other stakeholders.

Second, the project also reduced transaction costs associated with participation by providing an institutional framework to overcome barriers such as high bargaining cost, low social capital and uncertain property rights. These factors were present in many communities such as Xinlong and Datong villages in Cangwu County. There, farmers' traditional practices of burning crop stalk for fertilization led to high risks of fire incidences and discouraged reforestation activities. Weak norms of mutual reciprocity and the lack of village groups had prevented attempts to regenerate communal lands. While some village members have their family members working in cities or earning off-farm incomes and have little use of and low labor supply for regeneration of the barren lands, especially the

communal barren lands, some other village members, who have few outside options, are motivated to regenerate the communal barren lands but they were frequently opposed by villagers who saw no benefits, and were afraid of losing their implicit property rights. The law in China specifies that "whoever plants trees can own the trees". Thus, there was a concern that the village members who plant trees on communal lands could possibly claim property rights on planted trees and all future revenues from tree plantings.

Despite its achievements the Guangxi shareholding system faced a number of challenges during project implementation: First, the standardized contract could not always address the heterogeneity of local circumstances. Thus, in the remote high-cost areas, this made it difficult for some land owners to participate, especially given the lack of an upfront payment. Second, while the majority of lands in the project area have clear tenure the prospect of project benefits triggered a number of land claims. Third, Guangxi demonstrated that those communities with low social capital require special incentives for participation, increasing the level of bargaining costs again.

Conclusions

The Guangxi Project has some innovative attributes that attempt to lower bargaining costs. The share-holding system is an important mechanism to make the project accessible to small land users. As the project involves interactions among agents, it inherently is affected by social capital, property rights and contractual rules. While the project can be improved through stronger financial incentives, reducing risk of payment and using the contracts to strengthen property rights, and build trust between intermediaries appears to be a critical corollary, particularly where formal institutions are weak.

Sources

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