Rewarding local land stewards for reducing emissions from deforestation and degradation

Involvement of local land stewards and communities will be fundamental to the sustained success of any strategy to reduce greenhouse gas emissions from deforestation and forest degradation, and increase forest carbon stocks (i.e., REDD+)*. Providing an economic incentive to local landholders to conserve forest carbon could prove to be a powerful tool to reduce conversion of forests to other land uses and the degradation of existing forests. However, there is no international consensus as to whether or how local communities and landholders should be financially rewarded for participating in REDD+ projects. Providing finance or other non-monetary rewards to landholders who maintain or enhance forest carbon stocks can be viewed as a form of payment for ecosystem services (PES). This background note reviews existing PES schemes in tropical regions, and outlines constraints that must be addressed to ensure effective participation of local land stewards in REDD+ strategies.

Involving local people in strategies to reduce forest greenhouse gas emissions

Under a REDD+ mechanism as part of the post-2012 international climate regime, it seems likely that countries with tropical forests will be able to claim financial compensation for reducing emissions from the forestry sector. Local land stewards, communities and indigenous peoples in forested areas will be directly affected by REDD-related activities, with approximately 60 million indigenous people and up to 500 million people thought to be at least partly reliant on tropical forests for income, food, shelter and fuel [(1)]. In central Africa and parts of south-east Asia, expansion of small-scale agriculture is a major driver of forest loss and degradation [(2)]. Experience shows that to ensure long-term viability of emissions reductions strategies, local communities and indigenous people must be involved at all stages of REDD+ activities, from negotiation to implementation [(3)]. Providing direct payments or rewards to local communities as an incentive to reduce emissions from deforestation has been touted as a 'win-win' solution for both poverty reduction and biodiversity conservation.

What is payment for ecosystem services, and how does it work?

Providing non-monetary rewards or financial payments for ecosystem services, also known as PES, is a measure designed to encourage sustainable management and conservation of natural resources. PES is based on a (typically) voluntary transaction between the provider and the buyer of a well-defined ecosystem service (such as clean water), or land-use likely to secure that service (for example, retaining native vegetation within water catchments) [(4)]. To be effective, PES must result in 'additionality', focusing on areas that otherwise would have been converted to other land uses, allowing providers to improve the delivery of ecosystem services compared with a 'business as usual' scenario [(5)]. In the case of REDD+, this means that PES programmes must enrol forests that are threatened by agricultural expansion, logging or degradation. Examples of ecosystem services and associated land management practices that have been 'traded' within existing PES strategies include carbon sequestration, watershed management, biodiversity conservation and soil conservation. Providing rewards is intended to reduce the economic pressure to deforest by providing an alternative source of income [(6)].

Rewards for maintaining ecosystem services can include cash payments (for example, cash per hectare of land protected) and/or in-kind compensation (such as allocation of conditional land rights or provision of schools or healthcare). Payments must be conditional on achievement of specified environmental outcomes. Such payments can be made to individual land owners or to collectives, depending on the payment structure that best reflects the land tenure system. Payments can be made by governments or by private entities, such as companies buying carbon credits for trade on voluntary carbon markets, or hydroelectricity companies paying for upstream watershed protection to reduce silting. PES arrangements often involve a third party or 'intermediary' representing a buyer group, seller group, government authority or outside agency [(7)]. Larger, government-run schemes can be more cost-effective and sustain multiple objectives, but are vulnerable to changes in policy and are less efficient and less targeted than smaller, user-funded schemes [(8)]. PES transactions also depend on the existence of intermediary institutional structures [(9)], often at both the national and local level.

Examples of existing programmes to reward communities for maintaining ecosystem services

PES schemes are still relatively rare in tropical regions. It must be noted that while there is much support for PES among donors, governments, NGOs and researchers, there is a relative dearth of evidence to demonstrate the environmental and social impacts of such schemes, which is often due to a lack of baseline data and subsequent monitoring [(8, 10)]. A number of recent reviews of existing schemes have been undertaken [(5, 6,-8, 10)], which while generally encouraging, have noted important regional differences. These differences will affect to what extent PES will work within national REDD+ strategies.

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* 'REDD+' refers to: **r**educing **e**missions from **d**eforestation and **d**egradation; increasing removals from enhancement of forest carbon stocks; forest conservation; and sustainable management of forests. See GLOBE/GCP Pittsburgh background briefing note 5: 'The state of play of forest in climate change policy' for further detail on the evolution of RED, REDD and REDD+.

In tropical regions, the majority of current PES programmes are located in Latin America, where the concept is relatively well known. The Costa Rican government grants rewards for reforestation and forest conservation. Mexico has a government-funded scheme for payment for hydrological services that includes communally held forests and private landowners [9]. The Noel Kempff Climate Action Project in Bolivia [11], Makira Forest project in Madagascar [12] and the Juma Sustainable Development Reserve [13] are recent examples of 'avoided deforestation' projects that include a component of PES, and which are run by consortia of private companies, civil society groups and government bodies. The Juma project is part of the larger *Bolsa Floresta* programme, whereby families are given a monthly payment of US$30 in return for enrolling their children in school and committing to zero deforestation. Community organisations also receive payments of up to US$2500 per year to support legal income-generating projects [5].

In tropical Asia, PES schemes are a relatively recent addition to the policy toolkit. The Vietnamese government has established a nationwide scheme to reward farmers for reforestation and forest conservation [5]. In upland regions of Nepal, the Philippines and Indonesia, the 'Rewarding upland poor for environmental services' (RUPES) programme, coordinated through the World Agroforestry Centre, is pursuing the dual goal of poverty reduction and conservation [14].

There are relatively few examples of PES schemes from Africa, although there are a number of community-based natural resource management schemes and small-scale bio-carbon sequestration programmes in East Africa [5, 15], as well as the new 'Pro-poor rewards for environmental services in Africa' (PRESA) programme operating in Kenya, Tanzania, Uganda and Guinea [16]. In the forests of the Congo Basin, PES is less well known, and in many cases the necessary institutional structures and governance conditions are not present [5]. The Ibi Batéké Carbon Sink Plantation project in the Democratic Republic of Congo is one example of a locally-managed afforestation and clean energy project, which is financed through the World Bank's BioCarbon Fund [5, 17].

Can rewarding local communities for maintaining forest carbon work as part of REDD+?

A recent review has indicated that PES can have a role in the reduction of deforestation and forest degradation, as long as particular up-front conditions can be met [5], some of which are outlined below.

Effective involvement of local land stewards in PES schemes requires a clear definition and recognition of land tenure and rights to natural resources [18, 19], particularly the land steward's ability to exclude third parties from access to PES-enrolled land [20]. In many parts of the world, tenure over forested land is uncertain or informal, requiring protracted negotiations and significant political commitment to grant legal recognition of communities' rights to land and resources. Nevertheless, clarifying tenure and rights is a necessary step before any PES strategy can be implemented. One of the RUPES sites in Sumber Jaya, Indonesia, is experimenting with rewarding farmers with conditional land tenure rather than with cash payments [5, 10]. Many indigenous lands, such as in the Amazon Basin, are not primarily threatened by local people, but by land-grabbing and degradation from external stakeholders. In such circumstances, rewarding local people to safeguard their cooperation is in itself unlikely to result in strong environmental outcomes; the key intervention may be to secure local land rights from strong external threats [20].

To be cost-effective, a future REDD+ regime will need to be performance based, which will require stringent monitoring and verification of compliance with land-use restrictions and, ultimately, the volume of carbon conserved through PES schemes [6]. At present, there are a small number of PES schemes that strongly demonstrate quantifiable ecosystem service delivery (i.e., carbon sequestration) [5, 6, 8] which will be a central requirement for REDD. Lessons from projects that have been able to quantify additionality, such as the PROFAFOR carbon-sequestration programme in Ecuador [21] and the Noel Kempff project, will be useful for future REDD+ projects. Significant investment in capacity building and monitoring and evaluation programmes will be required to gather the necessary data, including programmes to train local people in field measurement and reporting techniques‡.

Given the right financial and non-monetary incentives, and appropriate access to PES, evidence suggests that landholders will often modify land use practices to conserve forests [6]. Payments must be customised to account for transaction costs and for landholders' variable opportunity costs for lost revenue from alternative land uses. Payments should also be regular, and guaranteed over a decent timescale that is acceptable to both service providers and buyers. High up-front and ongoing costs can act as a barrier for community involvement in PES schemes [18, 22]. Alternative methods of setting PES rates, such as procurement auctions, have been suggested as a means of determining the real opportunity costs associated with changes in land use [8].

Effective implementation of PES schemes requires a supportive policy framework, as well as intermediary institutions. In much of central Africa, the required institutional and land-tenure arrangements do not exist, nor are they likely to develop in the near future [6]. In some frontier zones of the Amazon Basin and the rainforests of Borneo, similar restrictions apply.

‡ For more information on some of the techniques available for monitoring and measuring forest carbon, see GLOBE International's briefing note on 'Monitoring and measuring changes in above-ground biomass in tropical forests' and the references listed therein.

Another constraint to the implementation of PES schemes is the difficulty associated with creating trust between service providers and buyers. Long-term commitments may take time to develop, and the remote location of some forest communities can inhibit consultative dialogue. Communities and land stewards also require information on how REDD works, how they may be affected by it and the biophysical and economic benefits that may result through changes in land use practices to conserve or enhance carbon stocks [(22)].

Much work will need to be done to ensure that PES schemes are compatible with national REDD+ strategies, and can deliver the required environmental and social benefits. The interaction between local land stewards and the implementation of REDD+ strategies is complex and will vary between and within countries, with varying impacts at different spatial and temporal scales. A workable national REDD+ strategy incorporating PES will need to combine the best features of user-funded PES schemes (which tend to be more closely tailored to local conditions, with better monitoring) with elements of large-scale, government funded schemes. This will require substantial political support.

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