

Property Rights and Liability for Deforestation under REDD+: Implications for Effectiveness, Efficiency and Equity in Policy Design

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Abstract

Reducing Emissions from Deforestation and forest Degradation (REDD+) is critical in efforts to mitigate the effects of anthropogenic climate change. Under a global compliance agreement, REDD+ carbon property rights would need to be created and allocated, with liability assigned for the potential loss of climate benefits in case of carbon reversal. Liability is likely to remain with those purchasing carbon (offset) credits, although sellers may continue to influence reversal. This paper develops a conceptual framework for linking forest property rights and liability to different REDD+ policy options. Pre-existing forest rights along with newly-created carbon rights and the assignment of liability are shown to have important implications for policy choice, in terms of effectiveness, efficiency and equity.

Keywords: Climate change, Liability, Permanence, Policy design. Property rights, Reducing Emissions from Deforestation and Degradation (REDD+)

1. Introduction

In global climate policy, future generations have been assigned a property right to live in a climate that has not been irredeemably damaged by the present generation's greenhouse gas-emitting activities.¹ The present generation thus has a duty not to impose unwanted costs on future generations, although 'common but differentiated responsibilities' imply that the burden for climate change mitigation falls on industrialised, i.e. Annex I, countries (Vanderheiden, 2009). Both under the Kyoto Protocol and in the voluntary carbon markets tradable carbon property rights have been created in the form of carbon emissions credits. While these eliminate the liability associated with a firm's (or country's) release of carbon into the atmosphere, emitters take on the liability associated with the carbon rights embodied in the credits.

In particular, the creation and allocation of property rights for Reducing Emissions from Deforestation and Degradation - 'REDD+' - and the assignment of liability for possible future carbon release into the atmosphere have important implications for policy design and implementation.² This paper develops a conceptual framework for assessing these implications. It begins with a discussion of property rights for REDD+ and liability and how this links to 'permanence', i.e. efforts to prevent future deforestation and hence, carbon reversal. Following, the framework is introduced before being divided into two groups of policies, according to whether REDD+ rights would need to be defined at the individual or government level. Implications of the different types of policy are discussed in terms of their potential effectiveness, efficiency and equity. The final section concludes.

¹ Property can be viewed as a triadic social relation involving benefit streams, rights holders, and duty bearers. A property right is a claim to a benefit stream that the state agrees to protect through the assignment of duty to others who may interfere with the benefit stream (Bromley, 1991).

² REDD+ is defined as a set of policies to prevent or slow deforestation and degradation, and increase forest carbon stocks.

2. REDD+ property rights, liability and permanence

With deforestation and forest degradation accounting for up to a fifth of global greenhouse gas emissions, REDD+ has been positioned as an important and potentially cost-effective climate change mitigation strategy (Eliasch, 2008; Stern, 2008; Palmer and Engel, 2009). Despite exclusion from the Kyoto Protocol, a global REDD+ system is emerging and may yet be included in a post-2012 climate agreement. Inclusion of REDD+ in a global compliance system will, however, necessitate clearly-defined and allocated forest carbon rights with liability assigned for possible future carbon release into the atmosphere. Assigning liability is not only a precondition for credit fungibility, but is also a key issue for permanence (Sedjo and Marland, 2003).

Carbon sequestered in the terrestrial biosphere is not permanently removed from the atmosphere and is at constant risk of being returned through deforestation, whether intentional or not. In Kyoto's Clean Development Mechanism, liability for the loss of climate benefits from sequestration projects is transferred to those purchasing the credits from carbon rights holders (UNFCCC, 2005). Thereafter, sellers are no longer liable for losses, although they may continue to hold other forest ownership and use rights.³ Hence, they could continue to influence the probability of future carbon release. Property rights in many tropical forest areas reflect a diversity of tenure⁴ regimes in which rights overlap and are insecure, often leading to a situation of open access (Sunderlin et al., 2009). In sum, the risks of carbon reversal through deforestation could be high.

Any system that fails to manage these risks may therefore be ineffective, potentially not only wasting billions of dollars of funding in the process but also giving disincentives to further financial investments in REDD+. REDD+ credits are expected to be financed with developed-country government funding or from market mechanisms. These require the

³ In principle, carbon right holders need not be the right holder to forestland and resources, although separating these rights could complicate already complex property rights arrangements (Sunderlin et al., 2009).

⁴ The concept of forest tenure bundles a number of property rights including land ownership, tenancy, indigenous land rights, and rights to harvest forest products (Streck, 2009).

creation of property rights that relate to the reduction of emissions and sequestration potential of a particular activity (Streck, 2009). Carbon rights describe the right to exploit the activity's climate benefits, and can be defined through private legal contracts as in the voluntary carbon market or through international law as in the CDM (Wemaere et al., 2009). Rights holders could range from individual farmers to governments. In principle, the primary right to forest carbon rests with the landowner, or those with a right to use forest if land ownership is separate from use rights.

A project-based REDD+ accounting approach might be the first step towards either a national or 'nested' approach that combines the two (Wertz-Kanounnikoff and Angelsen, 2009). Under a project-based approach REDD+ carbon rights could be allocated to individual landowners, farmers, communities or concessionaires (hereafter termed 'individuals') who can then trade these rights. Ultimate liability for carbon reversal will, however, most likely be assigned to REDD+ credit purchasers, i.e. Annex I countries or firms, if a future compliance system follows the principles as laid out in the Kyoto Protocol. Where carbon rights are assigned to governments under a national approach liability could potentially be shared between REDD+ host governments and government buyers (Dutschke and Angelsen, 2008).⁵

Under the CDM temporary credits are issued, which must be renewed or replaced by permanent credits after their expiry. As soon as these credits are issued to the buyer, the seller is no longer liable for carbon reversal. Risk pooling, insurance and credit buffers have emerged as strategies in both the CDM and voluntary markets to spread the risk of carbon reversal among multiple sellers. However, in the absence of assigning liability for carbon reversal such strategies do not give direct incentives to individuals to protect forest carbon rights.⁶ Instead, REDD+ policies need to provide the necessary incentives.

⁵ Shared liability is more likely if REDD+ host countries assume emissions targets (Eliasch, 2008).

⁶ These strategies are often embedded in carbon standards used to verify offset quality, the relative quality of which tends to be reflected in the credit price. Risk pooling may, however, be subject to intentional carbon reversals, i.e. due to strategic behaviour by sellers. One solution is the system established by the Voluntary Carbon Standard (VCS) in which credits stored in a project risk buffer can be sold ex post (VCS, 2008).

3. Policy options under REDD+

Policies could be based on the idea of performance-based payments, i.e. ones conditional on the outcome of REDD+ action whether for changes in emissions or carbon stocks against some agreed reference level (Wertz-Kanounnikoff and Angelsen, 2009). In practice, ‘payments’ reflect a range of different policy options. Broadly speaking, policies either address the drivers of deforestation, e.g. by reducing agricultural profitability, increase carbon values of standing forest and enable forest users to capture these, e.g. using payments for environmental services (PES), or regulate land use (Angelsen, 2009). Cross-sectoral policies, including institutional reforms, are also necessary, first to ensure that the forest sector is not targeted in isolation and second, to complement other policies.⁷

Table 1 lists potential REDD+ policies that might be deployed in order of the relative degree of separation between the carbon rights holder and where liability lies in the event of carbon reversal, i.e. purchasers of REDD+ credits. Policies listed near the top of the table such as protected areas have the smallest degree of separation, and can only be implemented at the national or regional level with carbon rights allocated to the (national or regional) government. Those near the bottom such as PES have the largest degree of separation with rights allocated to individuals, and can only be deployed using either a project-based or nested approach.

TABLE 1 HERE

3.1. Policies utilising individually-allocated REDD+ rights

The most widely-discussed REDD+ policy is PES, which is conceptualised as a voluntary direct incentive to individuals to reduce deforestation, and increase carbon stocks (Wunder,

Analogous to performance bonds, this approach provides incentives to project owners to implement permanence measures, e.g. to prevent forest fires. However, note that the ‘project owners’ may not be the same people who actually participate in the project on the ground. Thus, incentive compatibility problems may remain.

⁷ Note that none of these policy approaches tackles the underlying demand for agricultural and forest products except where they, in the absence of leakage, might lead to output price increases thus dampening demand.

2009). Should a country authorise individuals to participate in carbon trading then title over the carbon rights needs to be established. Yet in the absence of a clear legislative framework defining principles of ownership for emission reductions, uncertainty exists as to how legal title to these rights can be securely established and transferred (Streck, 2009). The creation of new carbon rights will also affect the rights of those already using forest resources, even if these are ill-defined or informal.

Increasing forest carbon values and enabling their capture can also be undertaken via the joint production of private and public goods, e.g. reduced-impact logging and eco-tourism (Ferraro and Kiss, 2002). Unlike PES for REDD+ these activities benefit from relatively mature markets where property rights for 'sustainable forest use' are already being traded. Forest carbon rights would still need to be established, although these could be potentially bundled with existing rights. Joint products could be marketed as 'REDD+ friendly' and priced at a higher premium than usual. One limitation is that the market demand for such products may only account for a small proportion of the potential demand for REDD+ carbon. Alternatively, additional REDD+ payments could be made to participants.

Clearly-defined and enforced property rights to forest land and resources are a precondition both for effective implementation of PES and joint-production project-level activities, which will not hold in many REDD+ host countries. Unclear or contested tenure implies that these policies will not only struggle to be effective but may also struggle to be efficient or equitable. While rights do not need to be either individual⁸ or fully formalised to secure participation in trading systems, the project-based approach will favour those with formalised rights (Vatn and Angelsen, 2009). Attempts to clarify tenure and enforce property rights via institutional reform will inevitably increase policy (transactions) costs.⁹ Formalising

⁸ The widespread existence of common property regimes in tropical forest areas (see Agrawal et al., 2008) implies that serious consideration be given to the creation of common property carbon rights.

⁹ Missing or constrained markets for land and other inputs, such as for credit and capital are widespread in developing countries (Groom and Palmer, 2010). Identifying and overcoming these, along with the need to monitor, verify and reward emissions reductions at the individual level, will further increase costs as will the implementation of a national-level framework to minimise the risk of carbon leakage from project-level activities.

and enforcing rights, if effective, may also exclude the poor, i.e. those least likely to hold de facto rights to land and forest resources, from access to both REDD+ and forest-use benefits.

If liability for carbon reversal is assigned to carbon credit buyers, then incentives at the individual-seller level are needed to ensure permanence. This allocation of liability implies that disincentives to deforest such as sanctions cannot be included in REDD+ carbon contracts. Therefore, should individuals decide to deforest after entering into a contract they cannot be directly penalised for doing so. While conditional benefits should be offered to individuals, conditionality simply means that they can only lose the right to future payments with buyers bearing the cost of possible carbon losses to the atmosphere.¹⁰ Credit buffers, risk pools and insurance allow for some mitigation of risk. Yet property rights still need to be clearly defined and allocated for these strategies to be effective. For example, since one of the principles of insurance is that one can only insure what one owns, it will only be effective if buyers have purchased clearly-defined REDD+ rights.

3.2. Policies utilising government-allocated REDD+ rights

Alternatively, a country could receive REDD+ incentives in the form of tradable carbon without needing to pass these rights on to individuals holding entitlement over forest resources (Streck, 2009). Governments holding rights can then implement a range of policies while potentially sharing liability for carbon reversals thus mitigating the liability problem for effective REDD+. From table 1, policies include raising the costs of inputs to deforestation activities and reducing the value of output from these activities, to regulating land use, and improving law enforcement. Although carbon rights do not have to be

¹⁰ This can be seen in REDD+ contracts made at both the international and subnational level. For example, the government of Norway has made a voluntary agreement with Brazil to provide almost US\$ 1 billion to the Amazon Fund, which in turn pays out cash incentives at the project level (Moutinho et al., 2009; Tollefson, 2009). If such an arrangement is included in a compliance framework such as Kyoto, then Norway would have to bear losses in case of Brazilian non-compliance with the contract, and obtain compensatory credits elsewhere.

assigned at an individual level, most of these policies still require, to a greater or lesser extent, knowledge of pre-existing property rights to the benefits of forest land and use. This is to enable effective policy targeting of individuals most likely to lose their benefits as a consequence of REDD+ policy implementation. Equitable compensation mechanisms, financed with REDD+ monies received by governments, should then be designed to compensate these individuals for lost earnings and income from deforestation activities deemed legal or at least 'legitimate', e.g. where pre-existing rights are not formalised.

Policies requiring compensation for curtailing pre-existing rights include most of those in which participation by individuals is involuntary. These include, for example, policy that raises input costs such as the elimination of subsidies for inputs, and regulatory approaches such the creation of new protected areas (see table 1). The challenge then is for governments to identify who would have the right to be compensated.¹¹ Where the pre-existing rights to forest benefits are unclear, there are risks for individuals similar to policies in which carbon rights are individually allocated. For example, creating new protected areas may exclude farmers or communities if they prove to be effective. Processes such as community forest mapping are therefore needed to account for pre-existing rights before implementing a compensation programme.¹² These should form part of the 'readiness' phase of REDD+ implementation in countries where property rights to forest resources are unclear and/or not formalised and where involuntary approaches are being considered.

Two important involuntary policy options that may not require compensation are measures to improve law enforcement and clamping down on infrastructure such as road-building in forest areas. Regarding the latter, roads provide easier access to forest areas while reducing costs of transporting products to market. Compensation may, however, be

¹¹ Attempts to reform destructive subsidy regimes is often politically difficult, particularly if they have been used to enhance rural development in the past. Vested interests that have previously benefited from government largesse may lobby to maintain the status quo. Such reform also needs to be sufficiently broad enough in terms of activities or areas affected in order to prevent carbon leakage.

¹² For example, the Asian Development Bank funded an extensive project of community mapping of customary territories inside Lore Lindu National Park in Indonesia between 1998 and 2003 (see Mappatoba, 2004).

justified with the shutting down of existing roads and not when trying to prevent new road building. Improving law enforcement involves governments strengthening their de jure rights to keep forest standing, for example, by improving legal systems and the monitoring of individual compliance with the law. But in situations of weak property rights there is a need to consider de facto property rights claims (Engel et al., 2006; Engel and Palmer, 2008). Instead of strengthening their own de jure rights, governments could alternatively seek to improve individual compliance with existing land-use restrictions, i.e. limiting deforestation, via the payment of subsidies to individuals (see e.g. Wunder, 2009). Subsidies could either represent compensation to an individual who chooses to forgo his de facto property rights to forest conversion, or a payment for the individual's forest carbon rights. Unlike the former, the latter would require the creation of de jure forest carbon property rights at the individual level.¹³ In either case, policy participation would be voluntary in contrast to improving law enforcement.

Other policies in which governments hold carbon rights can be characterised as being voluntary. Increasing agricultural productivity, for example, could involve the targeting of REDD+ monies towards marketing and agricultural extension programmes (Rudel, 2009). Similarly, REDD+ could subsidise alternative energy sources for individuals who harvest forests for biomass energy, or could be utilised to increase the scope and value of their off-farm labour opportunities. But identifying appropriate and sustainable alternatives has to contend with missing and constrained markets including those for forest products and land, potentially raising the transactions costs of policy implementation (Groom and Palmer, 2010). Nevertheless, the voluntary nature of these policies, also a characteristic of PES and joint production activities, implies that resources do not have to be directed towards implementing and managing compensation schemes.

¹³ The type and size of such a subsidy would depend on whether it is supposed to represent a compensation to the landowner for forgoing the profits from deforestation or an incentive payment for enabling the capture of the forest carbon externality. These will not necessarily be equivalent, although both would to some extent represent a recognition of an individual's de facto claims to the standing forest. Subsidies might, however, be more effective if accompanied by steps to formalise individuals' pre-existing de facto rights to forest conversion.

4. Conclusion

A range of policies can feasibly be implemented in the REDD+ context, with a national or nested accounting approach providing greatest flexibility for policy makers. While none of the policies detailed in this paper are particularly new or innovative, REDD+ could potentially provide more financial investment for forest conservation and rehabilitation than has ever been seen in the past. For REDD+ to be effective, however, policy design should consider pre-existing property rights to forest land and resources, the creation and allocation of new forest carbon rights and the assignment of liability in the event of carbon reversal.

This paper outlines a conceptual framework for REDD+ policy options and the role of property rights in these. In practice, it is recognised that policy cannot always be implemented according to neat conceptual formulations. For example, imperfect information implies that policy will be implemented where pre-existing property rights arrangements may never be completely understood while asymmetric information will complicate the design of incentives. Nevertheless, it is important to try to build embed local institutional conditions into the process of policy design, and not to treat these as some kind of 'grey area', which policy makers should simply ignore. For instance, project-based approaches such as PES need to seriously consider how individually-allocated REDD+ rights might be incorporated into pre-existing property rights frameworks.

The neat divisions encapsulated in table 1 obscure the fact that much policy will be implemented in the form of a policy mix. For example, newly-created protected areas typically go hand-in-hand with integrated conservation and development projects (ICDPs) with the latter providing alternative income streams for those excluded from forest areas. Careful programme design that obtains and utilises knowledge of pre-existing rights to forest resources is required if REDD+ is to be equitable, although increasing transactions costs may impact on overall programme efficiency. But the inability to assign liability for carbon reversals to individuals participating in project-level activities implies a need for state involvement at some level if REDD+ is to be effective. Policy innovation is therefore

necessary. For example, within a collaborative management (or co-management) framework, state authorities and individuals can share both the management of and the benefits from forest resources (Carlsson and Berkes, 2005). Hence, liability for carbon reversals could potentially remain with the state while additional incentives, e.g. REDD+ PES, could be transferred to local actors in order to capture the forest carbon externality.

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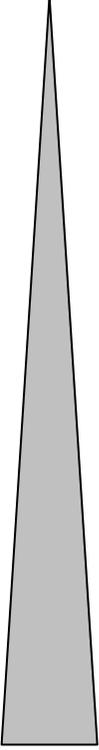
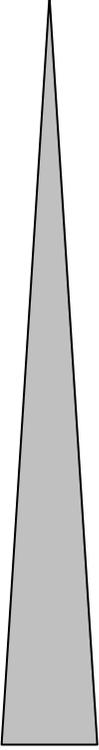
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Table 1: Policy approaches, carbon rights holders and liability for deforestation under REDD+

REDD+ policy approach		Carbon rights holder	Permanence measure	Relative degree of separation between carbon rights holder and liability for carbon reversal	Need for <u>separate</u> REDD+ compensation mechanism
Types	Examples				
Institutional reform	Improving law enforcement, governance	Government (national or regional)	Temporary crediting, risk pooling, credit buffers, insurance, shared liability		No
Regulation of land use	Protected areas, land zoning				Yes
Reduce price received for output produced from deforestation activity	Taxes and export tariffs on agricultural output or forest products, cessation of road-building programmes				Yes
Increase cost of inputs to deforestation activities	Reduction or elimination of subsidies for agricultural capital, and credit subsidies for land clearance				Yes
	Increase in value of and opportunities for labour off-farm				No
Reduce cost of alternative to forest as input to deforestation activity	Provision of alternative energy supplies, alternative timber supplies and other forest products, agricultural extension				No
Increase carbon value of standing forest	Payments for environmental services	Landowners, farmers, communities, concessionaires	Temporary crediting, risk pooling, credit buffers, insurance		No
	Joint production activities (e.g. eco-tourism, ICDPs, Reduced-Impact Logging and certified timber)				No

Source: Author