

Technical and legal challenges for (pro-poor) distribution of REDD+ benefits in Mexico

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1. Introduction

The United Nations Framework Convention on Climate Change (UNFCCC) has developed policy for the Reduction of Emissions from Deforestation and forest Degradation (REDD). Following the implementation of national REDD+ activities in Phase 3, countries should be able to access international finance based on their carbon results, that is to say, quantified positive achievements relative to an agreed baseline of emissions as defined in a national reference emissions level (NREL.) These funds will be ex-post, and REDD+ benefits in the international context refers to this finance for carbon performance. When we refer to the distribution of benefits, we are referring to how these funds will be distributed internally within countries, since this is not determined by UNFCCC but will be decided by each country itself. Depending on the way sub-national implementation of REDD+, nested baselines and MRV are put in place, performance in specific regions within a country could be assessed and benefits attributed to them on the basis of their relative performance (i.e. *vertical* benefit sharing). Within these regions, benefit sharing schemes would then be needed to distribute benefits *horizontally* among corresponding stakeholders (Buss et al 2013b), and there are many ways in which this could be done. While there may be various secondary benefits (capacity building, etc.), what we refer to here as ‘benefits’ are the direct economic benefits or payments associated with carbon savings.

The necessity for a centralised accounting system at national level for accessing international finance implies that stakeholders would not be able to exchange their own carbon credits directly with international markets or buyers. There could however be considerable public resistance to a model in which all the credits are claimed centrally by a government agency, even with assurances that the resulting fund will be disbursed to registered participants. For this reason if for no other, it is essential that there is transparency over how the horizontal benefit distribution system will operate. Neither Mexico nor any other REDD+ country has however fully resolved this dilemma yet. Moreover, in the debates surrounding the design of REDD+ there has been a strong lobby for the mechanism to be not only efficient from an environmental perspective but also socially responsible. In particular there have been many calls for a ‘pro-poor’ approach to REDD+ (refs), and demands that at least some of the benefits may be accessed by poorer groups of the population.

In this paper we explore some of the technical challenges and political/legal challenges faced by benefit sharing systems in general, and pro-poor benefit sharing systems in particular, and assess the pro-poor potential of the prototype for benefit sharing in Mexico’s REDD+ strategy, in the light of these challenges. The paper is structured as follows. We first briefly review and explain the literature that calls for ‘pro-poor’ REDD+. We then lay out the principal options as regards the design of benefit sharing systems. Following this we present the elements of the benefit distribution system envisaged by the Mexican government for REDD+ in Mexico, before analysing this from a pro-poor perspective, dealing first with the technical challenges and then with political and legal issues. We end with what we hope is a sober but realistic assessment of what is possible and what is not, as regards the design of a workable, pro-poor REDD+ benefit distribution system in Mexico.

2. Calls for pro-poor REDD+

Before starting, we note that there have been many calls for 'equity' in REDD+ benefit sharing (Refs). To clarify this, it is important to note that the term 'equitable distribution of benefits' does not necessarily mean 'pro-poor' - there are at least 3 different conceptions of equity that might be applicable in REDD+ (Gregorio et al, 2013):

1. Equity in the sense of: benefits go to those who merit or earn the benefits (i.e. those who reduce emissions or increase removals of CO₂e from the atmosphere).
2. Equity in the sense of: benefits go to those who have rights to them. This tends to tie benefits to those who have rights (formal) or possibly informal entitlements over the resources that would be used in REDD+ to reduce emissions.
3. Equity in the sense of responding to social needs, i.e. a 'pro-poor' bias in the distribution of benefits.

In this paper we deal only with the third of these principles, and to avoid confusion we do not use the term 'equity' further. For this reason too we do not deal directly with equity of REDD+ from a gender perspective, although we acknowledge that gender exclusion may to some extent be related to poverty.

3. Principles of benefit distribution systems

At least four different elements make up the design of a REDD+ benefit sharing system within any country. Firstly, there is the question of what is to be exchanged for international finance: only reductions in emissions from D&D, or also increments in forest stock (forest enhancement). The first would require the country to develop a national Reference Emission Level (REL) based essentially on historical rates of loss, the second would require a Reference Level (RL) which includes past rates of forest increase as well. This obviously has implications for the total amount of money that might be earned by a country through its REDD+ activities, but it may also have implications for what can be paid for at the local level and how.

Secondly there is the question of what activities are eligible to be considered REDD+ activities. Clearly, this will include many silvicultural and conservation activities: more in question is whether activities outside the forest, which could impact on forest use, are included. For example, stall feeding of cattle could result in less degradation in forests in many parts of Mexico, and REDD+ funds might justifiably be invested in farmers who are willing to make this change. But there are many other activities whose impacts may appear to be too diffuse or too distant from the forest itself to be included. For example, a NGO that provides training to villagers to grow organic vegetables might claim that this will help the farmers develop alternative income sources and reduce their need e.g. to collect and sell firewood. Even more distant would be general policies which have far reaching effects but which may be difficult to trace to individual forest parcels, such as national policy on imports and exports of agricultural products. It will be necessary at some point to make decisions on whether activities such as this may or may not be considered REDD+ activities that can be supported through REDD+ funding. We suggest there are three categories of potential REDD+ activities that need to be considered: Type A - activities based within the forests,

Type B - activities based locally, but outside the forests and Type C - general policies (transversal, cross-sectorial).

Thirdly, and closely related to this, is the question of who – which actors - may receive the benefits of REDD+ finance. There has been a strong lobby with Mexico for the benefits of REDD+ to go to the owners of the forest, that is to say the *ejidatarios* and *comuneros* in whose land around 55-59% of the forest lies (Madrid, 2009; Skutsch et al 2015; Velaquez et al 2015). However, the reality today is that within the territory of these *ejidos* and *comunidades* there are a large number of people – on average, 30% of all families (Robles) - who are not themselves *ejidatarios* or *comuneros*. These people may in some cases have been given a small piece of land for agriculture (in which case they are known as *posesionarios*), or they may have no land at all, and earn their livelihoods either as labourers or in the non-agricultural sector. They may be allowed to use the communal forests for their subsistence needs (e.g. firewood) but in general they would have no rights to profit making activities from communally owned forest, for example from timber sales. If REDD+ benefits were to be based on cash transfers related to forest area, it is questionable whether this group could expect to receive a share. Moreover, there is the question of whether benefits should go to the owners of forests or whether they should not better be directed to the actors who make changes in their livelihood strategies which reduce pressure on the forests, who may not be the same group, and may not in fact be living within the community at all (which might involve Type B or C activities). For example, it is common for members of an *ejido* to rent their forested parcels to people outside the *ejido* who are needing grazing areas for their cattle. The question here is: who should receive the benefits, the owner of the parcel, or the cattle herder, or both, if under REDD+ such uses were to be terminated.

The fourth element concerns how the funds available are to be shared among the eligible actors and the eligible activities. In theory, there a number of different options for how REDD+ funds that enter at the national level on the basis of national performance could be distributed among different stakeholders within a country, once these stakeholder have been identified. These options represent fundamentally different underlying rationales. Assuming there is a fixed but limited fund of money available for distribution by a central REDD agency, derived mainly, if not exclusively, from the future value of the carbon saved (i.e. valorized in a market or an international fund), we suggest that there are essentially four different principles by which it could be distributed to eligible stakeholders. All of these principles are in use or have been proposed for use in national REDD+ programmes in different countries. The first two models have a strong market orientation while the remaining two imply a level of social intervention or non-market ideology. The first three are based on payment proportional to outputs (carbon savings) while in the last, payments are related to inputs (Table 1).

1. Simple performance- or output-based payments are made on the basis of the achievements by stakeholders in terms of tons of CO₂ emissions reduced or CO₂ sequestration increased. They are paid at a fixed, pre-arranged, universal price per ton of CO₂. This requires a baseline which indicates what level of emissions or sequestration would be expected if no changes were made; only the measured and verified improvements on this baseline as a result of changed management (i.e. the 'additionality') would be 'credited', and payments would be made ex post, pro rata (Cattaneo *et al.* 2010; Luttrell *et al.* 2012; TFCG 2010). A problem associated with all output-based payment schemes is that rewards are assessed terms of rate of change in carbon stocks compared to a baseline, and paid per ton. Hence it is difficult to reward forest conservation, which involves a level baseline and no change in stocks.
2. Opportunity cost based payments schemes involve payment by output (i.e. per ton of CO₂) in which the price per ton varies to meet the differential costs faced by different forest owners (payments are set just above the estimated opportunity cost of each potential participant, to

create a small incentive to change). Where the opportunity costs are high (for example, where forest owners can earn a lot of money from timber harvesting or from converting the land to commercial agriculture), higher rewards would be paid per ton of CO₂ than where the costs are low, since otherwise there would be no meaningful incentive. Cattaneo *et al.* (2010) refer to this as payment by need, Luttrell *et al.* (2012) as payment by opportunity cost and TFCG (2010) as payment by effort. To implement such a payment scheme, the government or organizing agency would have to make an assessment of the real opportunity costs (of not deforesting but engaging instead in REDD+) pertaining to each forest owner. An alternative but similar approach is an auction system which allows each forest owner to bid (*i.e.* propose their sale price per ton of CO₂) at the start of the programme.

3. Socially weighted payments are payments by performance or output (as in type 1) which are further weighted by an index which reflects social needs (rather than economic needs as in type 2). The price per ton would be higher to poor and marginalized communities than to communities that are better off; the payments thus represent a welfare supplement tied to an incentive for performance. Baselines would be required for the carbon stocks, but also for the state of need of the forest owners. This system is currently in place in a pilot REDD+ programme in Nepal and a similar one is being developed at the national level for Vietnam (Hoang *et al.* 2013; CF Redd+ Nepal 2011)
4. Input based payment systems work on an entirely different logic, and are designed to cover part or all of the actual costs of implementing certain activities designed to reduce deforestation and degradation or to stimulate conservation and forest enhancement. They could cover labour days needed to remove deadwood and reduce the risk of forest fires, fencing to keep cattle out, costs of improved stoves to reduced demand for firewood etc. The payments are not tied to carbon savings directly, but to a set of activities that are assumed to result in positive effects on the carbon stocks. This means that carbon baselines are not required for each property individually. Benefit are often paid in part in advance, with the balance paid on proof that the activities have been carried out. Very often they are in the form of flat rates, that is to say, a fixed rate per hectare of forest, rather than per activity. Importantly, communities could be rewarded under this scheme not only for reduced deforestation but also for adoption of, or continuation of, earlier conservation management. This is the model followed by many Payment for Environmental Services (PES) programmes. A variation on the model allows higher flat rates to be paid in forests considered more important in biological terms or more at risk, or to communities considered to be more needy in social terms. Assuming that all payments would be financed by the fund generated as a result of reductions in deforestation and degradation, flat rate payments would result in considerably lower per ton carbon payments to participants than simple performance payments, since the funds available would have to cover many communities whose forest management activities are not additional, as well as those that are additional (Table 1).

	Output-based reward systems	Input-based reward systems
Basis for allocation of rewards	Rewards are proportional to the production rate (carbon saved, increased volume of water in river, number of trees planted and surviving).	Rewards reflect the effort made; the activities undertaken in forest management and time invested.
Assessment of level of rewards requires:	A quantitative baseline against which improvements can be compared, and quantitative measures of the outputs.	Proof that activities have been undertaken properly.
Additionality	Only performance that would not otherwise have occurred is subject to rewards. Hence owners who have never deforested would not be able to claim rewards.	All approved activity intended to improve forest management may be rewarded, hence owners who have always protected the forests may receive rewards as well as those who start such activities as a result of the programme.

Table 1: Characteristics of output- and input-based REDD+ distribution systems

4. Mexico's prototype benefit distribution system

The movement for REDD+ in Mexico is being led by the National Forestry Commission, CONAFOR, which falls under the Ministry of Natural Resources (SEMARNAT). There is no single document which addresses frontally the question of policy on REDD+ benefit sharing in Mexico but there are references to this in the key papers which describe the general approach to REDD+, particularly in the Estrategia Nacional de REDD+ (ENAREDD+, CONAFOR 2014a), the ER-PIN proposal to the Forest Carbon Fund (CONAFOR 2014b) and materials presented at consultative workshops (Graf, 2015) in relation to the pilot REDD+ activities being developed in the RED+ early Action Areas.

In terms of what kind of carbon is being exchanged under REDD+, Mexico has submitted to UNFCCC a proposal for a REL which is based only on past rates of deforestation (not of degradation) and of forest fires (CONAFOR 2014c). This means that the country can claim for reductions in emissions from deforestation and forest fires, but not from degradation, moreover it cannot claim for increases in sequestration (forest enhancement). This also means that in principle, communities that are able to monitor and measure growth in their carbon stocks would be able to sell credits for these in the Voluntary Carbon Market, independently of any benefits they might receive for reductions in emissions under national REDD+ (Graf, personal communication, 2014).

The question of what activities could be considered 'REDD+ activities' is more complicated. As laid out in the National REDD+ Strategy (ENAREDD+), REDD+ in Mexico is not solely about reduction of emissions but is rather a territorial approach to sustainable rural development. Official presentations at consultative workshops talk of integrated management of territory at the landscape level and of a territorial approach which takes into account local realities and the locally relevant causes of deforestation and forest degradation (CONAFOR 2014b, Graf, 2015). In the Early Action Areas (in the states of Yucatan, Campeche, Quintana Roo, Chiapas and Jalisco) the policy is that five year Investment Plans (IPs) will be made for groups of communities that wish to participate and that have been involved in a participatory consultation process on this (FPIC). The number needed to form a group is flexible, but the area of the plan should cover communities in about two municipalities, although the selection of communities can be made such that they cover a river basin or a biological corridor etc., so that logical spatial integration may be achieved. The IPs will be

drawn up by registered Public Agents for Territorial Development (APDTs to use the Spanish acronym), and will have two main functions: to rationalize and coordinate existing subsidies in different sectors (particularly forestry and agriculture) and to propose investments in other activities which would result in lowered emissions. The IPs will be evaluated by an independent committee of government, NGOs and academics in each region before the APDTs get the green light to start implementation.

Mexico is cooperating with the Forest Carbon Fund of the World Bank which has agreed to purchase carbon savings from the Early Action Areas, as laid out in the ER-PIN (CONAFOR 2014b). Money advanced from this Fund will be used to cover the costs of the development of the IPs and the initial implementation, although this will be supplemented by funds from the government itself. Reductions in emissions in the first year as measured against regional baselines will generate funds which can be ploughed back into the system and used to support investments in the second year.

In this model, the benefits of REDD+ are used as investments to support sustainable development activities. They may be used for forestry and for non-forestry activities, that is, those that counter activities that directly cause deforestation and degradation, but also those that reduce underlying pressures on forests including conservation activities, although all the proposed investments should have a potential impact in terms of mitigating climate change (Graf, 2015). However, it is clear that the benefits of REDD+ are not seen by the government as rewards or compensation, but as investments.

In terms of who may receive or benefit from these investments, the programme is directly mainly at communities (both *ejidos* and *comunidades indigenas*), although these cover less than 60% of all forest cover in Mexico. Within communities, beneficiaries have been identified as being not only the official owners of the territory (i.e. *ejidatarios/comuneros*, but also *posesionarios* and other users of the forest resources (Graf, 2015). It is also noted that in workshops held to discuss the IPs, it will be important to include vulnerable groups such as women and those that do not have rights within the *ejidos* and communities. However current policy documents make no special mention of a poverty focus in the IPs.

5. Technical challenges in benefit distribution

As explained in Balderas Torres and Skutsch (2014) there are a large number of technical problems that arise in connection with the four different payment principles, some of which involve high costs and some of which may influence the design of a pro-poor distribution system.

Many observers have assumed that because REDD+ involves performance (output) payments at the international level, this will also be the case for the horizontal distribution of benefits within each country. Those who support this model cite efficiency (only those who actually achieve carbon savings would be paid) and incentive (communities will try harder if they are paid by output). Many also support this model because they fear that if government is free to distribute the funds in other ways, the money will be dissipated and disappear into other activities. There are several major technical problems however with output payments at the level of the individual owner or individual community.

One is the need for a baseline for each and every parcel if benefits distribution systems are to be based on outputs (carbon achievements), since without these it is impossible to know which

community would have deforested in the absence of REDD+, and how much deforestation would have taken place (the counterfactual or business as usual situation). Constructing baselines for deforestation and degradation in each community could be a prohibitively costly undertaking and make any sort of carbon project uneconomic. We note however that for the case of increases in sequestration all that would be needed in the way of a baseline would be a default value representing typical growth rates of local forest types in the absence of intervention.

A second difficulty is that an allowance would have to be built into the reward system to account for potential leakage, and for losses that might occur in other parts of the system. This means that even highly successful communities might have benefits for their carbon gains reduced or even cancelled out. In order to deal with this problem of leakage, it has been suggested that all participating communities would have to put a credit buffer aside (say 20% of the carbon they have 'saved'), to cover any nationally-incurred losses (refs). However, this suggestion has not been widely accepted, not least because it is not clear to many communities and the organisations assisting them why they should have to 'pay' for losses elsewhere in the system, which seems unjust and inequitable to them.

There are also major technical difficulties in rewarding conservation if an output based system is adopted, since conservation involves a flat baseline in the past and no changes in carbon stocks in the future. This has been a major problem in public policy for REDD+, because of the injustice of not rewarding communities who have protected forest in the past. All payment schemes under UNFCCC are predicated on changes in rates of change in carbon stocks – reductions in deforestation and degradation rates, or increases in rates of sequestration, since carbon is valued on the basis of flux, not in terms of standing stock, hence continued conservation stands to gain no benefits in an output-based system.

Output based systems in which the benefits are weighted by opportunity cost involve the difficulties of estimating the opportunity costs, either at the level of each community, or by type of community (e.g. communities with potential for timber extraction, or potential for conversion to various kinds of agricultural production). Ideally, not only the opportunity cost but also the probability of such conversions would be included. Although theoretically it is possible to model and estimate all these items, this would be a heavy administrative burden and would be easily open not only to corruption but also to public mistrust, since the criteria for differentiating between communities and the nature of the calculations may not be obvious. In that respect, an auction system would be preferable from the point of view of the government, since it would put the onus on communities to estimate their own opportunity costs, although it is unlikely that many communities would be in a position to do this, at least in the short term.

Output systems in which a higher price is paid per ton of carbon to poorer communities might be more acceptable as a public policy (there are many government subsidies to poor and marginalised communities) but this would not be the most efficient system in terms of emission reductions since less money would be available in other parts of the system. Moreover it is absolutely unclear whether there is any relationship between poverty and deforestation, and therefore whether rewarding poor people for not deforesting would actually make any sense (see Skutsch and Balderas Torres 2015 for an extended discussion on this point).

For all these reasons, a benefit distribution system based on inputs, which offers low, but predetermined financial payoffs to all participants, is likely to be much more attractive to many communities, particularly as communities cannot know in advance how much carbon they are likely to be able to claim at the end of the accounting period, and many will be rightly afraid to gamble in this way. Output-based payments are of necessity post-hoc, since they rest on verification of

measured reductions of emissions or measured increases in sequestration, and for many communities this may not be a feasible model, since they may need some funds to implement activities up front (in input-based benefit systems it is common for part payment to be made in advance, and rest being paid at the end of the period after checking that the agreed activities have indeed been carried out). However, the disadvantage is that as they are paid to all participating communities, the amount each community receives will of necessity be lower than what successful communities would be paid in output-based systems (unsuccessful communities would be paid little or nothing in output based systems). From the government's point of view the disadvantage is that many of the payments made will not be additional, that is, they may not all lead to additional savings of carbon. This means that the pay-back to the government (total carbon saved per dollar spent) would be much lower than in an output based system. Many economists therefore consider input-base systems highly inefficient. On the other hand, the public in general tends to view input-based systems as 'fairer' and more acceptable than output-based systems (Skutsch 2015), and the political acceptability is therefore higher, while overheads are considerably lower than in output-based systems.

5.1 How Mexico's prototype benefit distribution mechanism deals with the technical challenges

The prototype benefit distribution system proposed by CONAFOR is input-based, in that the funds are not seen as rewards or incentives but as investments for particular activities to be carried out. As such, it avoids many of the problems of output-based systems outlined above. The Mexican approach does not require baselines at the level of each community, only at the level of the state, and leakage is dealt with in that losses and gains over time are quantified in aggregate, not at the level of each community. A range of activities, at least of Type A and Type B are considered to be REDD+ activities for potential investment. Also, activities to support conservation are explicitly included even though these will not generate any additional carbon savings, meaning that communities that have never deforested may gain benefits from continuing their protection.

The policy however does not distinguish or aim for poorer communities as such and there is no suggestion that poorer communities should either be singled out for inclusion in REDD+ or awarded larger investments than richer communities, indeed there is no analysis of this question at all. Moreover, in a system in which the benefits are in the form of investments, it is logical that within any community, those who carry out the activities leading to deforestation and degradation will receive the lion's share of the investments to change their behaviour. If these activities are carried out by the richer members of the community, particularly by those who have rights to larger portions of land and forest, as suggested in Skutsch and Balderas (2015), then it is likely that the poorer sections of the population may not stand directly to benefit very much from REDD+.

Poorer sections of the population are usually those without legal rights, and this is not a small group since as mentioned above, rights holders form only about 70% of the population of rural communities. It is important to take into account that in many cases these are people (widows, children without inheritance, landless people) who nevertheless use forest resources (in agriculture, cattle rearing, and for collection of timber and firewood, non-timber products etc) in an informal arrangement within the ejido or community. This group may be highly strategic in the achievement of REDD+ objectives. There are different groups involved. In addition to the ejidatarios and comuneros who have rights to land and to profits from communal resources, there may be 'poseionarios' who have been given the right to use land, though not the rights to vote in the Asamblea, and generally not the right to a share of profits from community owned property. There are also people who may rent or borrow land from individuals within the community, but have no formal rights, and finally there are people who live in the community and work as labourers on the

land of others. The positions of these different groups as regards rights to benefits from REDD+ is one of the elements discussed in the section below.

6. Legal challenges to distribution of benefits

REDD+ is an international policy, which when implemented in a country such as Mexico has to be made congruent with existing national legal, political and institutional requirements. The main framework in this regard is the Mexican Constitution which establishes a set of human rights, and the distribution of powers among three tiers of government (national, state and municipal). It also states that international treaties signed and ratified by the government become Supreme Laws (as for example the Convention N. 169 of the International Labour Organization (ILO) regarding Indigenous and Tribal People's Rights, establishes the right to Free Prior and Informed Consent (FPIC)). In addition to the Constitution, there are various secondary laws relevant to REDD+ in Mexico, such as the General Law on Climate Change (2012) which contains an aspirational mitigation target to achieve a zero per cent of emissions in original ecosystems; the objectives include the reduction of emissions from forest degradation, the increase of forest areas with sustainable management and under natural regeneration, and the enhancement and conservation of carbon stocks. This Law provides the basis for the creation of institutions, a legal framework and financial mechanisms needed to transition to a low carbon economy. There is also the General Law on Sustainable Forest Development which promotes sustainable forest management and environmental services, and which establishes that owners of forest resources are the owners of carbon within these forest resources. Both of these laws envisage the use of financial instruments (both market and other) to reach their objectives. The General Law on Climate Change envisages this in terms of the owners of the forest, while the General Law on Sustainable Forest Development also explicitly mentions '*poseionarios legales*', who are community members with land but without full rights (LGDFS, 2012). More indirectly, the Law on Ecological Balance, the Agricultural Law and the Law on Sustainable Rural Development will also impinge on REDD+. Most fundamentally, to implement REDD+ in a satisfactory way it is essential to gain clarity on who has rights regarding forest carbon and for what reasons, on the basis of this set of laws. Table 2 summarises the position as regards ownership of carbon according to the different relevant laws.

Insert table 2 here.

The situation is complicated by the fact that rights to forest carbon are intimately bound up with question of property and tenure over land and over forest resources. Even though the Mexican legal framework does not explicitly refer to ownership of carbon, article 27 of the constitution, and particularly 5°, 7° and 134 Bis of the General Law on Sustainable Forest Management, clearly lead to the conclusion that the owner of the land is the owner of the forest resources and hence also of the carbon which is a chemical component of these forest resources, a point which is echoed also in the ENAREDD+ (Section is Carbon Property Rights and Benefit Sharing: '*Propiedad de carbono y distribución de beneficios*'), chapter 111, p 33. This implies rights of property, but this may be limited by modalities relating to public interest, as is the case also with human rights and rights to a clean environment. This is because according to the Mexican Constitution, the nation retains the underlying ownership of all land and resources. The right of property involves also a number of subsidiary rights such as possession, use and the right to receive benefits from the land (usufruct rights), see table 2. In some cases the owner of the land may a different person from the legal possessor of the parcel, or from the person actually using it, for example by contract.

A point a great importance to understand in this regard is it that although owners of land and forest resource have a legal basis on which to claim ownership of carbon sequestered in their trees, they cannot in any circumstance claim ownership of avoided emissions, which are in the form of carbon

dioxide, not carbon. This is because it is impossible in the legal sense to determine who is the owner of the carbon 'saved', since this is a counterfactual entity (it doesn't exist in the sense of material property). "*Property rights cannot exist for something which is not a designated entity, either in the form of property or of usufructure*"². This is an extremely important legal principle, as it appears to mean that ownership of carbon saved by reductions in deforestation or degradation cannot be assigned to individual land of forest owners or users due to the *legal non-existence (inexistencia legal)*, although carbon stocks, and increases in carbon stocks, may be seen as designated, existential entities which can be owned (and thus used, traded, sold etc) by the owners of the trees. However, the owners and legal possessors of the land and forest resources do have rights to benefits generated by avoided carbon emissions from programmes like REDD+ in which a financial value is attributed to the provision of such environmental services. What this implies is that the legal distinction between sequestered carbon and avoided emissions are such that any REDD+ programme will have to deal with two complementary sets of benefits. Activities such as establishing permanent cultivation or pasture in forested areas, without taking into account the official rules (*Normas Oficiales Mexicanas*) are considered violations of the General Law on the Sustainable Management of Forests. In addition, the criminal law states that it is forbidden to deforest without a permit. The clearance or destruction of natural vegetation and cutting of trees for timber without a permit is a violation of the Penal Code. From a legal point of view it would therefore not be possible to pay people for not deforesting, since this would amount to paying them for not committing a crime.

As for the large part of the rural population does not have legal rights over land and forest resources, their legal rights as regards REDD+ benefits may be limited (see table 2). They certainly have no rights over ownership of sequestered carbon, and it is questionable whether they would be seen as eligible for financial benefits from REDD+ activities carried out on communally held land. This includes actors such as cattle herders whose activities impinge on forests even though they are not the owners of the forest. The ENAREDD+ establishes the need to create benefit sharing schemes including also stakeholders with no rights to land, however this might be in direct contradiction with the Law on Sustainable Forest Development.

In principle there would be four options for including them more securely in the benefit distribution mechanism: (1) To introduce reforms into relevant legislation, particularly with respect to agricultural and forestry law, to give more rights to people designated 'posesionarios', (2) Establish a fund specifically to finance activities to be carried out by those people who are not owners and do not have recognized rights over property, (3) Establish Public Programs specifically to finance activities to be carried out by those people who are not owners and do not have recognised rights over property, (4) Create or reform the Ejidal Regulations and Community Statutes so that with agreement of the Assembly, the rights of such people are recognized as regards to REDD+ benefits. Any such changes in the Regulations and Statutes would have to be approved by the Agrarian Authority. Each of these options would need to be investigated in depth to determine who could be a beneficiary of REDD+ and how, what rights it would imply, and how this could be instituted. The mechanism to be implemented would have to have a clear legal basis, clarity on who would have rights to receive benefits, and how these people would be identified.

PERSONS	Owner of the land and the forest resource	Legal possessor of the land and forest resource (i.e. the individual member of the community, including <i>poseesionarios</i>)	User of the land and forest resource (e.g. renters, sharecroppers and people who have borrowed land)
RIGHTS			
Legal basis	Constitution, General Law on Ecological Balance, General Law on Sustainable Management of Forests, Agricultural Law	Constitution, General Law on Ecological Balance, General Law on Sustainable Management of Forests, Agricultural Law	Constitution, General Law on Ecological Balance, General Law on Sustainable Management of Forests, Agricultural Law, Mexican Civil Code
Rights over carbon credits for carbon sequestration (principle of usufruct)	<p>May receive payment as a benefit in a PES project.</p> <p>Has full rights to transfer the credits.</p> <p>The ejido or community as a unit is the owner of the carbon credits derived from the comunal land.</p>	<p>May receive payment as a benefit in a PES project.</p> <p>Is the owner of the credits in his parcel of land</p> <p>Has the right to receive credits for his share of carbon sequestration in the comunal areas.</p>	<p>No rights, unless there is a special agreement for this internally within the community</p>
Transmission of carbon credits for carbon sequestration	<p>May cede, sell, give, donate, destroy etc gthe credits for carbon sequestered.</p> <p>The ejido/community as a whole acts as the owner.</p>	<p>Can only sell or exchange credits relating to own parcel of land</p>	<p>No rights, unless there is a special agreement for this internally within the community in which case the rights would be only for the area for which he has use rights</p>
Ownership of avoided	Not applicable	No applicable	Not applicable

← - - - Tabla con formato

emissions			
Rights to receive benefits for emissions avoided (principle of usufruct)	Has rights when the land, ejido or community is within an eligible área, but depends on whether REDD+ activities have been carried out. Benefits could be in form of subsidies or investments.	Depends on whether REDD+ activities have been carried out. Benefits could be in form of subsidies or investments	Depends on whether REDD+ activities have been carried out. Benefits could be in form of subsidies or investments
Use of forest resources	Can dedicate parts of its territory for PES projects without losing rights to this land . The ejido or community as a unit determines the area for individual parcels and for common use.	In the individual's parcel he may dedicate part of the area to PES projects swithout losing rights to this area.	Needs authorization from the owner or legal possessor
Modalities of ownership	Has to respect and uphold relevant laws on land and natural resources	Has to respect and uphold relevant laws on land and natural resources	Has to respect and uphold relevant laws on land and natural resources

6.1 How Mexico's prototype benefit distribution mechanism deals with the legal challenges

- The benefits are not seen in terms of rewards but as investments, which will be tied to specific activities identified in IPs. However it not clear who will receive the money for these investments – the community as a whole, or individuals within it, and if so, will non-rights holders be able to participate. Unclear, because it depends on the type of activities that are stimulated by the investments.
- There has been insufficient consideration of how those with no rights might participate.
- At the moment the funds will be generated only from avoided deforestation and avoided forest fires, meaning that according to our analysis, the funds are legally the property of the nation, administrated by the government and must be allocated to the land owner/legal possessor. Therefore the government has committed itself to using all these funds for investments to promote more sustainable management.
- It is established in various laws that the owners of forest resources have the rights to benefits from these funds, but CONAFOR is interpreting 'benefits' as 'investments'. This might be challenged in the courts one day.
- If 'owners and legal possessors' of the forest resources is interpreted in the legal sense, the use of REDD+ funds for investments that benefit non-owners could be brought into question.
- However the investments may also generate increases in sequestration, which in principle are the property of the land and forest resource owners, and credits from this could be sold by individuals and communities.
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7. Conclusions

- The way REDD+ has been set up with input payments as investments, avoids a lot of problems that would occur if an output payments approach were taken
- It allows many activities to be financed, including activities outside the forest and in other sectors, if it can be shown that tackling these will reduce pressure on the forest
- It already implicitly allows for avoided emissions and sequestered carbon to be considered as two different products, although this is not explicit in the documentation
- There has been insufficient thought on whether and how REDD+ can address poverty: there is no understanding of whether poverty is related to deforestation (do poor people or poorer communities deforest more tan richer ones is not a question that has been asked yet
- The policy focuses only on communities, although 40% of forest is in the hands of private property owners. This is a blind spot.
- To define reduction emission as property is impossible due to its lack of legal existence (*inexistencia legal*).
- The rights to receive benefits do not necessarily depend on the ownership or property right, but the legal situation in this regard remains unclear.

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