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Options for a national framework for benefit distribution and its integration with REDD+ monitoring

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1. Introduction

As countries move from basic capacity development into Phase 2 of REDD+ and start planning performance-based demonstration activities within their national programmes, the question of how the financial benefits of future carbon credits and/or other REDD+ payments will be distributed within such national (or sub-national) programmes becomes increasingly important. This is because these benefits may be the main incentives for the participation of individual stakeholders in REDD+ activities. Before opting in, potential participants will want clarity on what rewards they could expect, and under what conditions they will be eligible to receive them. There will be a need for transparent, legitimate and easy to understand systems for the distribution of the financial benefits from REDD+.

This InfoBrief discusses a range of feasible options for benefit distribution systems that governments could select from. Whether the international REDD+ architecture evolves as a compliance mechanism under UNFCCC or as a global fund, REDD+ has been conceived of as a performance or results-based instrument, where performance in terms of carbon is generally implied. Benefits accruing to countries are expected to be calculated at national level on the basis of their overall achievements in reducing emissions or increasing carbon stocks relative to an agreed reference level, measured in terms of tons carbon per annum[i]. International payments will therefore in all

probability be delivered centrally or through sub-national jurisdictions on the basis of overall performance of the country or jurisdiction compared to its reference level. The assumption is often made that within national programmes the financial benefits that accrue centrally should simply be shared between participating stakeholders according to the performance of each participant, calculated in these same terms. However, although a carbon-performance metric may be appropriate at the international level, there are three main reasons why it is unlikely to work for the distribution of benefits *within* countries or jurisdictions. These are (a) the difficulties of identifying exactly which forest parcels would have been deforested or degraded in the absence of REDD+, (b) the uncertainties involved in carbon measurements at the local level and the costs of administering benefit distribution or reward systems based on carbon performance at the local level (transaction costs) and (c) the fact that much forest loss is the result of activities of stakeholders outside of the forest (i.e. from agriculture, energy, mining), and if these activities are to be stopped or modified, then it may be necessary also to reward non-forest stakeholders, even though it may be difficult, if not impossible, to measure the impacts directly in carbon terms. These points are elaborated in section 2. We suggest that performance could be assessed in other ways, particularly in terms of inputs and effort, and in section 3 we suggest a range of alternatives to carbon-performance as the basis for benefit distribution in REDD+. We then discuss in section 4 the fact that the fund generated by sales of carbon credits at national level is likely to be too limited in size to provide sufficient financial incentive for all internal stakeholders and suggest that it will need to be supplemented from other sources. Section 5 considers the forms in which incentive payments could be made, section 6 considers how such payments should be dealt with when the responsible forest managers are not individuals but collectives. In section 7 we briefly consider the potential advantages of linking the benefit distribution system to national systems for REDD+ monitoring and Measuring, Reporting and Verification (MRV). Conclusions are summarized in section 8.

2. Essential difficulties in distributing REDD+ benefits among stakeholders on the basis of carbon performance

(a) The impossibility of attributing reduced deforestation to individual forest parcels

Although it is possible to monitor which areas of forest have and which have not been deforested over a given accounting period, in practice it is very difficult to relate this to the efforts of individual communities or specific forest owners, and thus to determine who should be rewarded. This is because reduced deforestation and degradation are usually not measured at the level of the individual forest parcel but against a baseline or reference emission level which reflects what has happened in the past, and what will likely happen in the future, over a much larger area.

For example, if a region is made up of 100 forest parcels, and has had a historical deforestation rate of 3%, it would, under a business as usual scenario, be expected to lose the equivalent of 3 parcels of forest every year in the future. If as a result of REDD+ activity, the rate of loss is reduced to 2 parcels per year, the region would receive credits equivalent to 1 parcel. The difficulty, however, is to know which of the many parcels that did not deforest in that year should receive these credits. As Figures

1-4 show, in year 3, there would be 95 parcels that are not deforested, but the credits available for distribution are equivalent to the forest stock of only 1 parcel. Since most deforestation is unplanned, it is impossible to know which parcels would have deforested in the absence of REDD+.

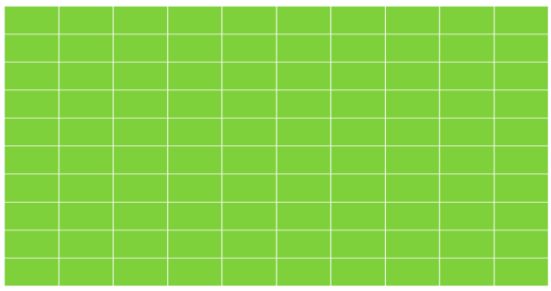

Figure 1:
Region has 100 intact forest parcels

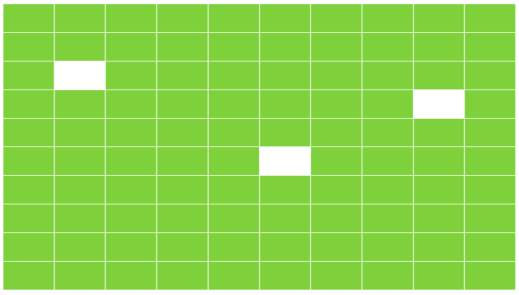

Figure 2:
In year 1, 3 parcels are cleared:
rate of loss 3%

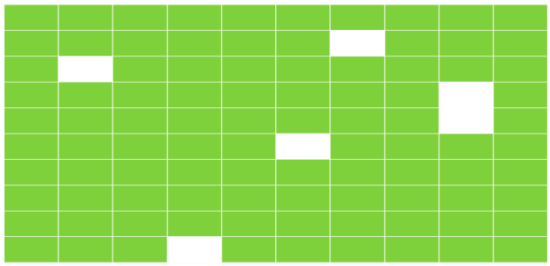

Figure 3:
Continuing at 3% loss, 6 parcels would be is
cleared by the following year

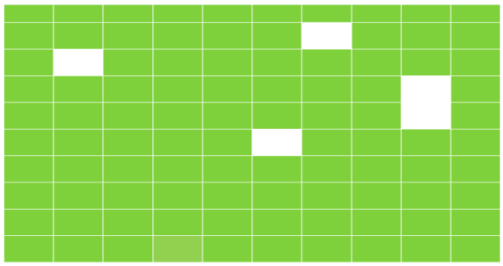

Figure 4:
However, with REDD+, the rate of loss reduced to 2%. One parcel is ´saved´.
BUT HOW CAN WE KNOW ***WHICH*** PARCEL ***WOULD*** HAVE BEEN DEFORESTED BUT WAS NOT?

However, REDD+ includes more than just reduction in deforestation. For example, if through improved management, the owners or managers of forest parcels are able to increase forest cover, or to increase the density of biomass within the existing forest areas, these increases in stock can readily be measured on site and could therefore, unlike reductions in deforestation, be attributed directly to the owners or managers. This opens the possibility for a dual system of benefit distribution, distinguishing benefits for direct and forest-related REDD+ activities which mainly result in increased sequestration (stock increases) from those relating to emission reductions (reduced rates of deforestation and degradation), which often stem from REDD+ activities outside forests. This is further discussed in section 3.
For reductions in deforestation, the only way to test performance at the level of the parcel would be to use individual baselines for each and every parcel. Apart from the huge transaction costs that would be involved in developing such baselines, a measure

of this kind is likely to fail. Those responsible for a parcel which has never been deforested in the past will be at a disadvantage compared to those who have considerably deforested their forests in the past, since the latter will be able to claim more credits when they start to improve their management. A performance-based distribution system based on this principle will not be considered legitimate by the general public, as it does not reward those who have always maintained their forest well; clearly, payment systems must also reward past good behavior, even if there is no ´additionality´ involved. As many governments and other organizations working on REDD+ projects recognize, systems which fail to do so are not only likely to cause local resentment, but may even create perverse incentives, encouraging people to strip their forests so that they can later re-grow them for profit.

(b) Uncertainties in carbon estimates and transaction costs involved

Current REDD+ monitoring activities focus on improving national-level estimation of emissions and removals to provide input to international reporting of REDD+ performance. This requires detailed information about changing carbon stocks at the local level, which is an expensive undertaking if carried out by professional staff. The transaction costs of measuring carbon stock change at the local level may be reduced if the forest owners or REDD+ actors / implementers themselves are involved in this monitoring. However, although monitoring changes in forest carbon stocks is often presented as a scientific procedure which can be perfected, in reality there are significant uncertainties involved. If participants at the local level were to be paid on the basis of outputs (tons carbon), conservative estimates would have to be applied, which would be well below the mean levels found in monitoring. This might cause participants to feel cheated, or to become frustrated, although such conservatism is essential to maintain the integrity of the programme. Moreover, the cost of administering reward or benefit distribution systems based on performance as ascertained through local measurements would be high, not least because systems which link payments directly to outputs in terms of tons of carbon would likely encourage participants to over-estimate their achievements and might even encourage fraud. To counteract this, strict regimes of verification would be required, with associated costs. This would itself entail the need for a grievances office for participants.

(c) Since many of the drivers of deforestation involve activities outside the forest, it may be necessary also to reward stakeholders who are not forest owners or managers

It is well known that many of the drivers of deforestation have their origins outside of the forests, in particular the expansion of agricultural and grazing land, which may be stimulated by population growth or by increases in prices of crops and meat. It is clear that to succeed, REDD+ will have to tackle such drivers directly. A national government might for example elect to stimulate in the kind of agriculture practices that reduce pressure on forests. It would therefore be quite reasonable that some of

the financial benefits derived from international 'sales' of REDD+ credits should be invested in the promotion of these practices, if it can be shown that this is an effective way of conserving forests. The underlying principle here is that it is not only the owners or managers of forests who could be eligible for benefits, but also actors outside the forest. There could also be other stakeholders, such as intermediary agencies, who might legitimately want to claim a share of the financial rewards from REDD+, if they are implicated in generating participation of forest users, farmers etc. in REDD+ activities which result in decrease emissions or increased sequestration of carbon in forests. It would however be very difficult to make direct quantitative assessments of the impact of any such action (whether by a farmer or by a supporting agency) on the rate of reduction of deforestation in a given area, with a view to rewarding individuals on a per ton carbon basis. It is clear that a carbon-performance-based accounting mechanism would not work here, and that an alternative mechanism would be needed to establish both the legitimacy of the claims, and the size of the benefits to be assigned to them. In the next section we therefore consider some alternatives to carbon performance as the basis for benefit distribution.

3. Alternatives to carbon performance as the basis for benefit distribution

A means to overcome the above-mentioned difficulties is to offer rewards or incentives to the stakeholders for sets of activities undertaken in forest management or in agricultural practice (i.e. rewards would be based on inputs or efforts, rather than on carbon performance). The level of payment might be based on (conservative) estimates of the likely effects in terms of carbon credits. This is, in fact, how most Payment for Environmental Services (PES) schemes are designed. Such systems pay a flat rate per hectare to forest owners/managers who agree to carry out certain management practices (in other words, the payment is dependent on performance in the sense of inputs or efforts, not performance in the sense of carbon outputs). The payment is made after checking that the agreed activities have been carried out at the level of the individual parcel. The ultimate benefits in terms of water or biodiversity conservation are assumed or inferred, but not measured directly. This kind of system is generally perceived as ´fair´ by potential participants, because it rewards all those who carry out the good practices, including those who have been doing so for many years already. Moreover, it requires less detailed monitoring, and is much less open to fraud than systems based on carbon-output.

The options presented here for the design of input-based incentives or rewards are suited to the context of a national REDD+ programme in which international funds are provided ex-post, based on performance relative to the national Reference Level, and received, at least in the first instance, by a central authority. Clearly, the question of how inputs (efforts) of individual stakeholders are to be rewarded is highly political, as it will involve decisions on who are the real drivers of deforestation, where threats to forest are more serious, which forests are more valuable, etc. If the REDD+ programme is to be perceived as legitimate and equitable, the rules of the payment system need to be transparent.

In general terms there are three bases on which input-based payments could be calculated: by estimated opportunity costs, by flat rate per hectare, and variants of

the latter which involve differentiated bands of flat rates. All are technically possible, but each has its own advantages and disadvantages, as presented below.

- **Payments based on estimated opportunity costs**. Since the financial gains from deforestation differ depending on the various drivers of deforestation and the alternative land uses that are possible, it can be argued that forest owners/managers and farmers will need to receive an incentive which matches these opportunity costs. There are two ways to handle this:

    - A payment level which is set centrally for each type of likely land use change. The per hectare rates of payment in areas threatened by avocado or palm oil plantations, for example, would be higher than rates of payment in areas threatened by less profitable commodities such as maize. While this may be economically efficient, it may appear unfair to many participants.

    - Payment levels are fixed through a system of bidding. Potential participants bid, proposing the level of payment they consider would match their costs; a central organization would then select which bids to accept (i.e. choosing the most cost effective bids on offer; the knowledge that selection will be made in this way should encourage people to put in their lowest possible bids.) This system may appear to be ´fairer´ to the potential participants than one in which the opportunity costs are determined centrally, but it will not prevent the deforestation in areas of high opportunity cost, e.g. for avocados and palm oil.

- **Flat rate payments**. In this system, the central agency fixes a price (usually per hectare) that it is willing to pay in return for good forest management or for good agricultural practice. The potential participants are then free to decide if it is worth their while to accept this. The advantages are simplicity and apparent fairness, but in fact some participants will be receiving more than their real costs and others will be receiving less, as opportunity costs vary greatly. Also, flat rate payment systems are often said to be inefficient economically because they involve payments to some recipients who would have managed the forests well even in the absence of the rewards, who are thus being paid ´unnecessarily´. However, as we have pointed out above, for public policy of the kind involved in national REDD+ programmes, it is essential to provide rewards to all who carry out good practice, in order to avoid perverse incentives.

- **Variants of flat rate payments**. It is possible to develop a banded flat rate system to allow variations in payments for specific situations, for example, flat rates could be higher:

    - in areas where the opportunity costs of deforestation are likely to be higher, i.e. related to the dangers from specific drivers

    - in areas where the threat of deforestation is higher

- in areas where forest is considered more valuable for other reasons (e.g. for provision of other, non-carbon environmental services, or because of scarcity)

The selection of these different tariff bands would have to be based on clear and transparent calculus if it is to be acceptable socially, though it will clearly involve political choices based on perceptions of risk and of value. However, it is a system which is relatively easy to administer (easier than opportunity cost estimates and bidding systems), and is unlikely to arouse accusations of unfair treatment if the criteria are clearly defined.

As pointed out earlier, national programmes could opt for two different systems of benefit distribution; one for reduced deforestation, and one for forest enhancement. Rewards for the former might be arranged following any of the above options, while rewards for the latter could in principle be related directly to performance in terms of tons carbon per hectare, as measured for example by the community or forest owner itself using participatory monitoring methods.

4. The need to supplement finance from international carbon credits with other funds

It is very evident from the example in Figures 1-4 that at least for the case of deforestation, the amount of money available to provide incentives or rewards to forest owners/managers or farmers who change their agricultural practices, will be very limited. In the example, the funds obtained from credits for the one parcel of forest ´saved´ would have to cover incentives to all 95 parcels which have not deforested, which means that the amount per parcel would be minimal. For this reason it is clear that if meaningful incentives or rewards are to be provided within a national programme, additional finance will be needed from other sources, such as water companies, certified timber production, biodiversity funds etc, all of which support the kinds of forest management practices that also conserve or enhance carbon stocks. Perhaps the most obvious place to start would be a national programme for payment for fresh water conservation. PES systems for water are often quite cost effective and are growing in popularity; they often involve water consumers downstream paying a tax or fee on their water bills to improve both the quality and the quantity of the water they receive. These funds are paid to upstream landowners to improve forest management or change agricultural practices. International donor funds might also be attracted for water conservation activities, since water is increasingly seen as a critical resource. Whatever the source of the funds, it should be clear that payments would be made on an input (effort) basis, and not in terms of outputs – which, for example for the case of water, is the only practicable way of administering such incentives. Ideally, funds would be raised from multiple sources so that several different services provided by good management would be rewarded, and the bundling of funds might raise sufficient financial resources to make such management attractive to the land owners.

Options that could be considered include:

- Municipalities or water companies downstream from areas under REDD+ management could be asked to include a charge to their consumers to support the improved management in the interests of long term water provision
- Support from international biodiversity funds could be requested as a supplement to REDD+ participants, particularly in areas of specially high environmental value
- Local or international certification of timber could be extended, resulting in a higher price for the products of well managed forests
- National governments could invest additional funds from their own tax base to supplement REDD+ payments to stakeholders on the grounds that forest conservation and sustainable management of forests has many other benefits to the nation.

5. When to pay and how to pay

The main focus of many countries in Phase 2 will be to generate interest in participation of potential stakeholders (forest owners and managers, farmers, etc.). The challenge here is that changes in forest or farm management have up-front costs. Part-payment at the start of participation, rather than at the end of the period, and payment in gradual steps could have a motivating effect. This fits much better with a benefit distribution system which is based on inputs and efforts, than with one which is performance based, since payment in the latter could not be made until the end of the accounting period when performance could be assessed. However the danger with advance payment systems is that participants may later fail to comply, or fail to comply sufficiently, with the required activities. As regards the form of the rewards, many observers have suggested that participation may be stimulated by incentives which are not in the form of cash, but in kind, for example in technical assistance or in physical infrastructure.

The options that could be considered include:

- Frequency and timing of payments:
    - Split payments, with part on registration and part (after checks have been made) at the end of the period (proportions to be decided).
    - Payments made annually in advance, but discontinued if the participant is found to be non-compliant.

These alternatives have implications for the frequency with which verification has to be carried out, and for transaction costs relating to payments.

- Form of payments:
    - All payments in cash
    - Payments in kind, with a given list of options which forest owners/managers and farmers may choose from
    - Mixed systems of payment

6. Distribution within management units

In some cases, owners/managers and farmers are individuals, in which case the question of how to distribute the benefits internally does not arise. But in many cases, the participants are not individuals but communities. Here arises the difficult question of whether rules should be imposed from outside to ensure equity, or whether in fact communities should be left to make their own decisions on internal distribution. This is a highly contentious issue, upon which opinions differ. Much of the literature published so far on REDD+ benefit sharing has focused on the fact that internal distribution is frequently not equitable in the eyes of outside observers (it is less clear whether within communities, such inequalities are considered normal or acceptable.) It has been suggested that if payments are made in kind, rather than in cash, this problem is less likely to arise, although it may still in some ways be present (e.g. building of a paved road will provide more benefits to people with vehicles than those without, and its location may be critical in how different people benefit).

The main issue that will have to be dealt with by governments designing their national REDD+ programmes as far as this issue is concerned will be how transparency in the matter of internal (horizontal) distribution be promoted:

- Communities could be asked to state in advance how they plan to distribute the funds or what kind of in-kind investments they wish to receive
- Communities could be asked to account for how they have spent their funds
- Rules concerning distribution could be promulgated, for example to include benefits to landless members of the community and/or women
- Decisions on distribution could be left entirely to the communities themselves, on the basis that they are autonomous organizations with their own internal decision-making procedures on such issues.

7. Relation to the national forest monitoring systems

We have argued that a transparent, legitimate and easy to understand benefit distribution system will be essential to the success of REDD+ as countries move into Phase 2 and start to implement activities at roots level, albeit initially on a pilot scale. At the same time, national governments will be setting up national forest monitoring systems, which will be used among other things to support national MRV of their REDD+ activities as required by UNFCCC and international carbon funds. These national forest monitoring systems will need to include information on drivers of deforestation and on the effectiveness of different programmes and policies in dealing with these drivers and in reducing emissions, and they will be essential in providing feedback to the country on what works and what does not work under REDD+. In this sense, a benefit distribution system which focuses on activities and change in management practice would link closely with data that is already being systematized. It would however focus less on carbon and more on data which may be used to evaluate different REDD+ interventions in a broader sense. In this way, national forest

monitoring systems would evolve to underpin and stimulate strategies and priorities for REDD+ implementation, to track REDD+ activities and their impacts (both carbon and non-carbon), and to support the generation and sharing of benefits for the multiple REDD+ actors involved, as well as providing data for reporting on REDD+ performance in terms of GHG to the international community. They could be used to link the success and failure of different types of incentives and rewards to the activities undertaken in different parts of the country and, at a broad scale (though not at the level of the individual parcel) to achievements in reducing emissions at the national level.

8. Conclusions

Benefit distribution systems based on output metrics (calculations relating to reductions of emissions of carbon associated with reductions in deforestation and degradation) are difficult, if not impossible to implement at the level of individual forest parcels, such as forests owned and managed by communities or small landowners. This is because it is impossible to identify who, out of the many land owners who have not deforested in any given time period, would have deforested in the absence of REDD+, and thus deserve the rewards. In reality, and to ensure public acceptability of the programme, all forest owners who carry out sustainable forest management practices need to be rewarded, whether or not they would have engaged in unsustainable practices in the absence of REDD+. This makes an output-based system meaningless.

Moreover, output-based benefit distribution systems are based on measurements which involve considerable uncertainty at the local level, and which involve heavy transaction costs.

Finally, it is not only forest owners who may need rewards under national REDD+ programmes. The drivers of deforestation are often outside the forests; stakeholders such as ranchers and farmers may be encouraged to reduce their pressure of the forest, and thus contribute to reduced deforestation, through changing their production practices. The impacts of such changes will be very difficult to relate directly to stock changes in the forests, meaning that it is impossible to calculate rewards for these stakeholders on the basis of tons of carbon saved.

For these reasons we propose the development and adoption of input-based benefit distribution systems, in which stakeholders receive benefits according to their participation in the conservation or sustainable management of forests or sustainable agricultural practices, rather than on the basis of exact calculations of how much carbon is sequestered/not emitted as a result of REDD+ activities. We argue that such systems are more technically feasible, more politically acceptable and easier to administer, with associated lower costs, partly because of lower requirements for detailed carbon monitoring. One option is to distribute benefits according to opportunity costs, either through a centrally fixed payment level for each type of likely land use change (which correspond with different opportunity costs) or through a system of bidding by interested actors. Another option is that a central agency pays flat rates per hectare in return for good forest management or agricultural practice, either using a universal rate or different rates to account for varying land use activities and opportunity costs. As we have shown in this InfoBrief, these proposed options

have advantages and disadvantages in terms of efficiency, legitimacy and political feasibility.

It is clear however that payments derived from carbon credits alone will be too small to provide sufficient incentives for forest owners/managers or farmers to reduce deforestation. We therefore argue that additional finance will be needed from other sources. Payment schemes for fresh water conservation are a feasible option to provide additional incentives for sustainable management of forests.

We identified options for when and how to distribute input-based REDD+ benefits within the management unit. Payments could be in cash or in kind, and should be made at least partially in advance in order to cover investment costs for REDD+ projects, which would otherwise form a barrier. Compliance can be stimulated by making additional or conditional payments in the medium and long term. Equity of distribution of benefits within communities can be supported by requiring communities to submit a distribution plan in advance of the project, and/or to account for distribution after initiation of the project.

Finally, we argued that data associated with an input-based benefit distribution systems at the local level could usefully supplement national monitoring systems, as in addition to carbon data, these will require information on the success of different public policies or programmes in reducing emissions. In this sense the requirements for national forest monitoring systems are evolving, such that these systems may play a role in underpinning and stimulating strategies and priorities for REDD+ implementation, tracking REDD+ activities and their impacts (both carbon and non-carbon), and supporting the generation and sharing of benefits for the multiple REDD+ actors involved, as well as providing the basis for the reporting of REDD+ performance in terms of GHG to the international community.

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[i] Although the suggestions presented here have been expressed in terms of national REDD+ and national monitoring systems, under the assumption that carbon accounting systems will be set up at this level, they could, in the short term, be applied at sub-national or jurisdictional level, and could be appropriate even for large REDD+ projects in the voluntary sector, since these also need internal monitoring and benefit distribution systems.

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