

Final report on

A Pilot of Establishment of R-coefficients for REDD+ Benefit Distribution in Di Linh District, Lam Dong Province, Vietnam

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Introduction

Benefit sharing mechanisms in the context of Reducing Emissions from Deforestation and Forest Degradation (REDD+) can be defined as “Agreements between stakeholders, such as private sector entities, local communities, government and non-profit organizations, about the equitable distribution of benefits related to the commercialization of forest carbon¹”.

The Benefit Distribution System (BDS) has therefore emerged as a key design consideration in the implementation of REDD+ activities in Vietnam. Initial studies conducted through the UN-REDD Programme explored key questions and design issues for a REDD+ compliant BDS structure for Vietnam. This included issues around the most appropriate legal structure of the BDS and institutional arrangements, as well as addressing broader considerations around how much, to whom and when to distribute benefits. The delivery of environmental and social co-benefits was also highlighted as an important primary consideration for policy makers in the design of the BDS. Since then, the issue of multiple benefits has become one of a suite of key considerations driving the work of the UN-REDD Programme in its support to the Vietnam Government’s National REDD+ programme going forward.

In particular, the UN-REDD Programme in Vietnam is exploring the use of a payment coefficient for REDD+ activities, the R-coefficient, as a mechanism to help REDD+ deliver multiple benefits in Vietnam. The R-coefficient has been designed with the intention of introducing a weighting of REDD+ performance-based payments which would favor REDD+ benefit sharing in accordance with various social, environmental and geographical considerations. In this case, the R-coefficient can also be viewed as a type of social and environmental safeguard that is being operationalized through the BDS mechanism.

This report will focus on the proposed design of the R-coefficient. This will be done by firstly taking a brief look into how multiple benefits have been integrated into the design of benefit sharing systems globally and identifying some key trade-offs associated with doing so. The mechanics of the R-coefficient will then be discussed, explaining each ‘factor’ included in the formula and the proxy-measures used for measurement.

The report will conclude by discussing results from a series of consultations that have taken place around the design and application of the R-coefficient in Di Linh District, Lam Dong Province, Vietnam.

¹ Food and Agriculture Organisation (FAO) (2005)

I. Multiple benefits in BDS: global experiences

1.1. Realizing multiple benefits in the distribution of payments and decisions around payment types

The relative infancy of REDD+ globally means that global experiences and lessons learnt from the distribution of benefits specifically for REDD+ is limited. Despite this, lessons from other payment systems can be drawn upon to inform considerations in REDD+ BDS design in Vietnam. In particular, Payments for Ecosystem Services (PES) internationally have illustrated a number of innovative ways to ensure the capture of multiple benefits in the distribution of PES revenues.

Experience from PES projects in Nepal for example, demonstrates how the integration of social considerations into the payment structure could be approached. In this case, payments for carbon in three trial Districts have been split into two parts. The first is a performance-based payment which is awarded to communities on the basis of the carbon sequestration gain as measured through Participatory Carbon Monitoring (PCM) activities. This accounts for 40 per cent of the payment received by those carrying out REDD+ activities. The remaining 60 per cent is then distributed on the basis of the socio-economic status of the community which is determined through community-level discussions and questionnaires. In this case, payments are weighted more highly in areas assessed to be at a greater social disadvantage. The Oddar Meanchey project in Cambodia illustrates a case where distributional multiple benefits have been addressed through mutual agreements by local stakeholders. In this agreement, 50% of the net income from REDD+ activities are proposed to flow directly to the local communities as a reward for efforts spent on REDD+ activities. Furthermore, in Costa Rica *multiple benefits* have been addressed in terms of balancing the payments within as well as across communities. For example, in the cases where there are high ecosystem service values in areas populated by indigenous groups, PES has modified its procedure to assign incentives at group level as a way to provide indigenous populations with access to PES despite not having the individual property rights to land.

A further example comes from Lombok, Indonesia. In this case, agreements have been made between local stakeholders to pay PES benefits into community forest management fund. Households can then apply for small grants from the fund which are invested into livelihood activities at the household level. In this case, *multiple benefits* have been addressed through the sharing of benefits flowing from PES activities into a central community fund which can then be accessed by anyone within the community based on their own individual need. Similar community funds have been used in other PES and non-PES related projects globally.

There are also examples of community funds being used as an effective means of achieving equity and social and economic results in the distribution of benefits. An example of this is illustrated in the case of the Bolsa Floresta program in Brazil in which benefits from the

program are shared through community fund mechanisms². These mechanisms distribute benefits to those both directly and indirectly involved in forest protection activities through community investment programs which are then supplemented by government investment. Community decisions then determine how to spend the co-invested funds on the creation of sustainable income generating activities in participating communities.

Another example of how community funds can assist in achieving multiple benefits in the distribution of revenues comes from community forestry practices in Nepal. Community Forest User Groups (CFUG) have been established under some successful CFM projects in which sales from timber plantation harvesting are invested into the CFUG and spent on community infrastructure voted on by the community, in addition to forest protection services and management³.

Other examples of incorporating equity into the benefit sharing mechanism have been illustrated in CFM projects which work alongside state owned enterprises. In particular, collaborative social planning between the enterprise and the community are often established to provide the less fortunate and most vulnerable members of the community to shape plans for benefit sharing. Again, in this case, community funds are established in which a share of the enterprises revenues is invested in the fund. The fund is then used to finance community nominated projects. However, such funding mechanisms must be supported by transparent monitoring and reporting methods, and well as independent recourse procedures to ensure that power structures within community groups do not lead to issues such as elite capture and essentially ‘unraveling’ the intended multiple benefits effect.

Ensuring that benefits are delivered to those most in need can also be assisted through building the capacity and empowering sub-national governments in REDD+ planning and management. Sub-national governments and authorities, such as forest authorities, which are often one of few government departments with a physical presence in rural areas, often have close connections with communities and thus are a good source of information from those communities. Again, this helps to promote the capture of multiple benefits in the BDS by ensuring the benefit type matches the community’s desires and needs, and also ensures a community voice is represented in the decisions around a fair distribution of benefits. The private sector could also play a part for example through providing roles for local government staff in project monitoring and training on technical skills.

² <http://www.fas-amazonas.org/>

³ Subedi pers comm. (2011)

1.2. Multiple benefits trade-offs and risks

It is important to recognize that in striving for equity in the design of the BDS there are several trade-offs associated with securing multiple benefits, and the effective and efficient operation of the BDS.

Firstly, a trade-off exists between measures to secure multiple benefits in the BDS and the transaction costs (time and money) associated with making payments. In particular, with each step in the determination of benefits, there are associated costs which may need to be drawn from what would have otherwise been allocated for payments to communities or other REDD+ actors. Adding additional criteria to the BDS payment coefficient, results in additional factors that need to be measured and accounted for, often by local governments with varying levels of capacity. This increases the cost to the calculations of payments and thus can deplete the pool of funding set aside for activity payments.

This implies the need for efficient systems to measure, verify and track such costs, to ensure they do not mount up and erode the magnitude of the benefits delivered to REDD+ beneficiaries. Wherever possible, the implementation of such systems should be incorporated into existing accounting structures. An essential element of any such accounting structure is third-party oversight to ensure that REDD+ benefits are not simply absorbed into other processes or programs and 'lost' to unrelated investments.

Attempts to introduce multiple benefits into the BDS can also have the unintended consequence of excluding those who have been targeted for preferential treatment. International experience has shown how attempts to favor the inclusion of poorer landowners can sometimes create a barrier to their participation in activities. In some cases, landowners were required to travel long distances to prove their eligibility for the scheme, discouraging people living in remote areas who were often poorer than those with easier access. Although this is more of an issue of poor BDS design, it does highlight a potential shortcoming of multiple benefits in the BDS design in terms of the risks that promoting preferential treatment carries with it.

There are also risks that policy makers should be aware of in attempting to incorporate multiple benefits into the BDS. For example, by discriminating in favor of various disadvantaged groups in society, this potentially exposes those groups to further marginalization (typically ethnic minorities), and in extreme cases conflict (for example, gender conflicts). In this case, it is necessary to fit the criteria used to the local context. Again, this has been proven most effective when community groups are involved in the decision making process.

Another risk associated with realizing multiple benefits in the BDS is that the way in which the multiple benefits are communicated, and used. It must be clearly understood by those involved in the administration of the BDS how and why multiple benefits have been introduced in the

payment structure to avoid any miscalculation in the benefit or error in distribution. This suggests that care must be taken when communicating the intentions of promoting fairness in the BDS, particularly to sub-national authorities who may be charged with the responsibility implementing and measuring proposed methods, albeit with varying levels of capacity.

II. Multiple benefits and the BDS in Vietnam

The national Payments for Forest Ecosystem Services (PFES) scheme has laid the foundation for multiple benefits in the benefit sharing from ecosystem service provision in Vietnam.

Under this scheme, as stated in the Decision 380/QĐ-TTg, dated on the 10th of April 2008, on the payment of forest environmental services, payments are made to stakeholders actively involved in the management of forests which provide direct benefits to localized or downstream companies, such as hydroelectric companies or water treatment plants.

One feature of the PFES approach is the proposal to weight payments differently across different service providers (i.e. households, communities, and contracted forest managers) by calculating a payment coefficient – the ‘k-factor’. The k-factor is calculated based on four variables in the PFES pilot projects in Lam Dong and Son La provinces:

1. Forest type
2. Forest origin
3. Forest quality; and
4. Level of difficult associated with management (effort)

Thus, the k-factor is based on different environmental and geographic conditions, and serves as a mechanism to promote equity by rewarding those who are generating a higher quality service in more ecologically valuable areas. The above therefore excludes any social variables.

In trials of k-factors in Lam Dong and Son La, local people and communities did not want differentiated benefit sharing and the application of k-factors. Instead, there was a strong preference to make equal payments to everyone in the community. Although this experience needs to be borne in mind in the calculation of REDD+ benefits, differentiation in payments for carbon conservation is unavoidable (see below). Nevertheless, field trials of the R-coefficient will be necessary to determine how they can best be applied.

It should be noted that k-factors are a tool to promote equity, but R-coefficients are not – they are a tool to promote the capture of multiple benefits. The reason why the two seemingly analogous tools play different roles is because of the nature of the environmental services being captured under PFES and REDD+. For PFES, the environmental service is water quantity and

quality (in the context in which k-factors were developed). The unit of payment for the provision of the service is area – so many VND are paid per hectare per year – but it is recognized that some forest types are more valuable in regulating water quantity and quality, so the k-factor tries to reflect these differences, meaning more is paid per hectare for a forest type that is assessed to be more effective in regulating water quantity and quality than for less effective forest types- thus promoting equity. In contrast, under REDD+, because payments are made directly based on quantities of carbon, with higher payments for greater emission reductions or carbon sequestration, there is no need for a tool to promote equity. The R-coefficients are thus aimed at other forest benefits, which is not the purpose of k-factors.

Why do we need the R-coefficient?

The decision to develop the R-coefficient for REDD+ has been to assist in the delivery of social and environmental co-benefits through REDD+. The R-coefficient offers a potentially powerful method of achieving this through the higher weighting of payments to disadvantaged communities, to those living in or near higher value conservation areas, and to those conserving carbon in areas which are more difficult to access and thus require more effort on behalf of the actor to carry out REDD+ activities. In this case, the R-coefficient builds on the experience with PFES k-factors and broadens the scope of the payment coefficient to be more inclusive of other environmental and social considerations.

In carrying out its function of integrating multiple benefits into REDD+ payments, the R-coefficient can also serve as a safeguard for social and environmental conditions for Vietnam by ensuring that the social benefits and non-carbon environmental benefits are also captured. The need for social and environmental safeguards in considerations around REDD+ was highlighted in agreements in the 16th meeting of the Conference of the Parties to the UNFCCC, in Cancun in 2010.

However, given the experience of PFES piloting, where k-factors were not eventually applied, questions have arisen around the viability of a similar payment coefficient for REDD+. Unlike the k-factor, however, the R-coefficient has time to be tested and adapted before payments will be made. Because the R-coefficient will be applied to the performance based payments in REDD+, it is only needed once emissions are reduced or sequestration gains are made and measured which will take several years. This will allow stakeholders, particularly local authorities, time to understand and apply the R-coefficient in an appropriate manner. It will also allow for a period of time for the coefficient to be tested, both at the desktop and field level before being applied more broadly.

III. Establishment of R-coefficients for REDD+ Benefit Distribution in Vietnam

Based on the results of literature reviews, national and local level consultations and a review of lessons learned from similar cases in other countries as well as in Vietnam, the R-coefficient for REDD+ BDS in Vietnam was determined as follows:

$$\mathbf{R}_i = \mathbf{R}_{i1} \cdot \mathbf{R}_{i2} \cdot \mathbf{R}_{i3} \cdot \mathbf{R}_{i4} \dots \dots \mathbf{R}_{in} \quad (1)$$

Where each individual \mathbf{R}_{i*} represents a weighting factor contributing to the total ‘R’ coefficient \mathbf{R}_i . The performance benefit for an individual beneficiary is now calculated as follows:

$$\mathbf{B}_i = \mathbf{C}_i \cdot \mathbf{R}_i \cdot \mathbf{B}_{C,R} \quad (2)$$

Where \mathbf{B}_i (\$) is the net benefit to the beneficiary and \mathbf{C}_i (tC) is the net emission reduction or enhanced removal achieved. $\mathbf{B}_{C,R}$ (\$/tC) is the price per unit of carbon, weighted over the emission reductions and R-coefficients of all beneficiaries combined:

$$\mathbf{B}_{C,R} = \mathbf{B}_T / \Sigma(\mathbf{C}_i \cdot \mathbf{R}_i) \quad (3)$$

Where \mathbf{B}_T is the total amount of benefits available for distribution (i.e. income from trade in the carbon market, reduced by the implementation and transaction costs and any non-performance benefits distributed before). This weighting is necessary to avoid overpayments or underpayments. As an example, if every beneficiary has a \mathbf{R}_i of 1.1 an overpayment of 10% would occur.

A consequence of this formulation – or rather, the use of the R-coefficient – is that the calculation of $\mathbf{B}_{C,R}$ should be monitored at the central level, where the performance data of all beneficiaries are collected. This is not necessarily an issue as \mathbf{B}_T needs to be calculated at the national level anyway. It does impose some operational constraints on the management of the process of calculating the R-coefficient for individual beneficiaries. Therefore, it is important to establish a data/information collection and verification system required by the calculation of the R-coefficients, involving all levels from the central level to the province, district, and commune levels. The commune should be designated as the basic organizing unit for data and information collection, and distribution. This is compatible with the administrative system in Vietnam since the commune level is the smallest government unit in the country having capacity for maintaining the data/information system in a long run.

3.1. Who are the beneficiaries according to the R-coefficient?

The R-coefficient may be used to calculate the direct payment from REDD+ to a certain forest ownership beneficiary (e.g. local community, household, forest enterprise, etc.).

3.2. What factors are included in the R-coefficient?

In considering the factors that are to be included in the R-coefficient for REDD+ performance based payments, an important trade-off among comprehensiveness, accuracy and practicality had to be factored into decisions. More specifically, an R-coefficient could be designed such that it is comprised of suite of factors which could be measured to act as a proxy for various social and environmental considerations. However, in striving for more types of benefit and greater accuracy, the trade-off is that the coefficient could be more difficult and costly to measure.

The following table nominates a series of R-factors which have been considered for inclusion into the R-coefficient. Each factor has been selected on the basis of it being both relevant as a measure of social wellbeing or ecological value and practical in terms of measurement and implementation by sub-national authorities.

Table 01: Factors being considered for the R-coefficient of REDD+, Vietnam

Factor		Multiple benefit justification	Criteria and legal basis	Data and information sources
<i>Notation</i>	<i>Name</i>			
R₁	<i>Income</i>	Provides higher payments to poorer areas therefore providing a correcting multiple benefit factor. The inclusion of this social factor recognizes that REDD+ may play an important role in providing key additional income for poorer households. Therefore, providing higher payments to poorer households may help to make REDD+ payments more attractive and substantial to poorer households	- Average capital income/year - The poor and the proximate (marginal) poor are classified in the Instructions No. 1752/CT-TTg, dated on September 21, 2010.	Statistic data or census results.
R₂	<i>Ethnicity</i>	Recognizes that certain ethnic minorities have higher rates of disadvantage and should be awarded with higher REDD+ payments to try and help correct this disadvantage.	- The ethnic minority and very limited ethnic minority. - In compliance with the Government's policies (e.g. Decree No. 05/2011/NĐ-CP, dated on January 14 th by the Government.	Statistic data or census results.
R₃	<i>Gender</i>	Recognizes that higher levels of disadvantage and hardship are generally correlated with households where the number of woman labors is dominant.	- Femininity labor is usually at a disadvantage compared with the	Statistic data or census results.

			<p>other.</p> <ul style="list-style-type: none"> - In accordance with the common sense and public conceptions as well as encouraged by the government's policies. 	
R₄	<i>Biodiversity</i>	Higher payments would be made to areas where the benefits from REDD+ activities are either directly or indirectly contributing to a higher biodiversity value. There are 3 meaningful indicators for this factor, including distance from special-use forest or national park, forest origin (natural forest or plantation forest), and forest function type (special use, protection, production).	<ul style="list-style-type: none"> - Diversity of indigenous species and forest ecosystems (e.g. forest types). - This factor is in accordance with the Biodiversity Law. 	Maps of the forest status
R₅	<i>Watershed quality</i>	Similar to the 'Biodiversity' factor, this would aim to weight higher payments to villages/communes within high value watersheds and those in the headwater parts of the watershed.	<ul style="list-style-type: none"> - High value watersheds and headwaters parts in the watershed. - This factor is compatible with the Decision No. 61/2005/QĐ-BNN, dated on October 12, 2005 by the Minister of MARD 	Map of protection classification.
R₆	<i>Accessibility</i>	Accessibility: this kind of difficulty would be added to account for the different effort associated with forest management practices. For example, if households are required to travel long distances to reach the forest or if it is located on steeply sloping terrain, they should be compensated through a higher payment than people needing to travel shorter distances and working in areas which are somewhat easier to work on.	Distance from residential areas to their forest.	<ul style="list-style-type: none"> - Cadastral maps. - Field survey results (if possible)
R₇	<i>Impact on deforestation and or forest degradation (protection impacts)</i>	This kind of difficulty should be taken into account because the external impacts resulted in by human activities require more labor efforts to protect the forest, for example, illegal cutting, fires setting, forest converting to agriculture crop, etc.	The extent of negative impacts	Estimated by local responsible people and authorities

As an example of the trade-off between accuracy and practicality, the element of the R-coefficient which accounts for biodiversity value could, in theory, consist of an array of different measurements encompassing species composition, habitat classification, and presence of populations of endangered or threatened species. In practice however, such a measure would be costly both in time and financially to implement.

3.3. Weighting each component factor of the R-coefficient

Based on formula (1) for calculating R_i and Table 1, a pilot R-coefficient would take the following form:

$$R_i = R_{i1} \cdot R_{i2} \cdot R_{i3} \cdot R_{i4} \cdot R_{i5} \cdot R_{i6} \cdot R_{i7} \quad (4)$$

Where

R_{i1} : income factor, ranges from 0.95 to 1.05

R_{i2} : ethnicity factor, ranges from 0.95 to 1.05

R_{i3} : gender factor, ranges from 0.95 to 1.05

R_{i4} : biodiversity factor, ranges from 0.95 to 1.05

R_{i5} : watershed factor, ranges from 0.95 to 1.05

R_{i6} : accessibility factor, ranges from 0.80 to 1.20

R_{i7} : protection impact extent factor, ranges from 0.80 to 1.20

The value range of each R_i was developed based on the expert consultancy, technical working group meetings and direct discussions with local authorities, stakeholders and experienced people. If it is necessary to delete some factors in the formula (4), the weight range of each retained component factor should be increased in order to maintain the difference between the minimum and maximum values, about two times from each other.

The first 3 factors can be grouped into one group called R_s (i.e. social), factors R_{i4} and R_{i5} constitute R_e (i.e. environment), and the rest factors constitute R_d composite notation (difficulty). The proposed values of each component factor of the R-coefficient are presented in Table 2.

Table 2. Weight of each component factor of the R-coefficient R_i

Notation	Factor	Weight
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		Maximum	Average	Minimum
Rs	R ₁ : income	1.05 (below 4,800,000/year)	1.00 (below 6,240,000/year)	0.95 (other cases)
	R ₂ : ethnicity	1.05 (very limited ethnic minority) (i.e. having very few people)	1.00 (ethnic minority)	0.95 (other cases)
	R ₃ : gender	1.05 (household having more than 50% of the main labor are women)	NA	0.95 (other cases)
Re	R ₄ : biodiversity ⁴	1.05 (mixed forest)	NA	0.95 (pure forest)
	R ₅ : watershed	1.05 (very critical protection class)	1.00 (critical class)	0.95 (other cases)
Rd	R ₆ : accessibility	1.20 (forest is, on average, more than 10 km from the household's residential area; or, for SFE's, from the nearest village)	1.00 (the forest is 5 to 10 km far from the household's residential area; or, for SFE's, from the nearest village)	0.80 (other cases)
	R ₇ : protection impact	1.20 (in serious impact areas ⁵)	1.00 (in less serious impact areas)	0.80 (other cases)

Notes:

1. Payments will be based on contractual arrangements with stakeholders. Wherever possible, such agreements will be with groups of stakeholders to avoid the administrative complexity of dealing with enormous numbers of individual contracts.
2. If the beneficiary is an organization, it is possible to use household/individual assigned/allocated the forest as a basic unit of payment; meaning that the proposed 7 component factors of the R-coefficient are still applicable. However, the choice of the unit of payment should be subject to local decision making, which would need to reflect cultural norms. In many cases, it is likely that the village, or some other collective, will be identified as the unit to which benefits will flow.
3. If the beneficiary is a community or an administration unit, the payment should be calculated as below:
 - Income factor: calculate an average income from the community based on each individual/household income belonging to that community (i.e. the basic unit is still individual/household).

⁴ A more sophisticated index of biodiversity value will be developed

⁵ This assessment would be undertaken using a participatory approach, involving local authorities and stakeholders

- Ethnicity factor: this will not happen to a community but can happen to an administration unit. Therefore, the ethnicity would be determined based on the weighted average ethnicity factor of all ethnic minorities in that unit.
 - Gender factor: should be calculated similarly to the ethnicity factor.
 - Other factors: are determined as normal as mentioned in Table 02.
4. Application of the R-coefficient can be adapted to each local situation. If any factor is not applicable or relevant, it is possible to apply the weight of 1.00 for that factor, meaning that it does not affect the size of the final R-coefficient . For example, for Di Linh district, the watershed protection levels are almost homogeneous, therefore, this factor should be assigned with a value of 1.00 for every beneficiary/stakeholder.
 5. If factor R6 (accessibility) and R7 (protection impact) are difficult to separate in some cases, they can be combined into a single factor R6 so called “Difficulty” or “Effort” factor.
 6. Provincial R-coefficients will be used to determine the share of total REDD+ revenues allocated to each province. Thus, more will be allocated to poorer provinces or provinces with higher biodiversity values. The same principle can apply to lower levels, such as distribution to districts within provinces. The value of provincial R-coefficients will be determined through a participatory process.

3.4. Illustrative example:

Assume that there is a community which has reduced net emissions by 100 tons of carbon/year by participating in REDD+ activities. On average, after extracting other related transaction and management costs, the community receives a price of 10 USD/ton, therefore, earning 1000 USD/year. However, since there are differences in other benefits provided by the forests, the R-coefficient is applied to determine benefit levels.

Supposing that benefits are calculated at the level of households, that there are only 3 households, and that the characteristics of each household are as shown below, the R_i (sum of R_1, R_2, R_3) may be represented in Table 3.

- Households 1 and 2 manage only one forest type, but the third household manages 2 different forest types (1 type reduces emissions by 20 tons and the other type by 40 tons)
- Household 1 is ranked as poor
- All households are ethnic minorities
- Household 1 is headed by a woman

- Households 2 and 3 manage high biodiversity forests (for household 3, only forest type 1)
- The forest of Household 1 is in the head-water part of the watershed; forest type 2 is in a low-quality watershed
- Forest type 2 is easily accessible
- Drivers of deforestation or degradation in forest type 2 are relatively simple to address

Table 3. Illustrative example of calculating the R-coefficient for REDD+				
Factor	Household			
	1	2	3	
Number of tons of carbon/year	20	20	20	40
Income	1.05	1	1	1
Ethnicity	1.05	1.05	1.05	1.05
Gender	1.05	0.95	0.95	0.95
Biodiversity	1	1.05	1.05	0.95
Watershed	1.05	1	1	0.9
Accessibility	1.05	1.05	1.05	0.9
Protection impact	1	1	1	0.8
R-coefficient	1.28	1.10	1.10	0.61
$C_i \cdot R_i$	$20 \cdot 1.28$	$20 \cdot 1.10$	$20 \cdot 1.10$	$40 \cdot 0.61$
$\Sigma(C_i \cdot R_i)$	94.078			
B_T	1000 (i.e. $10 \cdot 100$)			
$B_{C,R}$	10.6			
Total payment for each household (USD)	271	234	234	261

As illustrated in Table 3, the application of the R-coefficient resulted in the difference of the total payment for each household even if they have the same carbon performance (i.e. the first and second households). This reflects the capture of multiple benefits. The use of the R-coefficient ensures transparency in benefits from REDD+, by clearly explaining the reasons for the differences in benefits.

IV. Consultations on the R-coefficient

Consultations on the structure and calculation of R-coefficients were held at the ministerial level and through a provincial workshop, a district-level workshop, and two village level workshops in Di Linh. The main outcomes of workshops are summarised below:

4.1. Results

The various consultations and workshops yielded a total of 58 comments, which can be characterised as follows:

- 16 comments at department, board and sector levels of the province focused on policies, operational mechanisms to share benefits and attributes of the R-coefficient;
- 18 comments at district level focused on gender and the level of difficulty;
- 24 comments at commune and village levels focused on gender, levels of difficulty and distance to the forest.

a. Discussion on the formula to calculate the R-coefficient:

The calculation of the benefits from REDD+ is based primarily on the reduction of net emissions of carbon over time. Since REDD+ will not succeed where opportunity costs of alternative land uses are high, R-coefficients are only relevant for areas where REDD+ interventions are feasible.

a1. Group of factors R_s (R1, R2 and R3)

These are the factors already considered through various social policies of the country, but there are many developments and changes over time so there are many challenges when making payments. Some comments suggested that it is not practical to apply these because they are difficult to calculate and hence could lead to litigation and inconsistencies when compensating a community or an organization. On the other hand, some noted that government data are available for these factors, and there are no obstacles. The amplitude of the weight of each factor is acceptable from 0.95-1,05 (divided into three levels; 1.05; 1; 0.95).

R1 (income): the participants paid little attention to this because policies of forest protection allocation already prioritise the poor and nearly poor households which lack productive land. Those consulted at the village level saw this factor as an appropriate one and consistent with existing measures.

R2 (ethnicity): this is clear, so very few comments were received on it.

R3 (gender) generated much debate: Some argued that a woman could be a forest owner and a major labourer in the family unit; while some suggested that this factor would be complex to administer since the culture of most ethnic minorities are matriarchal, but the husband is the representative of the household for the registration book or in signing contracts. Concerns were also raised that men play a relatively more important role in forest protection patrols. This is because forests that are contracted to households are often located far away (10 km or more). This makes it difficult for women to directly participate in forest protection. In the villages where consultations were held, only a few heads of households are women who are contracted to undertake forest protection. For these reasons, some suggested that this factor be ignored or universally weighted as 1. Additionally, concerns were raised that the inclusion of gender could lead to misinformation on household heads. However, there were other opinions that because of gender equality it is necessary to give priority to women especially for those families without men. In such cases, women have also been involved in forest protection patrols. Therefore the weighting for R3 could be increased to 1.10.

a2. Group of factors R_e (R3 - R4 - R5)

R4 (biodiversity): One proposal is to distinguish among special use forest, natural protection forest, and production forest. Some considered this to be unreasonable and proposed instead that weightings should be based on forest status such as rich forest, medium forest and poor forest. Some commented that biodiversity also depends on the presence of specific flora and fauna, particularly rare species. It was suggested that if it is difficult to collect this information, biodiversity should not be taken into account for calculation. Some local participants agreed that biodiversity should follow the forest functions including protection forest and production forest as there are only these two types of forests in Di Linh. On the other hand, some suggested that broad-leaved forest, pure forest and mixed forest should be the basis to determine biodiversity level. Almost all participants agreed that the calculation of an easily understood index for biodiversity is difficult. The understanding of biodiversity among many local stakeholders is low. Although the use of forest type (mixed versus pure forest) is an extremely weak index of biodiversity value, it might be utilized pending the development of a better index. Almost all of participants acknowledged that mixed forest represents higher biodiversity value than pure forest.

R5 (watershed). It was agreed that this was very difficult to determine and not clearly related to forest values. Consequently it was suggested that the watershed factor should be not taken into account because it is already incorporated into the calculation of payment of forest environmental services, and the R6 factor including slope and distance addresses similar issues. In Di Linh, the watershed almost entirely consists of head-waters, so the value is invariable. For households signing contracts for forest protection most were not aware that there are differences in classification of the forest. Local farmers said that forestry companies have only assigned

natural forest in the remote areas to them instead of plantation forests in the nearby locations. Therefore, they have little understanding about the relevance of watersheds. Most agreed that the highest weight should be assigned to extremely critical protection forests; medium weight for critical protection forest, and lowest for production forests.

a3. Group of factors R_d (R6, R7)

These factors generated significant discussion and interest as they directly impact the effectiveness of forest protection, the efforts of forest protection, and that amount of labour required to generate carbon benefits. It was agreed that, because of the significance of this group, weightings need to vary from at least from 0.90 to 1.1 or even greater. The risk of forest fire should be also considered in the R_d coefficient.

R6 (distance to forest) was of interest to all local participants. However, establishing threshold values for different weightings proved quite contentious because some households in Bao Thuan commune have forest protection contracts for forest areas 30-50 km away, near the boundary of Binh Thuan province, for which 1 day is required in travel time. Not surprisingly, these households did not feel that they should be assigned the same weighting as those whose forest areas are much closer. The recommendation was therefore, to weight the coefficient according to distance categories such as 10 - 20 km, 20 - 30 km and > 30km. Furthermore, the distance from the commune centre to allocated forest areas is arbitrary and participants felt that the actual distance from their households was more appropriate, though this is harder to calculate as it varies for each household. Other points raised were that people do not go alone to protect forests, but rather as groups, making it difficult to assign values to distance. There was a general feeling that the weights should range from 0.90 to 1.10 or even wider.

- For R7 (pressure on the forest), many participants were interested in this factor due to the impacts of roads and settlements. A high weight should be assigned to forest under high pressure, such as those areas near settlements. Additionally, some suggested that the weighting for R7 should be determined on a regional basis.

Additional comments

Further to the above discussions, it was also recommended to simplify the formula; by keeping only three factors R4 (biodiversity), R6 (distance), and R7 (pressure). In any case, it was proposed that the range for social factors should be narrower than those for impact factors; and that in the case of ethnic minorities whose cultural norms are based on communal rights, benefits should be shared equally among all participants.

b. Summary of consultations on benefit sharing in REDD +

Various stakeholders argued that households which have forest assigned for protection should be paid with a higher amount of money, and the rest of payment can be equally divided among other households in the community. However, the process of assignment of forest protection contracts is known to be corrupt, so such an approach would entrench existing corrupt practices. Some also thought that all households receiving forest protection have to be paid by cash and the rest in a community can be paid by an investment in the public infrastructure or in terms of public welfare. Again, this would reward past corrupt practices in assignment of contracts, and would also mean that those with forest protection contracts would receive two types of benefits (cash plus social investments).

For beneficiaries such as forestry companies and organizations, the social criteria should be assigned a weight of 1. However, some also noted that some organizations still contract households for forest protection and hence variations in household characteristics can still be used as a basic unit to calculate payments to such organizations.

Some suggested that the payment should be implemented to the whole community and then this amount will be equally divided among households, since if this did not happen, problems might arise among households expected to cooperate in forest protection. On the other hand, if shared equally, each household would receive very little money and hence would be less likely to invest in REDD+ activities. Therefore, a compromise solution would be to make some payments directly to the contracted households and invest the rest for the village community. The village may establish a fund and the expenditures must be discussed in order to identify a clear purpose and use of funds on the basis of consensus. In addition, it was suggested that the deduction and use of the public funds should be discussed by local government, commune and village organizations to identify the most appropriate use of funds and to build consensus among stakeholders.

Some recommended that REDD+ implementation plans should be based on allocating forest land in equal areas to promote equity among households and to maximize the number of households participating.

The vast majority agreed to direct payments to contracted households, deducting a portion for the common welfare. Some proposed that mass organizations, forest management units and forest management agencies should be paid because these entities often advocate other organizations and local people to protect forests.

Some other comments suggested that there should be insurance policies for the contracted households in case of an accident in forest patrolling, or injured caused by those carrying out illegal activities; and that they should be provided with the necessary equipment when conducting forest patrols.

4.2. Survey and interview results of individuals and organizations in the application of the R-coefficient in the benefit distribution system of REDD+

Surveys and interviews were conducted around the use of the payment calculation method of REDD+ by the R-coefficients as proposed. The following groups were involved:

- 20 respondents from provincial departments;
- 18 respondents from departments, unions and forest owners in Di Linh district;
- 59 respondents representing ethnic minorities and households with or without contracts for forest protection.

The total number of questionnaires was 97, and respondents had the following characteristics (totals exceed 97 due to overlaps in categories):

Male: 85 persons; female: 12 persons;

Ethnic minorities: 45 people;

State organizations: 25 people;

Unions: 3 people;

Households: 59 persons.

For the group of social factors (Rs), consensus was reached on all factors except gender. Some thought a gender factor was unnecessary or, if retained, should be assigned a weight of 1 (some ethnic minority respondents noted that even though their society is matriarchal, the man still remains the pillar of the family). This observation must however be tempered in view of the overwhelming number of men (85) that were involved in the survey versus women (12), which was in turn due in part to the larger number of men in provincial and district organizations. Future consultations will endeavour to attract a more balanced gender balance in order to generate more meaningful results around the inclusion of the gender factor.

For the group of environmental factors (Re), many respondents representing households holding forest protection contracts did not have an opinion or were in agreement with the proposed weights.

The group impact factor (Rd) was much discussed. Some respondents proposed that the two factors should be combined into one. Some respondents from households holding forest protection contracts mentioned that pressures leading to forest destruction, illegal felling, and forest encroachment should be considered much more important than the distance factor. Others

agreed with having factors, but they suggested the weight of factor R7 (pressure) needs to be higher than that for R6 (distance).

Most respondents agreed to direct payments to households holding contracts for forest protection. Some of the local ethnic minority groups, however, proposed that payments should be divided equally among households responsible for forest protection. There was also agreement that some funds should be deducted to invest in public welfare in the local communities.

Other comments:

A range of other comments were collected through the survey and interview process from which a diverse range of opinions on the distribution of benefits were expressed. Several key additional comments are summarised below.

- Under the REDD+ mechanism it will be difficult to reach consensus because of the complexity of the concept; REDD+ needs learn from experiences from payment for forest environmental services (PFES);
- It would be better to provide more scientific basis to justify the differences in weights of each factor and the range (1.05 to 0.95 or 1.10 to 0.90). Other people believed that the coefficient should be divided in the 3 levels of 1, 0.9 and 0.8 in order to simplify the calculations. However, the R-coefficient has been specifically designed such that a median value of 1 can be assigned such as to have no effect on the overall R-coefficient value.
- Besides the distance factor, the weighting for access should take account of the elevation and slope of the area;
- There are 3 ways to apportion benefits, as follows: 50% for community and 50% for households holding contracts; 30% for community and 70% for households holding contracts; or 20% for community and 80% for household holding contracts. Additionally, the payments should be deducted in part to invest in public welfare for the local communities;
- The payment should be fair and paid quarterly;
- It is necessary to have some supportive policies for poor households holding contracts because payment for forest protection does not provide sufficient income;
- There should be awareness raising programs to spread knowledge of REDD+ to all households involved and to all communities near the forest;

- Stricter enforcement of the Forest Protection and Development Law is required.

4.3. Application of the R-coefficient in Di Linh district

The respondents to the surveys and interviews agreed that the application of a single R-coefficient for all of Di Linh district is inappropriate. R-coefficients should be applied at a smaller scale (e.g. a forestry company). It was proposed that Di Linh Forestry Limited Members Company should be selected for piloting this kind of payment calculation. This is a state-owned enterprise meeting all requirements of forest resources management and labour for forest production activities. The state-owned enterprise has been assigned the role of managing the forest by the state, and is thus effectively the forest “owner”. However, it has contracted some forest management roles to individual households. Therefore, REDD+ benefits may flow to the company itself, and to households contracted for forest management – or to other units, such as villages, as decided by the local stakeholders.

4.4. Responsibilities and coordination in the process of calculating the R-coefficient

Although a participatory process to establish which factors are of relevance and how they are to be weighted should be conducted, the actual calculation should be done by an external party to avoid unreasonably high R-coefficients.

In reality, the calculation of R-coefficients requires data and information for each household to be provided by the local forest owners/authorities. Therefore, the workshops developed consensus on assigning responsibility and coordination for such data as follows:

Factor R1:

- Responsibility: the forest owners;
- Coordination: the Peoples’ committee of commune (including unions); department of labour, invalids and social affairs, and the village’s selected representatives.

Factor R2:

- Responsibility: the forest owners;
- Coordination: the Peoples’ committee of commune, ethnic department and village chiefs.

Factor R3:

- Responsibility: the forest owners;
- Coordination: the Peoples' committee of commune, the Women's` union in communes and villages.

Factor R4:

- Responsibility: the forest owners;
- Coordination: District Department of Forestry, District Forest Protection Department, and local interviewees.

Factor R5:

- Responsibility: the forest owners;
- Coordination: District Department of Forestry, District Forest Protection Department.

Factor R6:

- Responsibility: the forest owners;
- Coordination: the Peoples' committee of commune, discussion in groups of households holding contracts for forest protection.

Factor R7:

- Responsibility: the forest owners;
- Coordination: the Peoples' committee of commune, discussion in groups of households holding contracts for forest protection.

4.5. Calculation ability and the application of the R-coefficient for REDD+ payments in Di Linh

a. Data sources

All data sources for calculating the factors are scattered among province, district, commune and village levels. In order to collect these data, time and a contribution from all departments are required. This must be done under the administration of the Agriculture Department and District People's Committee. This should be done in the consultation with, and possibly under the direction of the GSO.

b. Verification, statistics and adjustments the collected data

The data related to forest allocation and forest contracts in Di Linh area should be updated and verified. For example:

- Check forest resources in areas known to have undergone large changes in the form of forest use or from deforestation and forest degradation;
- Review and identify the list of households and communities contracted to manage and protect forest land;
- Review organizations and the forestry enterprises allocated or leased forest;
- Organize conferences/meetings in order to identify the types of activities yielding payments.

c. Provision of the amount of forest's sequestrated carbon

It should be noted that, while the amount of carbon sequestered, or emissions avoided, are theoretically the basis for payment, measuring these amounts at a scale that is relevant to local stakeholders is likely to be prohibitively expensive. Therefore it is likely that payments will actually be based on inputs, rather than on net emissions or changes in carbon stocks. However, this is a function of the MRV system, not the BDS. The role of local beneficiaries will likely be related to participatory monitoring of inputs.

d. Education and training

Forest owners are the main operational subjects for providing data and information required to calculate the R-coefficients. Therefore, they need to be trained in data collection, data sharing/maintaining and data system management. A database may need to be established and an office established for data management, although this depends on how much of the design and calculation of R-coefficients is managed at a central level. Communes may, if they wish, establish their own databases, but will be responsible for reporting their data to the central data management agency. Therefore, it is also important to do a capacity building for the commune organizations to be able to conduct this type of work.

4.6. Advantages and challenges in the process of benefit payment from REDD + based on R-coefficients in Di Linh

1. Advantages

- Overall, there is general support from stakeholders including national and sub-national governments;
- The vast majority of the people expect the program to early deploy a pilot payment in the locality; most people interviewed agreed to the computation of the factors of the R-coefficient.
- The allocation/assignment of forest protection to households and individuals was undertaken in 1996 and involved a systematic use of available data. These are therefore a valuable foundation to facilitate the implementation of REDD+ payments for people undertaking forest protection.

2. Challenges

- Some of the households contracted for forest protection believe that the R-coefficient should be mainly based on distance to the forest or level of pressure on the forest, while other factors such as watershed, biodiversity (mixed forest, pure forest), origin of forest (natural or plantation forest) are not very well understood.
- It is necessary to review and reconstruct maps . These activities may take additional time and effort;
- The R-coefficient needs to be simple, developed by consensus, and easy to implement;
- The assessment of forest resources, and measurement of forest carbon stocks is difficult, costly, and time-consuming; so the biggest challenge is human and financial sources;
- The mechanism of PFES at the national level has been piloted and is now required under a Government Decree whereas REDD+ is still being in the negotiation. Many local people are not convinced it will happen. Therefore, the National REDD+ program should promote dissemination to officials, the people, communities and households living near forests to understand the likely benefits in the future;
- For ethnic minorities involved in a communal approach to forest protection, differing payment levels among households in the same village would create conflicts;

- The success of forest protection not only depends on regular patrols by households and communities but also on effective law enforcement to handle violations. Penalties must be clearly established and strictly applied to punish those who violate forest laws. There is also a need to increase protection/safeguards for households/individuals who denounce violations of the forest protection law.
- It is necessary for local people to understand that REDD+ is very ambitious, being dependent on better management by agencies and local authorities involved with planning of land use, improvements in agricultural productivity, and enhancing family incomes. These aspects should be further studied to have a clearer picture of actions necessary for an effective long-term strategy.

4.7. Proposals for next steps

- The initial application of the R-coefficients should be simple. It is recommended to continue conducting research on adjustments and improvements to the R-coefficient in the medium and long term.
- Benefits should be a combination of direct and indirect benefits.
- Need to prepare the legal documents by the government to support the provinces in piloting payment under REDD +;
- Design financial mechanisms to avoid delays in implementing REDD+.
- It is very important to conduct a pilot on actual payments for REDD+ using the R-coefficients in Di Linh district (e.g. to a pilot commune and or a pilot forest owner such as Di Linh Forestry Limited Members Company). Also, the proposed method for calculating the R-coefficients should be piloted in other districts in Lam Dong and in other provinces in the country.

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