**Volume I
Working Paper**

Preliminary review and approachto develop a systemfor allocation of incentives and benefit sharing for REDD+ in Cambodia

Cambodia, 2014

REDD+
CAMBODIA

Introduction

This Working Paper is in two volumes.

VOLUME I
This is the main report and presents background information, insights and analyses based on research in Cambodia, review of lessons from selected REDD+ countries related to allocation of incentives and benefits. The document outlines key principles and elements that contribute to the design of an effective incentive allocation and benefit sharing system. The paper acknowledges the need for additional research and analyses and suggests that as first step stakeholder consultations should be used to refine the approach and contribute to the National REDD+ Strategy development process in Cambodia.

VOLUME II
This section provides the Annexures to Volume I.

Disclaimer

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VOLUME: MAIN REPORT

1. EXECUTIVE SUMMARY

The fundamental premise of the REDD+ programme is to offer result-based payments to participating countries. REDD+ countries can receive payments based on demonstrated results of reduced emissions against a reference emissions level and such payments may be deposited into a national REDD+ fund.

These results based payments will accrue in future. In addition to such payments countries may also receive funds from bilateral, multilateral and development partners for upfront implementation of national forestry programme for demonstration activities to pilot projects, enhance capacity and incentivise future results based payments. REDD+ countries are required to develop a system for allocation of incentives and distribution of benefits. This working paper aims to introduce issues, principles, guidelines and an approach for such a mechanism in Cambodia.

Cambodia can establish a fund allocation and benefit sharing mechanism appropriate to its national circumstances, and requirements. In doing so the mechanism should build on the principles of effectiveness, efficiency, and equity as a recommended best practice in REDD+ literature. (CIFOR 2012).

1.1 Who would receive funds and benefits

REDD+ activities are likely to incur "transaction costs" arising from operation of REDD+ funds, the National Forest Monitoring System (NFMS), and Safeguards Information System (SIS), as well as "implementation costs" associated with the implementation of key Policies and Measures (PAMs) identified under the REDD+ national strategy. The Royal Government of Cambodiawill decide how national funds should be allocated to cover each type of cost.

National and subnational government entities are likely to receive funds that cover their transaction costs partially. A range of actors may be eligible to receive funds or benefits for implementation costs. This depends on the policies and measures that are identified as priority activities. Possible examples of PAMs may include, but are not limited to: moratorium on economic land concessions, strengthening forest law enforcement, clarification of land tenure for local communities and indigenous peoples, expansion of, and support for, community forestry, community protected area and community fisheries.

The national REDD+ strategy may include additional activities that specifically aim to incentivize local actions. As defined in the UNFCCC decisions, the overall objective of such actions should be to contribute to the reduction of emissions, even asthe protection and conservation of natural forests and their ecosystem services, and enhancement of other social and environmental benefits are also achieved. Lessons from Cambodia and other countries indicate that such local activities may entail: payments for ecosystem services, forest conservation and protection activities, and reforestation/afforestation activities.

Recipients of incentives and benefits will depend on who would be involved in these respective activities. If landowners are involved in providing ecosystem services, they will be eligible beneficiaries. Likewise, if communities are involved in forest conservation and protection activities, they may qualify to receive funds and benefits. Government entities, NGOs and the private sector may also become eligible recipients if they engage in any of these activities.

1.2 What will be the basis for decisions on benefit sharing

Case studies demonstrate that a range of basis can be used for making decisions on benefit sharing. The particular choice of basis, and the data required for making a decision depends on the kinds of activities selected for incentivizing local actions. For example:
- A contract approach may be used for payment of ecosystem services. Benefits may be provided to landowners, communities or other actors based on a formal contract between governments and

landowners/communitiesfor preserving critical ecosystems. For this approach to work, clear tenure and ownership is a prerequisite, however this approach may exclude the poor, most of whom could be landless.

- <u>Output based approach</u> may be used to promote forest conservation and protection, and reforestation and afforestation. Experiences from Nepal and Indonesia demonstrate that the output-based approach is an effective tool for fostering forest conservation, and protection by communities. In these cases, benefits can be provided based on changes in carbon stock or proxy measures such as tree seedlings produced. The use of carbon stocks as a measure to assess performance entails significant costs. A proxy output measure such as forest volume or the number of seedlingsproduced is much simpler and cost-effective to assess.

- <u>Input based approach</u>may be used for supporting forest conservation and protection activities and reforestation and afforestation. Assessment of inputs, for example, in the form of area replanted, area that has avoided deforestation, or person-days spent on patrolling, is cost-effective, and the data easy to collect. The main constraintis the weak link between inputs and emission reductions for some types of inputs -- while it is easy to predict likely removals from replanted areas, the contribution of patrolling toreduced emissions is difficult to quantify. One approach to overcoming this constraint is to use conservative estimates for inputs with low levels of certainty, and gradually adjust these estimates as addition, and accurate information becomes available.

- <u>Proposal based approach</u>may be used for activities that contribute to reducing emissions. Such an approach does not guarantee the intended result of reduced emissions is achieved unless robust monitoring system or performance-based payment mechanisms are in place.

- <u>Social criteria</u>may be used as an additional factor to be incorporated in a contract or output based approach for benefit distribution. This can contribute to equalizing distribution of payments across communities.

1.3   What kinds of benefits should be shared

<u>Monetary versus non-monetary</u>

- Existing cases illustrate that cash is a dominant form of benefit to be distributed to beneficiaries. Cash payment is seen as an important motivating factor for local actors to actively engage in forest conservation and protection. However, experiences from several countries demonstrate that while some stakeholders may favour monetary incentives to individual households, others prefer non-monetary benefits such as provision of public infrastructure, improved tenure and support for forest protection activities.

- There is also a risk of providing monetary incentives to communities for forest management. If their motivation for forest management becomes closely tied only to financial payments, and if the payment delivery is delayed and/or the payment amountis modest, they may lose enthusiasm and participation. Non-monetary benefits such as secure tenure and customary rights to forest derived benefits may be better forms of benefits for communities to engage in long-term sustainable management of forests.

<u>Individual versus collective benefits</u>

- Under the PES type of benefit sharing arrangement, benefits may flow to individual landowners or collective communities depending on whether they have individual or collective ownership of land or forests. While it is important to ensure that the poorest of the poor gain access to benefits selection of individuals based on ethnicity and gender should be avoided. Such forms of selection may trigger social conflicts and demotivate community members who are excluded from benefit sharing in forest management activities. It is thus preferable that at least a share of the paymentis given in a form that rewards collective effort for forest protection and conservation. Schools, hospitals, infrastructure benefits the community as a whole.

- To ensure effectiveness and efficiency, it is essential that stakeholders have the opportunity to decide on the type of incentive/benefit preferred. The choice of benefit can be recorded during the REDD+ planning process for stakeholders.

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1.4   Next steps for Cambodia

The following next steps are recommended for designing a national system for fund allocation and benefit sharing for REDD+ Cambodia:

- Define key policies and measures to be used under REDD+ through the national REDD+ strategy
- Select activities to be used for incentivizing local actions. Identification ofPAMs will enable selection of activities and targeted beneficiaries for incentivizing local actions to reduce emissions.
- Select basis and data on which decisions for distributing benefits will be made. Based on the selection of key activities and targeted beneficiaries to deliver incentives, subsequent decisions need to be made regarding the basis and data to be used for decisions on benefit sharing.
- Design a system to collect and monitor data and distribute benefits based on the collected data. Once the above decisions have been made, decisions should be made on how to collect and monitor data and distribute benefits. The system must ensure that beneficiaries are incentivized in an appropriate manner and at the proper time. The design of such as system needs to be assigned to an independent body which is not eligible to receive incentives. This could be contracted to an agency responsible for forest monitoring.The national REDD+ grievance mechanism can play a role in monitoring delivery of incentives.
- As a next step a national consultation should be held where the approach for Cambodia can be discussed and validated, and consensus developed for next steps that will contribute to the design of a benefit sharing mechanism for inclusion in the National REDD+ Strategy.

1. PRINCIPLES, ELEMENTS, AND LESSONS FOR DESIGN OF A FUND ALLOCATION AND BENEFIT SHARING SYSTEM

1.1 Principles

REDD+ countries can decide how REDD+ funds should be distributed at the national, regional and local levels. Existing literature on REDD+ proposes that thesystem for allocating REDD+ funds, in the form of incentives and benefitsshould build on the three principles of effectiveness, efficiency and equity (e.g. CIFOR 2012):

- Effectiveness: thatincentives serve to reduce maximum possible emissions
- Efficiency: thatincentivescontribute to reducing emissions in a manner that minimizes costs (while being consistent with a rights-based approach).
- Equity: thatincentives are shared in a fair and equitable manner particularly for the benefit of the most vulnerable.

The Cancun Agreement adopted at COP16 in Mexico, 2010 provides additional guidelines and states that REDD+ actions should be "*used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits*" (the Cancun Safeguards (e)). Decisions about the allocation of national funds, considered to be a part of REDD+ actions, also need to consider best options for incentivizing local actions that contribute to the protection and conservation of natural forests, ecosystem services, and the enhancement of social and environmental benefits.The Cancun Agreement further states that REDD+ actions should adhere to the following safeguards principles:

- Transparent and effective national forest governance structures
- Full and effective participation of all relevant stakeholders
- Respect for the knowledge and rights of indigenous peoples and members of local communities.

1.2 Design elements

Existing literature on REDD+ benefit sharing point to several inter-linked issues that need to be taken into consideration in designing a national benefit sharing approach for REDD+.

1.2.1 Identifying recipients

REDD+ implementation will involve a range of stakeholders such as national, sub-national government, community institutions and NGOs.

- National independent agencies are required for functions such as decision making on allocation of funds
- National government agencies may take a primary role of designing and implementing national level, or programmatic REDD+ Policies and Measures (PAMs)
- Subnational government agencies provincial, district and commune level government may take a lead role in implementing PAMs, for instance, through strengthening forest patrolling, law enforcement, and clarifying tenure and demarcating forest boundaries, reforestation, etc.
- Local actors communities, Indigenous Peoples, land owners, NGOs, and the private sector may engage in the implementation of local REDD+ measures, for example, protecting these areas against encroachment and illegal logging, participating in reforestation, etc.

1.2.2 Identifyingcosts

These stakeholders and institutions are likely to bear variable costs for REDD+ implementation such as transaction costs that are fixed costs associated with the national REDD+ programme, such as the costs of implementing the NFMS and SIS, and the costs of operating institutions associated with implementation.

- Implementation costs arecosts incurred for implementing policies and measures to reduce emissions or to promote conservation and sustainable management of forests. Some of these are programmatic in nature, for example, support to implementation of measures under the National Forest Programme and the National Protected Area Strategic Management Plan, and support to forest law enforcement.Costs of providing incentives to stakeholders to undertake actions to reduce emissions are also included.

Figure 1 illustrates potential flows of a REDD+ fund into different activities. There may be other activities that the RGC may decide to consider in allocating REDD+ funds. A portion of the funds may be allocated to cover some oftransaction coststhat may incur from operation of national funds, national forest monitoring system, safeguard information system, funding of the taskforce, Secretariat, and the Consultation Group.

Partof the funds may be allocated to cover implementation costsof the key policies and measures selected under a REDD+ national strategy. These may include

- Key national policies such as the national forest programme, upcoming national protected area strategic management plan, and fisheries plan.
- In addition, activities to incentivize local actions to reduce emissions will also be financed.

Fundsallocated for these activities will be decided by the RGC and such decisions will also give consideration tothe amount of REDD+ funds available at the national level. Nevertheless, the maximum possible amount of funds should be targeted at activities to incentive local actions to reduce emissions that will support implementation of key PAMs to effectively reduce GHG emissionsfrom the forestry sector. For

Figure 1: Utilization of results-based payments in a national REDD+ programme
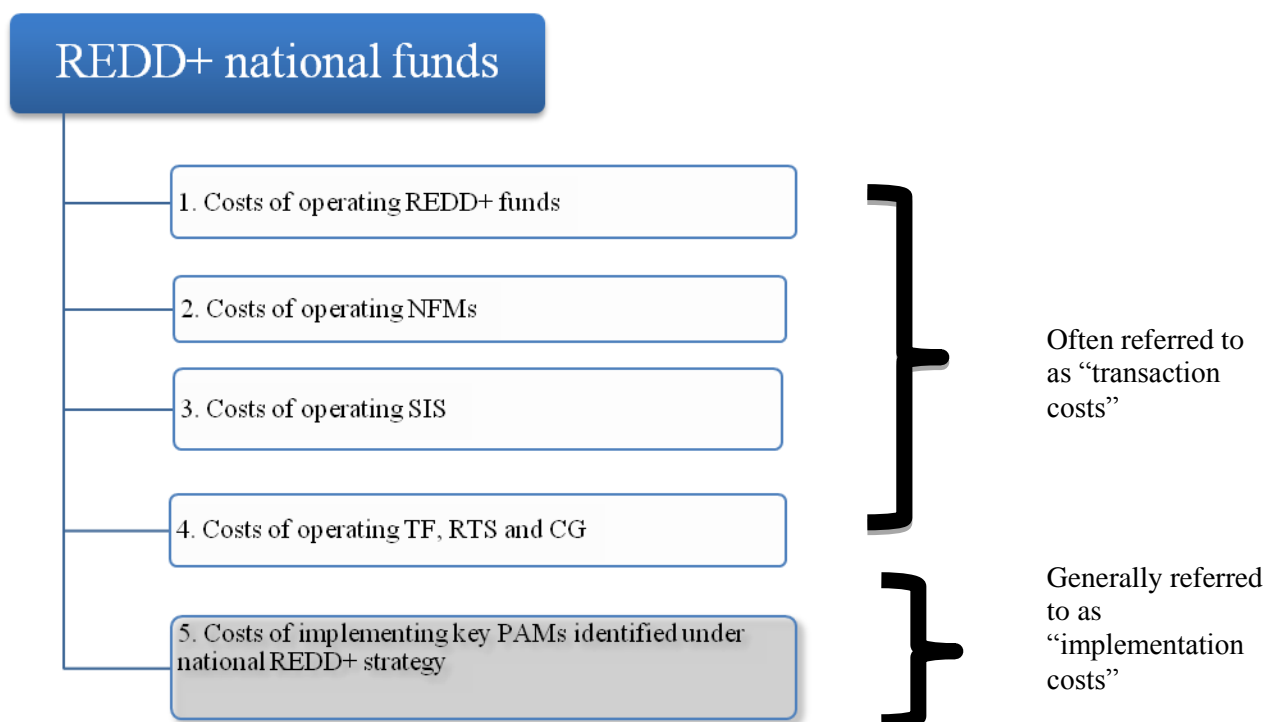
For example, a national REDD+ strategy may identify strengthening of forest law enforcement and local forest tenure as key PAMs, which implementation of the National Forest Programme as a priority.

National agencies and sub-national governments would receive funds to cover partial transaction costs associated with REDD+ operations.For implementingPAMs,there may be a range of actors that would become eligible recipients depending on the decision of the national REDD+ strategy regarding key PAMs. If the strategy identifies clarification and strengthening of local forest tenure as a key measure for REDD+, fund recipients would be national and sub-national governments in the form of budgetary support for example to CF, CPA and CFi as local communities and Indigenous Peoples are ultimate beneficiaries from improved local forest tenure.Likewise, if strengthening forest law enforcement is identified as a priority, national and subnational government may receive budgetary support to implement appropriate measures.

1.2.3   *Identifying the basis for allocating incentives and benefits*
To allocate funds and share benefits in an effective, efficient and equitable manner, clear and objective criteria has to be developed. Such criteria can use outputs or inputs based approaches that are directly linked to the primary objective of reducing emissions, protecting and conserving natural forests and ecosystem services, while enhancing social and environmental benefits.

- Output performance based approach refers to allocation of funds based on measurable impacts, such as the amount of emissionsreduced
- Input-based approachrefers to provision of funds based on inputs of time and costs.

An output-based approach can be advantageous as it builds on actual impacts related to forest carbon.However, assessment of reduction of emissions at a scale and location relevant to eligible actors can be expensive as it requires assessment of baseline data on forest carbon volume and regular monitoring.Alternative measurescould include assessment of forest extent and quality, and of social and environmental benefits, such as increased household incomes, narrowing poverty gap, and improved agricultural productivity.

Due to high costs associated with the output-based approach aninput based approach that builds on simpler measurements of time, number of trees planted, may be preferable. A combination of input-and output-based approaches could also be used depending on the types of actions. For afforestation, the extent of new forests could be measured. In contrast, incentivization of reduction in forest degradation may require input-based measures initially, observing changes in forest quality will only be possible over time relative to forest type and level of degradation.

With both approaches challenges remain in determining the magnitude of benefits to be allocated to stakeholders to incentivize actions that provide optimum results. These challenge can be mitigated,firstly, by ensuringdecisions on incentives are conservative, as a subsequent reduction in levels of incentives is likely to be a major de-motivation factor for local stakeholders. Secondly, piloting of REDD+ interventions, supported by research on impacts can clarify the relationship between actions and results. Finally, as desired impacts yield broad societal benefits, mainstreaming of incentivization so that costs are not solely dependent on REDD+ revenues will become important.

1.2.4   *Identifying the kinds of benefits*
In the REDD+ context, benefits refers to both monetary and non-monetary benefits (USAID 2012, CIFOR 2012).
- Monetary benefitsrefer to cash, that may be payable to individuals or collectives -- communities, management committees, etc.
- Non-monetary benefits can be classified into direct and indirect benefits. Direct benefits accruefrom REDD+ activities such as increased job opportunities;enhancedavailability of NTFPs, fuelwood and fodder; improvedpublic infrastructure; and improved forest tenure. Implementation of REDD+ may generate increased employment opportunities at national and sub-national level. Land owners, local communities and indigenous peoples could benefit from secure tenure rights to

forests and forest products; increased availability of fuelwood, timber and NTFPs due to improved condition of forests.Indirect benefits include improved ecosystem services and associated environmental benefits such as supply of clean water, and enhanced biodiversity.

Since planning for REDD+ implementation will necessarily involve local consultations as part of the Free, Prior and Informed Consent process, views on benefits can be obtained through the same process. The mechanism for delivery of cash incentives will be through financial institutions. Recipients would have to be legal entities that can receive money, and this would require eligibility criteria.

1.2.5 *Identifying mechanisms for distribution*

Distributing non-monetary is more challenging as incentives related to livelihood or agricultural productivity training would need to be delivered by an institution that could be a government extension service, an NGO, or a private sector entity. The most appropriate delivery agent and mechanism would need to be developed. Delivery of incentives in the form of improved social infrastructure would be the responsibility of local government agencies, as also, private sector entities could be considered. To minimize risks delivery of the incentives would need to be monitored. The REDD+ grievance mechanism would serve as a safeguard.

1.3 Insights from existing approaches

Lessons and insights gained from a review of existing approaches to incentivize local actions for reducing emissions from the forest sector note that with the exception of examples from Cambodia community forestry, and community protected areathat are part of national policies,the majority of cases use project-based approaches. Case studies from Brazil and Indonesia provide examples of project-based incentive schemes at the national level, while cases from Cambodia and Nepal are project-based systems at the sub-national level. The Vietnam case started as a project-scale pilot, but is meant to be scaled up to the national level.

Cambodia, Nepal and Indonesia all focus on communities while Nepal specifies the poorest of the poor as targeted beneficiaries. Vietnam targets landownerswith a stated intention to provide preferential treatment for disadvantaged groups. In Brazil, funds were allocated to successful applicants such as municipalities, universities and communities.

Key lessons from these cases indicate that targeting communities and landowners as beneficiaries is an effective means to conserve and protect forests on the condition that forest tenure rights are already clear and secured as in the case of Nepal, Indonesia, and Vietnam. Targeting landowners may exclude the landless, most of which are poor,which raises concerns about equity in Vietnam,as targeting benefits is important to ensure the poorest of the poor benefit from REDD+. However, targeting particular social groups, based on ethnicity or gender should be avoided as this could affect community cohesion.

The basis for sharing benefits is diverse and include:

- Contracts:The Vietnam case provided payments to landowners based on a contract between the government and landowners that centered on environmental services such as forest carbon sequestration. Experience with CF, CPA and CFi indicate that formal recognition of forest tenure for communities is a lengthy process. The three cases in Cambodia --community forest, community protected area, and community-based ecotourism --all shared benefits from forest products, and, revenues from eco-tourism based on a formal contract between governments and communities with the aim of sustainably managing forests.
- Outputs:Indonesia used number of seedlings produced as an indicator; and Nepal used changes in carbon stocks.
- Proposals: In Brazil, funds were distributed to those on the basis of a call for proposals.
- Social criteria: Vietnam and Nepal considered other social measures such as the poverty level or the number of disadvantaged groups.In Nepal, social criteria such as population size and number of

women and poor were used to allocate benefits in combination withdata on changes in forest carbon stocks.

1.4   Discussion and lessons for Cambodia

The contractsystem can work as long as the ownership of lands and forests is clear. The formula for calculating the amounts payable to each landowner should be kept simple. Yet, once these rights are recognized, communities will benefit from access to, and useof forest products and services. Themeasurements based on carbon storage are costly, as it requires regular assessment of above and belowground carbon volumes from sample plots. Output measurements based on the number of seedlings is a simpler and costly effective approach. This approach is effective in targeting activities that have a high likelihood of reducing emissions. However, local communities and Indigenous Peoples with limited capacity may not be able to access funds. Application of social criteria is useful in equalizing payments among communities, but retaining a high relative weight to outputs such as forest carbon in the payment formula is important to provide sufficient incentives for communities to sequestrate carbon.

In Brazil, Indonesia, Vietnam and Nepal monetary incentives were provided in the form of cash. However, because of concerns that cash payments would be misused, some community forest groups in Nepal overturned this decision and provided non-monetary incentives.

In Cambodia and Nepal, a major benefit from community forestry, community protected area, and community based ecotourism is to secure tenure rights for communities.

Beneficiaries should be consulted on incentives. Vietnam's programme used only cash incentives, however, a survey revealedthat manyKinh ethnic Vietnamese stakeholders favoured incentives in terms of collective investments in agricultural productivity, education, or social infrastructure. Delivering incentives where stakeholders prefer non-monetary incentives will result in weakening community incentive to participate in activities.

Cambodia's OddarMeanchay case study underlines the risks of raising expectations related to financial payments. The promise of paymentsmotivates stakeholders to conservation and protection of forests. However, if the motivation to engage in forest management is dependent only on financial payments, delays in payment, or dissatisfaction with the amount received, can lead to loss of trust and interest from communities. Part of the paymentshould be used to reward collective effortsfor forest protection and conservation and schools, hospitals and infrastructure projects are all examples that benefit the entire community.

2.   REFERENCES

Bac, D. V., D. Catacutan, and H. M. Ha. 2014. Importance of National Policy and Local Interpretation in Designing Payment for Forest Environmental Services Scheme for the Ta Leng River Basin in Northeast Vietnam. *Environment and Natural Resources Research* 4:39-53.

CIFOR. 2012. *Analysing REDD+: Challenges and Choices*. Bogor Barat: Center for International Forestry Research.

CIFOR. 2013. *Approaches to benefit sharing: A preliminary comparative analysis of 13 REDD+ countries*. Bogor Barat: Center for International Forestry Research.

FONAFIFO, CONAFOR and Ministry of Environment. 2012. Lessons Learned for REDD+ from PES and Conservation Incentive Programme. Examples from Costa Rica, Mexico, and Ecuador.pp. 164.

Government of Vietnam. 2010. *Design of a REDD-Compliant Benefit Distribution System for Vietnam*. Hanoi: Ministry of Agriculture and Rural Development, UN-REDD Programme.

Ha, H. M., and D. T. Hoan. 2011. *Assessing the potential for, and designing, a 'Payment for Environmental Services' scheme in BacKan province, Vietnam.* World AgroforestryCenter (ICRAF).

IUCN. 2013. *Benefit Sharing Mechanisms: Principles for Dialogue.* The Forest Dialogues.

Lund, J. F., and M. Saito-Jensen. 2013. Revisiting the issue of elite capturein participatory initiatives. *World Development* 46: 104–112.

Malla, Y. B., H. R. Neupane, and P. J. Branney. 2003. Why aren't PoorPeople Benefiting More from Community Forestry? *Journal of Forest and Livelihood* 3: 78–93.

Pham, T.T., K. Bennet, T. P. Vu, J. Brunner, L. D. Le, and D. T. Nguyen. 2013. *Payments for forest environmental services inVietnam: From policy to practice.* Occasional Paper 93. Bogor, Indonesia: CIFOR.

Saito-Jensen, M., R. L. Rutt, and B. B. K. Chhetri.2014. Social and Environmental Tensions: Affirmative Measures Under REDD + Carbon Payment Initiatives in Nepal. *Human Ecology*.DOI 10.1007/s10745-014-9674-4.

Sikor, T., Enright, A., Thong, N.T., Quang, N.V, and Me, V.V. 2012. PilotingLocal Decision Making in theDevelopment of a REDD+ Compliant Benefit Distribution System for Vietnam. http://www.snvworld.org/en/sectors/redd/publications

Thoa, P. M., P. V. Khoa, A. Enright, N. T. Trung, and N. T. B. Son. 2012. *Final report on A Pilot of Establishment of R-coefficients for REDD+ Benefit Distribution in Di Linh District, Lam Dong Province, Vietnam.* UN-REDD Programme Vietnam

Thuy, P., Brockaus, M., Wong, G., Dung, L., Tjajadi, J., Loft, L., Mvondo, S. (2013). *Approaches to benefit sharing: A preliminary comparative analysis of 13 REDD+ countries*. Bogor Barat, Indonesia: Center for International Forestry Research. Working Paper 108.

USAID. 2012. *Analysis of Institutional Mechanisms for sharing REDD+ benefits.* Property Rights and Resource Governance Project. Washington, DC: World Resource Center.

White, D., & Minang, P. (2011). *Estimating the Opportunity Costs of REDD+: A training manual*. Washington, D.C.: The World Bank.

Volume II

ANNEXURES

Preliminary review and approach to develop a system For allocation of incentives and benefit sharing for REDD+ in Cambodia

Cambodia REDD+

November 2014

Contents

ANNEXURE 1
Lessons from Cambodia

Existing practices of allocating benefits in Cambodia

This section reports on existing systems on allocation of incentives in Cambodia and stakeholder views obtained through a series of sub-national consultations. Figure 3 shows the locations of the projects reviewed in this section.

Figure 1: Location ofREDD+ pilot projects
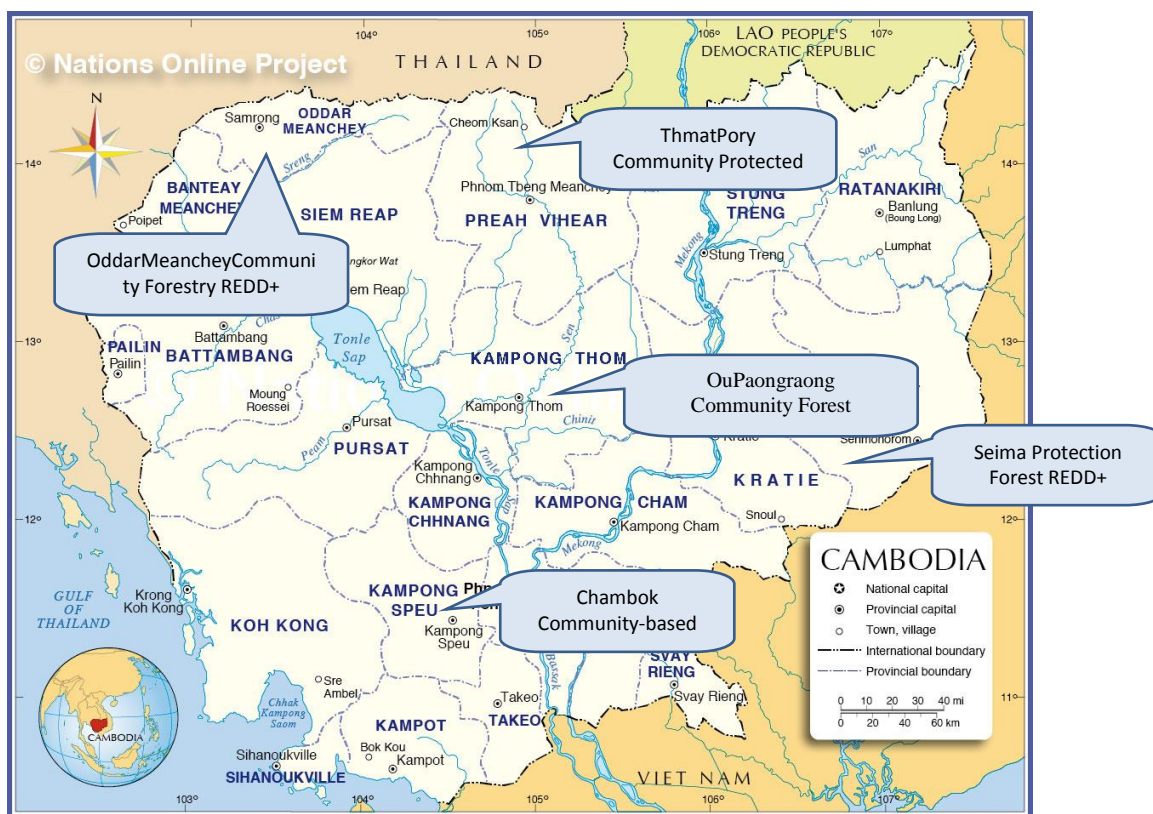
(Source: Nations Online Project)

OddarMeanchey Community Forest REDD+ Pilot Project

The OddarMeanchey Community Forestry REDD+ pilot project was introduced by the Community Forestry International and jointly launched with the Forestry Administration (FA) in February 2008 as the first REDD+ pilot project in Cambodia. The project area is located in northwestern Cambodia, covering 13 community forestry sites with a total area of 64,318 hectares and 58 villages with a total number of about 10,000 households. Since 2009, Pact has served as an implementing partner in collaboration with the 13 Community Forestry Groups, Terra Global Capital (TGC), Children's Development Association (CDA), Monks Community Forestry and local authorities. The goals of the project include: 1) mitigation of climate change impacts by sequestering 8.3 million tonnes of carbon dioxide (over 30 years); 2) improvement of local livelihoods; and 3) protection and enhancement of forests and biodiversity. Over its 30-year crediting period, the project is expected to generate approximately 8 million tons CO_2e of emission reductions.

Proposed shares of incentives among stakeholders

Pact devised a draft 30 years budget plan that includes information of percentage share of paymentreceived from the carbon market among different stakeholders. This proposed plan is still subject to the approval by the RGC.

The plan includes the following as beneficiaries, some of whom are considered as beneficiaries simply because of the nature of voluntary market projects.

- **TGC, with the role of** facilitating the carbon assessment and accounting to be validated under VCS and CCBA and the carbon credit sale to potential buyers;
- **The Forestry Administration with the role of** an appointed agency that sells forest carbon credits in Cambodia to the buyers under VCS voluntary market;
- **Local governments with the role to** protect CF areas from intruders and regulate land conflicts;
- **Pact** (international NGO) with the role of a project implementer;
- **CDA** (local NGO) with the role of liaising and coordinating all local actors; and
- **CF groups**with the role of patrolling, assisting natural regeneration, replanting, preventing forest fire and sustainably extracting NTFPs

According to the budget plan, a total of 84% of the payment will be deducted from the payment to support implementation and transaction costs for TGC, FA, PACT, CDA and CFN. In consequence, 16% of the net income is left for distribution among 13 CF groups. The budget plan does not include local governments as beneficiaries.

Table 1
Thirty years budget plan OddarMeanchey

30 years budget plan	
TGC	19%
FA	27%
Pact	11%
CDA	18%
CFN	9%
CFs	16%
	100%

Proposed use of incentives by community forestry groups

The official letter issued by the RGC (No. 699 dated 26 May 2008) provides furtherguidancethat net revenues (after implementation and transaction costs are subtracted) should be used for the following three types of activities:

1. Maximize incentives to communities for livelihood improvement (e.g. through a community development fund);
2. Develop new REDD+ project initiatives by expanding REDD+ areas; and
3. Improve forest quality in the project area.

Since the project inception, community members have been informed that they would receive payments under the voluntary market project, and this enhancedtheir motivationto participate in the project. However communities were not informed about the preciseamounts of payments that they would receive or how these payments would be distributed among the community. The delay in payments did not match the expectations of the community and this led to a decline in community interest and motivation and affected the quality of their engagement in the project.

Nevertheless, members of the community forestry group have received both non-monetary and monetary benefits:1) non-monetary benefits, such as NTFPs for daily use, and improved tenure rights through a 15-

year agreement between FA andthirteen CF Groups.2) monetary benefits, such as the revenue from the sale of NTFPs,

Seima Protection Forest REDD+ Pilot Project
The Seima Protection Forest REDD+ pilot project was initiated in July 2008 by the Wildlife Conservation Society (WCS) in collaboration with FA. Implementing partners included local NGOs such as the Cambodia Rural Development Team (CRDT) and the Community Legal Education Centre.This project aims to support protection of old-growth forests within a core area of 180,515 hectares within the Seima Protection Forest in the eastern province of Mondulkiri. The area is renowned for an abundance of globally important species. It is also home to a population of approximately 10,000 Bunong IPs, who have been living in 20 villages across the landscape. They rely heavily on forest resources and practice traditional swidden agriculture.

Since January, 2010, the Seima project has sought to secure validation and verification under the VCS and CCB standards, with validation that took place in November, 2013. While the crediting period continues for 60 years, it is estimated that the project will generate approximately 58 million tons CO_2 of emission reductions over its first ten years.

Sales of carbon from Seima pilot project has not taken place and thus no monetary incentives have been distributed amongst those who have participated in the development and implementation of this project. Yet, in terms of **non-monetary incentives**, the project sought to secure usufructuary rights of local communities to timber and NTFPs, and their customary tenure on agricultural, fallow and residential lands through its indigenous communal titling support. This process entailed mapping communal lands in collaboration with communities and developing the legal documents needed to request communal land titles from the government.

In contrast with the OddarMeancheycase, the project implementer, WCS, was highly cautious about raising any expectation among local communities about monetary incentives. In fact, the project places a strong emphasis on non-monetary incentives such as secure tenure, improved forest conditions, and employment opportunities. Even when they refer to monetary incentives, they are mainly mentioned as collective incentives or in-kind incentives that would contribute to forest management activities, alternative livelihood activities, and other benefits (See Table 2)

Table 2
Benefit types to local community members from REDD+

| Category	Examples of incentives type for communities
Core state forest management activities *Not conditional on behaviour.*	- Continued and secure access to natural resources, including non-timber forest resources such as resin, that may otherwise be destroyed - Secure and formal property rights to land and forest resources - Equitable zoning and access systems for communities with rights of use - Improved forest quality - Employment in community-based patrolling and monitoring
Alternative livelihood projects *Needed in part to reduce drivers of deforestation at source. Some could be made conditional on behavior*	- Community livelihood development, e.g. livestock raising, agricultural intensification, savings groups and/or micro-finance for enterprise development - Financial incentives and increased community empowerment and capacity - Most likely administered through a 'community development fund' at the village or project level. - Some incentives could be awarded at the household level.
Other incentives *These only affect deforestation through conditionality, and so all should be conditional.*	- Additional incentives payments for conservation activities or outcomes - This might be a bonus payment for exceptional performance, awarded to households or villages - Could include support for public services that are not 'alternative livelihoods' per se, for example roads, health clinics, schools, other infrastructure

OuPaongraong Community Forest

The OuPaongraong CF offers one example of benefit sharing options used under Community Forestry. This CF was established in 2002 with 95 families participating, a total of 487 people. It is located in SalaVisey commune, PrasatBalang district, and Kampong Thom province, covering 678 hectares.

The CF members have developed their own mechanisms of sharing benefits derived from 1) tree planting project, 2) CF products, 3) Tree nursery group following the Internal rule as follows (see Figure 5):

- Benefits derived from project such as tree planting project will be used to cover costs for:
    - Seedling transportation;
    - Tree planting arrangement;
    - Tree planting labors;
    - Administration.
- 30 % of benefits derived from CF products, i.e. income from selling the forest products, will be transferred to CF Development Fund and 70% will be transferred to CF members who are involved in those activities.
    - 40 % of benefits (in the form of seedlings) produced by the tree nursery group will be planted in CF areas; 60 % of the seedlings will be sold and 20 % of the income generated from this sale will be used for maintaining a tree nursery and the balance 80 % will be distributed among the tree nursery group members.

Figure 2: Benefit sharing arrangementsin OuPaongraong CF
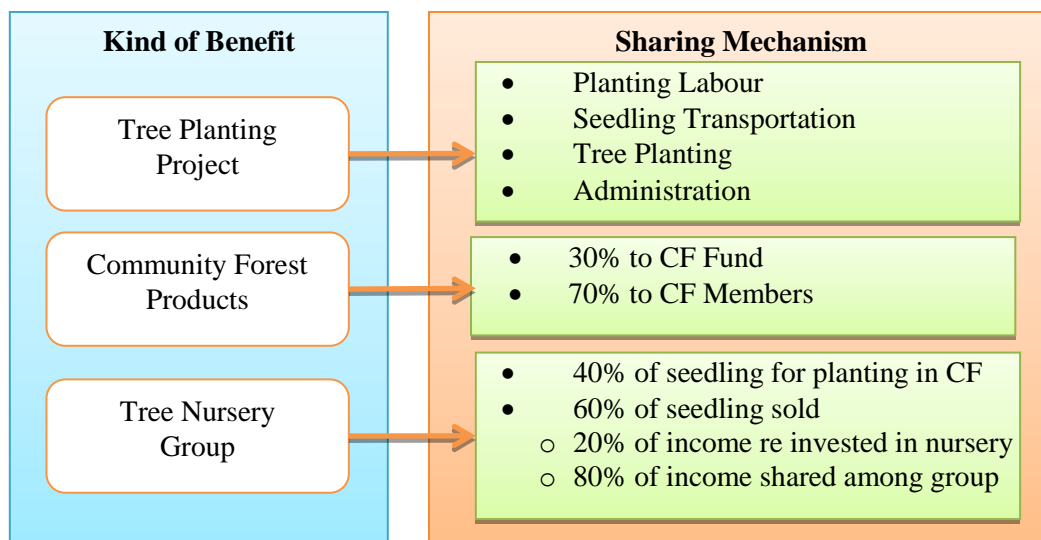
ThmatPory Community Protected Area

The ThmatPory Community Protected Area (CPA)provides another example of benefit sharing options used under Community Protected Area. It was established in 2003, located in Pring Thom commune, ChurmKsan district, and PreahVihear province. This CPA generates income from ecotourism by watching birdlife (Troryorng Yak and Troryorngchamkomkorsor). In 2010 only 95 tourists visited the CPA, generating revenues of USD3,310, but by 2013 the number of tourists had increased to 163, generating revenue ofUSD 17,034.

The CPA members have agreed that the revenue generated from eco-tourisms isto be used for:
- USD 10,500 for road construction in 2 Km;
- USD 6,600 for building 6 wells
- USD 800 as contribution to school, pagoda, and others.

Chambok Community-based Ecotourism

Chambok Community-based Ecotourism was approved by the Ministry of Environment by Proclamation (Prakas) No 027 dated 9 January 2003, with six villages (768 households) involved in the project, located at Chambok commune, Phnom Srouch district and Kampong Speu province.

According to Chambok CBE (2011), major sources of income for the villagers are tourism (10%), wage labor (15%), NTFPs (20%), livestock (25%), and rice (30 %)

Chambok CBE has setup the benefit sharing mechanism for different types of income generated from eco-tourisms as below:

- **Home stay**: a tourism will pay USD 4 to stay one night and this money will contribute 3.5US$ to hose owner and o.5USD keep for community;
- **Cow cart:**to transport tourists one time USD 4 and it will be contributed 3US$ to cow cart owner and USD 1to community;
- **Traditional show:**USD 15 for one time that it will be contributed USD 11.5 to actors team, USD 2.5 to coacher and USD 1 to community;
- **Guide:**USD 15 per day for guide service and this money will be contributed USD 14 for guide and USD 1 for community.

The community fund was also established with benefit sharing mechanisms wherethe fund will be used for forest conservation (40 %, 20 %, 25 % and 15 % of the fund will be used for forest conservation, village development, vulnerability members and being saved as a reserve respectively.

Lessonsfrom REDD+ pilot projects and existing benefit sharing mechanisms

From REDD+ pilot projects

- **Non-monetary incentives as important REDD+ incentives for communities**: In both cases, one of important incentives that REDD+ for communities is found to be non-monetary incentives such as secure tenure for local communities).
- **Minimizing transaction costs is important to maximize incentives to be distributed to communities**. According to the budget plan proposed under the OddarMeanchey project, more than 80 % of the revenuesare proposed to cover the implementation and transaction costs. In consequence, local communities, actual protectors of forests, receive considerably little rewards (less than 20 %) compared to other stakeholders. Thereby, minimizing transaction costs is important to allow for maximum incentives to be distributed to communities.
- **The risk of raising expectation for monetary incentives.** As the OddarMeanchey case indicates, raising expectation about financial payment that would come through REDD+ implementation is a double-edged sword for project proponents. While on the one hand, the promised of financial payment helps project proponents attract enthusiasm and participation from various stakeholders. If the their motivation to forest management becomes closely tied to financial payment, and if the project takes longer than expected to deliver the payment and the payment amounts are small, the project proponents may struggle to maintain those enthusiasm and participation in the long run. It is therefore extremely important for project proponents to be very strategic and careful about how much and when to divulge information on financial incentives to their stakeholders, although how this can be done without violating the stakeholders' right to Free, Prior, and Informed Consent is hard to envisage.

From existing benefit sharing arrangements

- Experience from CF exemplifies the importance of developing a clear plan for the purposes and proportion for which different types of benefits should be shared.
- Income from tourisms constitutes important income sources for villagers under community protected area. Experiences show that such incomes may be distributed for activities that contribute to the entire community such as construction of roads and wells, and schools, as well as for individuals who have contributed to eco-tourism works.

Stakeholders views and concerns

A series of ten sub-national consultation meetings were held on existing experiences and implications for REDD+ in March and April, 2014. Participants in the ten provincial meetings include those from provincial

departments (Forestry Administration Cantonment, Fisheries Administration Cantonment, Environment, Land Management, Industry & Energy, Rural Development, Economic & Finance), district governors, commune councils, Community Forestry (CF), Community Fisheries (CFi), Community Protected Area (CPA), Indigenous people (IP), and local non-government organization. The ten provinces were Kampong Thom, PreahVihear, OddarMeanchey, Siem Reap, Battambong, Pursat, Mundulkiri, Kratie, Stung Treng, and Ratanakiri.

During the Sub-national consultation meetings, participants were divided into groups to discuss key questions:
- What are your organization's roles and activities in forestry sector?
- What is the benefit sharing mechanism used in your organization?
- How does fund flow in your organization?

Major recommendations from sub-national consultation meetingsfor REDD+ included:
- REDD+ should be implemented as soon as possible because the deforestation is increase;
- The REDD+ benefit sharing should go directly to REDD+ implementers, especially local communities
- Respect the rights of local communities and Indigenous Peoples;
- The clear REDD+ benefit-sharing mechanisms in community should be set up in order to avoid conflicts within communities and to ensure trust from the community members to participate in resource management.

**Experience from other REDD+ participating countries**
A significant amount of work has been done on systems for provision of incentives in natural resource management programmes. This section reviews four such examples and summarizes lessons from others.

Brazil – Amazon Fund
Even though the Brazilian Amazon only covers a portion of the Brazil's total land area, its forest area is larger than the total land areas of most countries. Thus, the Amazon Fund can be considered a valid example of a national incentive scheme.

The Amazon Fund became operational in 2008 soon after the government of Norway pledgedUS$1 billion from their International Forest Climate Initiative to support Brazil's REDD+ initiative. The fund utilized a rather simple results-based payment system, by using the previous ten years deforestation rate as a reference level, and using a default value for carbon density (initially 100 tonnes/ha). Administration of the Fund is shown in Figure 6, below.

Figure 3: Structure of the Amazon Fund, Brazil
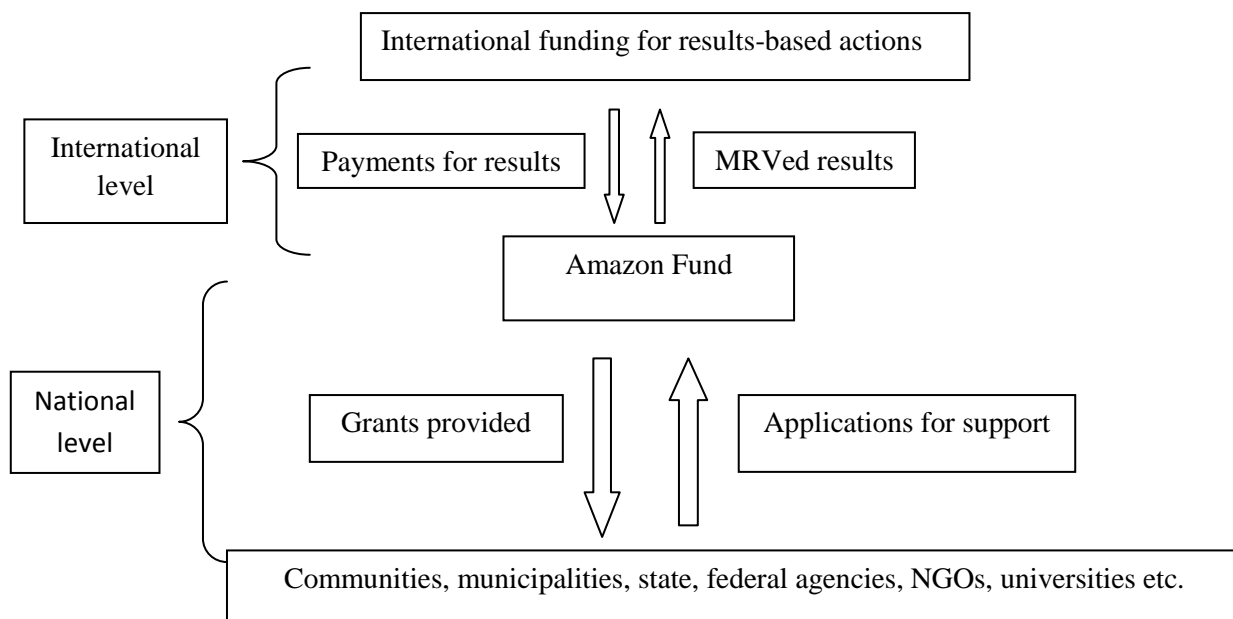
The Amazon Fund is administered by the Brazilian Development Bank (BNDES), whichalso serves to raise funds, to facilitate contracts, and to monitor supported projects and efforts.The Amazon Fund has two key committees:

- Guidance Committee, assigned with the responsibility of posting guidelines and monitoring the results obtained, and consisting of representatives from federal and state government as well as civil society including IP and private sector organizations;

- Technical Committee, appointed by the Ministry of Environment, charged with certifying the emissions count from deforestation of the Amazon Forest. The Technical Committee verifies the calculations concerning the effective reductions of carbon emissions from deforestation; appraise the methodologies

for calculating the deforested areas and the amount of carbon per hectare used in the respective calculation of emissions.

Provisions for sharing of incentives in the Amazon Fund involve:

- *Public Forest Stewardship Fund* to compensate indigenous and traditional communities, with the goal of increasing the viability of forest‑based livelihoods and strengthening their role as forest stewards. Payments would be tied to performance.
- *Private Forest Stewardship Fund*, to give current legal private landholders partial compensation (20%) for the opportunity costs of any of their private land forest reserves that are required for compliance with the law, and higher compensation (100%) for the opportunity costs of any of their private land forest reserves in excess of legal requirements.

By March 2014, the Amazon fund had supported 54 projects carried out by federal, state and municipal authorities, universities and NGOs for a total of $379 million with an average allocation of approximately $7 million per project and has an additional 29 projects under analysis. Grants have been distributed with 57% to states, 9% to the federal authorities, 3% to international organizations, 2% to municipalities, 2% to universities and 27% to others.

Effectiveness, efficiency and equitability
Effectiveness: While the Amazon fund seems very effective in reducing emissions, there has not yet been an assessment of the effectiveness of the Private or the Public Forest Stewardship Funds in incentivizing actions by stakeholders. A review of the Amazon Fund in 2013 concluded that it has a rather passive approach as it simply responds to applications thereby insufficiently targeted activities that reduce emissions. The review therefore highlighted a need for developing a proactive investment strategy that will achieve the fund objectives while ensuring the active engagement of stakeholders in the development and implementation of such a strategy.

Efficiency: The Fund has not carried out an assessment of efficiency. In addition to administration costs of 3% of total costs the BNDES has provided in-kind support to the administration of the fund. There will most likely be increasing costs for follow-up activities in the following years but whether it is cost efficient will depend on the amount of emissions reductions achieved.

With average grants of $7 million per project with some grants at more than $30 million there must be considerable economic of scales but it should also be noted that the main beneficiaries the Amazon States are very large and if they are implementing programmes across the state then the scale of activities will inevitably be large.

Equity: The ODI review concluded that it has been difficult for smaller projects to access funding from the Amazon Fund and that the Fund did not have much focus on sustainable production activities for forest dependent communities. There have been no assessments of equity for the Private or the Public Forest Stewardship Funds.

In an area as large as the Brazilian Amazon there will be different drivers of deforestation and therefore a need to consider different approaches to address the drivers. This will likely mean that the costs and benefits from REDD+ participation will be different in different locations and require different approaches to the involvement of stakeholders depending on the local situation.

Smaller grants will even with simplified application procedures most likely imply increased transaction costs (administration, follow-up etc.) and would reduce the overall efficiency- so clearly there is a need to find a suitable balance.

Indonesia's community nursery program
In 2010, the Ministry of Forestry introduced a community nursery program under the one billion trees program as a part of the government's REDD+ initiatives. It is a national programme, implemented at the

district level with the district forestry service. The program aims to plant a billion trees to reduce emissions from the forest sector by providing grants of IDR 50 million (approximately USD 5,460) each to village cooperatives.

To ensure successful implementation of the program, the Ministry has adopted performance-based payment. The grant is disbursed in three installments based on the demonstration of achievement, i.e., the number of seedlings produced in the nurseries. The district forestry service makes the first, second and third disbursements on the condition that a cooperative provides a total of 25 per cent (10,000 seedlings), a total of 75 per cent (40,000 seedlings) and a total of 100 per cent (50,000 seedlings) respectively of the target number of seedlings.

Based on a case study of the Kutai Barat district of the East Kalimantan province where this initiative was piloted, Saito-Jensen et al (forthcoming) analyzed how payments were distributed to villages and among villagers of a case study villagewith 427 households. The results showed that out of 238 villages in Kutai Barat, about 30 villages were enrolled under community nursery program. To receive the grant, villagers were required to form a cooperative with at least 15 members to produce and plant a minimum of 50,000 seedlings of timber, or fruit tree species. As a result, in the case of the case village, three cooperatives were formed, meaning that only 45 people out of 427 households were enrolled in the program, thus eligible for incentives.

The study showed that all three cooperatives achieved the final targets of 50,000 seedlings being produced from their nurseries. Cooperative members are required to plant at least 500 of a species of their own choice on their own land, which was mostly in the non-forest area, and to distribute the remaining seedlings to other villagers. The district forest agency agreed to take over any seedlings remaining to be used for reforestation on forest area land.

Yet, there were also expenses that incurred for these cooperatives in producing seedlings to cover costs for daily labors to produce seedlings, and costs for materials such as poly bags and containers for seedlings. Therefore, payments that exceed expenses of may be distributed to members of the cooperative as a form of monetary incentive, though there are no examples of mechanisms designed to achieve this result. Non-monetary incentives include receipt of seedlings for free, and access to employment opportunities. The district forest department may also benefit from being able to source some of the seedlings for reforestation activities.

Effectiveness, efficiency and equity
Effectiveness: The method to distribute monetary incentivesbased on measurable outputs (production of the targeted number of seedlings) waseffective in motivating villagers to achieve targets. However, as there is no experience of allocation of monetary incentives, it is not possible to assess effectiveness for this type of incentive. That, in itself, may be an interesting lesson in the complexity of allocation of monetary, compared with non-monetary incentives.

Efficiency: Provision of payments based on easily measurable achievements such as the number of produced seedlings minimizes transaction costs.

Equity: the project approach of including and selecting beneficiaries was inequitable. Out of 238 villages in Kutai Barat, about 30 villages were enrolled under community nursery program. Only 45 people out of 427 HH were enrolled in the program, thus eligible for incentives. Beneficiaries were primarily those withaccess to information and power, such as a leader of a village, and customary chief.
Nepal
In Nepal, there is a distinct hierarchical structure characterized by social class of castes and ethnicity and gender. Typically, higher castes such as Brahmin and Chettri are classified as elites. Dalits from lower castes and Indigenous Peoples and Women are classified as socially disadvantaged groups. Such structure was claimed to be a significant factor influencing decision making and benefit distribution process (Saito-Jensen et al. 2014). Whiles elites are known to dominate and monopolize decision making and collective incentives, socially disadvantaged groups tend to suffer from various constraints in claiming equal rights and equitable share of resources and benefit (Malla et al. 2003; Lund et al. 2014).

The Norwegian Development Aid Agency supported REDD+ demonstration projects from 2009 to 2013 in three districts, representing different geographical areas. The implementing partners of the project included three NGOs: the International Centre for Integrated Mountain Development (ICIMOD), Asia Network for Sustainable Agriculture and Bio resources (ANSAB) and Federations of Community Forest Users, Nepal (FECOFUN). The project included a total of 105 community forestry user groups (CFUGs) who manage 10, 266 ha of forests, with 16,143 households involved.

The main goal of the project was to test project-based REDD+ benefit distribution mechanisms to communities (i.e. community forestry user groups) and their members, with the key aim to ensure that local communities and their disadvantaged members benefit from REDD+ payments.

To achieve this goal, the project applied 3 affirmative measures:
1) Totarget REDD+ payments only to communities (CFUGs) ,
2) toinclude social criteriainto payment distribution formulation and
3) to provide a pro-poor guidance for CFUGs to spend 50 % of payments for the poor households within communities (to ensure the rest for forest management)

For the second affirmative measure, the project devised and applied the payment distribution formula where payment is calculated not only based on carbon volume but also on social criteria such as the number of Indigenous Peoples, Dalits, poor and women of each CFUG. Even higher weight was given to the social criteria with 60 % than to the forest carbon with 40 %. The project rationale for including such social criteria was first of all to ensure equitable distribution of payment among CFUGs.

Figure 4: Forest Carbon Trust Fund Distribution Structure
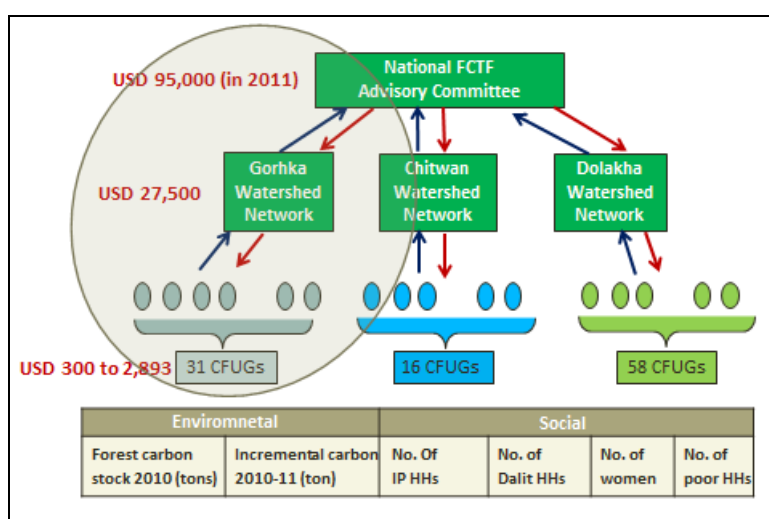
In 2011, the project distributed a total of USD 95,000 trust fund to 105 CFUGs (see Figure 7 for forest carbon trust fund distribution structure). To receive these payments, each community forestry user group (CFUG) had to submit an information sheet comprised of data on forest carbon stock, incremental carbon volume, and number of Indigenous Peoples, Dalits, women and poor households. Requirements were to use 50 % of the fund for forest management, and the remaining 50 % to be distributed to the poor households.

Subsequently, for those identified as poorest households, CFUGs decided to provide non-monetary incentives such as livestock. They did so for fear that poor households may drink away cash if provided. And notably incentives were distributed as *interest free loans*; thereby recipients had an obligation to return the cash amount used to purchase the livestock for example when these livestock produce offspring. In this way, CFUGs sought to use the REDD+ payment as revolving funds to be able to distribute incentives to additional households. In addition to these incentives, CFUGs provided subsidies for installing improved stoves and biogas plants in response to demand.

What are the effects of the benefit sharing approach on CFUG members?

The project approach to earmark the payment for specific social groups effectively excluded other social groups from benefit sharing. Also, since the fund size was relatively small to be distributed to every household, the project could only distribute funds to a small portion of the entire community (approximately 33 %). As a result, a majority of the community did not receive incentives. Due to this, frustrations arose among those who were excluded from benefit sharing, especially those among elite groups. The project approach for targeting the poor also had problematic effects. Several of the recipients also complained that the incentivesthey received were not the kinds of incentivesfor which they wished. Some of them perceived it as a burden since they were obliged to repay the loan.

What are effects of the approach on forest carbon sequestration?

Informants from government officers working at the district, and CFUG members all mentioned that the forest condition significantly improved since the project started. This statement can be validated from the project report that showed incremental increase in carbon volume in all 31 CFUGs in the Gorkha district between 2010 and 2011. According to these informants, improved forest conditions are attributed to more active forest protection than before, for example, as seen in more effective forest fire management, and more careful harvesting of timber and NTFPs. Yet, the inclusion of social criteria having the weight of 60 % of in the payment distribution formula reduced the importance of forest carbon increment (100% to 40%). Hence, CFUGs were not fully rewarded payments in proportion to the volume of forest carbon they helped sequestrated. For this reason, CFUGs especially those with relatively large size forests viewed the distribution formula to be unfair as they were not rewarded fully for the effort that they put for forest protection.

Effectiveness, efficiency and equitability

Effectiveness: The approach to provide results-based payments to communities is an effective means to provide a strong incentive for communities to strengthen forest protection and conservation (as shown by forest carbon increase in all 31 CFUGs in Gorkha). But it is also important to note that providing payment to communities may fundamentally alter the motivation of communities for conserving forests from meeting their long-term livelihood needs towards receiving short-term payments. If such transformation is introduced, communities may stop forest protection activities once payment flow stops.

Efficiency: Involving communities in forest management and benefit sharing reduced costs of forest protection and conservation. It is also an efficient and effective way to protect forests because of ease of monitoring and forest protection due to their proximity to forests. But the payment in this case did not cover costs for measuring, reviewing and verifying forest carbon, which was covered by a project NGO. If payment shall cover full costs of measuring, reviewing and verifying, it is likely that only a small portion of incentivesmay be left to be distributed to communities. A question of efficiency remains.

Equity: For the questions of equity, the case provides important insights into three affirmative measures to ensure equity in benefit sharing.

- **Social criteria into the payment distribution formula**have contributed to distributing payments roughly according to the number of households. In this sense, the project succeeded in attaining equitable distribution of incentives among communities with variable size of forests. Yet, placing too little weight on forest carbon has a concerning effect of lowering incentives of communities to protect forest resources.
- **Earmarking payments for specific social groups**has triggered a feeling of exclusion among those who were excluded from benefit sharing especially among elites. Those excluded may not join the effort of forest management in the long run. Also losing effective support from elite groups who generally have significant power in making decisions concerning forest management may have a damaging effect on effective monitoring and protection of forests.

Vietnam Benefit Distribution System

The Government of Vietnam (GoV) identified the design of a transparent and equitable benefit distribution system (BDS) as a key priority for REDD+, by drawing from their experiences with Payment for Forest Ecosystem Services (PFES) pilot projects. Vietnam is the first country in Southeast Asia to pilot at the national level policy for water service payments, which was implemented in two provinces - Lam Dong and Son La -following the Prime Minister's Decision 380/2008/QĐ-TTg dated 10/4/2008 (Government of

Vietnam 2010). Although GoV drew from their experiences with the two PFES pilot projects to guide their REDD+ BDS, it should be mentioned that PFES/PES is not necessarily the same as REDD+. Amongst many technical aspects, PFES/PES and REDD+ differ in terms of their principles regarding roles and participation of stakeholders.

A key concept in Vietnam's PFES is the so-called 'k-factor', which differentiates the amount of payments to forest owners according to forest status, types of forests, origins of the forests and level of difficulty of forest management. The k-factor was to be decided by provincial people's committees and in accordance with local conditions. The formula to calculate the k-factor was proposed as follows:

Amount of payment	**=**	**Norm of payment per hectare**	**X**	**Area of forest managed**	**x**	**k-factor**

The k-factor can be made up of several variables:
  (i)   K1: Forest status (ability to provide forest environment services);
  (ii) K2: Type of forest (special-use, protection or production);
  (iii) K3: Origin of forest (natural forest, planted forest);
  (iv) K4: Unfavorable and favorable conditions for forest protection (social and geographical factors).

Application of K-factor in Son La and Lam Dong Pilot PFES Schemes
Determination ofpayments to contracted individuals and/or households involves:
  1. A Protected Area Management Board (PAMB) signs a contract with the FPDF for the protection of a specified area.
  2. The PAMB develops, updates and verifies a list of households living in the respective watershed area and forestland inventories on the basis of past and existing forest protection activities.
  3. The district-level Forest Protection Unit certifies the accuracy of the updated forestland inventories. The district PC approves the inventories and forwards them to the FPDF for use in the contracts signed with the PAMB.
  4. The PAMB signs forest protection contracts with the heads of household groups for duration of one year.
  5. The PAMB disburses the applicable payments to the household groups through its commune-level units under supervision of village leaders and commune People's Committee (PC). All member households countersign the disbursement of funds.
  6. The PAMB and groups inspect the contracted forest once a quarter.

In Son La, the k-factor was based on the origin of the forest (e.g., natural, plantation) and type of forest (protection, production, special use), whereas magnitude of forest impact in addition to the four elements employed in Lam Dong. But because there was no clear or updated data on status of forest development, and despite efforts to measure indirect forest values to unpack the k-factors into several sub k-factors, variations of forest status could still not be determined, making application difficult. Further, due to the challenge for PFES implementers to interpretand implement the K-factor, it was assumed to be '1' and payments were made uniformly to ES sellers in both provinces (Bac and colleagues 2014).

R-Coefficient and its pilot application in Di Linh district
Based on the concept of the k-factor, the application of the R-coefficient was proposed for REDD+ in Vietnam (GoV2010), despite differences between REDD+ and PFES. For instance, the buyers of the ecosystem services for both PFES pilot projects are local, and the contract is direct with the providers of the service, so "k-factors" were theoretically simply to determine the appropriate payments to individual households (Bac et al. 2014). In contrast, under REDD+, the buyers are global, and payments are made through national governments and one or more sub-national agencies before reaching the ultimate beneficiaries (GoV 2010). In addition, unlike PFES, REDD+ would also need to take into account other broader national development objectives including poverty alleviation, a coefficients to determine the appropriate distribution of REDD+ incentives, initially to provinces, and then to districts and to local beneficiaries is needed. Therefore, the GoV decided to explore the development of coefficients, now known as "R-coefficients" to seek a balance between the social and economic goals of the government and actual contributions to emissions reductions, while maintaining a strong link to REDD+ performance (GoV2010).

According to the GoV (2010), the R-coefficient was designed to introduce a weighting of REDD+ performance-based payments that would take social, environmental and geographical factors into consideration. The R-coefficient is not intended to promote equity per se but is a means to ensure that co-benefits from REDD+ are addressed. In other words, this means that disadvantaged communities, those living in or near higher value conservation areas, and 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 will receive higher weighting of payments through the R-coefficients.

It should be noted that no actual payments for REDD+ based on the R-coefficient calculations have been made yet. Hence based on their simulations and interviews with participants in the Di Linh district in the Lam Dong province, Thoa et al. (2012)made the following recommendations for the R-coefficients

- Data/ information collection and verification system required by the calculation of the R-coefficients should involve all levels from the central level to the province, district, and commune levels. The commune which is the smallest government unit in the country having capacity for maintaining the data/information system should be designated as the basic organizing unit for data and information collection, and distribution.
- The construction and use of R-coefficients should be monitored at the central level, where performance data of all beneficiaries are collected.
- The R-coefficient itself needs to be simple, developed by consensus, and easy to implement.
- 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.

Effectiveness, Efficiency and Equity of the application of K-factors and R- coefficients

Effectiveness: The complexity of defining the K-factor and R-Coefficients, together with existing incomplete forest data, led to no consensus on the K factor in both of the pilot provinces (Ha and Hoan 2011), and the weighting of the R-coefficients in Di Linh (GoV 2010). In addition, the high cost of monitoring the forest and landowners' boundaries, which are the basis for direct payments, kept transaction costs very high, thus reducing the cost-effectiveness for the use of coefficients (Ha and Hoan2011).

Efficiency: Since both concepts – k-factor and R-coefficients – were very new and complex for a majority of stakeholders in Vietnam, the amount of time invested into capacity building on how to engage with the process to determine the k or the R did not make either of these concepts efficient.

Equity: Pham et al. (2012) pointed out that since 80% of quality forests are under the ownership and management of state agencies, the majority of the payments for or financial incentives from REDD+ would go to the government and state-owned companies. They also stressed that because forest land allocation does not allow joint ownership at household and community levels, women tend to have limited rights to land and thus stand to gain the least in terms of payment allocation. Also, the PES approach that builds on a contractual agreement between landowners and payment providers automatically exclude those who do not have clear land rights. In many developing countries where many of forest dependent communities lack formal rights to forests may thus be excluded from such scheme.

Addendum 1: Example of an incentives registry from Vietnam

Province	District	Commune	Village	REDD+ activities agreed	Incentives agreed	Performance parameters
Lam Dong	Di Linh	Gung Re	Lang Cu	Plant 10ha of bare land at location xxx	A. Community development fund with up to $27,000	A: Immediate establishment of fund with $10,000; $7,000 on planting of bare land and no encroachment; $10,000 on evidence of patrolling for 24 months and no encroachment
				Eliminate clearing of forest for coffee (or other crops)	B. Training in improved coffee processing	B: After one year, if no encroachment and at least 80% survival of plantation trees
				Patrol 10km of the boundary of XinDuy SUF with at least 100 person-hours/month	C. Assistance in establishment of coffee marketing cooperative	C: Immediate support for legal registration; training in cooperative operations after 1 year if no encroachment and evidence of patrolling
Lam Dong	Di Linh	Gung Re	Hang Hai	Eliminate clearing of forest for coffee (or other crops)	A. Community development fund with up to $24,000	A: Immediate establishment of fund with $10,000; $5,000 on evidence of patrolling after 6 months and no encroachment; $9,000 on evidence of patrolling after 24 months and no encroachment
				Patrol 7km of the boundary of XinDuy SUF with at least 120 person-hours/month	B. Assistance in establishment of coffee marketing cooperative	B: Immediate support for legal registration; training in cooperative operations after 1 year if no encroachment and evidence of patrolling
Lam Dong	Di Linh	Son Dien	Dang Gia	Eliminate clearing of forest for coffee (or other crops)	A. Community development fund with up to $18,000	A: Immediate establishment of fund with $8,000; $5,000 on evidence of patrolling after 6 months and no encroachment; $5,000 on evidence of patrolling after 24 months and no encroachment
				Plant 21 ha of bare land at location	B. Assistance in establishment of coffee marketing cooperative	B: Immediate support for legal registration; training in cooperative operations after 1 year if no encroachment and evidence of patrolling
				Provide personnel for at least 200 person-hours/month of fire patrols during Mar. - June		

Lam Dong	Lam Ha	Me Linh	BuonChuoi	Eliminate clearing of forest for coffee (or other crops)	A. Training in improved coffee processing	A: After 1 year if evidence of fire and SUF patrolling and no encroachment
				Patrol 16km of the boundary of BanhCua SUF with at least 180 person-hours/month	B. Assistance in establishment of coffee marketing cooperative	B: Immediate support for legal registration; training in cooperative operations after 1 year if no encroachment and evidence of patrolling
				Provide personnel for at least 200 person-hours/month of fire patrols during Mar. - June		
Lam Dong	Lam Ha	Me Linh	Hang Hớt	Plant 7ha of bare land at location	A. Community development fund with up to $18,000	A: Immediate establishment of fund with $8,000; $5,000 on evidence of patrolling; $5,000 on evidence of patrolling after 24 months and plantation survival rate of at least 80%
				Provide personnel for at least 140 person-hours/month of fire patrols during Mar. - June	B. Training in ecotourism venture development	B: After 9 months if land planted and evidence of patrolling