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Reducing emissions from deforestation and forest degradation (REDD) in Indonesia: options and challenges for fair and efficient payment distribution mechanisms

Meine van Noordwijk, Herry Purnomo, Leo Peskett and Bambang Setiono

Southeast Asia

World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

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Abstract

The objective of REDD payment distribution mechanisms is to support policies and measures that reduce deforestation and degradation through transfer of revenues from international REDD funds or carbon markets to (or within) national levels. This may provide benefits of three types: a) shared responsibility for reducing a major driver of global climate change, b) financial payments and co-investment that exceed the economic opportunities foregone from decisions to maintain carbon stocks, and c) co-benefits through the other environmental service functions that well-maintained forests can provide. Given its track record of high emissions from land use and land use change of an estimated 2.5 Gt CO_2e year^{-1}, Indonesia provides a huge opportunity as well as serious challenge to reduce emissions. We report here on a series of stakeholder consultations and focus group discussions to identify options and challenges. To ensure demonstrable results on emission reduction, REDD mechanisms must be effective in targeting the wide range of agents involved in deforestation and degradation, learning lessons from past and ongoing conservation efforts that have apparently failed. They must reward good performance and incentivize improved performance compared to reference scenarios, and adequately compensate agents that suffer losses from changed practices. International payments are likely to be performance based, both in terms of emission reduction at national scale and the environmental and social impacts of the system, meaning that accountability, transparency, risk management, adequate benefits transfer and administration mechanisms will be essential for attracting investment. Indonesia will be effectively competing for attention and REDD funds with other countries with currently high emissions and/or large forest areas. A strong international 'bargaining position' requires that internal conflicts and strategic positioning be overcome.

Keywords

Clean Development Mechanism (CDM), deforestation, greenhouse gas emissions, forest definition, Indonesia, policy reform, REDD, scale relations

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Contents

Introduction

The recent award of the Nobel Peace Prize to scientific and popular advocates of the climate change issue signals the recognition of the concerns that the human and political consequences of climate change are a threat to world peace and that new approaches are urgently needed. However, the interface of climate change and Millennium Development Goals (especially 1 and 7 on poverty reduction and sustainable development) urges attention to adaptation by the most vulnerable groups, and for making sure that mitigation measures do not, without appropriate compensation, exclude rural poor from land use options that could get them out of poverty. Innovative solutions on the interface of adaptation, mitigation and poverty reduction are much needed yet are still being tested (Lipper and Cavatassi, 2004; Skutsch et al., 2007; Verchot et al., 2007; IPCC, 2007).

The United Nations Framework Convention on Climate Change (UNFCCC) was established to avoid negative impacts of climate change through prevention, mitigation and adaptation, but has so far not included a mechanism to provide incentives for emissions from forests and peatlands. The omission of nearly one fifth of global emissions, in the form of deforestation and land use change, from the global rules of the game is not rational (Stern, 2006; Schlamadinger et al., 2007; Kanninen et al., 2007; UNFCCC 2007). Efforts to deal with much smaller fractions of total net emissions, through A/R CDM (Afforestation and Reforestation as form of Clean Development Mechanism; Mizuno, 2007), can hardly be taken seriously if these much larger fluxes from deforestation and other carbon stock degradation are not brought under control. The Kyoto Protocol that set emission reduction targets for countries with high per capita emissions will end in 2012 and current discussions focus on inclusion of incentives for reducing these emissions from deforestation and forest/peatland degradation (REDD) in a post-2012 international climate regime of commitments and incentives.

Indonesia is taking a proactive role in the international negotiations of new regimes of commitments and incentives and will try to prove during the 2008 – 2012 period of the Kyoto protocol that REDD mechanisms can work in Indonesia and that the global community can benefit from a full-scale REDD inclusion in a post-Kyoto regime.

Based on the range of possible emission reduction strategies and the expected future price of carbon credits, the total international transfers for REDD to Indonesia may well become a hundred million US-$ to several billion US-$ per year. For some this creates hope, for others concern. Learning from the post-Tsunami conflict resolution in Aceh, and conflict re-emergence in Sri Lanka, we can safely predict that expectations of a REDD Tsunami of carbon money will raise the stakes on the debate on the forest margins where deforestation and degradation occur. Depending on the way the benefit sharing is achieved, these extra funds can help to find peace or can lead to increased open conflict. Payment distribution mechanisms are therefore highly political and contested.

This paper summarizes one of the studies undertaken by the Indonesian Forest Climate Alliance (IFCA) to support Indonesian stakeholders to participate in global negotiations. It is based on an intensive process of consultations with national stakeholders of the forests and forestry sector on Indonesia, representatives of Indonesia in the international climate change negotiations and local stakeholders in some of the areas where our institutions have long term engagement with the change in forest conditions. In the consultative meetings the starting point was the current international context for Indonesia's emissions, followed by an assessment of the 'bargaining position' and scope of REDD mechanisms. After that the focus shifted to how such mechanism might be beneficial and how it would differ from the many previous and ongoing attempts to conserve forests. Based on this experience, the design options for a national REDD payment systems could be related to the principles derived to

secure multiple benefits. In line with this sequence, this paper describes the findings under six headings, followed by a general discussion:

A. Questions on international architecture for REDD,

B. Indonesia's bargaining position as high emission country,

C. Scope of REDD and risks of partial accounting,

D. Principles for achieving triple bottom-line (people, planet, profits) benefits,

E. Existing experience with regulatory, fund and market based approaches,

F. Potential for national Indonesian REDD payments system.

Questions On International Architecture For Redd

Two types of financial transfers have so far been proposed to provide incentives for reducing emissions from deforestation and degradation: the creation of a separate REDD fund, with a mandate to target emission reductions in forested countries, and the creation of tradable rights to emit, that could be the basis for a market in emission reduction credits (UNFCCC, 2007). With both options on the table, the negotiation position for a country such as Indonesia is likely to depend on the answer to the following five questions (Figure 1):

a. How can Indonesia access REDD funds and/or emerging international markets? Why should funds be paid to Indonesia's REDD efforts rather than to other countries or other emission reduction approaches?

b. What can 'payment distribution mechanism' + internal markets deliver within the country? What internal institutional arrangements are needed?

c. How can emission reductions from the REDD domain, relative to a reference scenario of land use change, be compared to other (e.g. energy related) emission reduction options and how can it lead to 'tradable credits'?

d. What international institutional arrangements are needed? How can returns on investment be generated for countries providing upfront investment for REDD, and hence what type of replenishment of the fund can be expected in future?

e. Will it help to manage (reduce) climate change and reduce negative effects on Indonesia?

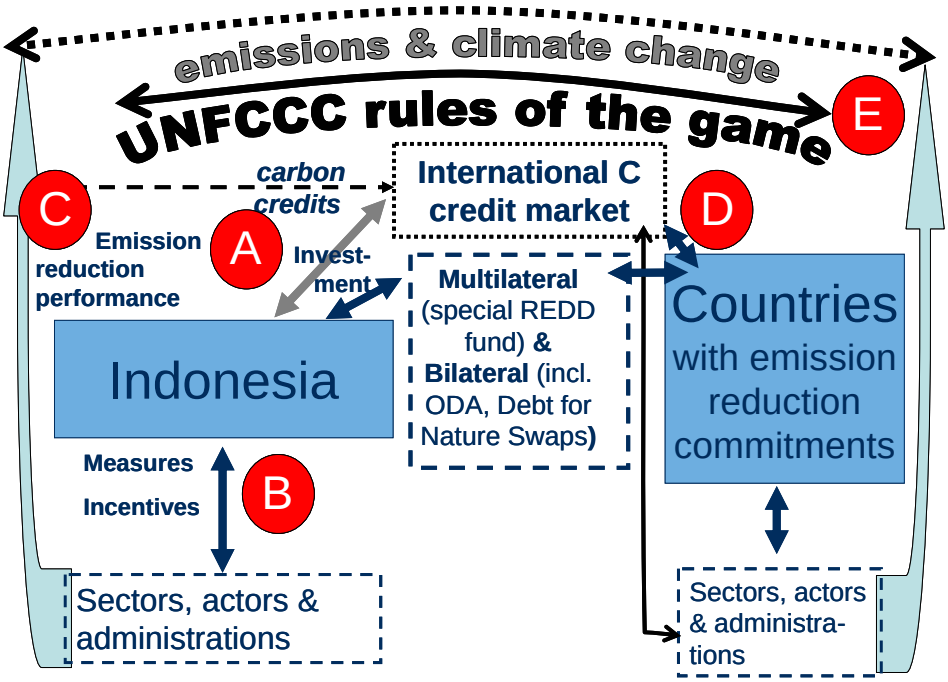

Figure 1. Basic architecture of the relations between a country such as Indonesia and countries with commitments to reduce their greenhouse gas emissions to the atmosphere; A…E refers to five questions that are part of the current debate

Different segments of society may place different weights on these questions, in line with intrinsic positions of trying to maximize short-term financial gains, long-term sustainable

development and concerns about environmental degradation. An alternative way of posing these questions is in terms of:

- Slicing the cake: who will get which part? (competition and bargaining for a specified resource)
- The size of the cake: how can the total amount to be distributed be increased? (strategies for competition at higher level, influencing rules of the game)
- How palatable and attractive will the cake be? How will it taste and smell? What's the recipe?
- Who will pay for the cake? Will it provide a 'free lunch' or come with strings attached?

The issues about size of the cake and the rules for slicing it occur at multiple scales: between the sovereign countries that consider signing and ratifying an agreement, and between administrations, sectors and actors within each country. Three types of arguments, referring to 'poverty', 'rights' and 'shared responsibility' (see below) are and will be used in various combinations for maximum effect to increase the bargaining position by combinations of 'threat' and 'trust'. Overemphasis on the 'rights' card may come across as blackmail. Overemphasis of the 'shared responsibility' aspect will lead to 'lack of additionality', while the 'poverty' card is more effective when expressed in terms of evolution towards equitable per capita emissions.

Should Indonesia get a large (market) share of the 'avoided deforestation' because it has a track record of high emissions so it can show emission reduction? Should the province of Riau be where most of the funds go because it has a track record of high emissions so it can show emission reduction? Should the providers of raw material to the pulp and paper sector in Riau get most of the funds because they have a track record of high emissions and deforestation so they can show emission reduction? Or, should the attention go to countries, provinces and actors that have a track record of protecting their forests and thus be trustworthy partners? At each scale that this question is asked, there is a 'moral' or 'justice' dimension to it, and a 'pragmatic' or 'efficiency' one. The challenge for the 'distribution mechanisms' is to strike a balance between these two dimensions.

Indonesia's Bargaining Position As High Emission Country

Indonesia may well be the largest global emitter of CO2 and other greenhouse gases from the land use change and forestry (AFOLU (Agriculture Forestry and Land Use Change) or LULUCF (Land Use, Land Use and Cover Change, and Forestry) in the IPCC reporting guidelines) sector. With total emissions of 2.5 Gt $year^{-1}$ (Table 1; Murdiyarso and Adiningsih, 2007) it is third overall after China and USA, whose emissions derive from fossil fuel use. The details of the emission and ranking are contested, but the emissions are a serious concern to all, and reduction is urgent in the light of the targets set by the UNFCCC. The emissions from peatlands, both those due to drainage for agricultural use and the drainage-induced fire risks in dry years, come to more than half of Indonesia's total emissions, although peatland is a relatively small area and have relatively small economic benefits.

Table 1. GHG emission summary in Mt CO_2e (PEACE, 2007)

Emission sources	United States	China	Indonesia[1]	Brazil	Russia	India
Energy	5,752	3,720	275	303	1,527	1,051
Agriculture	442	1,171	141	598	118	442
Forestry and peat-lands	-403	-47	2,563[2]	1,372	54	-40
Waste	213	174	35	43	46	124
Total	**6,005**	**5,017**	**3,014**	**2,316**	**1,745**	**1,577**

1. Total emissions may in fact be anywhere between 1.5 and 4.5 Gt CO_2e per year; a further investment in data collection is needed to reduce this uncertainty margin
2. A significant part of the peatland emissions may in fact belong to the 'agriculture' domain, which has consequences for eligibility under REDD regimes

Why should anyone receive funds or rewards for NOT damaging the global ecosystem? The answers to this question are usually a combination of:

- "**Poverty** means we have few options other than degrading the forest - we need help to develop sustainable livelihoods";
- "We have **rights** to manage our lands the way we want; some countries that deforested in the past are now rich";
- "**Sharing responsibility**: We are committed to do our share of the global clean-up and work to protect the environment and reduce emissions, but there are real 'opportunity costs' that need to be compensated".

Various permutations of these answers have been presented over time, and the international community has responded with a mixture of guilt, commitment and business-sense. Investing in 'clean development', either under the rules of the Clean Development Mechanism (CDM) or in voluntary forms, has provided ways to enhance the standing of the investor and have been more cost effective than further efforts to reduce emissions at home. The UNFCCC is an agreement between sovereign nations, and has to respect the diplomatic negotiations in which the poverty, the rights and the shared responsibility arguments are used for maximum gain. Recent positioning of the main forest countries refers to commitments and shared responsibilities in the search for constructive solutions and international benefit transfers.

A substantial number of case studies is now available on the relations between local communities and their (agro)forest management in Indonesia, with consequences for the design of reduced-emission development pathways (Lusiana et al., 2005; Miyamoto, 2006; Tomich et al., 2002; Cacho et al., 2007; Van Noordwijk et al., 2005).

Scope Of Redd And Risks Of Partial Accounting

Based on internationally available data (Fig 2), Indonesia has a comparatively high 'forest degradation' rate, both in absolute terms and in relative terms of rate of 'deforestation'. This may in part reflect the different nature of forest conversion. In Brazil nearly all forest conversion is based on clear felling followed by conversion to pasture with little if any trees. In Indonesia a gradual loss of large and smaller trees takes place before final conversion. Indonesia thus is directly interested in a REDD rather than RED program.

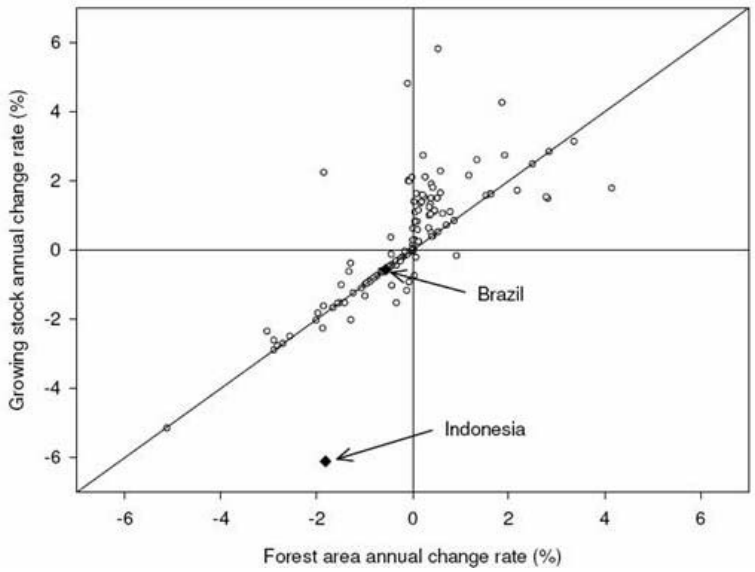

Figure 2. Comparison of forest area change ('deforestation') and loss of growing stock ('degradation') in nationally reported forest data in the FAO forest resource assessment (Marklund and Schoene, 2006); the position of Indonesia indicates much stronger 'forest degradation' than 'area-based deforestation', while globally the two indicators are more strongly correlated

Although Indonesia has no shortage of land area that lost its forest cover before 1990 (Murdiyarso et al., 2008), the widespread expectation that the afforestation/reforestation approach to Clean Development Mechanisms (A/R CDM) could find serious application and lead to sustainable development benefits has not so far materialized. No project designs have yet been approved by the Designated National Authority (DNA), despite considerable efforts from local, national and international partners. The main challenges, according to van Noordwijk et al. (2008), to implementation of the current A/R CDM mechanisms are in 1) the definition of forest and its institutional implications, 2) the projectization that is embedded in the definition of CDM, 3) non-linear baselines related to forest transitions that complicate attribution, 4) inherent lack of synergy with other development activities and 5) high transaction costs and temporary nature of credits.

Chomitz (2007) distinguished three types of forest in relation to likelihood of imminent change: 'core forests', 'forest margins' with rapid loss of forest cover and contests over land use rights, and 'mosaic forests' in the (partial) recovery phase after land rights were established. Baselines of the change in forest cover and/or carbon stock probably are usually non-linear, at least at a local scale of assessment, and make transitions from degradation into a rehabilitation phase in the absence of specific interventions. The relationship between the 'degradation' and 'rehabilitation' phases of a landscape are still debated (Tomich et al. 2005, Geist et al., 2006; Rudel, 2007). In the environmental literature the phenomenon is discussed by reference to the Kuznets curve or 'forest transition' (Mather, 1992; Angelsen, 2007). A

number of Asian countries already show an increase in forest area (but not necessarily in terrestrial carbon stocks) in their national statistics, based on plantation forestry (Mather 2007). Rudel et al. (2005) suggested two possible pathways for advanced forest transition. One is the "economic development route", where the agricultural population declines as industrialisation and urban migration proceed, and abandoned agricultural land is spontaneously reforested (this has happened in parts of Europe and N America). The other, is the "forest scarcity pathway", where scarcity of forest products drives up price and stimulates tree planting. There are, however, considerable time lags in this response (Palo, 2004).

The necessity of 'whole system' accounting for net anthropogenic emissions of greenhouse gasses is gaining ground (Cowie et al., 2007: "Ideally, the accounting approach should cover all significant biospheric sources and sinks, avoid biased or unbalanced accounting, avoid leakage and require no arbitrary adjustments to remedy unintended consequences"). The current system of rules and its 'path dependence' (O'Riordan and Jordan, 1999), or stepwise evolution from precursors under the selection pressures of the day, is under scrutiny and a wider set of alternatives is needed (Benndorf et al., 2007).

In terms of the scope of the current discussions it may be important to specify which parts of the LULUCF (AFOLU) emissions outside of Annex-I countries will not be covered (Figure 3):

- emissions from lands that dropped out of the 'forest category' before reference year X (yet to be selected), or never qualified as forest. Quantitatively, the peatlands are the most significant contributor in this regard. The long-term nature of peatland emissions, based on a few percent loss from a huge C-stock, contrasts with the rapid loss of above-ground biomass (potentially a near complete loss of a moderate C-stock), makes the choice of X important in this regard.
- sequestration by lands that re-enter the forest category, even if they have been only marginally below the forest threshold.
- C sequestration through reforestation of lands deforested after 1990, and thus not eligible for A/R CDM.

The biophysical assessment of C-stock changes is not that difficult, but the political attribution of blame and credit is.

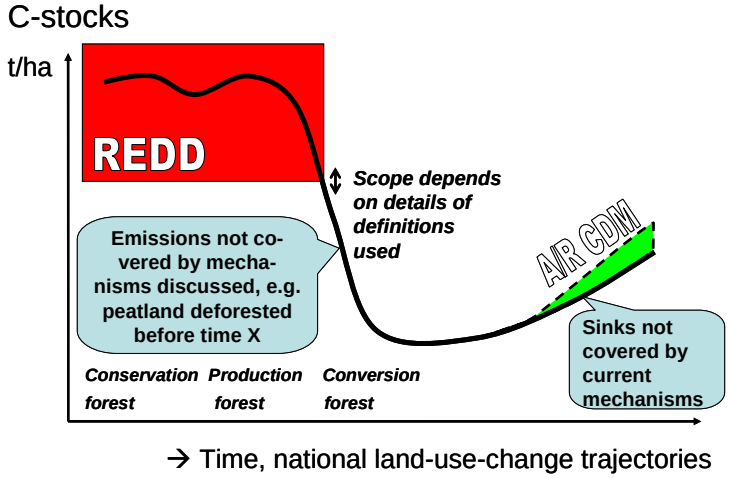

Figure 3. Schematic representation of the changes in C stock in national land use trajectories, where loss of C stocks tends to be followed by a partial return of tree cover, in a form of 'environmental Kuznets curve'; the potential reach of A/R CDM and REDD mechanisms is indicated, while other transitions within the LULUCF (AFOLU, IPCC 2006) domain affecting C stock are not included; the position of the labels conservation, production and conversion forest is only indicative..

Principles For Achieving Triple Bottomline (People, Planet, Profits) Benefits

Triple accountability to people, profit and planet requires the emergence of incentive systems that 1) are efficient in reducing emissions at affordable cost, linking local to international scales in ways that are accountable for emissions but that are as simple as possible, 2) address 'climate justice', equity and fairness, within improved systems of governance and accountability from local to international scales, 3) support transformations to sustainability for the long term within the local context of options and aspirations, and 4) express a commitment to learning and accountability for the process.

In hindsight, the complexities of integrating 'avoided deforestation' in the global 'clean development mechanism' that lead to its exclusion in the Marrakech accord may be clear. Are we confident that sufficient progress has been made on all fronts to make REDD acceptable now? Table 2 tries to summarize the current position. There has been considerable progress in opportunities for global C accounting (DeFries et al., 2007; Trines et al., 2006; Brown et al., 2007; Canadell et al., 2007; Palm et al., 2005), and challenges of deriving baselines are better understood (De Jong et al., 2007; Sathaye and Andrasko, 2007).

Table 2. Issues surrounding international incentives for forms of 'avoided deforestation'

Issue	Why was no agreement reached 5 years ago on 'avoided deforestation'?	Why do we think it can be resolved now in the form of REDD?
International relations		
1. Sovereignty, interference with 'development'	Developing countries did not want to forego opportunities for economic development and many resisted foreign influence on the way they manage their lands	A substantial part of emissions is associated with activities that have negative or only small positive economic benefits; 'bottom-line' mechanisms will maintain national sovereignty and avoid loss of control
2. Trust	Low level of trust and social capital between the various parties at the negotiation table and associated 'civil society', strong signals that vested interest rather than shared responsibility for global climate dominated positions	The urgency has become more pronounced, the contribution of non-energy emission sources better articulated; inter-agent trust may well be the primary hurdle, with high expectations of financial gain a distractor
Technical aspects		
3. Quantification and monitoring	There was substantial uncertainty over the quantitative aspects of emissions, while high quality monitoring had high costs	There has been progress in remote sensing techniques, both at the high quality and the public scrutiny level, although the tradeoff between quality and costs is still an issue
4. Baselines (targets) for emission reduction	There is no 'objective' choice between various ways to establish reference levels of emissions as basis for 'emission reduction'; for Annex I countries an emission cap was negotiated per country; non-Annex I countries did not want to commit to a total emission level	With a shift from 'project' to 'national scale' accounting, the reference scenario will get more the character of 'shared responsibility' and negotiated targets (such as committed by Annex-I countries), without use of the word cap
5. Permanence	Avoided deforestation may only shift deforestation into the future, not shift	Avoided emissions from deforestation are not essentially different

	towards a low-emission future	from avoided emissions from fossil fuel use: neither is permanent, but they are equivalent
6. Leakage	The opportunities for shifting forest use (and associated loss of carbon stocks) to other areas, makes 'leakage' a serious issue at project scale	National scale accounting, based on a summation over all areas within the country, can reduce the 'leakage' issue to what is accepted between Annex-I countries in the Kyoto protocol
7. Additionality	In assessing the specific contributions of any activity or project, as basis for incentives or rewards, a complex network of causes has to be unravelled; additionality is hard or near impossible to assess at project scale	A commitment to 'bottom-line' accounting shifts the 'additionality' issue largely to the establishment of 'reference scenarios' for emissions at national scale; the way such targets can be met does not require international rules
Development benefits		
8. Co-benefits	There is no shortage of other efforts to conserve forests, but a lack of effectiveness. High expectations of co-benefits complicate the additionality aspect, as a cost share among functions is expected.	With additionality out of the way, the co-benefits may be the primary incentive for decision makers to select among alternative ways of achieving a bottom line emission outcome, with financial compensation for the real opportunity costs
9. Poverty reduction	Forest-dependent people have been under-represented in public decisions about forest futures and rules may increase poverty for these groups and reduce resource access rights	Implementation of emission reduction targets will only be feasible with cooperation and sharing of incentives; conflict as underlying cause of forest fires is now recognized as threat
Relation to long term UNFCCC objectives		
10. Transition to sustainability	With fossil fuel use was seen as the ultimate cause of high emissions, transitions to sustainability will primarily depend on shifts in energy source	The 'biofuel' debate has shown that shifts to renewable fuels may lead to net increase in emissions if the links with land-based emissions (incl. REDD) is not accounted for
11. Flooding the market	Large emission reductions might be achieved at low cost, undercutting the efforts to transform industry and energy sector through CDM	Not achieving large emissions that can be achieved at low cost undermines credibility of the rest of the system; a substantive increase in total emission reduction will increase 'demand' and absorb the additional 'supply' of emission reduction credits
12. Scope	The popular association of terrestrial vegetation + soil sources and sinks with the term 'forest' lead to a need for tighter operational definitions of the term and uncertainty on inclusion/ exclusion of intermediate tree density vegetation	Important and avoidable emission sources will still be excluded if current REDD proposals go forward; a broadening of the scope to other chapters in the IPCC national GHG accounting is advisable

Existing Experience With Regulatory, Fund And Market Based Approaches In Indonesia

A recent review of the macro-economic context of forestry in Indonesia and opportunities for external assistance (World Bank, 2007) documented the overcapacity in the pulp and paper sector and the lack of clarity on the legal status of forests across Indonesia, with the contesting claims by the state and local communities unresolved. The conflicts between state-sanctioned concessionaires and local communities are considered to be at the basis of part of the forest fires (Tomich et al., 1998; Suyanto, 2007). While 'governance' issues are now widely seen as a priority (Purnomo, 2006; Tacconi, 2007), the more specific issues of rights and conflict resolution require detailed analysis of each case and local ways to reduce conflict (Contreras-Hermosilla and Fay 2005; Griffiths, 2007; Kusters et al., 2007; Suyanto et al., 2007). Benefits to the local community of enhanced forest management for emission reduction may not be easy to achieve (Murdiyarso and Herawati, 2005; Murdiyarso and Skutsch, 2006), as the experience with partnerships between plantation companies and local communities have shown (Nawir and Santoso, 2005).

Existing funding and incentives schemes in Indonesia give insights into the way REDD mechanisms might work, offer possible options that could be used in payment distribution mechanisms and possible issues that could arise. Table 3 summarizes the main features of nine different mechanisms. Two main scales can be distinguished:

- Funding mechanisms from central government to local governments, companies or direct to communities
- Smaller-scale redistribution mechanisms at a local level within villages, between local government and communities and between companies and local communities

Both of these are relevant to possible future configurations of payment schemes in national REDD mechanisms in Indonesia.

Table 3. Summary of experience with existing regulatory, fund and market incentive schemes in Indonesia

Strategy	Objective	Principles	Main beneficiaries	Basis for fund transfer	Institutional structure	Financial mechanism	Form of payment	Risks	Safeguards
Reforesta-tion Fund	Collect funds to be used for reforestation	60% to central government; 40% to local government	Central government and local government	Reported cubic metres of logging	Local government checks reports; Ministry of Finance holds funds; Ministry of Forestry govern redistribution	Concessiona ire pays Ministry of Finance	Cash transfer	Transparen-cy; misuse of funds; corruption	Now state budget so subject to financial procedures
Community forest planta-tion	To guarantee log supply to forest industry; to improve community livelihoods	Equity among big and small forest players;	Local community; local government; forest industry	Proposal submitted by community and approved by local government	Local community group individually or collectively with forest industry; local government supervises and ensures clarity of rights; central government provide funding and ensures clarity of rights; BLU (Public Service Agency)	Government to community (mechanism not yet defined in detail)	Rights to manage state land; cash transfer in soft loans	Excess subsidy, replacing natural forest with planted forest	High demand of log provide incentives for tree maintenance
GERHAN (national movement for refores-tation)	Reforest state forest; rehabilitate non-state forest	Government funded movement to plant tress	Local communities, local government	Proposal submitted by local government	Coordinating Minister on policy; local governments on execution	Upfront; execution	Seedlings; planting; cash transfer to universities	Mark up and tree maintenance after planting	Verification from University
DNS (Debt for Nature Swap)	Relieve debt and preserve forest	Public infrastructure development	Central government; local communities	Proposal submitted by central government	Foreign government relieves debt; Ministry of Finance	Ministry of Finance - ?	Debt swap		
PIC (Partner-ship inside conces-sions)	Reduce conflict on concession land	Local community benefits from big plantations	Communities and companies	Cubic metre of harvested trees based on trees harvested	Village group signs contract and negotiates redistribution; company makes payments; local government supervise contract execution	Company to head of Village group	Cash and job opportunities ; seedlings	Elites within community/c ompany capture most benefits	Legalisation of village groups

Strategy	Objective	Principles	Main beneficiaries	Basis for fund transfer	Institutional structure	Financial mechanism	Form of payment	Risks	Safeguards
POC (Partner-ship outside conces-sions)	Benefit sharing on community land	Market based profit sharing: 60% to company and 40% to community	Communities and companies	Proposal submitted by local community	Individuals or village groups sign contracts; company distributes funds for plantation establishment and redistributes revenues; local government supervise contract execution (role less important than in PIC)	Company to individual or group	Cash; job opportunities	Emergence of new landlords	-
Timber certification	Improve forest management	Endorsing and paying good forest practice	Concession holders and buyers	Good practice according to LEI/FSC guidelines	Certification body check and certify forest; LEI provides standards; Public consultation	Market	Cash	Lack of demand	5 yearly certification of forest; simplified procedures
PES (Payments for Envi-ronmental Services)	Carbon, water, biodiversity conservation		Buyers and sellers of service	Verification of service maintained	Buyers, sellers, intermediaries; verifiers	Market mechanism	Cash or non-cash	Unattractive short/small contracts; elite capture	Clear rules to govern PES at local level
KDP (Kecama-tan Deve-lopment Program)	Alleviating poverty; strengthening local institutions; improving local governance	Participation; transparency; open menu; competition for funds; simple; decentralized	Villagers	Proposals agreed by village	Managed by Ministry of Home Affairs with coordination teams down to village level. Parallel independent facilitation teams for technical support and training at every level	Indo Bank – Operational Bank – Village account – implementat ion teams	Developmen t	High transaction costs; elite capture	Downwards financial flows matched by upwards document flow

The evidence indicates that most of these systems are subject to risks in a number of dimensions:

- Lack of transparency and accountability and high corruption
- Opportunities for rent seeking and high transaction costs related to long transaction chains
- Perverse incentives
- Elite capture and in-migration into areas where incentives are offered
- Lack of demand.

Safeguards can be put in place to minimize some of these risks, which mainly relate to increasing accountability between actors through formalized third party audit processes and 'paper trails', ensuring inclusive consultation processes and improving the bargaining power of different stakeholders by enhancing legality and access to legal processes. The conditionality requirement of REDD mechanisms (i.e. that benefits are only received once performance has been verified) is likely to improve safeguards in REDD. Many of the existing systems in Indonesia have low conditionality requirements, with the exception of PES, company-community partnerships, a specific district development program (KDP) and timber certification.

Learning from existing fund and incentive management, the future REDD system should have the following features: (a) create incentives for good practice; (b) be transparent and accountable in fund management; (c) support local initiative within clearly stated goals; (d) focus on outcomes and not just inputs; (e) establish a relationship between outcome/performance and funding; (f) support clear property rights and rules on benefits, responsibilities and sanctions at the local level; and (g) facilitate and strengthen local institutions.

Potential For National Indonesian Redd Payments System

Designing an Indonesian national REDD payments system will involve decisions over the best way to configure financial transfer mechanisms at different scales, how to allocate revenues, payment form and timing, the establishment of new institutional structures and new risk management options.

The first issue to consider in REDD transfer mechanisms in Indonesia, is where primary transaction with international buyers or funders takes place. There are two options: (1) transaction with the central government and (2) transaction with lower government levels or directly with projects (Figure 4) in accordance with the relative share of the location in the national baseline. Each of these options implies a different form of redistribution mechanism in Indonesia. Option 1 is more centralised and government funds would need to be redistributed from a central fund held at national level. Option 2 is more decentralised, but a tax or levy placed on REDD activities at sub-national level would need to be collected to pay for administrative functions such as national level monitoring and accounting. Funding mechanisms would still be required in this option in order to redistribute revenues accrued through the tax or levy.

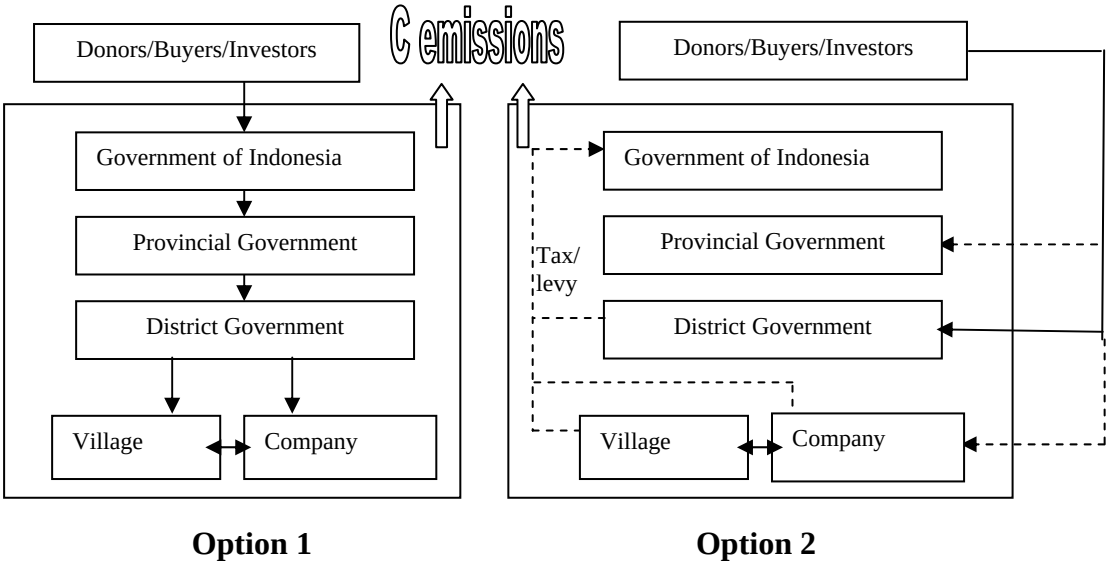

Figure 4. Possible REDD transfer mechanisms and configurations with buyers/donors/ investors

Allocation of REDD financing

There are both horizontal and vertical dimensions to the allocation of REDD payments. The horizontal dimension relates to the distribution of revenues between stakeholders at a particular scale, for example between the islands of Indonesia or between different stakeholders in a REDD project. The vertical dimension relates to allocation within different administrative levels, for example between national, provincial and district governments.

The question of allocation within both of these dimensions is linked to who should be the legitimate recipients of REDD revenues. In order to meet the overarching principles outlined in the first section, possible criteria for establishing who is a legitimate recipient are those that:

- Change their behaviour and reduce emission rates in the long term
- Suffer legitimate losses from mandated REDD implementation
- Maintain low carbon emissions rates (continued conservation)
- Provide sustainable livelihoods with low C emission consequences
- Act legally and have rights to sell carbon (provided this does not disadvantage the poor and those with customary rights not recognized by government)
- Exhibit high accountability, transparency and good governance
- Have included provisions for capacity building
- Include elements of long term learning

Competitive bidding processes are a possible way of deciding horizontal allocation. Precautions (e.g. through multi-stakeholder review panels) may need to be taken to ensure that this is not abused by decision-makers. Support through NGOs to help fill capacity and information gaps may be needed to avoid discrimination against local communities who lack experience framing such proposals. In practice in Indonesia it will probably be necessary to establish a REDD system by providing some level of initial funding to all regions and stakeholders in order for them to develop REDD systems, before introducing conditional and competitive processes that might discriminate against marginalized groups.

Legality of current actors engaged in activities that lead to CO_2 emissions from forests and peatlands is not easily established. For example, major pulp and paper mills maintain that they a) have no engagement whatsoever in illegal logging, but nevertheless b) may have to close their business if current 'illegal logging control' operations continue. As use of forest resources usually requires more than one type of permit, revoking forest use concessions may lead to claims for compensation. Land ownership does not necessarily coincide with the right to change the vegetation and hence terrestrial carbon stock. Separate regulation of 'rights to sell' (as the most functional dimension of 'ownership') of carbon storage and/or other environmental service (ES) is feasible, but in the implementation the various (and often conflicting) claims on land ownership need to be taken into account.

These issues are further complicated by definitions of 'forest'. "Forests" without trees as well as "non-forest" lands with full canopy cover of trees can occur side-by-side. Restriction of REDD to the existing forest institutions will exclude a large share of likely but avoideable emissions. For REDD to work payment systems must be able to transcend the way 'forest' is constructed as institutional concept and address changes in carbon stocks. Local government entities (e.g. at Kabupaten (district) scale), may be the most appropriate scale for assessing net changes in terrestrial carbon stocks, regardless of the institutional control over the lands and vegetation. Current 'decentralization' laws specify the primary responsibility for maintenance of 'protective' land cover through forests at the Kabupaten level, while timber exploitation rights are decided nationally. These different domains of decision-making would need to be reconciled.

Vertical allocation depends on where value addition occurs in the REDD 'supply chain' and the opportunity costs occurring at each level. For example, in a national system it can be assumed that the Indonesian government will bear the costs of establishing the national system, national scale monitoring and verification, implementation of national policy reforms and national level administration of the system, as well as opportunity costs related to lost tax revenue, for example. It can be assumed from past experience that the greater the level of devolution, the higher these relative costs will be, as will be the opportunities for rent seeking in the system. From an efficiency perspective it is therefore preferable to try to minimise the number of stakeholders in the supply chain.

Form of payment, payment schedule and provision of upfront financing

Every further day a forest exists, there is an opportunity for it to be deforested. To ensure long term emission reduction incentives must match the theoretically infinite series of foregone opportunities. Two main payment schedules that could occur under REDD: A lump sum upfront payment would involve transferral of the agreed amount of funding all at once but this would need to fund forest protection for at least, say, 100 years. This would favour current beneficiaries but it could severely restrict land use options for future generations, and they would likely demand compensation for this. Weak or biased enforcement would also undermine ability to translate agreement into reality. An alternative option is to distribute payments over time. Although current beneficiaries might gain less, a distributed payment schedule incentivizes long term carbon storage, and therefore is more likely to address the permanence issue. The main challenge to be overcome will be to secure long term financing for such distributed payments.

Payments could be made to individuals or to groups. If all stakeholders are well identified, then individual payments matching their opportunity costs are likely to be most effective and there is less likelihood of elite capture if stakeholders are able to assert their rights to payments. However, the transaction costs of dealing with large numbers of individual contracts gives rise to a trade-off. Payments to groups might involve lower transaction costs for those making the payments, but mechanisms for equitable decision-making on rules and procedures for benefits sharing within the group are likely to be required.

Payments for REDD can be made as cash and non-cash transactions (Figure 5). For cash transaction, the carbon credit international buyers for example could pay in cash to the sellers (government, community or company) through bank transfer based on an agreed terms of conditions. The sellers may then redistribute the cash to those who participate in CREDD value chains. Local negotiations on the 'currency' that is of the highest relevance are needed.

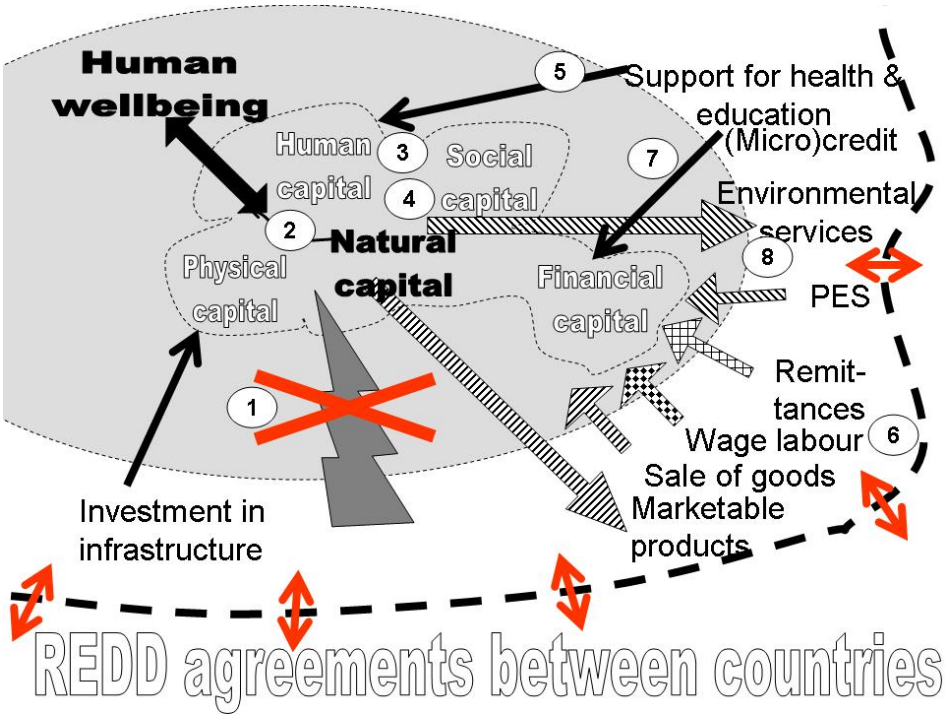

Figure 5. Multiple pathways for international REDD payments to support or affect local human well-being in tropical forest margins; numbers refer to know mechanisms for 'rewards for environmental services'

Institutional arrangements

Existing institutions, associated with 'business as usual', will need to be reconstructed to make a change and reduce emissions. A REDD value chain will include fund managers for receiving and redistributing funds; registries for tracking emissions reductions credits; legal institutions for adjusting existing laws, enforcing REDD related laws and resolving disputes; monitoring and verification entities for ensuring that emissions reductions are real and achieved in environmentally and socially acceptable ways; implementing and administrative organisations for handling contracts and logistics; and the sellers of carbon themselves who may need to organise internal redistribution mechanisms.

The national government might act as a seller of carbon to international buyers, a buyer of carbon from sub-national entities, an intermediary and a regulator of the system. It is assumed that in any form of national REDD system that the government will play a role in monitoring, accounting for emissions reductions and technical support. From an accountability perspective it may be preferable for the government not to be involved in financial transactions as a buyer or seller (i.e. transactions should occur at lower levels). To guarantee fairness clear mechanisms for checks and balances from independent third parties will be required, whichever institutions are involved. The institutional arrangements will have to address the cross-scale issues along the value chain from local action to international benefits (Figure 6); they will have to link the global CO_2-benefits to local CO-benefits in the form of sustainable livelihood options.

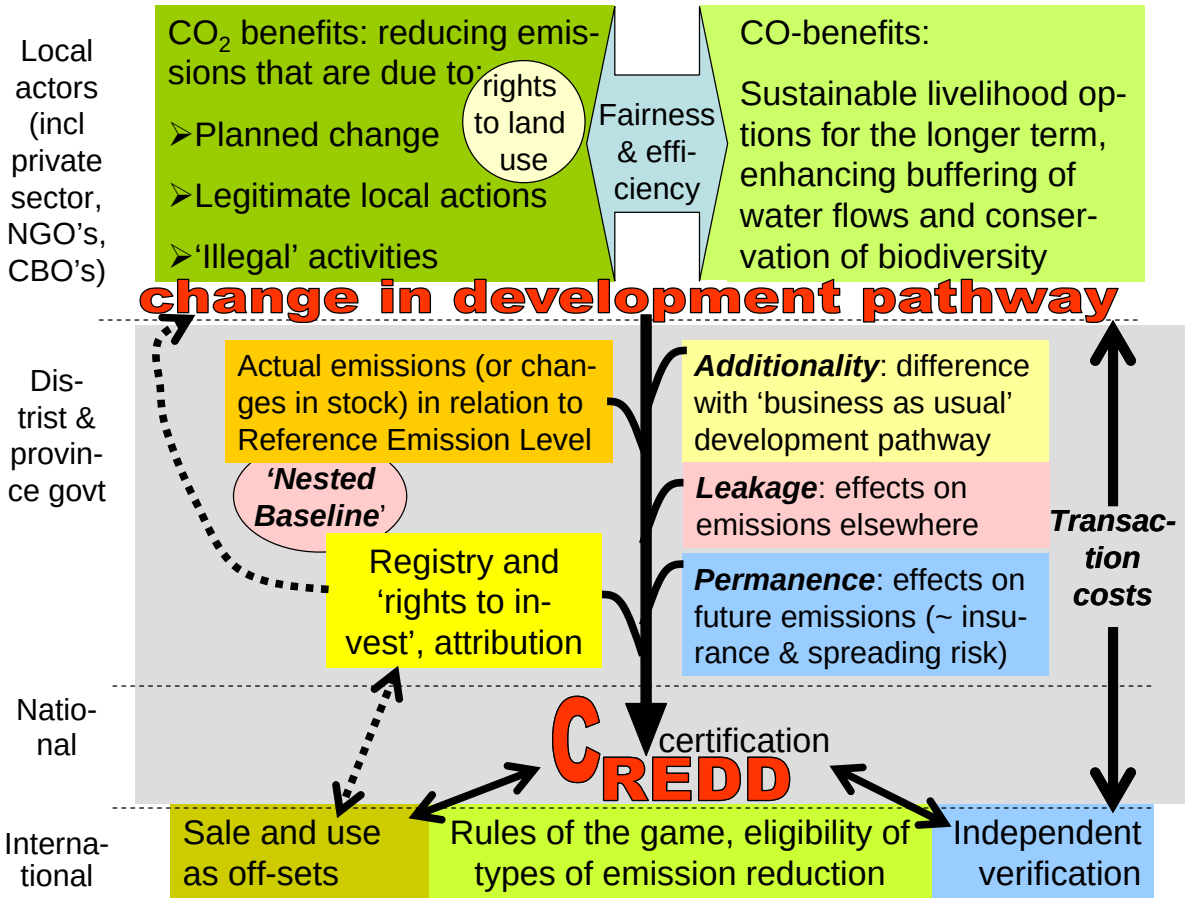

Figure 6. Unavoidable complexity of efforts to provide incentives for a change in development pathways that can lead to CO_2 benefits for the global climate and CO-benefits for more local actors

Discussion: Proposed Principles

If Indonesia is to reduce its net emissions from deforestation and degradation of forests and peatlands, and on that basis access international REDD funds or markets, it will have to achieve progress on a number of challenges. It will have to:

1. provide efficiency as well as fairness: Focus on the areas, drivers and sectors that are currently most directly linked (legally or illegally) to emissions from deforestation and forest/peatland degradation, and provide appropriate incentives to areas, drivers and sectors that actively contribute to resource conservation, and provide new options to those at a cross-roads of alternative development pathways;

2. develop and operationalize a vision of a long term transition to sustainability that meets the Millennium Development Goals, respects the rights of forest and agroforest communities, transcends economic dependence on extractive industries and finds a balance between ecosystem 'goods' and 'services';

3. improve the transparency and accountability of governance systems that link the local to the national scale, address the multiple conflicts over access and rights to lands and forest resources, by setting performance-based standards for dialogue and conflict resolution;

4. enhance the REDDiness of local and national stakeholders by creating active learning on what emission reduction with effective feedback systems is about, enhance awareness, develop local monitoring skills, and support local creativity in finding effective solutions through appropriate incentive systems.

Each of these principles can be operationalized at the level of criteria, indicators and verifiers. Overall REDD architecture (and payment distribution mechanisms within this framework) will need a combination of functions, provided by appropriate institutions. Important components already exist; others are missing or are not yet fully performing the functions required.

The 'fairness' versus 'efficiency' debate can be interpreted in terms of the four principles, and associated criteria and indicators that apply to 'rewards for environmental services': realistic, conditional, voluntary and 'pro-poor' (Van Noordwijk et al., 2006), with the first two mostly linked to 'efficiency' and the last two mostly to 'fairness'.

An important consequence of these principles is that all agents along the REDD value chain will have to obtain sufficient benefits to make their engagement worthwhile. During the IFCA discussions the REDD 'value chain' was analyzed in three main components (I-III) and eight steps (a-h):

I. Efficiency focus on realistic local emission reduction that makes the investment cost-effective:

   a. Actual emission reduction on the ground.

II. Fairness focus that rewards local investments in a low-carbon economy:

   b. Provision of sustainable livelihoods that reduce local threats to the carbon stored in the landscape.

III. Manageable transaction costs that link local to national emissions and certifies emission reduction:

c. Protection against 'leakage' by providing local income opportunities,

d. Securing 'additionality' over 'baselines' in a context of local development planning,

e. Accounting for changes in C stock in a consistent national framework,

f. Provision of institutional framework (e.g. by signing international agreements and reviewing legal context of 'rights to pollute'),

g. Independent verification of emission data,

h. Salesmanship in linking potential supply and demand for emission reduction.

An initial target was discussed for the design process to keep the 'transaction costs', as important as they are for the cross-scale relations between local actions and national-scale emission reduction, below 1/3 of the total cost of the mechanism. For the benefits available at local level, an equal split (both 35% of the total value) between offsetting opportunity costs for current emissions (efficieny focus) and investment in sustainable livelihoods was discussed (Table 4). These target values, however, may be averages that require local adjustment to the context at site level. Once REDD mechanisms become more widespread, the transaction cost components should be reduced further.

Table 4. The Value Chain of CREDD, showing where different stakeholders at different levels add values to the creation of emissions reductions from REDD. The stars indicate the relative importance between stakeholders; the larger the star, the more importance the stakeholder plays in that part of the value chain; the values in the bottom row are illustrative and will require empirical testing; the five columns on the right hand may be jointly considered to be part of the 'transaction costs' that can probably be reduced if wide-scale use of CREDD becomes a reality, leaving a larger share of funds for the left two columns; direct international – local actor contracts may have to be taxed to provide funding for the higher level functions

Value addition **Scale**	**Emission reduction activities**	**Provision of alternative livelihoods**	**Prevention of 'leakage'**	**Proof of addition-nality (BAU baseline)**	**Dealing with 'perma-nence ' concerns (registry)**	**Accoun-tability for chan-ges in C stocks**	**Indepen dent veri-fication of emis-sion re-duction**
International					*		*
National (govern-ment and national NGO's)					*	*	*
Intermediate (province and district scale government, large-scale industries)		*	*	*	*	*	
Local actors (companies, communities, forest farmers, local NGOs)	*	*				*	
Estimated share (%) in C_{REDD} production costs (*tentative*)	35	35	5	5	5	10	5

In the selection of pilot areas for testing REDD in the next 2-3 years, the primary contrasts to be explored will have to focus on the most appropriate approach in 'current emission hot spots' as well as those for 'core forest areas' (criteria 1). The geographic and economic opportunities differ between Sumatra, Kalimantan, Papua and Sulawesi plus other islands in eastern Indonesia (criteria 2). The other three criteria are economic transition level from forest exploitation to forest conservation, level of governance, and REDD readiness. These site-based pilot activities aim to generate the following lessons (a) learning to balance efficiency and equity by appropriate mix of market and fund allocation processes; (b) learning how to initiate and support a transition to sustainable resource use; (c) learning how to improve and sustain governance systems; and (d) experience in effective capacity building approaches.

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Who we are

The World Agroforestry Centre is the international leader in the science and practice of integrating 'working trees' on small farms and in rural landscapes. We have invigorated the ancient practice of growing trees on farms, using innovative science for development to transform lives and landscapes.

Our vision

Our Vision is an 'Agroforestry Transformation' in the developing world resulting in a massive increase in the use of working trees on working landscapes by smallholder rural households that helps ensure security in food, nutrition, income, health, shelter and energy and a regenerated environment.

Our mission

Our mission is to advance the science and practice of agroforestry to help realize an 'Agroforestry Transformation' throughout the developing world.

FUTURE HARVEST CGIAR

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