WORKING PAPER

Approaches to benefit sharing

A preliminary comparative analysis of 13 REDD+ countries

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Members of the Boa Vista community, on the border of the Juma Reserve in the Brazilian Amazon

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3E	Effectiveness, efficiency and equity
ABS	Access and Benefit Sharing
BNDES	Banco Nacional de Desenvolvimento Econômico e Social (National Bank for Economic and Social Development, Brazil)
C	Carbon
CBD	Convention on Biological Conservation
CBNRM	Community-based Natural Resource Management
CBFM	Community-based Forest Management
CER	Certified Emission Reduction
CDM	Clean Development Mechanism
CIFOR	Center for International Forestry Research
CODELT	Conseil pour la Défense Environnementale par la Légalité et la Traçabilité (Council for Environmental Defense through Legality and Traceability, Democratic Republic of Congo)
COP	Conference of the Parties
CO_2	Carbon dioxide
CSO	Civil society organisation
CTF	Conservation Trust Fund
DR	Dana Reboisasi (Reforestation Fund, Indonesia)
DRC	Democratic Republic of the Congo
FIP	Forest Investment Program
FLEGT	Forest Law Enforcement, Governance and Trade (European Union)
FONABOSQUE	Fondo Nacional de Desarrollo Forestal (The Forest Development Fund, Bolivia)
FPIC	Free prior and informed consent
GCS	Global Comparative Study on REDD+ (CIFOR)
HH	Household
IHPH	*Iuran Hak Pengusahaan Hutan (*Timber Concession Fees, Indonesia)
ICDP	Integrated Conservation and Development Project
ITTO	International Tropical Timber Organization
JFM	Joint forest management
LFAs	Local Forest Areas, Papua New Guinea
MINEP	Ministry of Environment and Protection of Nature, Cameroon
NGO	Non-governmental organisation
PAMs	Policies and Measures
PES	Payment for Environmental Services
PNG	Papua New Guinea
PROFONANPE	Peruvian Trust Fund for National Parks and Protected Areas
PSDH	Provisi Sumber Daya Hutan (Provision of Forest Resources, Indonesia)
PWC	PricewaterhouseCoopers
REDD	Reducing emissions from deforestation and forest degradation
REDD+	Reducing emissions from deforestation and forest degradation and enhancing forest carbon stocks
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
SNV	Netherlands Development Organisation

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Executive summary

The aim of this working paper is to provide a global overview and up-to-date profile of REDD+ benefit-sharing mechanisms, and to analyse the political-economic factors influencing their design and setting. The analysis draws primarily on a review of existing benefit-sharing mechanisms for REDD+ and natural forest management, namely fund-based approaches, market-based instruments, forest concessions, access and benefit sharing, and community forestry. We build on the results of contextual analyses in 13 countries: Bolivia, Brazil, Burkina Faso, Cameroon, Democratic Republic of the Congo, Indonesia, Lao PDR, Mozambique, Nepal, Papua New Guinea, Peru, Tanzania and Vietnam. These 'country profiles' were developed between 2009 and 2012 as part of CIFOR's Global Comparative Study on REDD+. Not surprisingly, the results of our analysis indicate clear challenges in the design and implementation of benefit-sharing mechanisms that will secure the broad legitimacy and acceptance of REDD+.

A diverse range of approaches to and options for benefit sharing are being applied in all the study countries, most of which build upon the benefit-sharing models familiar to those countries. The advantage of building upon existing legal frameworks is that it can reduce the costs of establishing and operating new institutions for sharing benefits from REDD+ and could receive more political support from the state. However, the effectiveness, efficiency and equity (3E) of benefit sharing rely on the accountability, transparency and financial management capacity of the state – which are rather weak in most of the countries. Other challenges observed in most of the study countries within the context of policies and mechanisms for benefit sharing and REDD+ are conflicting legal provisions, overlapping mandates and inconsistent implementation among government agencies, weak law enforcement, limited funding and staffing, lack of transparency, corruption and elite capture.

Five discourses that are prominent in national deliberations on who should benefit from REDD+ are used as a framework for organising countries' and actors' positions in the benefit-sharing debate. The merit-based discourse that REDD+ benefits should be shared with the forest actors that are essential for the implementation of REDD+, whether they are private sector, civil society or central or local government, has received attention in only very few of the countries studied. This could be explained by the insecurity of current land tenure systems, in which authoritative and control rights are mostly in the hands of the state and powerful groups. This leaves limited scope for local communities and other non-state actors to exert influence over land use or decisions related to the benefits from REDD+.

Among the discourses on equity, the views that 'benefits should go to those with legal rights' and that 'benefits should go to those incurring costs' seem to be of greatest concern in all the countries studied. By contrast, the view that 'benefits should go to low-emitting forest stewards' is of relatively little concern for both government and REDD+ project developers, although it is often treated as high priority in international debates and discourses on REDD+ benefit sharing. This discrepancy could indicate a need for REDD+ project developers to pay more attention to the rights of indigenous groups or other users that have a record of responsible forest management, and implies that such projects may struggle to achieve legitimacy if disputes (existing or potential) with indigenous communities and other forest users are not resolved. The exclusion of this group from REDD+ benefits could also create a perverse incentive for high-emitting behaviour.

With the aim of supporting the development of 3E benefit-sharing mechanisms in the study countries, this working paper identifies the following risks associated with each of the discourses and the proposed benefit-sharing mechanisms:

- unclear and insecure land tenure;
- under-representation of certain stakeholder groups;
- failure to consider lessons derived from past experience;
- lack of policy learning mechanisms across sectors, scales and time;
- the advantages and disadvantages of decentralisation and devolution; and
- the implications of scale and definitions of 'forest'.

Mitigating these risks will require improved coordination among actors, better law enforcement, clear guidance for and monitoring of financial flows, improved information exchange and stronger capacity of the actors involved. Whether REDD+ can catalyse these changes will depend in part on how the costs and benefits of REDD+ are shared, and whether the benefits are sufficient incentive to induce changes in entrenched behaviours and policies at all levels of government.

The successful design and implementation of benefit-sharing mechanisms – and hence the legitimacy and acceptance of REDD+ – depend on having clear objectives, procedural equity and an inclusive process, and on engaging in a rigorous analysis of the options for benefit sharing to assess their possible effects on both beneficiaries and climate mitigation efforts.

1. Introduction

Reducing emissions from deforestation and forest degradation (REDD+) has emerged as a promising mechanism both for reducing emissions from the forestry sector and for supporting good forest governance. However, although the mechanism has been formally recognised since the 15th Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC COP 15; Copenhagen, December 2009), many questions about the design and implementation of national REDD+ architectures remain unresolved. Even at COP 18 (Doha, November 2012), parties were still grappling with issues related to monitoring, reporting and verification, reference levels, sustainable financing for REDD+, and the effective, equitable and efficient (3E) distribution of benefits (PwC 2012). In particular, the issue of benefit sharing has captured considerable attention among both policymakers and local communities. Certainly, the success of REDD+ in achieving effectiveness, efficiency and equity will depend greatly on the design and implementation of its benefit-sharing mechanisms, which will operate across multiple levels of governance.

The notion of benefit sharing in natural resources was first formalised in international law in 1992 through the Convention on Biological Diversity (CBD), a move that was expected at the time to address problems with the governance of socio-ecological systems in developing countries (Nkhata *et al.* 2012a). The concept of 'benefit sharing' has since evolved. Whereas benefit sharing was originally understood as referring to the distribution of financial benefits, the concept has come to encompass broader forms of social accountability and responsibility. In the context of REDD+, benefit sharing refers to the distribution of both the monetary and the non-monetary benefits generated through the implementation of REDD+ projects. REDD+ implementation will not only generate benefits for forest stewards, but will also involve costs. The two main types of costs are 1) implementation and transaction costs, that is, the direct expenses incurred in setting up a REDD+ system and implementing the necessary policies; and 2) opportunity costs, or the foregone profits from the best alternative forest and land use. Therefore, understanding REDD+ 'benefits' requires a thorough understanding of both the costs and benefits involved in a REDD+ scheme as, ultimately, 'it is the net benefits that matter' (Luttrell *et al.* 2012).

Similarly, there are also different categories of benefits. Luttrell *et al.* (2013) distinguish between three main types of (net) benefits: 1) (net) benefits from implementation of a REDD+ project, programme or policy (e.g. direct financial payments); 2) (net) benefits from changes in forest use (e.g. improved provision of ecosystem services or non-timber forest products); and 3) indirect and non-monetary (net) benefits from REDD+ implementation (e.g. improved governance, technology transfer, enhanced participation in decision-making, and infrastructure provision).

Benefit-sharing mechanisms involve a variety of institutional means, governance structures and instruments for distributing finance and other benefits (Luttrell *et al.* 2012, 2013; Vhugen and Miner 2011). According to the UNFCCC (2007), benefit-sharing mechanisms are created through what are known as REDD+ Policies and Measures (PAMs). Two types of PAMs related to benefit-sharing mechanisms are 1) *compensation* for the foregone opportunity costs of deforesting the land and 2) *incentives* to induce positive choices of behaviour (Brown *et al.* 2008; Peskett *et al.* 2008). Both types of PAMs can be either delivered upfront, to enable REDD+ activities to begin, or dispensed over time to guarantee their continuation (Gebara 2010).

Benefit-sharing mechanisms can be organised along two main axes: a *vertical axis* of benefit sharing across scales from national to local, and a *horizontal axis* of sharing within scales, including within and across communities, households and other local stakeholders (Lindhjem *et al.* 2010; UN-REDD 2011), and within regional and national levels. Both the vertical and horizontal aspects of a REDD+ benefit-sharing mechanism need to be designed 1) to maximise equity among the actors responsible for the reduction of deforestation and forest degradation, 2) to improve the effectiveness of forest management and 3) to increase the efficiency of national and subnational programmes (largely by minimising transaction and implementation costs) (Brockhaus *et al.* 2013). However, these

equity, effectiveness and efficiency (3E) goals can often conflict, thus necessitating trade-offs between the goals, particularly when institutional aspects and power relations are part of the equation (Pascual *et al.* 2010). A key question concerns how to balance expectations and outcomes in specific national circumstances (Brockhaus *et al.* 2013).

The phases of REDD+ can also influence the type of benefit-sharing mechanism in place. Most countries are either at Phase 1 of REDD+ (readiness and capacity building) or in transition from Phase 1 to Phase 2 (implementation of policies and measures). PwC (2012) suggests that input-based benefit-sharing mechanisms are likely to be more prominent during the earlier phases of REDD+, with performance-based benefit-sharing mechanisms more likely in Phase 3.

Input-based arrangements are those in which beneficiaries agree with the benefit-sharing mechanism management body to carry out specified actions, or refrain from certain actions, in return for upfront monetary or non-monetary inputs. No link is provided between the distribution of benefits and future measurable performance in forest management' (Behr 2012, p. 15). Under performance-based arrangements, the distribution of benefits is conditional on whether beneficiaries have achieved a predefined, measurable and verifiable standard of performance against a baseline. This mechanism is generally linked to market-based payments. To date, performance-based arrangements have been formalised as the national approach to benefit sharing (e.g. via PES schemes) only in Brazil and Vietnam. Other countries appear to be struggling with identifying measurable and verifiable performance indicators (Wertz-Kanounnikoff and McNeill 2012). At the global level, negotiations have stalled on the issue of verification.

Establishing benefit-sharing mechanisms that can simultaneously encourage improved forest management and deliver benefits to the appropriate actor groups, including local communities, is a challenge because of the range of participants, objectives and scales of partnerships and benefit-sharing arrangements (World Bank 2009). REDD+ benefit-sharing mechanisms can range from local-level arrangements between private companies and communities to national-level public-payment mechanisms.

There is a large body of literature on potential benefit-sharing mechanisms that can be applied to REDD+. For example, Lindhjem *et al.* (2010) assess benefit-sharing mechanisms in use in natural resource sectors in future REDD+ countries in terms of their potential to achieve 3E outcomes and to be applied in REDD+ implementation. Vatn and Vedled (2011) and Vatn and Angelsen (2009) provide a theoretical analysis of benefit-sharing mechanisms, whereas Costenbader (2011) uses case studies to assess three instruments for forest management for their potential application to REDD+. However, these available studies fall short in providing a global comparative analysis of national REDD+ policies and the political-economic interests that can either enable or impede the effectiveness, efficiency and equity of benefit sharing in a country.

Moreover, although the design of benefit-sharing mechanisms seems to be high on the political agenda, relatively few studies have investigated the basic political-economic principles underlying current benefit-sharing policies and approaches (Nkhata *et al.* 2012a). This working paper therefore builds on studies of REDD+ policies in 13 countries in order to provide a global overview and up-to-date profile of REDD+ benefit-sharing mechanisms and to analyse the political-economic factors that affect their design and setting. By viewing the mechanisms through a 3E lens, we also identify some of the associated risks for REDD+ outcomes; that is, we assess the mechanisms in light of the view that REDD+ should not only reduce emissions (be effective) at minimum cost (be efficient), but also reduce undesired social and ecological trade-offs (be equitable and provide co-benefits) (Angelsen *et al.* 2009).

Section 2 briefly overviews the conceptual frameworks used to organise the data. This is followed by an examination of the regulatory frameworks and influential discourses within the study countries (Section 3), a typology of existing and proposed benefit- and cost-sharing mechanisms for REDD+ (Section 4) and a discussion of the rights held by the key actors (Section 5). In Section 6, we assess the risks that the existing and proposed mechanisms pose for the achievement of 3E outcomes from REDD+. The working paper closes with a discussion (Section 7) of potential strategies for using benefit-sharing mechanisms to achieve 3E outcomes from REDD+.

2. Assessing the effectiveness, efficiency and equity of benefit-sharing mechanisms: Conceptual map and data sources

The conceptual map presented in this section describes the approaches guiding our review of research on REDD+ benefit-sharing mechanisms in 13 countries where REDD+ projects are planned or underway: Bolivia, Brazil, Burkina Faso, Cameroon, Democratic Republic of the Congo (DRC), Indonesia, Lao PDR, Mozambique, Nepal, Papua New Guinea (PNG), Peru, Tanzania and Vietnam.

We begin with the assumption that underlying political-economic factors drive the design of REDD+ benefit-sharing mechanisms, especially given that REDD+ will be implemented within a diverse range of contexts with activities occurring at multiple levels (i.e. ranging from changes in national policies to direct actions at specific sites). The complex interplay between these multilevel contexts can exert considerable influence over the outcomes of REDD+ and its benefit-sharing mechanisms. The focus of the analysis, therefore, is on identifying the enabling conditions necessary for the success of REDD+ programmes and the factors that may cause programmes to fail.

The first step of the analysis is to review the ***national legal and regulatory framework for REDD+ benefit sharing*** (Section 3). The aim of this step is to develop a thorough understanding of both the enabling conditions for and obstacles to the achievement of 3E outcomes from REDD+, as well as to understand each state's underlying vision for REDD+. Angelsen *et al.* (2009) suggest that REDD+ policies be assessed against the 3E criteria: effectiveness refers to the extent of emission reductions achieved by REDD+ actions; efficiency refers to the actual costs of such reductions; and equity refers to the distributional aspects of the associated costs and benefits, procedural aspects of participatory decision-making and the specific contexts that shape stakeholders' perceptions of equity. We view our data through this analytical lens.

In this working paper, we argue that success or failure in achieving the 3Es in REDD+ in general and in benefit-sharing mechanisms in particular is determined by more than the existing benefit-sharing policies and regulatory frameworks. Rather, other factors also exert strong influence, such as political commitment, stakeholders' capacity for participation and coordination, policy actors' views and preferences regarding the importance of the 3Es, and the specific discourses that frame what is perceived as a desirable or feasible policy option (Hajer 1996). Inevitably, such views will colour ***the current discourse*** surrounding the question of 'who should benefit from REDD+ and why', as will the underlying priorities, interests and potentially conflicting goals of government and stakeholders at different levels. Therefore, we also apply the framework in Luttrell *et al.* (2012), which identifies five prominent discourses shaping the debate on who should benefit from REDD+ (Table 1).

We then go on to review existing approaches to benefit sharing observed in current REDD+ pilot projects, REDD+ policies and other relevant forestry projects that offer lessons for future efforts and provide the foundation for the adaptive management of policies (Section 4). As many countries do not yet have national REDD+ programmes, we analyse benefit-sharing mechanisms in other sectors where applicable. Among the types of benefit-sharing models related to REDD+ and natural resources management that we identified, we chose to review fund-based approaches, forest concessions, community-based forest management, joint forest management, market-based instruments, and access and benefit sharing to extract lessons on what worked and what did not in the 13 countries studied. Given the vertical and horizontal axes of benefit-sharing mechanisms mentioned in the previous section (Lindhjem *et al.* 2010), we analyse two sets of governance arrangement options: one that channels REDD+ funding from the central to the local level, and another that distributes benefits within organisations and communities. We try to make a clear distinction between these wherever possible, although we are aware that some options might be used for both vertical and horizontal mechanisms.

Table 1. Discourses in REDD+ benefit sharing

Discourse	Key arguments
Effectiveness and efficiency	Benefits should be used as an incentive to bring about change in behaviour that can result a reduction in emissions and should go to the actors providing these reductions
Equity discourse I: Benefits should go to those with legal rights	In the absence of well-defined rights over carbon sequestration and storage, existing land and forest tenure regimes and existing policy instruments for sharing benefits from the forests can serve as the basis for allocating payments for carbon emission reductions. However, ownership of land or trees does not necessarily give the owner a legal right to benefit from carbon sequestration or reductions in carbon emissions (Peskett and Brodnig 2011).
Equity discourse II: Benefits should go to low-emitting forest stewards	Benefits should go not only to the actors reducing emissions but also to indigenous groups or other forest users that have a record of responsible forest management. In this view, benefits from REDD+ serve primarily to recognise past efforts and to encourage continued protection of forests. Under this approach, a community whose customary rights are not legally recognised but that has been protecting the forests would have strong claims to benefits from REDD+.
Equity discourse III: Benefits should go to those incurring costs	Actors that shoulder implementation, transaction and opportunity costs should be compensated regardless of the carbon emission reductions for which they are directly responsible (i.e. distribution should be proportional to inputs). Inputs are easier to define and measure than are emission reductions and their associated opportunity costs. This approach recognises the need to give actors incentives for getting involved in the early stages of REDD+ implementation.
Equity discourse IV: Benefits should go to effective facilitators of implementation	A proportion of REDD+ benefits should be given to those actors that are essential for facilitating the implementation of REDD+, such as project developers and government agencies.

Source: Luttrell *et al.* (2012)

The next strand of analysis examines the structure of rights in REDD+ (Section 5), defined by Ostrom (1976) as the way in which particular authorised actions will determine which activities are allowed and, correspondingly, the benefits that can be derived from the forests and land. We investigate the systems of rights (who has what rights over what resources) in the 13 case study countries, with two main purposes in mind: 1) to map the different systems of rights to the equity discourses and 2) to understand whether, and how, existing or proposed benefit-sharing mechanisms have built on the existing rights structure (and governance institutions). We can then draw on the results of this analysis to examine the effectiveness of certain benefit-sharing mechanisms within these rights structures.

To support the analysis, we deploy Sikor *et al.*'s (2012) novel typology of property rights, which builds on and extends Schlager and Ostrom's (1992) seminal typology, with its distinction between use rights, control rights and authoritative rights. Use rights encompass the rights to enjoy the benefits at stake (e.g. who is entitled to harvest how much timber from a forest, or who is considered a legitimate user of forestland for the cultivation of food crops). Control rights encompass the rights to determine use rights (e.g. to determine which actors are entitled to or not entitled to enjoy the benefits at stake). Authoritative rights include the rights to define the control rights (e.g. the right to assign control rights to particular actors, such as assigning the handling of financial transactions to a bank). As payment is generally based on specific land use activities, a service provider's basic obligation is to demonstrate sufficient ownership or control of the land to ensure service provision (property rights). Obviously, depending on the circumstances, some rights will be more important for service provision than others (Thomas *et al.* 2010). As the allocation and/or nature of these rights will determine which and how benefits are distributed, analysing them separately for each kind of benefit is essential. Once we have identified the actors and their rights under various benefit-sharing systems, we can ask whether existing benefit-sharing systems are providing appropriate incentives for stakeholders in each country and whether they are equitable or effective.

The last step in our analytical process is to integratively assess the multilayered information generated by the above analyses. We assess whether the benefit-sharing mechanisms in each of the 13 case study countries are equitable (or fair), efficient and effective and examine the risks for REDD+ (Section 6). In the final section (Section 7), we identify opportunities for REDD+ benefit-sharing mechanisms within the constraints imposed by the risks and offer some suggestions for the next stages.

For this working paper, we draw primarily on the findings in country profiles that were developed between 2009 and 2012 as part of the CIFOR Global Comparative Study on REDD+ (GCS) (Brockhaus and Di Gregorio 2012). Each country profile contains an analysis of the political-economic and institutional contexts within which REDD+ is emerging and an in-depth description of the national context relevant to REDD+, the policy options for REDD+ under discussion and an overview of the policy dynamics shaping the key issues and challenges in the country. CIFOR and its in-country partners employed extensive literature reviews, expert interviews and consultation workshops as the main methods for gathering information. The country profiles were produced following standard guidelines to support comparability across countries (Brockhaus *et al.* 2012). The second main source of data on REDD+ projects was provided by Component 2 of the GCS, which is tasked with identifying which institutional and technical arrangements for REDD+ implementation could lead to 3E outcomes. Initial results of the research on REDD+ project sites are published in Luttrell *et al.* (2012). We also gathered information from numerous other global research studies and project reports related to REDD+ benefit sharing.

3. Regulatory frameworks, legal provisions and discourses influencing REDD+ benefit sharing

- Only four countries (Vietnam, Indonesia, Brazil and Tanzania) have national REDD+ programmes/strategies that regulate the distribution of REDD+ finance.
- The various approaches and options for benefit-sharing mechanisms under consideration in each country tend to build upon existing benefit-sharing models that are most familiar in each context. On the one hand, building upon (or upgrading) existing legal frameworks can reduce the costs of establishing and running new institutions and attract political support from the state. On the other hand, the effectiveness, efficiency and equity of these approaches will rely on the accountability, transparency and financial management capacity of the state – which are rather weak in most of the countries studied.
- Carbon rights and carbon tenure are in their infancy and have no legal framework and guidance. This will obstruct the design and implementation of benefit-sharing mechanisms, as it remains unclear who will be eligible to receive REDD+ payments.
- Conflicts of interest, which are common in the countries studied, have delayed the implementation of REDD+ policies. Discussions of benefit sharing for REDD+ have been characterised by minimal interaction between sectors.
- The design and implementation of policies both for REDD+ and for benefit-sharing mechanisms have been stalled in most of the countries studied by conflicting legal provisions, overlapping mandates and inconsistent implementation among government agencies, weak law enforcement, limited funding and staffing, lack of transparency, unchecked corruption and elite capture.
- The diversity of approaches to benefit sharing proposed – which are largely hybrid options – means that discourses on benefit sharing are rather mixed, too. However, in most countries, we observed a common acceptance of the general principles of effectiveness and efficiency of REDD+. However, countries differed greatly in the emphasis they placed on the equity aspects of benefit sharing.

Legal and regulatory frameworks shape national contexts for REDD+. A government is more likely to design a legal framework for a benefit-sharing mechanism with clearly targeted beneficiaries if the objectives of REDD+ are clear (Luttrell *et al.* 2012). However, with the exception of Tanzania, Brazil, Vietnam and Indonesia, all of which have adopted national REDD+ strategies that feature an overall objective and vision of a national benefit-sharing mechanism, benefit sharing remains abstract and in the pilot phase in the other nine countries (Table 2).

A diverse range of approaches to benefit sharing are being explored in the study countries (Table 2). For example, proposed financing mechanisms for REDD+ in Brazil include voluntary donations, loans (debt), equity financing, mezzanine finance and public budgets (May *et al.* 2011). The national REDD+ strategies for Tanzania and Vietnam call for establishment of a National REDD Trust Fund, with all revenues to be received as grants and deposited directly into the trust account (Government of Vietnam 2012; Jambiya *et al.* 2012).

In most of the countries, the approaches and options under consideration tend to be based on benefit-sharing models that are familiar to that country and for which it has existing institutional structures. For example, Brazil and Vietnam have extensive experience with benefit-sharing mechanisms as part of their national payments for environmental services (PES) programmes; consequently, their approaches to benefit sharing for REDD+ are primarily based on these government-financed PES schemes, in which government agencies, international financing institutions or conservation non-governmental organisations (NGOs) act on behalf of the users (Engel *et al.* 2008). Mozambique, Tanzania and Nepal, by contrast, have extensive experience with community forest management and the distribution of payments to local communities; as a result, participatory forest management features prominently in their proposed approaches. Given the prominence of the forest concession model in Indonesia and Cameroon, these countries could adopt this approach in future policies.

Table 2. Overview of REDD+ benefit-sharing policies and practices in the study countries

	Related legislation and national-level proposals and discussion	Proposals for institutional financial arrangements
LATIN AMERICA		
Brazil	Drafting of Forest Act and REDD+ National Strategy in progress; no clear position on benefit sharing but primarily treated as a safeguard; no national carbon rights legislation has been ratified but selected states have passed legislation. Little discussion about how REDD+ funds may be linked to an overall strategy to address the causes or drivers of deforestation. Discussions on appropriate strategies to support protected areas within the context of REDD+ initiatives have only recently begun. Challenges for Amazon Fund to reach isolated forest communities and provide appropriate support for grassroots initiatives, including capacity building and empowerment; another challenge is how to avoid the risk of developing new forms of dependence on external funding.	Public funding is provided through the Amazon Fund and Bolsa Verde; Amazon Fund money is disbursed through the National Bank for Economic and Social Development (BNDES); Forest Investment Program (FIP) resources are disbursed through the Ministry of Finance. Three major components for sharing benefits are included (Nepstad *et al.* 2007): ***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. ***Government fund*** to cover the annual costs of monitoring, protecting and managing existing public forests.
Bolivia	No coherent REDD+ strategy is in place, partly because of changes in organisational structures and personnel in government, but also because of competing interests and development projects. Decisions on forestry resources are made at national level. No plans for a benefit-sharing mechanism currently exist.	A non-market revenue stream for REDD+ activities from developed to developing countries would keep revenues at national level, and these could then be distributed through a PES-like benefit-sharing mechanism.
Peru	Despite some discussion of the distribution of benefits from specific REDD+ projects in protected areas, there is no regulation in this regard. The current framework only regulates environmental services in general.	There is support for both fund and finance mechanisms for carbon accounting (technical studies, baselines, monitoring systems, etc.) for new and existing forest conservation projects, both public and private, that work within the methodologies defined at the national level and that are registered and approved by the state.
ASIA AND OCEANIA		
Indonesia	The National REDD+ Strategy was launched in June 2012. Ministry of Forestry regulations from 2012 and 2009 require REDD+ projects to obtain ministerial approval; no projects have applied for such approval to date. Ministry of Finance (2009) suggested setting national and subnational emission reference levels. The Ministry of Forestry has issued some Ecosystem Restoration Concessions that could be funded though carbon credits. It remains unclear whether carbon is a nationally owned good that should be regulated by the state.	The National REDD+ Strategy states that funds from government-to-government disbursement are to be managed on-budget off-treasury and not through the regular government fiscal transfer system; a regulation from the Ministry of Forestry in 2009 (challenged by the Ministry of Finance) specifies the proportions of revenue to be allocated to REDD+ projects according to forest classifications; a 2012 Ministry of Forestry regulation states that benefit sharing of non-tax income from forest carbon will be regulated by upcoming legislation.

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Table 2. Continued

	Related legislation and national-level proposals and discussion	**Proposals for institutional financial arrangements**
Vietnam	The National REDD+ Action Program was approved in June 2012 by Prime Ministerial Decision 779. The National REDD+ Fund will be established as a trust fund under the Forest Protection and Development Fund at the central and provincial levels to receive and manage grants and trust funds provided by other countries, organisations or individuals for REDD+ and undertake payments for REDD+ services. The National REDD+ Fund, which will not be merged with the state budget as is the case for other state revenues, will not be used for purposes other than REDD+. Methods for legalising carbon rights remain unclear.	The Fund will be managed by the Ministry of Agriculture and Rural Development. The REDD+ Trust Fund Office in Vietnam will have representatives from international partners participating in its management and administration structure, including the Fund Management Council and with representatives from international REDD+ partners, civil society organisations and other ministries in Vietnam. Provincial REDD+ funds will be established to receive resources from central funds. Payments from the National REDD+ Fund must comply with Decree 99/2010/NĐ-CP and international regulations on REDD+ and will be used to cover national and local REDD+ programme management activities.
Nepal	Institutional arrangements for benefit sharing remain largely unclear. It appears that REDD+ benefits will be limited to forest managers (either government or communities) and not be given to those who are using forest but not formally involved in forest management.	There are two types of revenue-sharing arrangements in protected areas. In government-managed protected areas, 30–50% of revenue goes to local communities. This applies to all national parks and wildlife reserves. In NGO-managed protected areas, all of the revenue goes to the NGO treasury to invest in development activities. Thus, benefits generated under REDD+ will have to follow these benefit-sharing schemes. Although a Forest Carbon Trust Fund governed by a multi-stakeholder body is proposed, the government (particularly the Ministry of Finance) may be reluctant to back it. Rather, the Ministry of Finance wants every fund to go through its formal official budgetary procedure (known as the Red Book); for example, the money received by communities in the buffer zone must go through the Red Book.
Lao PDR	No national REDD+ programme or benefit-sharing mechanism is in place, and carbon rights and benefit sharing are not clear; however, government recently began revising the legal framework on forests for REDD+ implementation, under which carbon tenure and benefit-sharing options in different forest areas are to be viewed as safeguards. The few existing legal provisions on sharing of benefits from land use revenues were established in relation to the management of national production forest areas. Numerous REDD+ readiness activities are underway, the majority of which are financed by the Forest Investment Program. Most of the funding for REDD+ and related forestry programmes in Lao PDR comes from bilateral and multilateral sources for specific projects.	The Lao government is in favour of a flexible financing strategy for REDD+ implementation.

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Table 2. Continued

	Related legislation and national-level proposals and discussion	Proposals for institutional financial arrangements
PNG	The design of a national REDD+ programme is underway; benefit-sharing models have been delayed; no clarification as to whether carbon rights will follow customary tenure: draft regulations suggest government may regulate sale of carbon but rights to carbon stay with landholders (Covington and Baker & McKenzie 2009).	Trust fund or donor coordination committee has not yet been developed; civil society organisations argue for an independent, multi-stakeholder REDD+ funding body; PES model proposed by an expert consultation group (Expert Consultation Group 2011) suggests two flows: continuation of voluntary market and PES under a national commitment (with early voluntary market arrangements incorporated).
AFRICA		
Tanzania	Tanzania's National REDD+ Framework presents options for: 1) giving funds to communities proportionate to emission reductions achieved; 2) distributing benefits according to inputs to allow for ecological differences and to address equity concerns. The framework proposes in-kind rather than financial benefits.	The National REDD+ Framework proposes the creation of a National Trust Fund to receive funds from buyers and distribute funds to communities/ implementers; the REDD+ Strategy favours this non-market approach; however, REDD+ proponents are advocating for both a trust fund and the market approach as options.
Burkina Faso	REDD+ is embryonic with no formal financial mechanism or benefit sharing. REDD+ benefit sharing is rooted in existing mechanisms for forest management areas. Existing laws make no provision for carbon tenure	Burkina Faso Readiness Preparation Proposal mentions the future establishment of a National REDD+ Fund with co-benefits (gender, poverty alleviation) included as criteria.
Cameroon	REDD+ strategy does not yet exist; coordinating institutions have not yet been created; no legislation defining carbon rights has been drafted; no benefit-sharing arrangement at national level has been proposed. The land use fee and forest concessions offer lessons learnt on the ground on current benefit-sharing mechanisms in the forestry sector.	The environmental management law provides for the creation of a National Environment and Sustainable Development Fund (NESDF); however, it is not yet operational and there are doubts it will ever eventuate. The apparent preference for start-up funds for REDD+ preparation seems to be subsidies. A hybrid approach to REDD+ appears to be favoured, that is, an approach that links national and subnational levels. Experience shows that the effectiveness of the funds created for biodiversity conservation and sustainable management (Forest Development Fund and Wildlife Aid Fund) has been compromised by the principle of a single state fund. The development of co-benefits may be difficult if conservation activities depend on a single fund. For REDD+, this may indicate a need to design mechanisms whereby money is automatically transferred to these specific funds.
DRC	The 2002 Mining and Forest Codes provide for resources to be transferred to the provinces and territories, proceeding from a retrocession of revenues derived from the production of natural resources: 40% for the provinces, including 15% for the territories.	The UN Development Programme, the government and civil society organisations have discussed establishing a REDD+ Multi-Donor Trust Fund for REDD+ activities to attract early investment financing.
Mozambique	Drafting of the National REDD+ Strategy is underway. There are plans to draft legislation on carbon rights. Current projects include REDD+ demonstration activities and PES projects with a REDD+ component.	The proposed benefit-sharing mechanism allocates 20% for management, research and monitoring, reporting and verification and 80% for REDD+ activities and communities, families, private sector.

Sources: Babon and Gowae 2013; Dkamela 2011; Indrarto *et al.* 2012; Jambiya *et al.* 2012; Jimbira *et al.* 2012; Lestrelin *et al.* 2012; Luttrell *et al.* 2012; May *et al.* 2011; Mpoyi *et al.* 2013; Paudel *et al*. 2013; Pham *et al.* 2012a; Piu *et al.* 2013; Sitoe *et al.* 2012; Videa 2011

This trend has both advantages and disadvantages. On the one hand, building upon (or upgrading) existing frameworks can reduce the costs of establishing and running new institutions and attract political support from the state. On the other hand, the effectiveness, efficiency and equity of these approaches will rely on the accountability, transparency and financial management capacity of the state – which are rather weak in most countries.

By contrast, the other countries studied have been more open and flexible in inventing new approaches (e.g. Cameroon, Burkina Faso), as shown by the adoption of multiple approaches with few examples of successful benefit-sharing arrangements.

Given the diversity of benefit-sharing approaches being proposed – and the emergence of hybrid options – in the study countries, it is not surprising that a mix of benefit-sharing discourses are prevalent in each country (Table 3). This too is attributable to the fact that most REDD+ initiatives in these countries are in their infancy and governments are taking into consideration all options proposed by the different actor groups, and have even chosen to test some models.

Although the countries generally support the principles of effectiveness and efficiency of REDD+ – thus demonstrating a consensus that a well-designed, large-scale, effective and hence economically efficient REDD+ action can help avert the dangerous effects of climate change – discourses on equity in benefit sharing follow different patterns. For example, in Vietnam, Decree 99 and the National REDD+ Strategy propose that local authorities, forest-dwelling communities, natural resource management boards and forest protection organisations should share the benefits from REDD+, thus covering all four equity discourses described above (Pham *et al.* 2012a). In Indonesia, the National REDD+ Strategy gives co-benefits the same importance as carbon emission reductions, thus reflecting equity discourses III and IV (Indrarto *et al.* 2012).

Among the equity discourses, discourse I (that benefits should go to those with legal rights ranging from usufruct rights, or the right to earn income from a resource, to the right to transfer the resource to others) and discourse III (benefits should go to those incurring costs) seemed to be of greatest concern in all the countries studied. Discourse II (that benefits should go to low-emitting forest stewards) received the least attention among both government and REDD+ project developers in all 13 countries, although it was most prominent in countries that are currently implementing PES projects where upland farmers and landowners are receiving incentives for reducing emissions (e.g. Vietnam, Brazil).

Equity discourse III, which concerns whether the people who have incurred costs are compensated for them, regardless of the carbon emission reductions for which they are directly responsible (Luttrell *et al.* 2012), emerged in all the countries studied. For example, in countries planning to implement or already implementing PES and REDD+ projects (Brazil, Bolivia, Cameroon, DRC, Indonesia, Lao PDR, Mozambique, Nepal, PNG, Peru and Vietnam), benefits are shared with all actors involved, even those not directly responsible for emission reductions (e.g. mass organisations in Vietnam that perform more of a political role than a land use management role).

Equity discourse IV suggests that REDD+ benefits should be shared with the forest actors that are essential for the implementation of REDD+, whether private sector actors, NGOs or central or local government bodies. However, the proportion of benefits that should accrue to these actors remains controversial in many countries (Luttrell *et al.* 2012). In Vietnam, Decision 380 on PES Pilot Projects allocates 90% of the benefits to the people conserving the forest and 10% for administration (Pham *et al.* 2012b). The proposed benefit-sharing arrangements for PNG's first official REDD+ pilot project, April Salumei, apportion 20% to the developer (Babon and Gowae 2013).

Despite the presence of a National REDD+ Strategy in four of the 13 countries and the diversity of discourses on benefit sharing, a common challenge for all countries lies in designing a benefit-sharing mechanism that is simultaneously effective, efficient and equitable. In all countries, the discussion on carbon rights and carbon tenure is still in its infancy, and there is no legal framework or guidance. As a result, it is unclear who will be eligible to receive REDD+ payments and benefits, which may provoke conflicts among stakeholders.

Table 3. Prevalence of benefit-sharing discourses in the study countries

Countries	**Effectiveness vs. efficiency:** Benefits should be used as an incentive to bring about a reduction in emissions and should go to the actors providing these reductions	**Equity discourse I:** Benefits should go to those with legal rights (statutory or customary)	**Equity discourse II:** Benefits should go to low-emitting forest stewards	**Equity discourse III:** Benefits should go to those incurring costs	**Equity discourse IV:** Benefits should go to effective facilitators of implementation
Latin America					
Brazil*[a]	X	X	X	X	
Bolivia	X	X		X	X
Peru	X	X	X	X	
Asia and Oceania					
Indonesia*	X	X		X	X
Vietnam*	X	X	X	X	X
Nepal	X	X	X	X	X
Lao PDR	X	X		X	X
PNG	X	X		X	X
Africa					
Tanzania*	X	X		X	X
Burkina Faso	X	X	X	X	
Cameroon	X	X		X	X
DRC	X	X		X	X
Mozambique	X	X		X	X

a The asterisk indicates countries that have completed a National REDD+ Strategy.

Notes: The review is based on existing REDD+ strategies and selected REDD+ pilot projects. 'X' indicates the presence of that discourse in one or more projects.

Sources: Angelsen *et al.* 2009; Aronsen *et al.* 2011; Babon and Gowae 2013; Champange and Roberts 2009; Dkamela 2011; Government of Nepal 2011; Hedge and Bull 2011; Indrarto *et al.* 2012; Jambiya *et al.* 2012; Jimbira *et al.* 2012; Kokko 2010; Lestrelin *et al.* 2012; Luttrell *et al.* 2012; May *et al.* 2011; Mayrand and Paquin 2004; Mbak 2010; Nhantumbo and Izidine 2009; Paudel *et al.* 2013; Pham *et al.* 2012a; Sitoe *et al.* 2012; van Noordwijk *et al.* 2008; Videa 2011

Moreover, conflicting legal provisions, overlapping mandates and inconsistent implementation among government agencies, weak law enforcement, limited funding and staffing, lack of transparency, unchecked corruption and elite capture are delaying and reducing the effectiveness of both REDD+ implementation and benefit distribution in most of the countries studied. Managing the large sums provided by donors for implementing REDD+ pilot projects is a significant challenge for local governments (e.g. in Vietnam, Lao PDR, Cameroon). Weak law enforcement and corruption in Indonesia, Cameroon, PNG and Nepal have led to ineffective implementation of both forestry and REDD+ policies. In PNG, major factors undermining the achievement of effective and equitable REDD+ outcomes are weak national ownership over the policy agenda and the fact that REDD+ strategies have been developed by a small policy elite comprised of government officials and international consultants, with minimal involvement by customary landowners (who own the forests that the REDD+ strategies are trying to protect and hence whose support will be needed for their implementation) (Babon and Gowae 2013).

In terms of efficiency, coordination and information sharing among stakeholders are essential for assessing and delivering benefits to the identified actors. However, in most countries studied, actors appear to operate in isolation from each other and with limited information sharing, despite numerous meetings, workshops and conferences (e.g. in Indonesia) at national and subnational scales, a phenomenon that Gallemore *et al.* (2012) and Moeliono *et al.* (2012) call 'empty information highways'. This inefficiency leads to high transaction costs because of poor coordination and overlapping of functions among ministries; the lack of transparent financial monitoring and the use of complex financial procedures further reduce the efficiency of policy implementation. For example, the slow administrative procedures seen in Lao PDR and Vietnam have great potential to increase implementation costs (Lestrelin *et al.* 2012; Pham *et al.* 2012a). In Indonesia, the legal framework under which forestry activities operate encompasses both specific, sectoral laws and regulations (e.g. those regulating forestry, agriculture and mining) and more general, cross-cutting legislation (e.g. decentralisation, finance and spatial planning). This has not only led to inconsistencies, contradictions, uncertainty and inefficiency, but also encourages corrupt practices because the presence of multiple legal frameworks creates opportunities for rent-seeking behaviour. Analyses from several countries (e.g. Vietnam, Cameroon, Nepal) also show that funding for previous forestry programmes and REDD+ pilot projects has not been used effectively and may even be misused if no system of accountability is put in place. For example, in Bolivia, funding and resources invested in REDD+ have been used primarily to train and organise programme staff rather than to develop plans to produce the targeted outcomes.

In terms of equity, benefits from REDD+ continue to accrue only to the elite and powerful. In Vietnam, the potential for government agencies and state-owned companies to capture the benefits of REDD+ is high, given that 80% of high-quality forest is under the management of state agencies. Civil society organisations are involved in decision-making but have little influence because of their political role. In Nepal, strategies designed to enhance the participation of local communities and stakeholders are largely limited to the national level, particularly to a small number of people in the government bureaucracy, development agencies, a few NGOs and a couple of citizen federations (Paudel *et al.* 2013). It has been seen that, in Mozambique, weak enforcement of laws and regulations may jeopardise the equity of results (Sitoe *et al.* 2012). In Brazil, REDD+ strategies have responded to policy development by subnational authorities in collaboration with or independently of major national or international NGO initiatives but partnerships with local-level institutions or stakeholders remain unformed (May *et al.* 2011), an approach that can not only decrease efficiency but also have negative implications for equity.

4. Options for benefit-sharing mechanisms

Vertical and horizontal benefit sharing share common challenges for ensuring transparency and accountability.

Vertical options:
Four approaches to benefit-sharing mechanisms are used in the countries.

- **Fund-based approaches** encompass three options: independent funds outside national administration; funds that are directly merged with or integrated into the state budget; and funds that rely on the capacity of the state administration and can direct finance to the state sector, but with decisions on financial beneficiaries made by independent committees. Although the 13 countries' preferences for fund models differ, they all share common obstacles in the establishment and operation of these funds, largely because of organisational competition and conflicts over power and interests and because notions of how these funds should be used and how benefits should be shared among beneficiaries remain abstract.
- **Forest concession** agreements are in place in all of the countries except Tanzania. On the one hand, having the government decide the uniform rules governing the share of forest revenues makes scaling-up quite efficient. On the other hand, challenges in ensuring equity, accountability and transparency due to weak governance have been observed.
- **Access and benefit sharing (ABS)**: Documented experience on this benefit-sharing mechanism is scarce. However, the literature on the 13 countries studied shows that the commitment towards ABS remains theoretical, without being translated into practice. All the countries studied face challenges in implementing ABS given the complexity of the land tenure systems and difficulties in defining community ownership of genetic resources.
- **Market-based (performance-based) instruments** are expected to provide useful lessons for achieving 3E outcomes from REDD+. However, evidence from all the countries studied shows that environmental services are not monitored and are not paid for based on performance, mainly because of technical and social challenges. Whether PES (the most popular form of market-based instrument) actually leads to improvements in environmental services and local livelihoods or to reductions in poverty remains unclear. The implementation of market-based instruments (particularly the Clean Development Mechanism) is often impeded by high opportunity costs, high transaction costs and weak institutions, particularly at local level.

Horizontal options:

- **Community-based natural resource management**: Findings on whether community forest management can lead to improvements in environmental services and livelihoods are mixed. State domination of the land tenure system in most countries means that collaborative management continues to be driven by the state, with local communities having little decision-making power. Elite capture and corruption are other major challenges impeding efforts to achieve effective and equitable benefit sharing.
- **Joint forest management:** The positive role of partnerships and the ability of joint forest management to generate additional benefits for local communities in all countries implementing this benefit-sharing arrangement (Lao PDR, Tanzania, Burkina Faso, Mozambique) are recognised. However, elite capture, corruption and state-biased land tenure systems continue to undermine the implementation of joint forest management in practice.

In this section, we analyse options for both vertical and horizontal benefit-sharing mechanisms, drawing heavily on Streck and Parker (2012).

4.1 Options for vertical benefit-sharing mechanisms

Funds that come from the international community or markets for REDD+ activities may require vertical sharing mechanisms, particularly between central, regional and local governments and communities (and may include NGOs and private developers at local level). Evidence from the 13 countries studied reveals four types of benefit-sharing mechanisms that operate primarily vertically, although they do integrate some elements of horizontal benefit sharing: fund-based approaches, forest concession models, access and benefit sharing (ABS) and market-based instruments.

4.1.1 Fund-based approaches

Although the term 'fund' is used in the context of REDD+ to refer to non-market finance, fund-based mechanisms can be used to channel either market finance or funds. Whether a fund can be used as a form of benefit-sharing mechanism remains controversial. On the one hand, a fund can be an element within a benefit-sharing structure if it is combined with, for example, PES (e.g. PES and a community development fund). On the other hand, a large fund is more than a mere distribution of finance; rather, it encompasses, among others, assessment of proposed projects and the setting of funding conditions. As such, it fits the definition of benefit-sharing mechanisms used in Luttrell *et al.* (2012, p. 131) as 'institutional means, governance structures, and instruments that distribute finance and other net benefits from REDD+ programmes'.

Funds can be operated in three ways, as follows.

1. Independent funds outside national administration, such as conservation trust funds (e.g. Brazilian Biodiversity Fund (FUNBIO), Foundation for Protection and Sustainable Use of the Environment, Bolivia (PUMA), Peruvian Trust Fund for National Parks and Protected Areas (PROFONANPE); user-financed PES), in which funding comes from the users of the environmental services being provided (e.g. Los Negros, Bolivia; see Wunder 2008) and multi-donor funds, as in the case of DRC, Tanzania and PNG. This option was proposed in these countries mostly in response to donor and public scepticism concerning accountability and transparency (PNG: see Babon and Gowae 2013; Tanzania: see Jambiya *et al.* 2012; Mpoyi *et al.* 2013). However, as seen in the case of Vietnam, this option can meet with strong political opposition because the costs of establishing such a complex system are high and the potential benefits from REDD+ payments are often unclear.
2. Funds that are directly merged with or integrated into the state budget (e.g. official development assistance, budget and programme support). In Indonesia, Nepal, Vietnam and Mozambique, state funds were preferred as financial flows transferred through official budgetary procedures, although there are differences in the degree to which the ministries of forestry and finance want this to be on budget (Indrarto *et al.* 2012; Paudel *et al.* 2013; Sitoe *et al.* 2012). Some stakeholders view this kind of fund with scepticism because of the strong government control and the potential for REDD+ funds to be misused for non-REDD+ purposes. Others argue, however, that national systems have established monitoring procedures, which off-budget project mechanisms often do not have. In the case of Vietnam, for example, the government prefers this option because of its potential to secure co-benefits through the presence of a wider set of available policy measures. However, as seen in the cases of Vietnam and Indonesia, corruption is a serious obstacle in efforts to avoid the misuse of funds.
3. Funds that rely on the capacity of the state administration and can direct finance to the state sector, but where decisions on financial beneficiaries are made by independent committees (e.g. Amazon Fund, Indonesian Reforestation Fund, The Forest Development Fund, Bolivia (FONABOSQUE)). In Brazil, Vietnam, Tanzania and Cameroon, REDD+ funds have been established as subordinate to existing funds (such as a PES fund).

Although the 13 countries differ in their preferences regarding the fund-based model, they face common obstacles in the establishment and operation of these funds. First, the large amount of finance channelled to the relevant funds provokes organisational competitions and conflicts over power and interests. In the cases of Nepal, Indonesia and Vietnam, the finance ministry was reluctant to establish these

funds, preferring to see them merged into the state budget under the management of the finance (rather than forestry) ministry (Indrarto *et al.* 2012; Paudel *et al.* 2013; Pham *et al.* 2012a). Second, whereas much of the discussion in countries where such funds are already in place is devoted to how these funds should be managed and by whom, the central concepts of how the funds should be used and how benefits should be shared among beneficiaries remain abstract. The combination of this lack of clarity with weak institutions, poor law enforcement, unchecked corruption and elite capture in all countries further threatens the actual distribution of benefits from central to local level.

4.1.2 Forest concessions

Where countries do not develop new or modify existing legal and policy frameworks to provide for benefit sharing from forest carbon sequestration or REDD+ specifically, existing laws governing commercial forestry management may apply either as an interim 'default' or final benefit-sharing framework for REDD+ projects (Costenbader 2011). Benefit sharing under this arrangement is often the outcome of national policies and legislation, which establish minimum requirements for setting up benefits and transfers and do not require an agreement between local and external entities (Behr *et al.* 2012). In reality, exploitation of forest resources is subject to royalties or other fees payable to the state, with the state distributing economic benefits among levels of government and, indirectly, to local and indigenous communities.

Logging concession agreements are in place in all of the countries except Tanzania.

In Central Africa (Cameroon and DRC), the forest concession is the dominant form of forest tenure. Cameroon's 1994 Forestry Law provides that revenues collected by the government through a tax on the industrial exploitation of forest concessions are to be distributed as follows: 50% to the state, 40% to rural councils (local authorities in Cameroon) and 10% to villages adjacent to forest concessions; the law also stipulates the payment of a village tax to communities near forest concessions (Morrison *et al.* 2009 in Costenbader 2011).

Large-scale forest concessions are also dominant in Indonesia and PNG. Revenues shared from forest resources in Indonesia originate from Forest Concession Fees (IHPH), Forest Resource Rent Provision (PSDH) and the Reforestation Fund (DR) (Indrarto *et al.* 2012); the distribution of revenues from the forestry sector to central, provincial and district/municipal governments is illustrated in Table 4. In Indonesia, regional governments have adopted safeguards to ensure that local people derive direct economic benefits from timber concessions. For example, a decree by the East Kalimantan governor in 2000 on Compensation Fee to Forest Communities obliges logging concessions to pay a production fee calculated based on the volume of timber (in cubic metres) harvested from customary land to the indigenous people living in the harvesting operation site (Muljono 2009).

PNG has at least 217 commercial logging concessions, including Timber Rights Purchases, Local Forest Areas and Forest Management Agreements, covering an area of more than 10.5 million ha (Bun *et al.* 2004). A review by the ITTO (2007) found that most large logging companies in PNG are operating in forests classified

Table 4. Distribution of revenue from forest concessions in Indonesia

Sector	Revenue source	Share (%)			
		Central government	Provincial government	Producer district/ municipality	Other districts/ municipalities in the province
Forestry	Forest Concession Fees	20	16	64	–
	Forest Resource Rent Provision	20	16	32	32
	Reforestation Fund	60	–	40	–

Source: Resosudarmo *et al.* 2006 in Indrarto *et al.* 2012

as 'production forests', are foreign-based and have an extensive foreign employee base overseeing their activities (although some have subcontracted domestic logging companies for some aspects of the work). In Bolivia, the forestry concession system went into effect with the passing of the new Forestry Law 1700 in 1996; Peru and Brazil, after observing the experience of other countries, adopted the forest concession system in 2000 (Gray 2000).

The forest concession system has both advantages and disadvantages. On the one hand, the fact that the government will set uniform rules governing the share of forest revenues makes scaling-up quite efficient. On the other hand, a challenge that has emerged in countries with forest concessions is that of ensuring equity, accountability and transparency in the process. For example, in Cameroon, there is evidence of low equity, with communities facing the risk of not actually receiving any payments, and poor effectiveness, with the potential for over- or under-payment. Corruption in Cameroon's forestry sector is such that many forest concessions exist only on paper, with the 'forest pie' mostly shared among the elite and according to a power scale. Furthermore, the Ministry of Forests and Wildlife has identified difficulties in obtaining Forest and Environment Sector Programme funds and ignorance of disbursement procedures (Dkamela 2011). In Mozambique and Burkina Faso, rights to forests were granted to communities, rather than to large industrial holdings, in the form of community forest management (Larson and Dahal 2012; Mansur and Zacarias 2003).

Another disadvantage is that a national-level decision tends to focus on uniformity in sharing benefits and may neglect local differences in transaction and opportunity costs, thus diminishing local community participation and creating inequitable benefit sharing among affected parties (Costenbader 2011). Despite claims that logging concessions in Africa have direct benefits for local people through the creation of employment, most qualified positions are taken by external employees because local people often lack the professional skills and capacity relevant to forest management (Dkamela 2011; Mansur and Zacarias 2003; Mpoyi *et al.* 2013). Furthermore, in all the countries studied, forest concessions are linked to weak governance, inadequate law enforcement and lack of transparency, resulting in inadequate benefit sharing. Forest certification schemes, arising from growing international interest in sustainable forest management, may provide better support for meeting the needs of local communities (Behr *et al.* 2012; Karsenty *et al.* 2008; Lescuyer *et al.* 2012). However, some studies have found that forest certification can make only a minor contribution to mitigating the unfair distribution of forest benefits (van Dam 2003; Van Hensbergen *et al.* 2011) and, in some developing countries, the quality of certification issued by some bodies has been questioned (Cerutti *et al.* 2011; Greenpeace 2011); nevertheless, forest certification remains an important tool for improving the management of forest concessions (Van Hensbergen *et al.* 2011).

4.1.3 Access and Benefit Sharing (ABS)

ABS is a measure in the CBD, which seeks to ensure 'the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding' (Article 1, CBD).

The form of benefit sharing varies considerably according to the national laws and to the sectors that are undertaking research to develop commercial products from genetic resources. Laird and Wynberg (2008) note that each sector forms part of a unique market, undertakes research and development in distinct ways, uses genetic resources differently, has specific demands to access genetic resources, and adopts individual approaches in reaching agreement on the terms of sharing benefits and intellectual property.

There is limited experience and analysis of this topic, mainly because very few of the countries studied have taken effective measures to promote the sharing of benefits generated from the use of genetic resources; furthermore, the obligations of those who receive benefits from genetic material are unclear, largely because negotiations about ABS have been ongoing in CBD COPs for years (Nkhata *et al.* 2012b; Tvedt 2006). Analyses from the 13 countries indicate that, although governments are generally committed to the CBD, these commitments are rarely translated into practice because of insufficient funding, inadequate government resources and limited capacity of government staff. Moreover, the case studies show that ABS has had little effect on forest management and improvement.

Another issue related to this form of benefit-sharing mechanism is that it could entail the de-emphasis of certain important co-benefits, such as training, technology transfer and capacity building, in favour of future royalties, which are unlikely to materialise (Finston 2007 cited in Nkhata *et al.* 2012b). Although there has been little documentation of lessons learnt from ABS, five major principles within this framework may prove useful for guiding the future design of REDD+: 1) definition of ownership over resources and related knowledge; 2) basing benefits on performance; 3) sharing of benefits; 4) third-party transfer of research results; and 5) respect for intellectual property (Suneetha and Pisupati 2009). Ituarte-Lima and Subramanian (2011) offer specific lessons on the equity dimensions in ABS legal agreements for REDD+, arguing that REDD+ negotiations need to go beyond the assumption that stakeholders in legal agreements are equal partners and that equitable legal relationships between forest-dependent people and other REDD+ actors (whether singly or in combination) will not develop automatically; rather, equitable legal relationships need to be actively fostered based on power imbalances and forest-dependent communities' difficulties in complying with legal requirements.

Given the national sovereign right to exploit genetic resources, enshrined in Article 3 of the CBD, each country must consider how best to apply the above-mentioned principles given its own Constitution and the complexity of its land tenure system. Most countries share the common challenge of defining community ownership of genetic resources and lack clear guidance about the ownership of resources, thus creating confusion for benefit sharing (Suneetha and Pisupati 2009). Where the monitoring and enforcement of agreements are based on social pressure, efficiency in delivery is dependent on social cohesion. Nkhata *et al.* (2012b) also point out that a major problem for implementation is how to protect sharing schemes against external forces and shocks.

4.1.4 Market-based instruments

Market-based instruments that reward the provider of ecosystem services are increasingly being promoted as an important benefit-sharing approach for conservation. Market-based instruments are expected to ensure that the outcomes of PES and REDD+ schemes meet the 3E criteria because they tend to be based on performance. The most common approach is PES, the basic underlying objectives of which are to provide effective employment, at both individual and community levels, to provide environmental services and to compensate providers for the costs of their services. PES schemes also aim to ensure that those who benefit from these services should pay for them, thereby internalising these benefits (Mayrand and Paquin 2004). PES schemes are operating in nine of the 13 countries: Brazil, Bolivia, Cameroon, Indonesia, Mozambique, Nepal, Peru, Tanzania and Vietnam.

Policymakers and international communities have high expectations of PES because of its potential to address the dual goals of environmental protection and poverty reduction (Wunder 2008), to promote transparency and accountability and to remove constraints on access to benefits (Nkhata *et al.* 2012b). However, findings on the impacts of PES reported in the literature and for our 13 study countries are rather mixed. PES schemes in Latin America are quite well developed, but those in Southeast Asia are mostly small, donor-driven pilots, most of which are still in the planning stage, with few contracts in place (Huang and Upadhyaya 2007; Wertz-Kanounnikoff and Kongphan-Apirak 2008). It is therefore hard to assess the extent of their contribution to improved land use and enhanced environmental services (Pattanayak *et al.* 2010; Tomich *et al*. 2004; van Noordwijk *et al.* 2012).

In case studies on market-based carbon sequestration and watershed protection initiatives in Latin America, Grieg-Gran *et al.* (2005) found PES to have positive effects on local income. PES projects in Brazil, however, have shown little evidence of effectively delivering benefits to individuals and groups, as they suffer from lack of legal recognition, incompatibility with government policies and weaknesses in the extent of coordination (May *et al.* 2011). In some cases, however, PES offers certain co-benefits, such as stronger land tenure security (e.g. in Indonesia) and socio-institutional strengthening (e.g. Vietnam).

In other countries studied, no clear impacts of PES on either environmental or social outcomes have been observed. Although PES was not originally designed for poverty reduction, it was expected to have positive impacts on the poor (Lee and Mahanty 2009; Pagiola *et al.* 2005). Although analyses of the linkages between PES and poverty in Latin America suggest there can be benefits for some (Locatelli *et al.* 2008; Wunder 2008),

the benefits have generally been limited or remain unproven (Fishera *et al.* 2009). Common challenges in the nine countries studied here in which PES schemes are operating are organisational barriers (lack of coordination among stakeholders, high transaction costs due to overlapping of functions among government agencies, lack of guidance for policy implementation, poor understanding of PES among stakeholders, limited capacity of those implementing PES); institutional barriers (lack of specific regulations both on PES in general and on PES benefit-sharing mechanisms in particular, low levels of payment, insecure land tenure); and lack of knowledge and capacity among public servants (e.g. May *et al.* 2011; Paudel *et al.* 2013; Pham *et al.* 2012a; Sitoe *et al.* 2012). In most cases, local people are unlikely to be able to participate because they lack assets and have limited rights over both trees and land, and are therefore unable to influence the distribution of benefits. Inadequate or non-existent forest governance means that PES is vulnerable to elite capture (Jambiya *et al.* 2012; Paudel *et al.* 2013; Pham *et al.* 2013).

Conditionality is seen as the key element of PES (Wertz-Kanounnikoff and Kongphan-Apirak 2008; Wunder 2005). However, recent global reviews of PES by van Noordwijk *et al.* (2012) and Pattanayak *et al.* (2010) found that the lack of comprehensive monitoring and evaluation is the most critical weakness of current PES policies and programmes throughout the world. Sunderlin and Sills (2012) found that most of the REDD+ pilot projects they studied applied an approach that is a hybrid of Integrated Conservation and Development Projects (ICDPs) and PES, but that very few were based on performance. Similar findings emerge from the analyses here: there have been no monitoring or assessment of whether the schemes have led to improvements in the performance of either environmental services or social indicators. Such findings raise questions about the potential effectiveness of REDD+ policies that adopt this form of benefit-sharing arrangement.

Essential features for establishing a long-term and sustainable relationship between buyers and sellers in PES schemes are trust, legitimacy of the decision-making process, firm willingness to pay among buyers and a clear understanding of the benefits and obligations of both buyers and sellers. Pham *et al.* (2013) found that, in the case of Vietnam, trust and local perceptions of equity determine people's preferences for benefit-sharing options but that current PES schemes have not achieved effectiveness, efficiency or equity, which is viewed as the main element. The authors therefore call for the inclusion of local voices and better understanding of equity in the design of benefit-sharing mechanisms. More importantly, they note that PES and REDD+ need to adopt an adaptive management approach that can address issues related to opportunity costs and include capacity and trust building among stakeholders.

Findings from most of the countries studied reveal that, on the supply side, local communities have limited capacity and, on the demand side, there are few buyers (e.g. Vietnam: Pham *et al.* 2009; Brazil: Veríssimo *et al.* 2002; Bolivia: Robertson and Wunder 2005; Peru: Renner 2010). At most sites studied, intermediaries were instrumental in negotiating PES – although self-interest among such intermediaries could override their impartiality, resulting in less than optimal PES outcomes (Pham *et al.* 2012b). Donors currently play a large role in supporting PES schemes (Dkamela 2011; Pham *et al.* 2012a; Sitoe *et al.* 2012). In particular, prices for environmental services are such that schemes would not be financially viable had transaction costs not been covered by donors (Costenbader 2011; Indrarto *et al.* 2012; Pham *et al.* 2012a). However, many questions remain unanswered regarding the ideal conditions, duration, enforcement approach and transaction costs for successful PES implementation (Garnett *et al.* 2007; Landell-Mills and Porras 2002) and the extent to which PES has successfully integrated conservation and development (Barton *et al.* 2009).

The Clean Development Mechanism (CDM) was the first global environmental investment and credit scheme of its kind, providing a standardised emissions offset instrument, known as Certified Emission Reductions (CERs). The aim of CERs was to reduce greenhouse gas emissions while assisting developing countries in achieving sustainable development, with the multiple goals of poverty reduction, environmental benefits and cost-effective emission reductions. The CDM allows for a small percentage of emission reduction credits to come from afforestation and reforestation (AR) projects. However, in contrast to the large numbers of projects in the energy sector in most countries, there are relatively few projects in the forestry sector. According to the UNFCCC website

(http://cdm.unfccc.int/), progress has been slow for the CDM in the forestry sector worldwide; as of 11 February 2013, only 44 AR activities had been registered with the UNFCCC.

Criticisms of the complexity of CDM processes have arisen at the international level. Cameroon, Vietnam and Indonesia struggle partly because of the complexity of the administrative or procedural requirements (Dkamela 2011; Indrarto *et al.* 2012; Pham *et al.* 2012a). Indonesia has also experienced several governance flaws in implementation: the monitoring function of the National Commission on Clean Development Mechanism (the designated national authority) is not working properly and the approval mechanism remains unclear (Indrarto *et al.* 2012). In Lao PDR, the limited potential for greenhouse gas emission removals and the weakness of CDM and market institutions significantly reduce the country's attractiveness for CDM project investors (Lestrelin *et al.* 2012). In the context of the current carbon market, in which investors tend to overlook forest carbon projects in favour of other carbon activities, a recent study by the UN Environmental Programme Risoe Centre (Romero *et al.* 2013) suggests that multilateral organisations in collaboration with national entities should facilitate national-level forums targeting investors and project developers from the forestry sector.

Financial, administrative and governance issues impose more specific constraints on the development of CDM-AR projects (Thomas *et al.* 2010). Furthermore, Romero *et al.* (2013) identify three barriers to finance for forest carbon projects: project risk, carbon market risk and the higher performance of substitute activities. At a country level, Pham *et al.* (2008) offer several reasons for the shortage of CDM-AR projects in Vietnam, including the magnitude of the transaction costs for complying with technical requirements for establishing and monitoring the process, the absence of upfront payments by either buyers or donors and the absence of 3E benefit-sharing mechanisms.

Lessons from a more advanced forest-based climate mitigation project can be learnt from Bolivia. The Noel Kempff Mercado Climate Action Project in Santa Cruz, which is not a CDM-AR project but has been certified according to its standards, received international certification from Societé Generale de Surveillance UK Ltd (SGS) that validated and verified the emission reductions achieved by this project (1997–2005). According to SGS, 989 622 tCO_2e (tonnes of CO_2 equivalent) would have been emitted had the project never taken place (Videa 2011). Another analysis (Thomas *et al.* 2010) of four projects, by then registered with the UNFCCC as CDM-AR projects, suggests that applications are likely to be 'successful' if they have initial funding support; if their design and implementation are guided by large organisations with technical expertise; if they occur on private land (land with secure property rights attached); and if most revenue from CERs is directed back to local communities.

4.1.5 Land fees

In Cameroon, Decree No. 76-166 of 27 April 1976 establishes the terms and conditions for the management of national lands, requiring each national land recipient to pay annual fees:

The income received from the allocation of national lands, whether held by grant or on lease, shall be apportioned 40% to the State, 40% to the council in whose area the land is situated, and 20% for use in the public interest to the village community concerned.

However, the reality of land fee payments from concession holders such as agribusiness and the sharing of those revenues has not been systematically documented. A recent assessment by Assembe-Mvondo *et al.* (2013) shows that the mechanism for land rent redistribution is based on land in the national domain that is granted or leased to economic operators in Cameroon and is not really effective, efficient or equitable. That is, the Cameroonian model of sharing land fees is incomplete and poorly designed and lacks a viable monitoring mechanism. Unsurprisingly, then, there are many shortcomings and challenges to its implementation on the ground. As a result, the objective of having public authorities pay financial compensation to local communities is far from being achieved. Rather, the rights of local communities and neighbouring councils are being jeopardised both by illegal practices between agro-industrial operators and some government officials and by the porosity of the regulations within the current system. This runs counter to the objective of poverty alleviation in rural Cameroon.

In Laos, as the private sector is expected to both increase the national revenue and to provide the capital and technologies required for economic development, Laos has issued 'attractive' land investment policies (e.g. Laos' Presidential Decree No. 02/2009 establishes land leasing fees of 5 to 50 US$ per ha for agricultural production and tree plantations). This has promoted Vietnamese, Chinese and Thailand agribusiness, forestry and wood-processing investor to invest significant financial resources in the country and propelled massive and largely uncontrolled land deals, forest conversion, and timber extraction. However, Lestrelin *et al*. (2012) have found that this not only has ambiguous impacts on land and forest governance but also accelerate the rate of deforestation and forest degradation. Moreover, this could potentially create a conflict between local people and foreign companies particularly when the population grows and local people face shortages of agricultural land in the countries.

4.2 Options for horizontal benefit-sharing mechanisms

Benefit sharing is described as horizontal when it occurs between communities, within communities and/or within households in those communities. A number of lessons can be drawn from existing arrangements, such as community-based natural resource management models or joint forest management schemes.

4.2.1. Community-based natural resource management (CBNRM)

Despite the many definitions of CBNRM, it remains difficult to define, as the definition will shift depending on an individual country's perceptions and the community involved. For the purpose of this study, we use Fabricius *et al.*'s (2004) definition of CBNRM as the collective use and management of natural resources in rural areas by a group of people with a self-defined, distinct identity, using communally owned facilities. One of the aims of CBNRM is to establish appropriate institutions under which resources can be legitimately managed and exploited by local people for their own direct benefit. Therefore, as the concept of CBNRM principally refers to the management of a communally owned asset, revenues derived from the asset need to be disbursed horizontally to communities and/or individuals. CBNRM, also known as collaborative forest management, has been implemented in all of the 13 countries studied here.

Evidence on whether community forest management can lead to improvements in environmental services is mixed. Although Nepal (Paudel *et al.* 2013) and Tanzania (Jambiya *et al.* 2012) tend to be held up as examples of its success, community forestry in Indonesia, PNG, Cameroon and Vietnam has shown little impact on forest management and improvement (Babon and Gowae 2013; Dkamela 2011; Indrarto *et al.* 2012; Pham *et al.* 2012a).

Among the countries studied, Nepal is best known for its success with community forests. According to Paudel *et al.* (2013), the presence of a wide range of revenue-sharing arrangements between community-based forest management (CBFM) modalities forms a solid basis for designing benefit-sharing arrangements under REDD+ (e.g. a group derives all the benefits, although a 15% royalty is payable for timber species if sold on a market outside the group; 75% of the timber revenue goes to the central treasury, with the local government receiving 15% and local communities 10%; see Annex 2 for further details). However, this very diversity of revenue-sharing arrangements in the different forms of CBFM makes it difficult to impose any uniformity on the models (Paudel *et al.* 2013). Moreover, state domination of the land tenure system, which is prevalent in most countries, means that collaborative management continues to be driven by the state, with local communities having limited decision-making power. In the cases of Nepal, PNG and Vietnam, there are governance gaps within the community-managed modalities, caused mainly by the high value of timber, elite capture and collusive relationships between local political leaders, forest officials and timber traders (Brockhaus *et al.* 2013). A study from Indonesia (Maryudi and Krott 2012) shows that economic benefits have rarely exceeded the level deemed sufficient for subsistence.

4.2.2 Joint forest management (JFM)

'Joint forest management' may be seen as having the same meaning as CBNRM, given that it too is based on the principle of community involvement in forest management. Moreover, it is difficult to generalise the concept across countries, given differences in resources, socio-economic and political conditions

and the pressure on forests. However, for the purpose of this study, we understand JFM as referring to the development of partnerships between fringe forest user groups and a region's forest department based on mutual trust and jointly defined roles and responsibilities with regard to forest protection and development (Sharma and Kohli 2012). We consider JFM to be a different benefit-sharing arrangement from CBNRM because JFM usually occurs in forestland owned by the government, thus giving government agencies the power to decide on the size of benefits and how they are shared. For both CBFM and JFM, monitoring and enforcement of agreements tend to be difficult and it remains unclear how to curtail the power of state actors.

The positive role of partnerships in JFM and its ability to generate additional benefits for local communities are recognised in all countries implementing this benefit-sharing arrangement (Burkina Faso, Mozambique, Lao PDR and Tanzania,). Furthermore, JFM is supported by government attempts to decentralise forest management (Jambiya *et al.* 2012; Jimbira *et al.* 2012; Lestrelin *et al.* 2012; Sitoe *et al.* 2012). Despite efforts to push the development of village/community institutions and governance, a residual challenge is the difficulty of translating such attempts into practice (Jambiya *et al.* 2012). The tenure challenges for JFM are quite similar to those for CBNRM. In particular, the retention of state ownership of forestland under JFM has often hampered local community involvement and exacerbated the lack of clarity over rights to receive benefits (Jambiya *et al.* 2012; Jimbira *et al.* 2012; Lestrelin *et al.* 2012; Sitoe *et al.* 2012).

The most frequently cited problem for horizontal benefit distribution within indigenous and local communities is elite capture, which hampers efforts to share benefits adequately and equally (Costenbader 2011). Bouda *et al.* (2008) and Coulibaly-Lingani (2011) identify a shortcoming in marketing forest products in Burkina Faso, namely the lack of transparency in the fuelwood market.

In Lao PDR, two case studies on production forest management and protection under the Laos–Swedish Forestry Programme illustrate the size of the benefits distributed (Mahanty *et al.* 2007). In the first case, village net revenue (sales of logs – (royalties + other taxes + logging labour + log transport + district forestry development funds)) from the jointly managed forest was horizontally shared: 60% went to a village development fund; 30% was reserved to cover operating costs in following years; and 10% was paid as a forest protection fee for villages where logging activity did not take place in a particular year. In the second JFM model, villagers were only contracted to protect the production forest. Of the revenues derived from the sale of timber, 10% was allocated as the forest protection fund and 5% as a village development fund. In both cases, villages were required to develop a plan for using the funds and obtain permission from the district or province based on that plan. However, the analysis (Mahanty *et al.* 2007) reveals that neither programme was very efficient: for both, the establishment was very labour-intensive and start-up costs were high, and considerable support for capacity building and transparency was needed at all levels.

5. Allocation of rights to actors within benefit-sharing mechanisms

- In vertical benefit sharing, authoritative rights tend to be held by the central government. In horizontal benefit sharing, relevant actors share the authoritative rights.
- State retention of control rights and authoritative rights means not only that local groups have limited scope to participate in decision-making but also that arrangements are vulnerable to 1) misunderstandings/ conflicts between central and local governments over who holds the authoritative and control rights and 2) weak leadership and coordination.
- Some of the countries studied have seen a shift towards the strengthening of local communities' use and control rights. However, the control rights of these groups remain rather limited and they are often not well informed of their rights.
- Conflicts between customary and formal rights tend to arise in almost all the countries studied, thus impeding the effective implementation of REDD+ and its benefit-sharing mechanisms.
- Incentives designed based on current options for benefit-sharing mechanisms have not been able to change actors' behaviour.

Whether a country adopts one or more of the benefit-sharing mechanisms described in Section 3, the primary questions that need to be addressed are who should be paid and who should pay. As mentioned above, the answers to these questions depend mainly on who controls the property rights. However, as the notion of 'property rights' encompasses a wide variety of rights, it is essential to understand who holds what rights under each benefit-sharing mechanism.

In this section, we investigate the different systems of rights (who has what rights and over what) in the study countries with two main purposes: to map the systems of rights to the equity discourses (if it can be done) and to understand whether and how existing or proposed benefit-sharing mechanisms have built on existing rights structures and governance institutions. An additional aim is to assess whether benefit-sharing systems have been effectively designed within these structures. In identifying the actors and their rights in these benefit-sharing systems, another question that arises is whether existing benefit-sharing systems and payment mechanisms are creating incentives for the appropriate stakeholders and whether the mechanism in place is equitable or fair. As explained in detail in Section 2, we employ the concepts of use rights, control rights and authoritative rights.

5.1 Allocation of authoritative and control rights to government agencies, donors and NGOs

In vertical benefit sharing, authoritative rights tend to be held by the central government. Ministries tasked with natural resource management are responsible for allocating control rights to particular actors and for defining the nature and discretional space of control rights through laws, regulations and guidelines on biodiversity, forest and environment (Sikor *et al.* 2012). In horizontal benefit sharing, by contrast, relevant actors share authoritative rights.

In general, in Latin America, although communities have presumed use and management rights, ownership of forests ultimately rests with the state. In Africa and Asia, only very limited rights are devolved to local communities, with government agencies usually holding both authoritative and control rights (Annex 2).

With the exceptions of Tanzania and PNG, the central government continues to dominate benefit-sharing mechanisms in all the countries studied. For example, in Vietnam, the PES trust fund holds the control rights and can retain 5% of the total indirect payments to cover the costs of its services (Pham *et al.* 2012a). In Parana and Minas

states in Brazil, municipalities receive payments from PES schemes, which are used to protect sources of drinking water through conservation programmes; payments are not made directly to communities (Mayrand and Paquin 2004). Generally, central governments retain the authority to make key decisions on forest regulations, although decentralisation may give subnational government bodies some authoritative rights. In some cases (e.g. Tanzania), the authority to issue permits for concessions lies with both central and local governments. In Bolivia, for instance, local authorities are given some discretion in implementing rules made at the central level (Videa 2011). Lao Provincial Offices of Natural Resources and the Environment have the authority to grant concessions up to 150 ha (Lestrelin *et al.* 2012).

In most case studies, donors also emerge as having control rights and even as dominating the REDD+ policy arena because of their political power. For example, the dominant REDD+ actors in Cameroon are large bilateral and multilateral conservation NGOs, a few Cameroonian civil society organisations, and the government, as represented by the Ministry of Environment and Protection of Nature Ecological Monitoring Unit. The result is that the REDD+ process remains externalised and elitist with no involvement by most of the huge number of relevant actors in the forestry sector, such as the traditional swiddeners, hunter-gatherers, community forest managers, council forest managers, municipal councils, national or foreign components of the forestry industry, agricultural industries, the mining industry and civil society organisations (Dkamela 2011).

State retention of control rights and authoritative rights means not only that local groups have limited scope to participate in decision-making but also that arrangements are vulnerable to several factors as described in detail below.

First, misunderstandings and conflicts between central and local governments over who holds the authoritative and control rights are common. For example, local governments in PNG have the authority to make decisions about resources but they do not realise the extent of the power given them (Babon and Gowae 2013). In Lao PDR, a great deal of uncertainty followed the creation of the Ministry of Natural Resources and Environment in 2011 and the transfer of responsibilities for conservation and protection forests from the Ministry of Agriculture and Forestry to the new ministry (Lestrelin *et al.* 2012). In Tanzania, the Forestry and Beekeeping Division plays a major role in REDD+ implementation but it has been weakened by relatively poor coordination among line ministries and by difficulties in coordinating and facilitating horizontal communication at local level, especially between communities (Jambiya *et al.* 202). In Bolivia, new rules have been made to regulate the state allocation of public forest areas as concessions and a new forest tax system has been designed (Pacheco 2005). In particular, the Law on Community-based Redirection of Agrarian Reform redistributed land to landless and poor groups, power has been decentralised and the rights of indigenous people and communities have been recognised (USAID 2010). However, indigenous people in Bolivia have had to struggle to maintain control over their territory (Jambiya *et al.* 2012; Larson *et al.* 2010). In Indonesia, questions have arisen concerning the validity of a benefit-sharing scheme created under Ministry of Forestry Regulation No. P.36/2009, particularly whether the scheme required a higher-level law (government regulation) and whether it should have been issued by the Ministry of Finance instead (Indrarto *et al.* 2012). Horizontal and vertical power struggles between government authorities over authoritative and control rights are present in most of the countries studied. For example, in Indonesia, a ministerial 'fight' over REDD+ financing is ongoing: the Ministry of Forestry issued a regulation in 2012 stating that upcoming legislation will address the allocation of non-tax income from forest carbon, even while the Ministry of Finance is drafting a policy on the financing of climate change mitigation (Masripatin 2013).

Second, as seen in the cases of Lao PDR, Cameroon, Vietnam, Indonesia, Mozambique, Tanzania and PNG, uncertainty surrounding the leadership and coordination roles of government – as the main agency leading the development of REDD+ policy and strategy – is emerging within the broader REDD+ policy development process (Indrarto *et al.* 2012; Lestrelin *et al.* 2012; Pham *et al.* 2012a; Sitoe *et al.* 2012). Even when local authorities are granted certain control rights, they do not always have the capacity to carry out their responsibilities. In the case of state funds, such as the provincial PES

funds in Vietnam and trust funds in Cameroon and Tanzania, lower-level government agencies (e.g. protected area agencies or regional agencies) often retain the control rights. However, these local authorities tend to depend heavily on central government guidelines and instructions (Vietnam Forest Protection and Development Fund 2012). Management rights for the use of timber resources are largely held by concessionaires, with government (central and/or regional) responsible for developing rules and/or guidelines on sustainable forest management; however, a lack of compliance and enforcement was revealed in many cases in the countries studied. Monitoring of production forest is usually the responsibility of central and regional governments, with their relative power depending on the national decentralisation policy. However, many local authorities exhibit weak control and monitoring of concessions because of inadequate capacity and financial resources. In Lao PDR and Indonesia, for example, efforts have been made to restrict the autonomy of subnational governments with regard to monitoring and enforcement in the forestry sector (Indrarto *et al.* 2012; Lestrelin *et al.* 2012).

5.2 Devolution of authority to local communities

Some of the countries studied have shifted towards stronger use rights and control rights for local communities. In Peru, the legal framework recognises ownership, possession rights, leaseholds and communal rights to peasant and native community lands, and the general assemblies of communities have the power to give, rent, sell or mortgage community lands (USAID 2010). Tanzania was the first country in Africa to recognise formally the role of communities in managing and owning forests (Jambiya *et al.* 2012), through the 2002 Forest Act, which provides the legal basis for communities to own, manage or co-manage forests under a range of conditions and management arrangements (USAID 2012). Burkina Faso has legal recognition of rights legitimated by customary rules and practices, with a law enacted in 2009 reinforcing the decentralisation and devolution of authority over land matters and providing for the formalisation of individual and collective use rights (USAID 2009).

Under the forest concession approach, forest concession enterprises (whether state-owned, community or private) are the only type of actor to hold use rights that allow them to directly benefit from standing timber. A community may also function as a concession enterprise if it is granted harvest rights, as occurs in Mozambique, Burkina Faso and Bolivia (Jimbira *et al.* 2012; Sitoe *et al.* 2012; Videa 2011). Forest stewards have use rights for non-timber forest products and non-protected forest wildlife for their subsistence. Government and communities may derive use rights to indirect benefits from the forests in the form of revenue from a tax on natural resource exploitation or a percentage of timber sales, with a share of any such funds allocated to government agencies at different levels. For example, in Cameroon, the legal redistribution of taxes on industrial exploitation of forest concessions is 50% to the state, 40% to the rural council and 10% to villages adjacent to the concession (Dkamela 2011). In Indonesia, villages/communities do not directly receive the balance of funds from forest resources; rather, these are redistributed among governments at all levels (Indrarto *et al.* 2012).

Government agencies hold authoritative rights under the independent fund mechanisms that fall outside national administration because each trust fund has a government representative on the board. In some cases, depending on the degree of donor control, donors hold authoritative rights thanks to their control over the disposal of funds and investment decisions. Funds that flow directly to the state (i.e. funds allocated in state budgets or under national state administration) endow government agencies with extensive authority to use the funds for sector development. Under such systems, communities and forest stewards do not have the authority to use the funds, but may derive indirect benefits from, for instance, development efforts such as investments in infrastructure, agriculture, productivity, education and health.

With market-based instruments and collaborative management, local people can participate in the exercise of authoritative rights and share control rights with government agencies; as a result, local people can claim a greater share of the final benefits derived from REDD+. However, the control rights held by these groups are rather limited and they are not well informed about them.

Practical examples of benefit sharing under ABS in the study countries are scarce, as is information on the kinds of use rights held by actors. In general, private companies or research institutions are granted use rights over traditional knowledge and genetic resources. A joint research venture between

a US university (Washington University) and two universities in Peru (Universidad Peruana Cayetano Heredia and Universidad Nacional Mayor de San Marcos) claimed and was granted use rights over traditional knowledge on the anti-malaria properties of certain plants (Suneetha and Pisupati 2009). Brazilian company Natura has been granted use rights over traditional knowledge when using plant ingredients to make personal care and cosmetics products, and thus benefits from those rights through sales revenue (Laird and Wynberg 2008). Migros Federation of Cooperatives, the biggest retail chain in Switzerland, has an agreement with the Bolivian government that gives it the right to protect, propagate and market five native Bolivian potato species, which involves a commitment to pay the farmers a commission on sales (Ibisch 2005).

Depending on a country's legislation and the ABS agreement, forest stewards involved in supplying materials are entitled to a share of any profits derived from the use of traditional knowledge and genetic resources, royalties, infrastructure, facilities or training. For example, the Iratapuru community in Brazil receives a percentage of net sales and capacity-building activities from Natura (Laird and Wynberg 2008). Collectors of medicinal plants in Cameroon were granted the rights to harvest plants for which they received payment from US laboratories of about one euro for three harvested plants (Rosendal 2010).

Use rights over timber resources are most common in community-based management. For example, the Krui people of southwest Sumatra have practised a complex form of agroforestry for generations, planting a succession of crops that culminate in a full forest canopy, with economic uses including resin tapping and timber. Their rights to harvest and market timber from the trees they plant is derived from tenure reform and supported by government decree (Casson 2005).

Under JFM programmes, forest owners have the right to the sustainable use of non-timber forest products as a source of subsistence and for community profit. In some cases, community institutions in collaboration with government agencies can hold control rights (e.g. village management boards in Vietnam; CBNRM in Bolivia; management groups under ICDPs in Peru; community organisations under PES in Indonesia).

In Nepal, the federal government owns all forestland; however, it delegates management over a large percentage of this land to local communities through several types of co-management schemes (Paudel *et al.* 2013). These local groups have legal standing and are responsible for developing their own management goals, activities and rules governing the use of the area under their charge (USAID 2012). An example of this is Mareja Community Reserve, where 50% of royalties are to be used for community development (Nhantumbo and Izidine 2009). The ICDP in Kaa-Iya National Park in Bolivia is a special case, in that government and communities receive funds as mitigation compensation from a gas company for its exploration and extraction of natural gas (Alers *et al.* 2007).

5.3 Conflicts between customary and formal use rights

In all the countries studied, holders of community use rights continue to wield minimal influence in forest management because their rights have only a weak legal foundation. A particular problem is the conflict between *de jure* (legal) and *de facto* (customary) rights. Most forest communities in most countries have no real understanding of REDD+ issues; a prominent exception are actors representing indigenous and traditional peoples in the Amazon, who are aware of the importance of tenure security for gaining access to benefits associated with REDD+ and are inserting these concerns into the negotiation of a REDD+ strategy that treats equity issues as a high priority (May *et al.* 2011). In PNG, despite having strong *de jure* rights, customary landowners have often been excluded from decision-making regarding their land (Babon and Gowae 2013). In Brazil, ownership of forest is treated as separate from the ownership of land through contractual arrangements (e.g. lease agreements, concession of usufruct and surface rights), while the federal government retains the right to intervene in many forest areas if there is a shift in the recognised national interest in land traditionally occupied by indigenous people (Chagas 2010). In Indonesia, revisions to the Forestry Law in 1999 allowed for the creation of 'customary forests' and 'special purpose management areas', although forest dwellers have restricted use and management rights over forests managed under these designations and the land and resources remain the property of the state.

In reality, however, there has been little application of either tenure type (USAID 2012). In Lao PDR, the Land and Forest Land Allocation (LFA) policy recognises local communities' rights to use forestland (Fujita 2008) but, in practice, communities have difficulties gaining access (Lestrelin *et al.* 2012). DRC's Forest Code (Law 11/2002) vests ownership of all forests and their resources in the state, but it acknowledges customary use rights to forest products and services (USAID 2012). However, customary use rights are not exclusive use rights, unless the community acquires a forest concession (USAID 2012).

5.4 Incentives and motivations to participate in REDD+

As mentioned above, a central goal of this analysis is to assess whether incentives have induced actors to change their behaviour. As seen above, local communities lack incentives because of unclear land tenure. In addition, to ensure the sustainability and continuity of environmental service provision, payments must be directed appropriately towards those providing the services (Tomich *et al.* 2004). Identifying the best mechanism for paying providers is also important (Garnett *et al.* 2007). The discourse on whether payment should be based on performance (e.g. local participation in a scheme) or input (e.g. upfront payments) is common in almost all the countries studied. Whereas donors seem to be advocating for performance-based results, governments are more concerned about providing incentives for local communities so that they can meet their daily needs (Pham *et al.* 2012a). Another suggestion is that a combination of in-kind and cash payments would be most successful in ensuring long-term benefits for local people.

An assortment of payment methods (e.g. in kind: obtaining a land use certificate in Tanzania and Indonesia; infrastructure development in Brazil; cash payments in Brazil and Vietnam), payment forms (e.g. performance-based payments in Brazil; payments for participation in Peru and Brazil) and distribution mechanisms (e.g. fund-based; direct payments to individual households) are shown in Table 5. Of these, land tenure security and cash payments directed towards livelihood improvement and community development activities provide the greatest incentive for environmental services providers to become involved in REDD+ (Indrarto *et al.* 2012; Paudel *et al.* 2013). The best application of each option will depend on the specific political, economic and social context – there is no 'one size fits all' formula. People's individual motives for participating in PES could be the payments themselves (Wunder 2008), their personal values and attitudes, which are in turn influenced by socio-economic, ethical and cultural factors (de Vries and Petersen 2009; Pham *et al.* 2012b; Spash *et al.* 2009), or the information and persuasive arguments provided by intermediaries. Payments are often an attractive incentive for people to participate in PES because they supplement their daily income. However, PES usually supports income-generation activities other than the creation of new sources of wealth or attempts to significantly increase people's incomes (Kosoy *et al.* 2008). In addition, fixed payments may be more or less than the opportunity costs, especially as the spatial distribution of environmental services is never equal. To address this issue, auctions were recommended as a strategy for developing countries and were recently employed in some Southeast Asian countries (Jack *et al.* 2008; Klimeka *et al.* 2008), although further evaluation of the impact on environmental quality and social outcomes is needed.

Participation in PES can also be influenced by powerful cultural and ethical drivers. Once informed about environmental problems and the costs and impacts of conservation activities, an individual may refuse all monetary trade-offs against activities that degrade the environment (Spash *et al.* 2009) and choose to participate in environmental activism (Matta *et al.* 2009; Suzuki and Iwasa 2009). As highlighted by de Vries and Petersen (2009), and evidenced in Vietnam, some parties are resisting PES because they do not fully understand the extent and implications of environmental problems. Government regulations, NGO advocacy campaigns, training and information sharing will be required if these attitudes are to be altered (Bishop *et al.* 2008). Moreover, as the environment is still perceived as a part of custom and culture, the desire to conserve the environment for future generations can motivate people to participate in natural resource management (Hyams *et al.* 2008; Kosoy *et al.* 2008). In such cases, supporting those who advocate the maintenance of local traditions may be more effective than providing payments (Garnett *et al.* 2007).

Table 5. Selection of project approaches to benefit sharing

Project	Type of benefit-sharing arrangement[a]	Details
Tanzania: Tanzania Forest Conservation Group – Kilosa and Lindi	Household (HH): alternative livelihoods;* capacity building;* improved agriculture;* PES	Dividends from REDD+ are paid to every qualifying member of the village as determined by village by-laws; upfront funds and individual payments are based on the potential average avoided emissions per year; village assemblies decide whether to use dividends for community projects.
Tanzania: Mpingo	HH: PES Community: tenure security*; certification*	Acquisition of land certificates; boundary clarification;* sales of timber through the Forest Stewardship Council and land use and management plans. As the original plan to pass on profits to communities after deducting costs was controversial, a percentage arrangement is under discussion.
Tanzania: CARE	Community: alternative cooking energy;* alternative livelihoods* and capacity building;* PES	Distribution of carbon revenues will use existing village savings and loan systems. CARE and the community will negotiate the rights to carbon through an aggregation entity.
Brazil: São Felix do Xingu	HH: land tenure regularisation;* livelihood alternatives;*capacity building	Conditional and upfront payments for private landholders (large and small), indigenous groups and protected area managers including for: 1) landholders: strengthening of communication and control, an integrated system for environmental licensing and monitoring, efforts to boost cattle productivity, large-scale reforestation with high-value species; 2) indigenous lands: sustainable income alternatives, code for management of natural resources; 3) conservation units: formation of management council and management plan, improvement of protection and monitoring
Brazil: Acre State System of Incentives for Environmental Services	HH: PES;* alternative production strategies;* sustainable forest management; land tenure regularisation*	Benefits from increased production in deforested areas on private and rural settlement properties, including 1) financing of certification; 2) forest valorisation and protection of high forest cover and indigenous and extractive areas, including territorial monitoring, support of multiple-use forestry, socio-cultural projects; 3) benefits from enhanced carbon stocks in deforested areas
Brazil: Bolsa Floresta	HH: PES; income diversification; capacity building* Community: public services	Conditional benefits go to participating households, communities and associations. Families commit to zero deforestation and enrol their children in school and receive monthly payment of 50 reals per household (US$30)
Vietnam: SNV	HH: improved land management;* livelihood alternatives*	In the early stage of design. SNV is testing different types of benefit sharing using communal and provincial funds. Moving away from a focus on gaining voluntary market credits; working on quantifying opportunity costs
Peru: Brazil Nut Concessions REDD Project	HH: PES; in-kind benefits	Conditional benefits for those contributing to emission reductions through a pilot reforestation initiative

continued on next page

Table 5. Continued

Project	Type of benefit-sharing arrangement[a]	Details
Peru: Alto Mayo	HH: agricultural inputs;* capacity building;* links to sustainable markets* Community: public services	Support for sustainable organic coffee production
Indonesia: Ketapang Community Carbon Pool	HH: capacity building;* tenure strengthening;* alternative livelihoods	Strengthening of land tenure rights through the establishment of *hutan desa* (village forests)
Indonesia: The Rimba Raya Biodiversity Reserve Project	HH: employment;* capacity building; alternative livelihoods;* credit Community: village development	Ecotourism; infrastructure; health and credit

a The asterisk indicates projects that are already being implemented.

* Data were compiled from "site narratives," "project checklists," and unpublished reports prepared by the GCS component 2 country teams for Tanzania, Brazil, Vietnam, Peru, and Indonesia, as well as direct interaction and additional inputs from these teams. Additional information on projects in Brazil was taken from Duchelle *et al.* (2010).

Source: Luttrell *et al.* (2012)

6. Risk assessments

- Unclear and insecure land tenure creates injustice across levels and threatens customary rights.
- Under-representation of certain actors in decision-making reduces the legitimacy of REDD+ policies. Conflicts between government agencies and stakeholders along the horizontal and vertical axes over the access and capture of potential benefits and payments not only reduce the efficiency of financial flows but could also delay the distribution of payments to those at grassroots level.
- Lessons on the enabling conditions for REDD+ are disconnected from national decision-making because of a lack of information sharing. Moreover, the failure to incorporate past experience into current REDD+ design could mean that efforts overlap or that REDD+ develops in parallel to national policies, possibly outside the legitimate democratic space, thus failing to build the capacity of government structures and processes. Such redundancy will also increase the transaction costs of REDD+ implementation, thus reducing the overall efficiency of the scheme.
- Decentralisation can be meaningful only if it is coupled with adequate capacity building for local government. The lack of a functioning multilevel governance system undermines the success of REDD+ implementation.
- The scale and scope of the definition of 'forest' and other forest land tenure systems can lead to differences in the design and implementation of REDD+ activities.
- Distinct risks are associated with each benefit-sharing discourse.
- Procedural equity is important to ensure the legitimacy of the decision-making process.

In this section, we examine the risks associated with each discourse if used as the basis of a benefit-sharing mechanism for REDD+.

6.1 Unclear and insecure land tenure

As shown in Section 3, although various equity discourses are in circulation in each of the countries studied, the dominant discourse in all countries leans towards equity discourse I (that those with legal rights should benefit from REDD+) and discourse III (that every stakeholder that incurs costs has the right to benefits/compensation from REDD+ payments).

In theory, the selection of discourse I as a founding principle for benefit-sharing mechanisms would create opportunities for clarifying and strengthening rights (e.g. recognition of local and customary rights, improved information sharing, representation and accountability, greater risks for REDD+) (Larson *et al.* 2012). However, evidence from the 13 countries and some PES projects suggests that it is unlikely that these opportunities would be realised. Common land tenure issues present in all the countries studied include: lack of clarity about ownership; overlapping claims; conflicts between customary and state rights (particularly in Indonesia, Vietnam, Cameroon, Tanzania and, to some degree, Peru); conflicting land use decisions across levels and state institutions; lack of exclusion rights and/or ability to exclude; weak law enforcement, monitoring and sanctions; failure to implement land use planning; undemocratic collective land representation; and decisions enacted without broad local understanding and agreement. These issues have led to outcomes such as powerful parties securing rights, elite capture and penalties imposed on local people for deforestation and forest degradation caused by outsiders (Larson *et al.* 2012, 2013; see Table 6 for further details). However, Luttrell *et al.* (2012) argue that existing land and forest tenure is not necessarily related to the right to benefit from carbon sequestration. In some cases, actors could benefit from carbon credits based on the results of an action; thus, the claim would not necessarily be based on land or forest tenure but on operating or management rights, ancestral rights, use rights or capital investment.

In DRC, Mozambique, Vietnam and Indonesia, the state has full ownership and control rights over forest land management, law enforcement

Table 6. Primary tenure problems in the 13 countries studied

Country	National tenure problems
Brazil	Unclear tenure rights, overlapping rights, extensive areas claimed by squatters (24% of Brazilian Amazon is unclassified public land)
	Pressures on indigenous areas despite clear borders and rights (although in a minority of cases)
	Major inconsistencies in interpretation of the law, failure to implement regulations
	Lack of sufficient funding and staff for land regularisation; very slow progress
Indonesia	Contradictory laws on land and forest rights, failure to recognise community customary rights in forests
	Limits on customary use rights in favour of business use of forests
	Absence of rules and procedures for registering community forests
	Inaccurate maps
	Conflicting claims, boundary disputes and forest encroachment
Vietnam	Gap between national and customary laws, customary tenure not recognised
	Overlaps between indigenous and colonial land claims
	Lack of human and financial resources for forest land allocation
	Technological problems leading to inaccurate maps
	Inequity in forest allocation; land grabbing
	Limited understanding by forest users of rights and responsibilities associated with forest land allocation
Cameroon	Conflict between customary and formal law; formal law limits local use rights
	Community forestry represents an attempt to make a formal link between communities and forests without recognising customary claims
	Only the elite have the means to register land, which is the only formally recognised ownership right
	Zoning has resulted in constant conflict among stakeholders
	State authorises overlapping rights and obligations among sectors (forest, tenure, mining, water, etc.)
Tanzania	No legal recognition at national level of indigenous rights
	Some government bodies interpret formal land categories in such a way that the state owns much of village land (e.g. Forestry and Beekeeping Division)
	Conflicts between farmers and pastoralists
	Conflicts over evictions of pastoralists for environmental purposes
	Contested and overlapping tenure regimes and risk of elite capture
	Customary rights recognised but are not always respected
DRC	Land considered vacant has been subject to appropriation by the state
	Absence of planning tools for possible land allocation
	Overlapping land and mining claims
Lao PDR	Weak law enforcement, hampering efforts to secure land rights for local communities and indigenous people
	Unclear legal aspects related to tenure and land registration
Nepal	No explicit law for indigenous rights in relation to land tenure
PNG	*De jure* and legal tenure (recognition of customary rights) but not always respected by local authorities
Mozambique	Weak enforcement of laws and regulations may jeopardise equity of results
	Incomplete rights to use and benefit from the land, poor enforcement of laws and regulations
Peru	Native peoples have alienable land rights rather than broader inalienable territory rights
	Overlapping titles and lack of land registry
	State authorises overlapping rights and obligations among sectors (forest, tenure, mining, water, etc.)
	Reserves and other forest categories declared on paper but without defined borders

Sources: Adapted from Babon and Gowae 2013; Dkamela 2011; Indrarto *et al.* 2012; Jambiya *et al.* 2012; Jimbira *et al.* 2012; Larson *et al.* 2012; Lestrelin *et al.* 2012; May *et al.* 2011; Mpoyi *et al*. 2013; Paudel *et al.* 2013; Pham *et al.* 2012a; Piu *et al.* 2013; Sitoe *et al.* 2012; Videa 2011

and the granting of use rights, and households and communities are likely to receive only a very small proportion of REDD+ payments (Indrarto *et al.* 2012; Mpoyi *et al.* 2013; Pham *et al.* 2012a; Sitoe *et al.* 2012).

Furthermore, as Korhonen-Kurki *et al.* (2012) note, rights and responsibilities for REDD+ among land rights holders (ownership and use rights) at different levels are generally unclear and the introduction of new legal frameworks under REDD+ may lead to traditional rights being usurped. Larson *et al.* (2013) report that large-scale changes to tenure are limited; the exception is Brazil, which has devoted considerable resources and efforts to fostering opportunities to secure the land rights of local people through numerous REDD+ pilot projects.

The current legal frameworks of all the study countries require major reforms if they are to deal with emerging challenges such as the establishment of carbon rights. Although consensus is growing in Brazil about the need to recognise indigenous people's carbon rights (May *et al.* 2011), other countries (e.g. Vietnam, Nepal, Peru, Mozambique) are lagging far behind in the codification of these rights (Paudel *et al.* 2013; Pham *et al.* 2012a; Piu *et al.* 2013; Sitoe *et al.* 2012). Therefore, any local people who start to ask about their entitlement to REDD+ benefits may lose any incentive to reduce emissions, and the lack of clarity about the rights to carbon and land will lead to injustice across levels (Korhonen-Kurki *et al.* 2012). As far as land and forest tenure is concerned, therefore, the evidence from the 13 countries studied here gives little reason to hope for significant changes in the status quo (Larson *et al.* 2012).

As discussed in Section 5, in all the countries, the state holds authoritative and control rights. State domination of the rights to grant oil palm, logging and mining concessions or use rights to other stakeholders on occupied land in Indonesia, Peru, PNG and Cameroon not only threatens customary tenure (Brockhaus *et al.* 2013) but also risks provoking serious conflicts between the state and local communities (Larson *et al.* 2012). At the same time, the recognition of community rights over customary claims is almost absent (e.g. in Vietnam) or unclear and contradictory (e.g. Tanzania, Indonesia) and weak (e.g. Cameroon, Nepal). Among the countries studied, PNG is a special case in that customary rights are granted in relation to more than 90% of forestland; however, even when the customary rights are recognised, it remains unclear whether carbon rights will follow (Babon and Gowae 2013; Larson *et al.* 2012).

6.2 Under-representation of certain actors

Procedural equity, which concerns participation in decision-making and the inclusion and negotiation of competing views, is seen as critically important for any benefit-sharing mechanism (Brown and Corbera 2003). The notion of procedural rights highlights the need to ensure legitimacy in REDD+ decision-making. Luttrell *et al.* (2013, p. 4) define legitimacy as a justifiable system that is based on both moral principles and social norms (Jentoft 1999; Johnson 1997), 'with evidence of consent (Beetham 1991) and acknowledgment by the governed in order to validate the ruler's claim to authority (Weber 1978)'. The successful implementation of REDD+ will require that all relevant parties are involved in decision-making. However, in most countries, decision-making and discussions on REDD+ in general and benefit sharing in particular are dominated by select powerful groups (e.g. government agencies and donors in most countries, private sector alliance in PNG and Indonesia) with limited participation of vulnerable and marginalised groups (e.g. customary users, indigenous groups). In most countries (e.g. Vietnam, Nepal), the REDD+ process is failing to engage the actors behind the drivers of deforestation, which will result in ineffective REDD+ outcomes. Civil society organisations are active in the national REDD+ debate in Indonesia and Brazil, but remain silent in countries such as Vietnam and Nepal (Babon and Gowae 2013; Cronin and Santoso 2010; Kengoum 2011; May *et al.* 2011; Paudel *et al.* 2013; Pham *et al.* 2011; Piu *et al.* 2013), leading to power imbalances and information asymmetry (Paudel *et al.* 2013; Pham *et al.* 2012a). This also may create biases in REDD+ design and lead to elite capture of benefits, even within communities. A pilot project for free, prior and informed consent (FPIC) in Vietnam offers valuable lessons on procedural steps, but adapting FPIC to different cultural, political and social contexts remains a challenge for the future (Pham *et al.* 2012a).

Conflicts among government agencies and stakeholders along the horizontal and vertical axes over the access and capture of potential benefits and payments not only reduce the efficiency of

financial flows but could also delay the distribution of payments at grassroots level, as seen in the case of Vietnam. Examples from the PES literature show that, in Vietnam, benefits are mostly captured by powerful groups; marginal and vulnerable groups have limited capacity and opportunity to access these benefits because of their exclusion from planning and decision-making (Pham *et al.* 2009).

6.3 Lack of policy learning mechanisms

With the apparent shift in the objective of REDD+ from single (emission reductions) to multiple (poverty reduction, biodiversity conservation) (Angelsen and McNeill 2012), its benefit-sharing mechanisms can build on a range of previous programmes and policies, such as ICDPs, community forestry, Forest Law Enforcement, Governance and Trade (FLEGT) and PES, to reduce the transaction costs of establishing new institutions. Nevertheless, lessons from previous forestry sector reforms such as those in Cameroon, from reforestation/afforestation programmes as in Vietnam and in Indonesia (Dkamela 2011; Indrarto *et al*. 2012; Pham *et al.* 2012a), from initiatives such as FLEGT, or on potential synergies with REDD+ in Cameroon and Nepal based on community forestry programmes (Dkamela 2011; Paudel *et al.* 2013) have not been sufficiently explored.

Governments and donors in most of the countries analysed here have started to design pilot projects with the aim of refining the REDD+ mechanism by building on existing benefit-sharing models (e.g. PES in Vietnam and Brazil; see Pham *et al.* 2012a and May *et al.* 2011, respectively, for further details) or by developing new institutions (e.g. PNG: Babon and Gowae 2013; Indonesia: see Indrarto *et al.* 2012). Each of these options has advantages and disadvantages in terms of efficiency (e.g. establishment costs, transaction costs) and effectiveness (e.g. local capacity to handle initiatives). The experience with past benefit-sharing models will be valuable when constructing benefit-sharing mechanisms for REDD+. Vietnam proposes to include the REDD+ fund within the central PES fund, which will create savings in establishment and operational costs. One issue is the extent to which existing models should be modified. Existing models should be subject to rigorous assessments to determine whether they should remain or be replaced. Spergel and Wells (2009) suggest adapting conservation trust funds (CTFs) as a model for REDD+ national financing, either by establishing new CTF-type institutions or by extending the mandate of existing CTFs. They argue that CTFs have proven to be effective in administering international and domestic funds from diverse sources over long periods and are usually more efficient and less bureaucratic than government agencies.

Although these lessons on enabling conditions for REDD+ have been well documented by donors and REDD+ proponents (Enright *et al.* 2012; UN-REDD 2010; USAID 2012), Korhonen-Kurki *et al.* (2012) found that pilot projects are disconnected from national decision-making because of the lack of information sharing; as a result, lessons from pilot projects receive little attention in decision-making, which thus fails to be an evidence-based process. Moreover, failure to draw on past experience in current REDD+ design could mean that efforts overlap or develop in parallel to national policies, possibly falling outside the legitimate democratic space, in which case they would fail to help build the capacity of government structures and processes (Luttrell *et al.* 2012). Such overlaps would also lead to greater transaction costs in REDD+ implementation, thus reducing its overall efficiency.

In principle, the existence of a range of benefit-sharing mechanisms would provide rich lessons for future benefit-sharing mechanisms for REDD+. However, despite considerable research on collaborative and market-based approaches, analyses on ABS are scarce. Future studies need to address this knowledge gap and explore how lessons from this arrangement could contribute to national REDD+ benefit-sharing policies.

6.4 Advantages and disadvantages of decentralisation and devolution

As discussed in Section 4, benefit sharing has both vertical and horizontal dimensions. According to Brockhaus *et al.* (2013), the vertical relationship between national and local governments and questions around the right of local governments to exercise their discretion regarding the implementation of broader REDD+ interventions are key elements in the discussion on benefit sharing. As Korhonen-Kurki *et al.* (2012) note, these multilevel dimensions add another layer of complexity and pose

Table 7. Multilevel dimensions and risks for benefit sharing in the 13 countries studied

Core elements in REDD+	Multilevel dimension	Risk if multilevel dimension disregarded
Benefit-sharing and financial mechanisms	Benefit-sharing systems are often national but affect local rights (colonial/post-colonial tenure regimes, customary rights, local practices; see tenure) Distribution of financial resources and technical assistance across levels to support readiness and ongoing activities Decisions over performance and release of funds across levels	Risk of elite capture because of unequal power relations between donors and beneficiaries across levels and scales Risk of corruption
Participation and rights of indigenous people and local communities	Rights of local communities to participate Flow of interests and information from local to global level Indicators of participation must recognise possibility of elite capture at all levels Decisions at national level have local consequences	Risk of elite capture across levels Risk of missing learning opportunities from past failures/successes because of inflated claims of benefits to communities and real emission reductions made at higher levels, despite lack of/contrary evidence in the field
Co-benefits (poverty alleviation, biodiversity conservation)	Interest in co-benefits vs. emission reductions differs across levels: emission reduction is main concern at the international level but poverty alleviation is main concern at subnational/local level. National levels may try to balance both.	Insufficient attention to differing interests could cause disengagement of subnational/local actors, who are crucial for the success of implementation.

Source: Adapted from Wong and Dutschke (2003) and Korhonen-Kurki *et al.* (2012)

different threats to possible REDD+ benefit-sharing mechanisms (Table 7). In particular, a common challenge in all the study countries is that the envisaged functioning of benefit-sharing mechanisms is often impeded by elite capture and corruption. Corruption emerged in all the study countries as a problem that could distort the distribution of revenues at all levels of government. Misuse of reforestation programme budgets in Vietnam (Pham *et al.* 2012a) and Indonesia (Barr *et al.* 2010), smuggling by organised crime in Nepal (Paudel *et al.* 2013) and delays in disbursing and spending shared revenues from forestry across government levels in Indonesia (Indrarto *et al.* 2012) are just a few of the many examples.

Moreover, the literature on devolution indicates that it is much easier to devolve costs than benefits (Ribot 2004, Ribot *et al.* 2006 cited in Brockhaus *et al.* 2013). As a result, incentives for local authorities to govern or manage forests as part of REDD+ may be insufficient or non-existent. Although REDD+ has largely been seen as creating incentives to induce behavioural change at local level, it can equally contribute towards catalysing change in multilevel governance. Central government can delegate financial management to local authorities, but it is unlikely to share the benefits also. In decentralised systems such as in DRC, the distribution of benefits and payments among provinces and territories has become a source of significant tension between central and provincial governments (Mpoyi *et al.* 2013). Evidence from Indonesia, Vietnam and Nepal suggests similar tensions (Cronin and Santoso 2010; Paudel *et al.* 2013; Pham *et al.* 2012a).

On the one hand, the retention of authoritative and control rights at central government level in most countries (except Brazil) means that local government has limited decision-making power and ownership of REDD+. For instance, in Nepal, the 1999 Local Self-Governance Act gives local governments only very limited authority over forest management. Consequently, local governments, non-state agencies and local communities have weak ownership over forest policy and governance issues (Paudel *et al.* 2013). On the other hand, decentralisation can also create further problems for REDD+ implementation, particularly when the accountability and capacity of local government are weak. For example, local-level governments in PNG are often not aware that they have the authority to make laws pertaining to the local environment; they

are also often confused about who has what power, and they lack the capacity to carry out their roles effectively (Babon and Gowae 2013). In Indonesia, the devolution of authority to local government has been associated with elite capture and corruption (Indrarto *et al.* 2012). A common challenge in all the countries studied is the lack of human resources, in terms of both numbers and capacity to handle the large amounts of funding associated with REDD+.

These lessons from the case study countries indicate that decentralisation can be meaningful only if it is coupled with adequate capacity building for local government. Failure to institute a functioning multilevel governance system will undermine efforts to implement REDD+.

6.5 Scale and forest definitions

According to Angelsen *et al.* (2009), the scope of REDD+ and the definitions of 'forest' have important implications for which countries and groups are likely to benefit from REDD+ financial flows. One argument is that the inclusion of forest degradation, for example, has different implications for countries where deforestation occurs mostly through industrial land conversion (e.g. Brazil) than for countries where deforestation is driven more gradually by smallholder agriculture and local demand for fuelwood and charcoal (e.g. many countries in Africa). Widening the definition of 'forest' to include plantation forests and secondary forests could mean widening the scope to reward the carbon-conserving activities of the poor and increasing the available finance for large-scale actors at the expense of pro-poor interventions – but this could also lead to the repression of activities viewed as carbon-degrading (Angelsen *et al.* 2009). Based on similar findings, Van Noordwijk and Minang (2009) claim that the operational definition of forest plays an important role in REDD+ implementation. However, countries have different definitions of 'forest' (especially the indication of thresholds for forest cover).

Inconsistency in land classification systems (including forestland) is also a feature in several countries. Moreover, differences in the collection of data on land and forest are problematic. For example, Vietnam has two databases on land classification and administration, in which discrepancies in forestry data were found. The first database, maintained by the Ministry of Natural Resources and Environment, contains information on land management, including land area and land use planning. The second database, managed by the Ministry of Agriculture and Rural Development, defines categories of forest and forestland and contains data on the extent of forest coverage (Hoang *et al.* 2010; Pham *et al.* 2012a). The existence of two land use classification systems complicates monitoring and reporting efforts: assessments will be based on changes in forest cover over time and REDD+ benefit sharing depends on land use registration data. In Indonesia, too, discrepancies in the data collected on forest are attributable to differences in the definition of forest, forest classifications and data analysis methods (Indrarto *et al.* 2012).

On the one hand, Angelsen and McNeill (2012) argue that calculating payments at project level might facilitate tight management but will reduce the influence of REDD+ on wider national policies, thus diluting its ability to address the drivers of deforestation. Evidence drawn from Costenbader (2011), on the other hand, suggests that harmonisation will give existing national strategies greater influence in the policy arena.

6.6 Risks related to the discourses

A country may design its benefit-sharing mechanism based upon a certain discourse, such as one of those discussed in Section 3. However, embedded in each of these discourses are certain weaknesses that create the risk of undermining efforts to achieve 3E outcomes. Therefore, these risks should be analysed carefully during the design of benefit-sharing mechanisms. Luttrell *et al.* (2012), in presenting the discourses, also summarise the risks associated with each.

First, a risk of basing the benefit-sharing mechanism purely upon the principles of effectiveness and efficiency is that REDD+ revenue might end up being used predominantly to reward large-scale actors for reducing carbon emissions because, in many cases, such actors are the dominant emitters or drivers of deforestation. An analysis by The Prince's Rainforests Project of 32 government and non-government REDD+ proposals submitted to the UNFCCC shows that the majority of proposals would reward historically high emitters and exclude low emitters (Parker *et al.* 2009).

A risk of basing a benefit-sharing mechanism on equity discourse I (that benefits should go to those with legal rights) is that the poorest people may be excluded from receiving any benefits. Many countries do not have national legislation on carbon rights, and the assumption is that payments for emission reductions will be allocated based on existing land and forest tenure regimes and current policy instruments for sharing benefits from the forest. If carbon rights are equated to land ownership, the government will derive the greatest benefit because most small-scale forest users do not hold formal rights over the land; such users require a different mechanism if they are to share the benefits from REDD+. Owning land or trees does not necessarily mean the owner is legally entitled to benefit from carbon sequestration or reductions in carbon emissions.

One problem with equity discourse II (that benefits should go to low-emitting actors) lies with the need to prove the additionality of any emission reduction actions, simply because there are no emissions to reduce from the business-as-usual activities of low-emitting actors. The exclusion of low-emitting actors may in itself be creating a sort of perverse incentive for actors that carry out emitting activities as only they would be eligible for REDD+ benefits. Another argument is that as deforestation rates are generally expected to increase over time in response to changing economic conditions and incentives, responsible use of the forest can be considered as additional in future, and therefore low-emitting forest stewards should benefit from REDD+.

Low additionality is also the problem with the input-based approach in equity discourse III (that benefits should go to those that bear the costs, whether implementation, transaction or opportunity costs, regardless of the extent of any emission reductions). That is, actions – and hence payments – might be taking place in forest areas that are not actually under threat (Angelsen 2008), which has the effect of 'diluting' the payments made for forests that are under threat.

The challenge with equity discourse IV (that benefits should go to REDD+ facilitators) lies in determining the appropriate shares of the benefits for each implementing actor – that is, in ensuring that project implementers receive a fair share of the benefits but are still treated as equal to other stakeholders. The share received by project implementers should be sufficient to ensure that their REDD+ project implementation is effective. Furthermore, they need to receive enough to insure them against having to repay any inputs for actions that failed to deliver emission reductions. A related debate concerns how much of the revenues the state is entitled to retain to cover implementation and transaction costs incurred.

7. Discussion

Most REDD+ countries are still in the readiness phase, which means that payments under REDD+ are not yet being made and evidence on the outcomes of REDD+ is limited. Nevertheless, all countries are considering or have proposed various types of benefit-sharing mechanisms, indicating that there could be multiple channels for distributing payments, with each sending the benefits to different actor groups. Our findings show that each type of benefit-sharing mechanism has distinct implications for the future design of REDD+ (Table 8).

As seen, the fund-based approach is preferred in most of the countries studied. However, designing a benefit-sharing mechanism and associated policies requires a careful cost–benefit analysis, that is, a comparison of the costs involved in the design and operation of the mechanism and its related policies with the benefits that are likely to be generated by REDD+. According to PwC (2012), the costs of managing mechanisms for distributing benefits from the forestry sector vary considerably depending on the country context, the scale, and whether the mechanism is input or performance-based. Evidence from countries in Latin America has shown that fund-based benefit-sharing mechanisms have high establishment costs and operating costs. For example, for the Socio Bosque programme in Ecuador, 30% of the total payments (US$2 million in 2011) is used to cover the administrative costs of the benefit-sharing mechanism (PwC 2012). In Brazil, the cost of managing the Amazon Fund is equivalent to around 3% of the total amount of donations, equivalent to costs of around US$1.53 million between 2008 and 2011 (PwC 2012). Nevertheless, the literature on fund-based approaches suggests that their efficiency will improve the longer they run (Spergel and Taïeb 2008; Spergel and Wells 2009). In Vietnam, the Forest Protection and Development Fund retains 10% of any income generated as its management fee, which is equivalent to around US$300 000 each year.

Tensions over the costs of establishing and operating the mechanism can arise between central government, donors and local government, as seen in Vietnam. Although the international community and donors require developing countries to establish an independent, and hence accountable, financial management system as a prerequisite for receiving REDD+ payments, most governments (e.g. Vietnam) are reluctant to do so, claiming that it is not a realistic approach (Pham *et al.* 2012a). Their main argument is that the cost of establishing such systems outweighs the benefits that countries can receive from REDD+. On the one hand, difficulties arise in ensuring that the level of payments accurately reflects the actual opportunity costs and transaction costs – which is not currently the case in any of the countries studied. On the other hand, payments should be proportional to the level of emission reductions achieved. It is therefore important that implementing governments have the capacity and tools to determine the transaction costs for local communities and to design and implement effective contract mechanisms that can flexibly respond to changes in those costs.

Some actors see markets as more economically efficient and environmentally effective than previous state-regulated conservation strategies, and it is implicitly (theoretically) assumed that markets will provide an equitable distribution of economic and social benefits (Bawa and Gadgil 1997; Pagiola *et al.* 2002). However, markets for ecosystem services are not like standard markets for goods, which have autonomously evolving institutional arrangements and a long evolution and maturation (Vatn 2000). Rather, they are being created in a relatively short time and their establishment is being promoted by a set of national and international parties that have a common interest in protecting the global environment through market-based mechanisms. In any case, the ability of market-based frameworks to consider local socio-ecological contexts in their design and practice and to support legitimate decision-making processes and equitable outcomes across scales is always questionable (Adger *et al.* 2001; Brown and Corbera 2003). As most current PES programmes and projects are not performance-based, their impact on ecological and social outcomes is either unknown (except in the case of Brazil) or has been proven to be non-existent and not pro-poor, as in the case of Vietnam (Pham *et al.* 2008, 2012b).

The forest concession approach has received support as a benefit-sharing mechanism for its ability to offer high cost-efficiency. However, the large number of recipients, including small-scale and impoverished landholders, can create high transaction costs

Table 8. Implications of types of benefit-sharing mechanism for achieving 3E outcomes from REDD+

	Market-based instruments (e.g. PES)	Collaborative management	Fund-based models	Forest concession revenue-sharing arrangements
Efficiency	Stronger performance of financing incentives and service providers than traditional funded conservation programmes (e.g. Brazil, Vietnam with their national PES programmes) Provides great domestic financial sustainability as the country can fully or partly finance its own system (e.g. Brazil, Vietnam with their national PES programmes) Encompasses many important alternative mechanisms for national-scale finance systems, including tax-based national funds and intergovernmental fiscal transfers (e.g. Vietnam, Brazil) High transaction costs due to large number of buyers and financial management requirements (e.g. Vietnam, Tanzania, Indonesia)	Can increase efficiency of forest management by increasing local community control and help reduce poverty among those living in and around forests (e.g. Nepal, Tanzania, Vietnam, Lao PDR, PNG) High transaction costs due to large number of community members (e.g. Vietnam, Indonesia)	Independent funds outside national administration have fairly good capacity to keep transaction costs down; competitiveness increases as REDD+ grows in volume; need to establish new system to extend reach to 'the ground'. Funds that are directly merged with or integrated into the state budget and funds in state administration have good potential to keep transaction costs down, but depends on good functioning administrative structure. Further developments may be needed, especially local administration capacity.	If land tenure is not an issue in large forest concessions, transaction costs can be kept down and huge amounts of carbon could be sequestered efficiently. Forest concessions could scale-up quickly, potentially creating greater efficiency and clarity than other arrangements, especially where revenue sharing is determined uniformly at national level. However, a uniform approach across a country can overlook large differences in the value of sequestered carbon and in opportunity and transaction costs among provincial or even local contexts.
Equity	National PES programmes in Brazil and Vietnam are seen not only as environmental protection programmes but also as poverty-reduction tools. PES has had mixed results for poverty alleviation (e.g. Vietnam, Brazil) Elite capture of benefits (e.g. Vietnam) Low level of payments (e.g. Vietnam)	Achieving equitable vertical and horizontal distribution of benefits is difficult (e.g. Nepal, Vietnam, Mozambique, Tanzania, PNG) State officially retains large shares of the revenues (except Nepal) Legal framework does not recognise customary or community rights (except Brazil and PNG) Elite capture (all countries studied)	Independent funds outside national administration are positioned to compensate losers directly; in general, they have good transparency concerning use of money, but are somewhat vulnerable to corruption especially at local level; have capacity to deliver co-benefits, but demand special control and attention in statutes. Funds that are directly merged with or integrated into the state budget: potential rents may be used to balance state budget; risk of elite capture at all levels; relatively strong capacity to deliver co-benefits, but demand special control and attention in agreements.	Favours large commercial concessionaires (e.g. logging concessions, soya and oil palm plantations), which then receive the greatest share of REDD+ benefits (e.g. Indonesia, Mozambique, Cameroon, PNG). Lack of involvement of local communities/ indigenous people in forest management and related decision-making; this leads to poor compliance by communities during the concession permit period and potentially more so once a permit expires (e.g. Indonesia, Cameroon)

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Table 8. Continued

	Market-based instruments (e.g. PES)	Collaborative management	Fund-based models	Forest concession revenue-sharing arrangements
Effectiveness	Strong, long-term and entrenched legal framework (e.g. Brazil, Indonesia, Vietnam) and so is likely to be well enforced Not performance-based (all countries) Weak monitoring system (of both environmental and social impacts; e.g. Vietnam, Indonesia, Cameroon)	Implementation is sustainable because it secures a commitment from communities and households through their ownership over the project design and implementation	Independent funds outside national administration: good attraction of funding (best from public); leakage depends on mandate and size of forest area covered; might have power to institute measures to avoid leakage; rather weak in sector coordination; fairly good on permanence because the funds are mid- to long-term engagements. Funds that are directly merged with or integrated into the state budget: attraction of private funding depends on international regime; for additionality, might be necessary to define quite strict conditionalities, but this might reduce the host country's willingness to cooperate; rather strong on sector coordination; rather strong for controlling and internalising leakage in accounting; permanence depends on national commitment. Funds in state administration: attraction of private funding depends on international regime; might have power to institute measures to avoid leakage; rather strong for monitoring and ensuring no leakage but better secured to use sector policies; permanence depends on national commitment; fairly good in sector coordinator.	Offers a potential 'default' option to distribute benefits from REDD+ activities on government-owned land among communities living near concessions, developers or other entities leasing land, and the state Disadvantages in equity (especially in situations where concessions affect long-term ecosystem resilience or local communities) unless revenue sharing is determined at the province level and safeguards are incorporated to ensure local community receipt of benefits. Potential over- or under-payments of participants, given potential differences in opportunity costs (e.g. Cameroon, Indonesia) The relative simplicity of the calculation of the 'forestry fee' and the benefit-transfer mechanism has helped gain broad public understanding of the mechanism. (e.g. Cameroon)
Linkages with land/carbon ownership and control	Would work best with a tenure regime that allows for private ownership and control of land and carbon. However, exceptions would be necessary for programmes such as intergovernmental fiscal transfers made to local governments to maintain or enhance carbon stock on state-owned land.	Under joint forest management, the state retains land and likely also carbon ownership, whereas community forest management generally devolves ownership and control of land to communities, and thus most likely carbon as well.	There is a very wide spectrum of purposes concerning the use of funds in state administration. The funds may fund projects and also support administrative activities both on private and public land. In fact, in several cases, funds are used to finance ordinary public forest administration.	Most often based on a model of state ownership and control of land and carbon, with leases of a fixed number of years

Source: Babon and Gowae 2013; Costenbader 2011; Dkamela 2011; Indrarto *et al.* 2012; Jambiya *et al.* 2012; Jimbira *et al.* 2012; Lestrelin *et al.* 2012; May *et al.* 2011; Mpoyi *et al.* 2013; Paudel *et al.* 2013; Pham *et al.* 2012a; Piu *et al.* 2013; PwC 2012; Sitoe *et al.* 2012; Vatn and Angelsen 2009; Vatn and Vedeld 2011; Videa 2011

(as seen in Cameroon); furthermore, the system can lead to inequity because of over- and underpayments of participants (e.g. Cameroon) or uniform decision-making at national level as seen in Indonesia (Costenbader 2011).

Benefit-sharing mechanisms should be transparent (PwC 2012) and their design should include an effective communications programme that regularly informs all stakeholders of the amounts and disbursement of available funds. Communications could be supported both by a national banking system that can be accessed at local levels and by clear guidelines on the rights and responsibilities of local government.

PwC (2012) has listed enabling factors for achieving a 3E benefit-sharing mechanism for REDD+ (Table 9). However, our analysis shows that the countries studied are struggling with achieving these factors.

Table 9. Enabling factors and the reality of creating them in the 13 countries studied

Preconditions	Reality in 13 countries studied
A clear legal mandate or framework should underpin benefit-sharing arrangements	Most countries do not have a national REDD+ programme; those that do have only a general idea of the benefit-sharing mechanism.
The benefit-sharing mechanism should be aligned with the national strategy, especially on poverty alleviation, which can help galvanise political support. Fitting a benefit-sharing arrangement to national economic development plans can assist in scaling-up an effective pilot scheme.	Only Vietnam and Brazil have successfully integrated REDD+ benefit sharing into macro policies.
Using existing benefit-transfer channels or institutional arrangements can help keep transaction costs moderate and reduce the need to develop a new system.	Only Vietnam and Brazil aim to use existing institutional arrangements. Other countries are trying to establish new institutional arrangements for REDD+ operation.
Local governments should have sufficient technical forest management, community development and planning capacity to support beneficiaries effectively, and they should be given sufficient resources.	Local government bodies have limited skills and capacity.
Using a third-party monitoring and audit organisation within a benefit-sharing mechanism encourages good governance, transparency and better financial controls.	No such third-party actors are involved in any of the countries studied.
Adopting a simple approach to calculating and monitoring and making benefit transfers helps with public understanding.	Results for the countries studied are mixed (a simple approach is easily applied in Cameroon's forest concession model but it is difficult to apply in the PES programme in Vietnam).
For national-level benefit-sharing mechanisms, having the ability to directly transfer benefits from a national treasury to beneficiaries' accounts helps reduce misappropriations and transaction costs.	Countries in Africa and Latin America have greater capacity to fulfil this requirement than Asian countries.
For performance-based benefit-sharing mechanisms, a clear and strong link between monitoring and payment is important, as is clarity regarding the consequences when an infringement of the conditions of a programme occurs.	Performance-based programmes are not operating in all of the countries.
Effective communication using appropriate channels is important to increase awareness of and public engagement in the programme.	Communication and information exchange among actor groups are limited.
Using a public or private third-party fund manager to control the financial resources can provide confidence to fund donors that the money will be well managed and financially sustainable.	Transaction costs and operating costs for these funds could be high. Regular auditing is required to ensure the transparency of the process.

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Table 9. Continued

Preconditions	Reality in 13 countries studied
Strong cross-ministerial oversight and clarity regarding the roles of each ministry and stakeholder help ensure that all aspects of the benefit-sharing mechanism are given due attention.	Weak coordination and collaboration are features in all the countries studied.
Effective use of partnerships with civil society organisations, NGOs and extension units regarding communication and capacity building, as well as to draw on local knowledge and networks	Effective coalitions are in place only in Indonesia and Brazil.

Source: Babon and Gowae 2013; Dkamela 2011; Indrarto *et al.* 2012; Jambiya *et al.* 2012; Jimbira *et al.* 2012; Lestrelin *et al.* 2012; May *et al.* 2011; Mpoyi *et al*. 2013; Paudel *et al.* 2013; Pham *et al.* 2012a; Piu *et al.* 2013; PwC 2012; Sitoe *et al.* 2012; Videa 2011

8. Conclusions

This working paper has examined various benefit-sharing mechanisms, either in use or proposed for use in 13 countries, for their potential to achieve or hinder the achievement of 3E outcomes from REDD+. REDD+ is in its infancy in all these countries, none of which yet has a clear legal framework for REDD+ benefit sharing. However, the review identified four approaches to benefit sharing that are being piloted and considered for use in REDD+ in the countries studied: market-based, collaborative management, fund-based and forest concession approaches. The evidence indicates that a fifth approach, access and benefit sharing, is rarely applied.

Numerous REDD+ pilot projects are seeking to inform the design of the future REDD+ benefit-sharing mechanism and are working on building the capacity of local authorities. However, REDD+ policies in all the countries we studied are at high risk of ineffectiveness, inequity and inefficiency because of tenure and unclear carbon rights, under-representation of certain actors, technical and financial issues related to the scope and scale of REDD+, elite capture and potential negative side effects of the decentralisation of authority.

These risks can be mitigated only by improved coordination among actors, better law enforcement, clear guidance for and monitoring of financial flows, improved information exchange and stronger capacity of the actors involved. Whether REDD+ can catalyse these changes will depend in part on how the costs and benefits of REDD+ are shared, and whether the benefits are sufficient to induce change in entrenched behaviour and policies at all levels of government.

Nevertheless, some progress has arguably been made (Seymour and Angelsen 2012): the REDD+ debate has at least stimulated in some countries a review of existing legal frameworks to clarify tenure and rights over carbon; investments in monitoring, reporting and verification systems could enable performance-based benefit sharing; new coalitions are being formed in national policy arenas; and a new agency around the value of standing forest has emerged (Brockhaus and Angelsen 2012; Di Gregorio *et al.* 2013). All these developments will contribute towards the creation of the necessary enabling conditions for the achievement of an effective, efficient and equitable benefit-sharing mechanism for REDD+.

At the same time, it is obvious that there are trade-offs and conflicts between the 3Es and between alternative ideas of what benefit sharing should achieve. Whereas REDD+ financing is primarily based on emission reductions and effectiveness, equity is a recurring concern and a prerequisite for local acceptance of any REDD+ programme. However, this study shows that achieving equity for low-emitting forest stewards is not a priority concern in the 13 countries, despite its high priority in international debates and discourses on REDD+ benefit sharing. This suggests that, in developing REDD+ projects, more attention should be paid to the rights of indigenous groups or other users that have a record of responsible forest management; furthermore, failure to resolve any existing or potential disputes with indigenous people will compromise a project's legitimacy.

Ultimately, for a REDD+ benefit-sharing mechanism to be effective, efficient and equitable, its design process should incorporate not only a clear founding objective for both national and local levels, but also careful analysis of the options available and their potential impacts on communities, different beneficiary groups and climate change mitigation goals. A clear understanding of the trade-offs between effectiveness, efficiency and equity across scales and beneficiary groups is needed for informed decision-making. Furthermore, for a REDD+ benefit-sharing mechanism to attain broad legitimacy and acceptance, its design and implementation should be based on the principles of procedural equity and inclusiveness.

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Annex 1. 3E implications for REDD+ in the 13 countries studied

	Effectiveness	Efficiency	Equity
Asia			
Vietnam	Strong commitment of government is clear in the National REDD+ Programme, which contains detailed instructions on benefit sharing. Although forest cover has increased during the past two decades, the quality of the forests has decreased. The area of degraded forest has increased and, even though new forest has been planted, forest density overall has declined. Carbon stocks are therefore lower. Many policy measures are compromised by limited funding for forest protection, weak local governance capacity, poor vertical and horizontal coordination, low economic returns, elite capture of land and benefits and corruption. Progress in forest land allocation has been slow. Managing the large sums provided by donors to implement and pilot REDD+ is a significant challenge for local governments.	Government budget is insufficient to cover all expenses of policy and programme implementation. Transaction costs are high because of poor coordination and overlapping functions among ministries, lack of transparent financial monitoring and complex financial procedures. The actual costs have not been calculated, which can potentially lead to misuse of funds. The significant financial support for Vietnam's deforestation and forest degradation policies received from external donors has not been used effectively.	It is difficult for local communities to fulfil all requirements for gaining forest use rights. Although the National REDD+ Programme acknowledges the importance of involving all stakeholders, some key parties are not being consulted or engaged in its development. The involvement of indigenous people in REDD+ remains limited because of language barriers, low education levels and limited negotiating ability for benefit sharing. Government agencies and state-owned companies could capture REDD+ benefits as 80% of quality forests are under the management of state agencies. Forest land allocation does not permit joint ownership at household and community levels, which tends to limit the rights of women.
Lao PDR	National ownership over and commitment to REDD+ agenda is high but implementation challenges remain. Vertical (between national, provincial and local levels) and horizontal (cross-sectoral) institutional coordination is weak. Alignment with other mitigation strategies (NAMA) is not clear. Land tenure, land registration and rights to carbon and associated forest resources are unclear.	Capacity to manage increased volumes of finance is limited. Administrative processes will remain slow and cumbersome if the roles and responsibilities of institutions are not clarified. Institutional responsibilities remain unclear. No fiduciary systems for delivering REDD+ benefits are in place. Transaction costs of operating the current governance system are high.	Consensus exists around the principle of participation of all stakeholder groups (including local communities) in REDD+ design and implementation. Efforts to improve local participation and consultation may not succeed because of poor capacity and lack of field methods. Although civil society is involved in consultations over law reform and its role in REDD+ is increasing (e.g. Land Issue Working Group), civil society participation in broader policy issues remain fairly constrained.

	Effectiveness	Efficiency	Equity
Nepal	The ongoing political transition and associated uncertainty have hampered long-term planning in Nepal's forestry sector. Currently, no comprehensive forest policy or strategy is in place and most short-term policy decisions are made on an *ad hoc* basis. There is a wealth of experience with community forestry, which is the focus of REDD+ because it offers effective forest management at incredibly low cost and with a relatively equitable benefit-sharing mechanism. Coordination and information sharing among government agencies are weak. No explicit law exists for indigenous rights in relation to self-governance, land tenure and rights to carbon.	Doubts are widespread about the capacity of government institutions to effectively and efficiently channel REDD+ money to beneficiaries. Given the high risk that REDD+ money may not reach those who are managing forests, the link between payments and conservation outcomes might be broken. Although a Forest Carbon Trust Fund governed by a multi-stakeholder body has been proposed, the government, particularly the Ministry of Finance, may be reluctant to back such funds.	The central agencies are assumed to play a key role in controlling land use practices, and ownership and contributions from local governments, non-state agencies and local communities are unlikely. Strategies targeting the participation of local communities and stakeholders are largely limited to the national level, particularly to a small number of people in government bureaucracies, development agencies, NGOs and a couple of citizen federations.
Indonesia	Weak law enforcement and corruption have led to ineffective implementation of policies. Ambiguities in the legal recognition of customary peoples are a source of complaints, land claims and land tenure conflicts. Even where a customary right to access forests is legally recognised, the practical application of this right is limited in areas where forests are attracting more powerful interests.	The legal framework under which forestry activities operate encompasses both specific, sectoral laws and regulations (e.g. those regulating forestry, agriculture and mining) and more general, cross-cutting legislation (e.g. decentralisation, finance and spatial planning). This has led to inconsistencies, contradictions, uncertainty and inefficiency, and encourages corrupt practices as the presence of multiple legal frameworks creates opportunities for rent-seeking behaviour. Weak intersectoral coordination and alignment generates high transaction costs for policy implementation.	Governance remains weak in relation to access to information, participation and justice. The prevalence of corruption, collusion and nepotism in law enforcement and the bureaucracy is facilitated by limitations on public participation and lack of transparency in policymaking processes. Communities do not participate in forestry-related decision-making.

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	Effectiveness	Efficiency	Equity
PNG	National ownership over the policy agenda is weak. Papua New Guinea's system of customary land tenure means that the design and implementation of a national REDD+ strategy will need to be firmly rooted in the interests, needs and aspirations of customary landowners. In contrast to countries where the state owns most forest resources, a national REDD+ strategy cannot designate specific areas for REDD+. Rather, landowners must consent to any activities occurring on customary land. This makes land use planning at the national level extremely difficult.	PNG has failed to attract significant REDD+ investment from either the private sector or intergovernmental organisations. Poor governance and entrenched corruption mean that PNG is not 'Ready for REDD' Coordination between the national and subnational levels is weak. Provincial governments have a strong mandate with respect to developing and implementing forest policies, but often do not have the resources, capacity or interest to take on this responsibility, which can leave major gaps. Local governments are the closest level of government to site-specific REDD+ projects and are well placed to monitor activities but do not have decision-making authority over land use. There is a distinct lack of trust in the government to properly manage and disburse funds at the local level. Any REDD+ policy that promotes strong central government control of funds is likely to be challenged, and an independent multi-stakeholder trust fund is likely to be perceived as more efficient and equitable.	Land tenure and carbon rights are unclear. REDD+ strategies have been developed by a small policy elite, comprised of government officials and international consultants, with minimal involvement by customary landowners, who will be needed because they own the forests that REDD+ strategies are trying to protect. There is a broad consensus among REDD+ actors on the importance of equitable benefit-sharing arrangements. It is generally recognised that most benefits should flow to landowners, but that a number of other parties would also have legitimate claims to benefits commensurate with their inputs or contribution to REDD+. Many lessons can be learnt from benefit distribution in the forestry and mining sectors, in particular. The potential for conflicts within and between landowning communities is a key concern.
Latin America			
Brazil	Drafting of the Forest Act and National REDD+ Strategy is in progress; no clear position on benefit sharing but it is primarily treated as a safeguard; no national carbon rights legislation has been ratified but selected states have passed legislation. There is a high degree of uncertainty regarding land tenure and ownership rights.	Coordination is centralised and top-down, attributable in part to a policy vacuum at the federal level regarding the specific architecture and intergovernmental coordination In terms of capacity to develop strategies to finance REDD+, Brazil took a great step with the creation of the Amazon Fund in 2008. However, the fund is facing difficulties in finding suitable projects to approve. There is a lack of well-structured projects presented by states, municipalities and civil society representatives, and donors are complaining about capacity for implementation.	REDD+ policies as articulated make only vague reference to the need to benefit disadvantaged and economically marginalised groups. REDD+ strategies have responded to policy development by subnational authorities in collaboration with or independently of major national or international NGO initiatives, but partnerships with local-level institutions or stakeholders remain unformed. This approach could lead to decreased efficiency and have negative implications for equity.

	Effectiveness	Efficiency	Equity
Bolivia	Most forest areas have weak governance institutions and stakeholders have conflicting interests. Participation of local and indigenous organisations in decision-making process tends to be ineffective.	Funding and resources invested in REDD+ are not used efficiently. Much readiness funding is going into training and organising staff for these programmes, but if the national government continues to withhold support for these efforts, the money will not produce the targeted outcomes.	Administration does not demonstrate a sincere concern for the interests of rural people and the poor, especially in securing land tenure for indigenous groups. The establishment of REDD+ involves treating forests simply as carbon sinks, which does not encourage the full participation of indigenous peoples and local communities in forest management. Compared with many other countries, efforts to title forest lands for rural and indigenous people have been fairly successful, giving them a certain amount of control over forest resources and a chance to demand that at least some benefits flow to them.
Peru	Approval is pending for the Forestry Law, the Consultation Law and the Environmental Services Law Law enforcement is weak. The REDD+ political process is experiencing difficulties in participation and transparency. Even though the participation process created by civil society has supported the configuration of REDD+, key players such as forest peoples and indigenous peoples have not been incorporated adequately.	Failure to consider past experiences with forest law enforcement (as suggested by the R-PIN) means that the government budget for law enforcement continues to be used inefficiently.	It is not clear how communities and indigenous populations will be included in the REDD+ process or benefit from it.
Africa			
DRC	DRC has engaged intensively with REDD+ process and developed a R-PP. The 2002 Mining and Forest Codes provide for resources to be transferred to the provinces and territories, proceeding from a retrocession of revenues deriving from the production of natural resources: 40% for the provinces, including 15% for the territories. However, this retrocession has never taken place and has become a source of significant tension between the central and provincial governments.	There are no territory development plans or effective political coordination processes relating to territory development. In the absence of any planning tool for alternative land allocation, forestry, land and mining claims are overlapping.	All forests are in the state domain with limited rights granted to local communities and households.

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	Effectiveness	Efficiency	Equity
Mozambique	Customary rights are recognised but incomplete with no 'right of exclusion.' Vertical coordination is weak as provincial levels are independent of national level. Various moves towards decentralisation have been made. Intersectoral coordination is weak. There is a wealth of experience with performance-based payments under PES. There is no institutional architecture in place for financing REDD+.	Institutions and governance are weak, particularly at provincial and district levels. The current process of obtaining a Land Use Rights Certificate (DUAT) is very tedious and long (causes high transaction costs); the process of issuing new DUAT has been suspended. Disputes have arisen between the public and the private sector causing high transaction costs) over the responsibility for implementing REDD+. Disputes over competences of the sectors may increase difficulties of intra-sectoral coordination (causing high transaction costs). Opportunity cost of REDD+ is low, especially for small-scale agriculture.	National policies emphasise 'pro-poor' approaches and agriculture development. Weak enforcement of laws and regulations may jeopardise equity of results. Rights to use and benefit from the land are incomplete and enforcement of laws and regulations is weak (e.g. community consultations, scheme of sharing 20% of rates of logging). Important lessons can be drawn from experience with performance-based payments to communities.
Tanzania	National forest policies address the main drivers of deforestation and forest degradation but policy implementation is quite limited. There has been no discussion of the design and implementation of benefit-sharing mechanisms. The 2002 Forest Act provides a legal basis for communities to own, manage or co-manage forests under a wide range of conditions and management arrangements; there is scope for community-owned and -managed carbon under REDD+. The National REDD+ Strategy identifies a wide range of beneficiaries from REDD+ funds to be distributed by the National REDD Trust Fund (NRTF). Protected areas are expected to benefit from REDD+ through the strengthening of management capacity and the reduction of illegal logging.	Continued poor transparency and accountability have led to conflicts of interest and further forest degradation and deforestation, and the status quo will remain.	Forest governance and property rights arrangements to forest and land resources are weak. In village forest reserves, the village has ownership; however, in forests on non-village forest reserve land, it remains unclear who owns the carbon, this opening the issue of carbon rights to conflict. The National REDD+ Strategy does not propose benefit-sharing options at a more local level.

	Effectiveness	Efficiency	Equity
Cameroon	No regulation of benefit sharing The position of Cameroon and other COMIFAC countries on REDD+ financing holds that three mechanisms need to be created: 1) an enabling fund for capacity building and for establishing policies that reduce deforestation; 2) a stabilisation fund to protect and preserve carbon stocks in countries with low forest-clearing rates; and, ultimately, 3) market mechanisms that index payments received for a country's performance. Vertical coordination, especially with regard to natural resources management, is weak. Law enforcement is weak.	Capacity is insufficient to manage large volumes of funding. There is under-spending of various budgets and difficulties in channelling funds to their correct destination in the forestry sector and, more generally, the highly indebted poor countries fund. The question of payment has not been considered because it is connected both to the implementation conditions of activities that merit compensation and to the criteria for identifying the heirs of carbon credits.	Accountability is lacking. The state has a monopoly over lands and resources, and the ancestral rights of local and indigenous communities have been diminished. There is a permanent conflict of language concerning forest resources and lands, fuelled by local stakeholders' need for access and use rights to these resources. Actors in the forestry sector have not been involved in the process: traditional swiddeners, hunter–gatherers, community forest managers, municipal councils, regional councils, the forestry industry with its national and foreign components, agro- industries and civil society organisations. Coordination should also mean that the sectors are treated equitably regarding levels of intervention and the sharing of transaction costs.
Burkina Faso	The country has ratified numerous international agreements including CBD, UNFCCC and CITES. Current laws make no provision for carbon tenure (preliminary studies proposed in the Forest Investment program-Burkina aim at addressing the issue).	The rural land policy recognises property rights for individuals, in contrast to the Agrarian and Land Tenure Reform, which allows only state ownership of land.	REDD+ can draw lessons on benefit sharing from forest management.

Sources: Babon and Gowae 2013; Mpoyi *et al.* 2013; Dkamela 2011; Indrarto *et al.* 2012; Jambiya *et al.* 2012; Jimbira *et al.* 2012; Lestrelin *et al.* 2012; May *et al.* 2011; Paudel *et al*. 2013; Pham *et al.* 2012a; Piu *et al*. 2013; Sitoe *et al.* 2012; Videa 2011

Annex 2. Actors and their rights

Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
LATIN AMERICA				
BRAZIL				
F1	**Government agencies, donors, trust funds: Brazilian Biodiversity Fund (FUNBIO)**	Donors (e.g. Norwegian government), FUNBIO	Trust funds, government agencies: protected areas management, environment services buyers, forest stewards	
F2	–	–	–	
F3	Amazon Fund	Bank of Economic & Social Development (BNDES)	Pasture industry, aquaculture & fishing, agriculture sectors, industrial charcoal producers	
CBNRM	**Government agencies:** Ministry of Environment	**Project implementers:** State Forest Foundation, community cooperatives/ community-based organisations, municipal governments NGO: technical assistance	**Land users:** households, communities, group of households	
PES	**Government agencies**: Ministry of Environment, Ministry of Agrarian Development, federal and municipal governments	**Project implementers:** Forest protection management, funding agency, Sustainable Amazonas Foundation (FAS), municipalities	**Buyers**: water supply company, private industries in the lowlands, federal and municipal governments **Sellers**: federal and municipal governments, private landowners, traditional communities	In the states of Paraná and Minas Gerais in Brazil, municipalities receive 5% of the state sales tax to finance upstream watershed conservation programmes to protect drinking water sources (Mayrand and Paquin 2004)
CDM	**Government agencies:** Ministry of Environment, and related ministries, Brazilian Interministerial Commission on Global Climate Change	**Project implementers:** Private companies, federal and municipal government, NGOs Verifiers	**Sellers:** private companies (waste, energy companies)	
ABS	**Government agencies:** Ministry of Environment, Ministry of Science and Technology and related ministries **Donors:** International NGOs	National Biodiversity Commission (CONABIO), national/state/ municipal environmental funds, private sector initiatives	**Forest users:** state forest, households, communities, private companies	

Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
FC	**Government agencies:** Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA), Ministry of the Environment (MMA), Servicío Florestal Brasileiro (SFB), Comisão Coordenadorado Programa Nacional de Florestas (Conaflor) and state environmental agencies	Timber companies management boards	**Forest users:** timber companies, community, government	
BOLIVIA				
F1	National Environmental Fund (FONAMA), Foundation for the Development of the National System of Protected Areas (FUNDESNAP), Foundation for Protection and Sustainable Use of the Environment (PUMA)	**CTFs:** FONAMA, FUNDESNAP, PUMA	Protected areas management unit, communities in and around the protected areas	
F2	–	–	–	–
F3	FONABOSQUE,	Bolivia's General Secretariat for the Environment, FONABOSQUE	–	
CBNRM	**Government agencies:** Ministry of Sustainable Development and Planning	**Project implementers:** Village heads, village management board/organisations, municipal governments or associations	**Land users:** households, communities	According to the Forestry Law (art. 38), use licence fees are distributed as follows: 35% to the prefectures, 25% to municipalities, 10% to FONABOSQUE and 30% to the Forest Superintendent. Of the fees for clearing licences, 25% is allocated to the prefectures, 25% to municipalities and 50% to FONABOSQUE (Silva 2008)
PES	**Government agencies:** Ministry of Sustainable Development and Planning	**Project implementers:** Forest protection management, municipal governments, NGOs Development fund, banks	**Buyers**: Hydropower plants, ecotourism companies, water-supply companies, foreign carbon buyers and brokers **Sellers**: Forest users (state forest, upland farmers)	

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Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
CDM	**Government agencies:** Ministry of Sustainable Development and Planning and related ministries, National Programme on Climate Change (PNCC)	**Project implementers:** Clean Development Office, private companies, NGOs Verifiers	**Sellers**: Forest owners (state forest, communities), private companies (energy companies)	The Noel Kempff Mercado Climate Action Project, initially allocated 49% of the offset credits to the Government of Bolivia (of which 20% are shared with the national NGO as project implementer), 49% to industry contributors and 2% to American Electric Power Company, the lead investor, as a project development bonus (May *et al.* 2004).
ABS	**Government agencies:** Ministry of Sustainable Development and Planning and related ministries, National System of Genetic Resources, technical advisory body Conservation NGO as the adviser to the government	**Project implementers:** Research institutions, private companies, government agencies	**Land users:** Households, communities, indigenous organisations Private companies	
FC	**Government agencies:** Ministry of Sustainable Development and Planning, Forestry Superintendent, municipal councils	Private forest concession companies, local social groups	Private forest concession companies, local social groups, community, governments (central and municipal)	
PERU				
F1	**National Fund for Protected Areas (PROFONANPE)**	**Donors, PROFONANPE**	communities inside and around the protected and preservation areas, the National Protected Areas System Management Agency	
F2	–	–	–	
F3	The state; CTFs: National Environment Fund (FONAM), The Americas Fund of Peru (FONDAM)	CTFs: FONAM, FONDAM	Administration unit of the natural and biological resources,	
CBNRM	**Government agencies:** Ministry of Environment (MINAM), Ministry of Agriculture (MINAG), Ministry of Fisheries and related ministries	**Project implementers:** Regional government agencies, community organisations, commercial sector	**Users:** Households, community, commercial sector, government agencies	

Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
PES	**Government agencies:** MINAM, MINAG and related ministries, FONAM	**Project implementers:** Regional government, NGOs, private sector	**Sellers:** Upland farmers	
CDM	**Government agencies:** MINAM, MINAG, National Environment Council as the designated national authority, related ministries, FONAM	**Project implementers:** Government agencies, private sector Verifier	**Sellers:** Private companies (electricity, hydropower), forestry sector	
FC	**Government agencies:** Ministry of Agriculture	Forest concession management board, Supervisory Body for Forest Resources and Wildlife (OSINFOR), Regional government to monitor	Forest concession company, government (central and regional)	
ASIA AND OCEANIA				
INDONESIA				
F1	**Donors, Indonesian Biodiversity Foundation (KEHATI)**	**Donors, KEHATI**	Forest communities,	
F2	–	–	–	
F3	-	Reforestation Fund Local government, Ministry of Forestry, forest agencies	Regional, local government; local communities/cooperatives	
CBNRM	**Government agencies:** Ministry of Forestry, regional/district forest offices	**Project implementers:** Village heads, village cooperatives, state-owned forest companies (Perhutani)	Land users: Households, communities, groups of households	
PES	**Government agencies:** Ministry of Forestry, Ministry of Environment, forest offices, provincial/regional/district governments and village cooperatives Donor	**Project implementers:** Forest protection management, NGOs, community organisations NGOs and academics for technical assistance	**Buyers**: Local state-owned water supply company, state-owned electrical company, private industries in the lowland, farming, downstream communities **Sellers**: State-owned forest companies, forest management board, upland community farmers	In Cidanau watershed, 80% for payment for contracted farmland, 14% for transaction cost, 6% for tax (Mbak 2010)

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Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	**Control rights**	**Use rights**	**Benefit-sharing ratio**
CDM	**Government agencies:** Ministry of Forestry, Ministry of Environment and related ministries, National Commission on a Clean Development Mechanism, Ministry of Forestry Climate Change Working Group	**Project implementers:** Private sector, government agency Verifier	**Sellers**: private companies from project type such as biogas, biomass, methane users, fuel	
ABS	**Government agencies:** Ministry of Forestry, Ministry of Environment, Ministry of Agriculture and related Ministries Donors	**Project implementers:** National Committee for the Management of Biodiversity, village cooperation	Forest users (state forest companies, households, communities, private companies)	
FC	**Government agencies:** Ministry of Forestry, regional government	Forest concession management board, regional government	Forest concession company, community, government (central and regional)	Forest Enterprise Concession Fees: 20% central government, 16% provincial government, 64% producer district/municipality Volume-based Tax on Timber Harvesting/Forest Resource Rent Provision: 20% central government, 16% provincial government, 32% producer district/municipality, 32% other districts Reforestation Fund: 60% central government, 40% producer district/municipality (Indrarto *et al.* 2012)
VIETNAM				
F1	–	–	–	
F2	–	–	–	
F3	–	**CTFs: Forest Protection and Development Fund, Forest Regeneration Fund**	–	

Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
CBNRM	**Government agencies: Ministry of Agriculture and Rural Developments** (MARD), Ministry of Natural Resources and Environment (MONRE), provincial/district/commune people's committee	**Elite capture groups:** Village heads, village management board, village first secretary of party	**Land users:** Households, communities, groups of households, mass organisations	
JFM	**Government agencies:** MARD, MONRE, provincial/district/commune people's committee	National Park/Protected Areas Management Board, Forest Management Board, state forest companies, provincial and district Department of Forestry and Forest Protection	**Land users:** Households, communities, groups of households, mass organisations Village heads, village management board, village first secretary of party	
PES	**Brokers**: Government agencies (MARD, provincial, district and commune people's committee)	Forest Protection and Development Fund, banks PES management board at different levels, mass organisations	**Buyers:** Hydropower plants, ecotourism companies, water-supply companies, seafood producers and brokers **Sellers**: Forest users (state forest companies, mass organisations, households, communities, private companies, forest management boards) NGOs, academics, CSOs can participate in planning and design	10% is retained in Central/Provincial Forest Protection and Development Fund 90% will be distributed to forest users Where forest users are the forest management board or state forest companies, another 10% will be paid for their management fees with the remaining 80% distributed to local people (Decision 380 on PES Pilot)
CDM	**Government agencies:** MONRE and MARD	National designated agency	**Sellers**: Forest users (state forest companies, mass organisations, households, communities, private companies) NGOs, academics, CSOs can participate in planning and design. Verifiers: research institutions, international and national NGOs, local non-profit organisations	

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Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
ABS	**Government agencies:** MARD, DARD, provincial/district/ commune people's committee	**Elite and dominant group:** Village head, the village first secretary of village, village management boards	Households, communities, mass organisations	
FC	**Government agencies:** MARD, DARD, provincial/district/ commune people's committee	National Park and Protect area management boards, Provincial government agencies	Private companies	Decided case by case
NEPAL				
F1	–	–	–	
F2	–	–	–	
F3	–	User group funds	Participants in community forest program	
CBNRM	**Government agencies:** Ministry of Forests and Soil Conservation, Department of Forest Research and Survey	**Project implementers:** implementation unit, central and local governments, provincial, district and commune people's committees	**Land users:** Households, communities, local government, people's committee	
PES	**Government agencies:** Ministry of Forests and Soil Conservation, Ministry of Environment, provincial, district and commune people's committee	**Project implementers:** District forest agencies NGOs	**Buyer**s: Hydroelectric plants, water-supply companies **Sellers**: Forest users (state forest companies, upland farmers)	
CDM	**Government agencies:** Ministry of Forests and Soil Conservation, Ministry of Environment, Ministry of Energy and related ministries, Department of Forest Research and Survey	Project implementers Verifier	**Sellers**: Private companies (Biogas and micro-hydropower)	

Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
ABS	**Government agencies:** Related ministries (Ministry of Forest and Soil Conservation, Ministry of Agriculture and Cooperative, Ministry of Environment, Science and Technology, Ministry of Local Development, Ministry of Water Resources), National Planning Commission	**Project implementers:** Community forest user groups, cooperatives, biodiversity conservation and development committees, private companies, research institutes	Households, communities, private companies	
FC	**Government agencies:** Ministry of Forest and Soil Conservation	Forest concession company management board (state owned)	State-owned concession, government (central, regional), community	
LAO PDR				
F1	-	Environment Protection Fund (EPF), Forest Development Fund (FDF)	-	
F2	–	–	–	
F3	–	–	–	
CBNRM	**Government agencies:** Ministry of Agriculture and Forestry, Department of Forestry	**Project implementers:** Village heads, village management board, local government	**Land users:** Households, communities	Presidential Decree (No. 001/PR) establishes that 70% of the total revenues from timber sales have to be paid to the National Treasury (with harvesting costs deducted from this amount) and the remaining 30% shared as follows: 20% to a national Forest Development Fund, 40% for the operational costs of the provincial and district authorities, and the remaining 40% transferred to village development funds (Lestrelin *et al.* 2012)

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Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
JFM	**Government agencies:** Ministry of Agriculture and Forestry, Department of Forestry	**Project implementers:** District forest management unit for production forest, village organisations	District forest agency, central government, villagers	
PES	**Government agencies:** Ministry of Agriculture and Forestry, Department of Forestry, Water Resources and Environment Administration (WREA)	**Project implementers:** Protected forest management, community organisations **Funding instruments:** EPF, FDF	**Buyer**s: Hydropower **Sellers**: Forest users (state forest companies, upland farmers	
CDM	**Government agencies:** Ministry of Natural Resources and Environment as the designated national authority Donors	Designated national authority	**Sellers:** Private company (energy efficiency, hydropower project, biogas, cement industry), forest owners	
ABS	**Government agencies:** Ministry of Agriculture and Forestry, WREA Donors	Department of Forestry Resources Management **Funding instruments:** EPF, FDF		
FC	**Government agencies:** Ministry of Agriculture and Forestry, National Assembly, National Land Management Authority (NLMA), provincial authorities	Forest concession management board, government (central, provincial), NLMA	Forest concession companies, government (central, provincial), communities	
PAPUA NEW GUINEA				
F1	–	**Donors, Mama Graun Conservation Trust Fund**	–	
F2	–	–	–	
CBNRM	**Government agencies:** Ministry of Forestry Donor	Landowners, forest owner association, traditional leaders NGO for technical assistance	**Land users:** Landowner, landowner associations/groups,	
PES	**Government agencies:** Ministry of Forestry and related ministries, Department of Environment and Conservation	A proposed national multi-stakeholder institution to oversee the implementation	**Buyer**s: Company/business groups and brokers **Sellers**: Forest owners (incorporated land group)	

Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
CDM	**Government agencies:** The Office of Climatic Change and Development (OCCD) as the designated national authority, Ministry of Forestry and related ministries	**Project developer** **Verifier**	**Sellers**: Renewable energy, waste management, energy companies	
ABS	**Government agencies:** Ministry of Forestry and related ministries, Department of Environment, provincial/district/commune people's committee	Traditional leaders, forest owners associations, private company	Households, communities, landowners, private companies	
FC	**Government agencies:** Ministry of forestry, National Forest Board, Provincial Forest Management Committees, PNG Forest Authority, landowner representatives, provincial government, National Forest Service (NFS)	Forest concession management board, NFS, Department of Environment and Conservation (DEC)	Forest concession company, landowners, community, government (central, provincial)	
AFRICA				
TANZANIA				
F1	The Tanzanian Land Conservation Trust	Donors, The Tanzanian Land Conservation Trust	–	
F2	–	–	–	
F3	Ministry of Finance, Forestry Development Fund	Forestry Development Fund	–	
CBNRM	**Government agencies:** Ministry of Environment and Protection of Nature (MINEF), Ministry of Forest and Wildlife (MINFOF), donors	Protected forest management, forest department, community initiative groups/cooperatives, development organisations	**Land users:** Households, communities	
PES	**Government agencies:** MINEF, MINFOF and related ministries	PES management (NGOs, municipalities), funding agencies	**Buyer**s: Hydropower plants, water-supply companies Sellers: Upland communities	

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Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
CDM	**Government agencies:** MINEF, MINFOF, CDM National Committee, designated national authority, funding instrument	Rural municipalities, project developers, private companies (electricity companies, landfill management, hydropower companies, forestry, agro-industrial companies)	Land users: Households, communities, sawmills	
ABS	**Government agencies:** MINEF, MINFOF, Ministry of Agriculture, Ministry of Scientific Research and related ministries Donors	Traditional/local institutions of community forest management	**Sellers:** Households, communities **Buyers:** Pharmaceutical industry	
BURKINA FASO				
F1	--	-	-	
F2	–	–	–	
F3	Fonds forestier	Fonds forestier	Wildlife and fisheries sectors	
CBNRM	**Government agencies:** Ministry of Environment Donor	**Project implementers:** NGO, government agency, village associations, socio-economic organisations NGOs provide technical assistance	**Users:** Households, communities	
JFM	**Government agencies:** Ministry of Environment Donors	**Project implementers:** Protected areas management, village organisations	**Users:** Households, protected areas management	
CDM	**Government agencies:** Ministry of Environment, designated national authority Donors	**Project implementers:** Private companies, NGO		
ABS	**Government agencies:** Ministry of Environment Donors	Research institution, government agency	Research institution, foreign industries (pharmaceutical and agro-food)	
FC	**Government agencies:** State forest agencies	Community forest concession/ village association, local authorities	Village/community, government (central and local)	

Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
CAMEROON				
F1	–	–	–	
F2	–	–	–	
F3	–	Special Forest Development Fund	Community forest	
CBNRM	**Government agencies:** Ministry of Environment and Nature Protection (MINEP), Ministry of Forests and Wildlife (MINFOF), Forestry and Beekeeping Division (FBD), district council, district and village governments	**Elite capture groups:** village councils, local authorities	**Land users:** Households, communities	
JFM	**Government agencies:** MINEP, MINFOF, Tourism District Council	Village forest reserves, national forest reserves or local authority forest reserves or private forest reserve management, village councils	**Land users:** Households, communities	
PES	**Government agencies:** MINEP, MINFOF and related ministries, Division of Environment (DoE), FBD			
CDM	**Government agencies:** MINEP, MINFOF and the related ministries, DoE, FBD	Designated national authority	**Sellers:** Private companies (energy, bricket manufacturer), households	
FC	**Government agencies:** MINFOF, municipal council	Forest concession management board, municipal council	Forest concession companies, communities, government (central, municipal)	50% to the state, 40% to rural councils (local authorities in Cameroon), and 10% to villages adjacent to forest concessions, as well as payment of a village tax to communities near forest concessions (Morrison *et al*. 2009 in Costenbader 2011)
DRC				
F1	–	–	–	

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Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
F2	–	–	–	
F3	–	–	–	
CBNRM	**Government agencies:** Ministry of Environment Nature Conservation and Tourism (MECNT) Donors	**Project implementers:** Government agencies, community associations NGOs provide technical assistance	**Users:** Households, communities, local private companies	
PES	**Government agencies:** MECNT Donors	**Project implementers:** Private companies, community, government agencies		
CDM	**Government agencies:** MECNT Donors	**Project implementers:** Private companies, communities Verifiers	Brokers, international private sector, communities	
FC	**Government agencies:** MECNT	Forest concession management board, central government	Forest concession companies, governments (central, provincial), communities	
MOZAMBIQUE				
F1	–	–	–	
F2	–	–	–	
F3	–	Forest and Wildlife Development Fund	–	
CBNRM	**Government agencies:** Ministry for Coordination of Environmental Affairs (MICOA), Ministry of Agriculture (MINAG), National Directorate of Forest and Wildlife, Participatory Natural Resources Management Councils (COGEPs), local government authorities	**Elite capture groups:** Traditional leaders, local associations, NGOs as the project managers, local government	**Land users:** Households, communities, groups of households, mass organisations) Private entities involved in training of interest groups	In Tchuma Tcahu: 33% for the government, 32% for local communities, 35% for the project management organisation. In Chipanje Chetu: 57% for communities, 20% for local government, 23% for management of the initiative. (Nhantumbo and Izidine 2009)

Benefit-sharing approaches[a]	Actor groups			
	Authoritative rights	Control rights	Use rights	Benefit-sharing ratio
JFM	**Government agencies:** MICOA, MINAG, National Directorate of Forest and Wildlife, Participatory Natural Resources Management Councils, local government authorities Donors	Protected forest management, local associations, traditional leaders, local government	Land users: households, communities, local government	
PES	**Government agencies:** MICOA, MINAG Donors	Project implementers, government agencies Verifier	Household, community **Buyer**s: International private companies	The amount of cash payment received by households was not very high (on average about US$60 per year for participating households), but it accounted for about 10% of total cash income of the participating households. One third of the carbon sales revenue goes into a community trust fund which is used for developing and supporting community-level enterprises (Hedge and Bull 2011)
CDM	**Government agencies:** MICOA, MINAG, Ministry for Coordination of Environmental Affairs, Ministry for Science and Technology and related ministries, designated national authority Donors	**Project implementers:** Private company, government agency Verifiers NGOs, experts from university provide technical assistance and consultancy	**Sellers**: Private cement company, private gas company, private plantations company	
ABS	**Government agencies:** MICOA, MINAG and related ministries	Government agency, research institution, private company	Households, communities, private company	
FC	**Government agencies:** Provincial government	Logging concession management board, provincial government	Logging concession company, provincial government	

a **F1**: independent funds outside national administration; **F2**: funds that are directly merged into the state budget; **F3**: funds that rely on the capacity of state administration; **CBNRM**: community-based natural resources management; **JFM:** joint forest management; **PES**: payment for environmental services; **CDM**: Clean Development Mechanism; **FC**: forest concession; **ABS**: Access and Benefit Sharing.

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The issue of REDD+ benefit sharing has captured the attention of policymakers and local communities because the success of REDD+ will depend greatly on the design and implementation of its benefit-sharing mechanism. Despite a large body of literature on potential benefit-sharing mechanisms for REDD+, the field has lacked global comparative analyses of national REDD+ policies and of the political-economic influences that can either enable or impede the mechanisms. Similarly, relatively few studies have investigated the political-economic principles underlying existing benefit-sharing policies and approaches.

This working paper builds on a study of REDD+ policies in 13 countries to provide a global overview and up-to-date profile of benefit-sharing mechanisms for REDD+ and of the political-economic factors affecting their design and setting. Five types of benefit-sharing models relevant to REDD+ and natural resource management are used to create an organising framework for identifying what does and does not work and to examine the structure of rights under REDD+. The authors also consider the mechanisms in light of five prominent discourses on the question of who should benefit from REDD+ and, by viewing REDD+ through a 3E (effectiveness, efficiency, equity) lens, map out some of the associated risks for REDD+ outcomes.

Existing benefit-sharing models and REDD+ projects have generated initial lessons for building REDD+ benefit-sharing mechanisms. However, the relevant policies in the 13 countries studied could lead to carbon ineffectiveness, cost inefficiency and inequity because of weak linkages to performance or results, unclear tenure and carbon rights, under-representation of certain actors, technical and financial issues related to the scope and scale of REDD+, potential elite capture and the possible negative side effects of the decentralisation of authority. Furthermore, the enabling factors for achieving 3E benefit-sharing mechanisms are largely absent from the study countries. Whether REDD+ can catalyse the necessary changes will depend in part on how the costs and benefits of REDD+ are shared, and whether the benefits are sufficient to affect a shift in entrenched behaviour and policies at all levels of government.

The successful design and implementation of benefit-sharing mechanisms – and hence the legitimacy and acceptance of REDD+ – depend on having clear objectives, procedural equity and an inclusive process and on engaging in a rigorous analysis of the options for benefit sharing and their potential effects on beneficiaries and climate mitigation efforts.

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