The economic case for prioritizing governance over financial incentives in REDD+

MATTIA FOSCI*
School of Law, University of Nottingham, University Park, Nottingham, NG7 2RD, UK

It is argued that the subordination of policies to results-based payments for emissions reductions causes severe economic inefficiencies, which affect the opportunity cost, transaction cost, and economic rent of the programme. Such problems can be addressed by establishing sound procedural, land, and financial governance at the national level, before Reducing Emissions from Deforestation and Forest Degradation (REDD+) economic incentives are delivered at scale. Consideration is given to each governance dimension, the entry points for policy intervention, and the impact on costs. International support must consider the financial and political cost of governance reforms, and use a pay-for-results ethos based on output and outcome indicators. This can be done in the readiness phase but only if the latter’s legal force, scope, magnitude, and time horizon are adequately reconsidered. This article provides ammunition for the institutionalists’ argument that United Nations Framework Convention on Climate Change (UNFCCC) Parties must prioritize governance reforms between now and the entry into force of the new climate agreement in 2020. Finally, specific recommendations about how such governance reforms can be achieved, which will create the basis for the programme’s financial sustainability, are offered.

Policy relevance
UNFCCC Parties could make the most cost-effective use of REDD+ resources if they were to prioritize investments in governance over the interim period 2012–2020. REDD+’s financial, technical and political capital should be used to establish sound procedural, sectoral (land), and financial governance systems in relevant countries. This will generate long-term economic savings, compared to an approach that privileges the implementation of results-based payments for emissions reductions. In particular, it will reduce economic inefficiencies, which affect the opportunity and transaction costs, and the private rents embedded in the current programme design. In order to promote the necessary policy reforms, stakeholders should work together to address technical, financial, and political economy issues at the domestic level. In particular, UNFCCC Parties should re-conceptualize the readiness phase by strengthening its legal force, expanding its scope, increasing its financial firepower, and extending its time horizon.

Keywords: economic efficiency; economic incentives; multilevel governance; North–South; policy options; REDD+

1. Introduction

In the negotiations for a new climate change protocol, which is set to enter into force by 2020 (UNFCCC, 2011b), Reducing Emissions from Deforestation and Forest Degradation (REDD+) is one of the mitigation actions that enjoys most support among the Parties to the United Nations Framework Convention on Climate Change (UNFCCC). Initially conceived as a simple transfer of financial incentives to avoid deforestation in developing countries, REDD+ has evolved, into a complex programme
that combines policy approaches and positive economic incentives to support a range of climate mitigation activities in the forest sector. Its ambitious goal is to reduce, halt, and reverse global forest emissions (UNFCCC, 2010, 2011a), which account for 12–15% of total GHG emissions (van der Werf et al., 2009).

Much has been written about public policies and financial incentives as two complementary but formally distinct approaches to REDD+ (Angelsen, 2008; Angelsen et al., 2009; Corbera, Estrada, & Brown, 2010; Eliasch, 2008; Munden, 2011; Streck, O'Sullivan, Jason-Smith, & Tarasofsky, 2009; Wertz-Kanounnikoff & Angelsen, 2009; Westholm, Sabine Henders, & Mattsson, 2011), and several authors have voiced explicit or implicit criticism against the de facto subordination of the policy approach to the economic approach in the current programme architecture (Clements, 2010; GregerSEN, El Lakany, Karsenty, & White, 2010; Global Witness, 2009; Kanowski, McDermott, & Cashore, 2011; Karsenty & Ongolo, 2012; Robledo, Blaser, Byrne, & Schmidt, 2008; Sandbrook, Nelson, Adams, & Agrawal, 2010). It is argued here that the subordination of policies to the incentive approach causes severe economic inefficiencies in the implementation of REDD+, which in turn undermines its capacity to achieve its stated goal. These problems can be addressed by prioritizing policy interventions that are aimed at establishing a compound governance system at the national level, one that involves procedural, land, and financial governance. It is also argued that this can be done during the ‘readiness’ phase only if the latter’s legal force, scope, magnitude, and time horizon are adequately reconsidered.

In Section 2 the approach and ideological assumptions that underpin the current design of REDD+ are described and examined, and the disconnection between the overarching policy framework and the emerging practice is highlighted. In Section 3, the economic inefficiencies embedded in such an approach are illustrated. In Section 4, it is argued that investing in governance can improve programme implementation, while the practical and political challenges to the realization of governance reforms under REDD+ are discussed in Section 5. Finally, Section 6 provides further evidence to the claim that governance reform increases the cost-effectiveness of emission reductions in REDD+, and it concludes that such shift of focus is difficult but politically achievable.

2. Theory, practice, and inconsistencies in the current design of REDD+

The standard design options in the formulation of an environmental protection programme are command-and-control regulations and economic incentives (Groosman, 2000). Regulations are promulgated by a legitimate authority with the power to forbid or restrict environmentally harmful activities and the capacity to enforce any decision to that effect. By contrast, economic incentives induce conformity with the desired conduct by appealing either to the stakeholders’ self-interest or the ex ante calculation of the costs and benefits of an action (Scott, 2000).

Since its inception, REDD+ has embraced a neoliberal rhetoric which privileges the use of financial incentives over regulatory measures (Hiraldo & Tanner, 2011; Humphreys, 2009). This has been supported by the argument that if forest carbon is given a monetary value, rational economic actors can decide between conservation and development based on opportunity–cost considerations. Market forces can then operate to balance climate objectives and other forms of legitimate development without the need, by and large, for complex policy arrangements (Portela, Wendland, & Pennypacker,
2008). International REDD+ channels payments from industrialized nations to developing countries that would otherwise lack the self-interest or the capacity to reduce deforestation and degradation.

This approach is consistent with the principle of common but differentiated responsibilities enshrined in Article 3(1) of the UNFCCC, and it is also more likely to deliver results given developing countries’ reluctance to allow a binding international regulation of forest use (Dimitrov, 2005; Humphreys, 2006, 2001; Kanowski et al., 2011). The provision of positive economic incentives has also been prominent in national-level implementation, partly because repressive regulations have been ineffective in the forest sectors of developing countries (Gregersen & Contreras, 2010; Kaimowitz, 2003). Early demonstration activities and international policy discussions have confirmed that the ultimate objective of national and sub-national REDD+ actions has been to distribute payments among stakeholders to change their environmental management practices (Alston & Andersson, 2011; Angelsen et al., 2009).

The view that economic incentives can efficiently reduce forest emissions has been challenged by a host of practical problems – e.g. social inequality, tenure insecurity, corruption, widespread illegality, regulatory deficiencies, general lack of alternatives and capacity, conflicting development policies, multiple driver dynamics, and complex political economies – that affect implementation and which can only be solved through targeted policy actions. The realization that these problems are widespread and present a stumbling block for any market or non-market effort to reduce deforestation (Angelsen et al., 2009; Blom, Sunderland, & Murdiyarso, 2010; Clements, 2010; Gregersen & Contreras, 2010; Gregersen et al., 2010; Hall, 2010; Kanowski et al., 2011; Robledo et al., 2008; Sandbrook et al., 2010) prompted a moderate change in discourse. The institutionalist discourse represents a shift from neoliberalism, but the three phases of REDD+ are meant to reconcile the two contrasting approaches by framing policies as preparatory for the operation of free-market instruments (Hiraldo & Tanner, 2011), in which the transfer of international incentives builds on the prior development of ad hoc legal, institutional, and capacity frameworks (Vatn & Angelsen, 2009). Developing countries enter a ‘readiness’ process in which they formulate national strategies, policies and measures assisted by multilateral institutions (Phase 1) (World Bank, 2011b) and then receive international support for their implementation (Phase 2) (see: FIP, 2012); payments for changes in and removals of emissions (Phase 3) are conditional upon the achievement of a status of ‘readiness’ (UNFCCC, 2010, article 73), though it is unclear whether at what stage of the implementation of the preparatory strategies, policies and measures this will be achieved.

This phased approach to REDD+ has not removed the underlying inconsistency between the international design structure of the programme and the progressive identification of socio-economic problems that require policy or regulatory interventions at the national level. This inconsistency manifests itself in at least four ways.

First, the legal force of the readiness phase gives rise to ambiguity. The programme’s safeguard policies, included in the UNFCCC text to mitigate the negative social and environmental impacts that might arise during implementation (UNFCCC, 2010, Appendix II), and also the multilateral requirements for national readiness plans, are couched in language that is soft and not legally binding. Reference to the monitoring, reporting, and verification of safeguards was dropped in favour of an optional ‘system to provide information’ (UNFCCC, 2011c), and readiness was only encouraged but not mandated in the text of the UNFCCC itself (2010, paragraphs 73 and 74), leaving doubts about the extent to which developing nations must even conform to it in order to receive payments.

Second, there is a problem with the scope. When countries are drafting national REDD+ strategies or plans, they are asked to assess and address a number of elements. However, ‘difficult’ issues such as
corruption, planning, and tenure, which all contribute to forest loss, are either overlooked or blandly addressed (Davis, Nakhooda, & Daviet, 2009, 2010a, 2010b; Goers, Williams, Daviet, Davis, & Lupberger, 2010; Goers-Williams, Larsen, Lupberger, Daviet, & Davis, 2011; Goers-Williams, Davis, Lupberger, & Daviet, 2012). This hesitation in dealing with some of the underlying causes of forest loss can severely affect the programme’s effectiveness and efficiency (see Section 3 below).

The third problem is the timeframe of the phase. The general attitude towards readiness is that policy adjustments must be implemented as rapidly as possible, so as to allow greater investments in emissions reduction activities. However, this would be to ignore that progress in areas such as governance are built over several years or decades (Evans & Rauch, 1999; Wertz-Kanounnikoff & McNeil, 2012), creating a tension between expediency and effectiveness.

Finally, there is a problem with the magnitude of the support provided to readiness. Financial assistance, in particular, is materially insufficient to trigger far-reaching reforms in recipient countries and it could at best support initiatives with limited impact (for an example, see FIP, 2012). Capacity-building and technical assistance for governance are also gravely insufficient.

The lack of a clear obligation to reform forest governance structures, the absence of benchmarks to assess a country’s readiness level, the limited scope and magnitude of international support for policy and regulatory action, and pressures to move quickly past the readiness process diminish the contribution of public policies and regulatory measures to REDD+ in favour of market-based implementation.

3. Economic inefficiencies inherent to the current programme design

REDD+ has been presented as a relatively straightforward, quick, and cost-effective climate mitigation tool (Eliasch, 2008; Gullison et al., 2007; Kindermann et al., 2008; Stern, 2007). Whether it is so is highly dependent upon the quality of the programme design. Leaving governance reforms to the discretion of recipient governments, who often have no capacity or political interest to carry them out (Corbera et al., 2010; Peskett & Brockhaus, 2009; Skutsch & McCall, 2010), de facto reduces the ability of international policy makers to correct flaws in programme design once market forces have begun to operate. Some design failures are already evident and could undermine the programme’s economic efficiency, which in turn has consequences for its effectiveness (Angelsen et al., 2009).

3.1. Inefficiencies relative to opportunity costs

On paper, the largest share of resources invested in REDD+ should be used to compensate the opportunity costs borne by programme participants (Boucher, 2008; Olsen & Bishop, 2009; Pagiola & Bosquet, 2009). The opportunity costs here are the differences in net benefits between forest exploitation and the alternative land use. They are thus determined as much by the profitability of the land-use change activity as by the profitability of the sustainable alternative land use. Ideally, REDD+ will generate capital investment, which will help make sustainable economic alternatives at least as profitable as deforestation/degradation, consistent with an overarching sustainable development objective (UNFCCC, 2010, paragraphs 6, 10, 48, and 65). However, it is not uncommon to find legal, cultural, knowledge-related, or infrastructural barriers to the implementation of such activities (Cohn, Bowman, Zilberman, & O’Neill, 2011; Fisher et al., 2011; Klooster, 2002; Molnar et al., 2007) which, if
unaddressed, could frustrate international support in this area. REDD+ payments would then have to compensate opportunity costs as high as the entire foregone profit from deforestation/degradation.

Overcoming barriers to sustainable revenue-generating activities may ensure a long-term reduction in opportunity costs, although in the short term it is likely to delay the implementation and increase the cost of emissions reduction activities (Fisher et al., 2011; PRP, 2009). Inefficiencies may occur if investors, in a rush to secure a carbon transaction, ignore such barriers. This was not the case for some early projects that used integrated social and environmental standards (CCBA, 2008; SES, 2010) and large-scale initiatives linked to REDD+ (Rival, 2012). However, the evidence is still too scarce and the pressure to generate carbon offsets too little to conclude that the current approach will be consistently applied. In a large-scale compliance mechanism it is conceivable that investors’ interest in lower opportunity costs will depend on the time-lag for the occurrence of the resulting profits and on the contractual arrangements that define their allocation. Indeed, aside from sustainable forest management, there is little evidence that the programme will mainstream the implementation of complementary revenue-generating activities. For opportunity costs to be systematically minimized, regulatory and policy intervention must establish adequate programmes, processes, and dedicated funding streams (see Section 4).

3.2. Inefficiencies relative to transaction costs
Transaction costs accrue from those activities that are necessary for the transparency and credibility of the programme but that do not generate emissions reductions, such as the negotiation of transaction contracts, the measuring, reporting, and verification (MRV) of emissions reduction, the enforcement of contracts, and measures to prevent leakage (e.g. a displacement of emissions) and to ensure permanence (e.g. a reversal of emissions reductions) (Alston & Andersson 2011; World Bank, 2011a, 2011b).

Rushing towards performance-based payments for emissions reductions (Phase 3) will mean higher transaction costs. The MRV and marketing processes carried out by international intermediaries could cost as much as 40% of the total investment both for projects (Plan Vivo, 2011) and jurisdictional-level initiatives (Viana, Grieg-Gran, della Mea, & Ribenboim, 2009). Economies of scale can reduce these costs (Angelsen, Streck, Peskett, Brown, & Luttrell, 2008; Böttcher et al., 2009), but scaling up implementation may affect MRV accuracy (Densham, Czebiniak, Kessler, & Skar, 2009). This creates uncertainty that can only be addressed by means of conservative accounting measures, which, in turn, increases total costs (Angelsen, 2008; EC, 2010). Furthermore, ensuring the additionality of emissions reductions regarding problems of leakage and permanence is bound to push transaction expenditures further up; these so-called ‘stabilization costs’ can be very high (World Bank, 2011a, 2011b), but will decrease with national-scale implementation (Wertz-Kanounnikoff & Angelsen, 2009). Finally, costs are also affected by inaccurate reference levels for avoided deforestation/degradation, which is a virtual estimate of the likely level of emissions in the absence of a REDD+ action. In particular, with the use of ‘forward-looking’ levels that take into account national circumstances and development factors, REDD+ could pay for reducing emissions that would not otherwise have been generated (e.g. the case of Guyana, MoU, 2009). However, the inefficiency of this approach has been recognized (Karsenty, 2009; Munden, 2011), with some suggesting that it could ‘increase payment by a factor of between 2 and 100 times’ (McKinsey & Co, 2009). The above problems are as much of a technical nature as they are a consequence of a policy and regulatory void.
3.3. Economic rents

Under a market mechanism, private rents could capture a very large part of the resources invested in REDD+. In a hypothetical ‘perfect system’, payments would be targeted to the asset holder’s opportunity costs. In practice, information gaps make it virtually impossible to assess opportunity costs accurately. Rents accrue from the difference between the total cost of implementing a REDD+ activity and the sum paid for it. If payments are determined by the market value of avoided or sequestered carbon emissions, there would be little or no consideration for the actual cost of a REDD+ activity at the level of credit purchase. Moreover, because the inelastic price paid by the carbon buyer generates profits for suppliers with low opportunity and implementation costs, there may be an incentive to cut expenditures to the detriment of non-mandatory social and environmental co-benefits.

Eliasch (2008) has estimated that the combined level of economic rent for carbon suppliers could mop up between 41 and 55% of the total resources invested. Whether profits remain with the asset holder or are captured by financial intermediaries will depend on the specific contractual arrangements. However, there are strong indications of where the balance would lie. For example, in the case of the Rimba Raya REDD+ project in Indonesia, the Russian gas giant Gazprom was designated as the sole financial intermediary and marketer of carbon credits. A report from Reuters revealed that the company would benefit from 56% of the credit’s first pricing in the secondary market (Fogarty, 2011). The enormous profit for international investors acting as financial intermediaries is only partly explained by the legitimate expectation to make returns proportional to the investment risk (CMIA, 2011), which is particularly high because of the volatility of the carbon price and governance problems in developing nations. A more decisive factor may be that the carbon market becomes dominated by a few financial intermediaries, who have the capacity to source and aggregate forest carbon credits from a multiplicity of projects and the power to dictate the price of the asset purchased so that they constitute an ‘oligopsony’ or ‘monopsony’ (Munden, 2011). In this scenario, the distribution of profits and resources could mirror existing commodity markets and allocate over 60% of global investment to intermediaries, 30% to financing project costs, 5% captured by governments, and a mere 3% that covers the opportunity costs of REDD+ (Munden, 2011).

Government elites could act as rent-seekers in REDD+ implementation, especially in countries where most forests already belong to the state (Knox, Caron, Miner, & Goldstein, 2011). This would be more likely if non-transparent and corrupt governments were to claim exclusive tenure rights over forest carbon and act as financial intermediaries themselves. Regulatory action and targeted policies at the national level are thus needed to regulate profit allocation so as to prevent the inappropriate or illegitimate appropriation of rents by private investors or public actors.

Collectively, the inefficiencies of the current programme design are substantial and severely hamper its effectiveness, particularly considering the relative scarcity of resources. In order to maximize the efficiency of REDD+, the following leverage points can be addressed through regulatory and policy measures, as will be discussed in the next section:

- Opportunity costs can be minimized by removing barriers to the implementation of sustainable alternatives to deforestation/degradation.
- Monitoring, protection, and stabilization costs can be lowered by recognizing stakeholder rights and improving their participation.
Government rents can be reduced by improving transparency and accountability in decision making. Speculative financial profits can be controlled by establishing a profit ceiling for intermediaries (private and public), or by better regulating their operations. Transaction costs can be reduced by setting more credible reference levels that ensure additionality. Transaction costs can also be lowered by bundling together projects and programmes to create economies of scale in MRV, financing, and crediting.

4. Policy priorities for REDD+: three dimensions of a national governance system

Forest loss is a complex phenomenon that has ramifications for various sectors of the economy and society. Accordingly, regulatory and policy action in this area cannot consist of isolated, *ad hoc* interventions but should be framed within a broader governance context. The elusive concept of governance (Kaufmann, Kraay, & Mastruzzi, 2010; Krahmann, 2003; Mimicopoulos, Kyi, & Sormani, 2007; Palmer, Fricska, & Wehrmann, 2009) can be defined as

the exercise of political, economic and administrative authority in the management of a country’s affairs at all levels [...] comprising the complex mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights and obligations, and mediate their differences. (Palmer et al., 2009)

Across the multiple levels of operation of REDD+, the main (although not the only) interlocutors of the international community are the governments of developing countries who bear the responsibility for actions taken to reduce emissions (outputs), as well as their measured effectiveness (impacts). This is particularly so under national-level implementation. Although there is no ‘one-size-fits-all’ approach in this field (Angelsen et al., 2009), three specific dimensions of governance that constitute the building blocks of an archetypal national system are discussed: procedural, land, and financial governance. Good procedural governance builds the conditions for establishing a sound land governance system, which maps out a country’s vision for sustainable development. This is realized using a system of financial governance composed of a dedicated financial infrastructure and support services to distribute incentives and investments.

4.1. Procedural governance

Just as procedural justice determines the character of a fair judicial process, procedural governance determines what constitutes a fair and effective governance process. In the present case, it concerns how the decisions regarding the public sphere are made (formulation) and how these decisions are implemented and enforced (execution). Policy effectiveness rests on the objective quality of decisions as much as on their perceived legitimacy (Palmer et al., 2009), which in turn is strengthened by a sound governance process. The formulation and execution of public policies in the rainforest nations is often so defective that it severely limits their government’s abilities to function (Corbera et al., 2010; Karsenty & Ongolo, 2012; Tacconi, Mahanty, & Suich, 2010; World Bank, 2006). REDD+ payments
could still exacerbate these problems if adequate action is not taken up front (Cadman & Maraseni, 2012; Hansen, Lund, & Treue, 2009; Phelps, Webb, & Agrawal, 2010; Sikor et al., 2010; Tacconi, Downs, & Larmour, 2009).

Four areas, *inter alia*, stand out as core determinants of the quality of governance: transparency, citizen participation, freedom from corruption, and predominance of the rule of law (FAO, 2011; Mimb ropoulos et al., 2007; Sheng, 2012; UNDP, 1997). Of these, only the issue of participation is consistently addressed in the REDD+ readiness phase. Further policy and regulatory measures – such as law enforcement support programmes, judiciary reforms, anti-corruption legislation, and so forth – should be pursued throughout this phase in synergy with existing social development programmes. These elements can also be looked at from an equity perspective, as advocated, for example, in the rights-based approach to REDD+ (Hiraldo & Tanner, 2011). Embedding the social dimension in programme implementation is thus essential to its effectiveness and efficiency.

A government’s general *modus operandi* affects decisions in the land-use and forest sectors. Thus, focusing on forest governance alone downplays the importance of systemic institutional changes (Tacconi et al., 2009). The cross-sectoral aspect of procedural governance is particularly important in REDD+ because it provides a means to foster cooperation (e.g. among national and international stakeholders, public authorities, interested communities, and businesses) in a sector where no single actor is in a position to unilaterally control the behaviour of the others. The national government acts as a linchpin in this complex relationship between governance levels and within a multi-stakeholder process that emphasizes the role of sub-national public and private entities (Alston & Andersson, 2011; Emerson, Nabatchi, & Balogh, 2011; Forsyth, 2009).

Improving procedural governance has an indirect effect on REDD+ insofar as it creates an enabling environment for its effective and efficient implementation. More obviously, it could reduce rents and implementation costs by contrasting the illegal appropriation of resources by public or private actors, lower stabilization costs by favouring the emergence of political support for REDD+ and contrasting the privatization of the political agenda (Karsenty & Ogolo, 2012), and could help reduce opportunity costs by helping to identify the entry points for addressing the drivers of forest loss. Furthermore, given the extent of the extant conservation commitments and the emissions generated in areas formally under protection, improving developing countries’ capacity to implement and enforce environmental laws and policies could go some way towards achieving the programme’s goal (Kanowski et al., 2011; Wertz-Kanounnikoff & Kongphan-anpirak, 2009). Instead of duplicating the work of governance programmes already in place, REDD+ could breathe new life into current international efforts by raising their profile, providing additional resources, and making them a political priority. Although there are evident limits to what can be achieved under REDD+ in this area, there are also concrete opportunities (to be discussed in Section 5).

4.2. Land governance

The main driver of forest loss is market demand for wood and agricultural crops (FAO, 2010; Gibbs et al., 2010). Over the long term, REDD+ must both restrain the demand for such products and make their supply more efficient using extant land. However, while internationally agreed demand-side measures will only enter into force as part of the 2020 climate agreement, supply-side measures can be introduced in developing nations before 2020 through the REDD+ readiness process.
Improving land governance can make the supply of forest and agricultural products more efficient. Land governance refers to ‘the policies, processes and institutions by which land, property and natural resources are managed’, and includes ‘decisions about access to land, land rights, land use and land development’ (Deininger, Augustinus, Enemark, & Munro-Faure, 2010, p. 2). One way to improve land governance is by supporting land administration systems that provide the infrastructure for implementing land policies and land management strategies (Palmer et al., 2009; Williamson, Enemark, Wallace, & Rajabifard, 2010). Many developing countries could benefit from financial and technical assistance in this area (Dalal-Clayton & Dent, 1993; Dalal-Clayton, Dent, & Dubois, 2000; Deininger et al., 2010; French & Natarajan, 2008; Larson, Cronkleton, Barry, & Pacheco, 2008). Although the exact interventions needed to improve land administration can only be defined by nationally specific diagnostics, two focus areas seem particularly relevant in this context: tenure security and spatial planning. Security of land and forest tenure – which includes the legal recognition of informal rights (through registration, certification, or other means) and their protection against competing claims (Wendland, 2008) – is still very low in tropical forest regions (Almeida, Hatcher, White, Corriveu-Bourque, & Hoffman, 2012; Sunderlin, Hatcher, & Liddle, 2008; White & Martin, 2002). Tenure security is crucial to the effectiveness of REDD+ and other incentives that challenge unsustainable models. For example, it could address the drivers of deforestation (agricultural expansion), by attracting investments in agricultural productivity in low-carbon regions, and forest degradation (logging), by promoting community-based sustainable forest management (Sayer et al., 2008; Sunderlin et al., 2008). It could also ensure permanence of emissions reductions and prevent leakage by promoting participation of de facto forest users (Cotula & Mayers, 2009). Moreover, it could provide legal certainty to the distribution of benefits and responsibilities in REDD+ implementation by defining rights over land, forests, and carbon (Angelsen et al., 2009; Cotula & Mayers, 2009; Deininger et al., 2010; Knox et al., 2011; Mitchell & Zevenbergen, 2011). Under certain conditions tenure security can increase forest loss; e.g. the promise of secure tenure rights on ‘empty’ forestlands may attract migration towards the forest frontier (Pfaff et al., 2010). Similarly, where secure tenure drives agricultural intensification in the forest frontier, this may result – in the absence of other policy interventions – in the continued conversion of forests (Carr, 2004). Removing perverse incentives of this kind is therefore as important to REDD+ as providing legal certainty to tenure.

Spatial planning introduces an element of collective rationality and resource efficiency in the way territory is used. Two approaches are relevant for REDD+: spatial segregation and spatial integration. Spatial segregation is a place-based approach that relocates harmful activities into less carbon-dense ecosystems and is relevant for commercial drivers of land-use change. It is most suitable for the protection of relatively intact, remote areas that have a sparse population. Such an approach must consider infrastructure planning so as to prevent forest access (e.g. building railways instead of roads, redesigning routes, and planning protective measures when new roads open access to forest areas). Examples of segregation are the relocation of palm oil production onto degraded lands in Indonesia (Gingold et al., 2012; Ruysschaert, Darsoyo, Zen, Gea, & Singleton, 2011) and land sparing through cattle intensification in the Brazilian Amazon (Cohn et al., 2011).

By contrast, spatial policies that facilitate the integration of the human and natural subsystems at landscape level are most relevant where local people are driving deforestation and should therefore be standard practice in densely populated forest frontiers. The aim of spatial integration is to promote a transition towards ecological forms of land use that do not exclude economic development
(Geisler, 2010; Whatmore & Boucher, 1993). A participatory planning process, based on the registration of tenure rights and on the collective negotiation of their restriction, can more easily identify alternative development opportunities at the landscape level and appropriate entry points for the best use of REDD+ funds (Goodstadt & Rosário Partidário, 2012). An example of such an approach in the REDD+ context is provided by Fisher et al. (2011), whose empirical study in Tanzania has shown that helping local people use their resources more efficiently inherently addresses the causes of forest loss. This lowers the opportunity costs of REDD+, and also reduces implementation and stabilization costs, by providing a platform for stakeholder cooperation in carbon monitoring and protection, enhancing coordination across sectors and levels of government, and generating information that increases the accuracy of reference levels.

4.3. Financial governance

As explained in Section 2, REDD+ privileges monetary incentives over repressive regulations in order to break with the unsustainable pattern of production and exploitation. Investments in procedural and land governance are thus a necessary but insufficient condition for reducing forest emissions. One of the main tasks of international REDD+ is to build a framework for the generation of dedicated financial resources (Parker et al., 2009). Although this will probably be regulated by an international framework, the mechanisms that deliver finance to national and sub-national entities will probably be country- or even context-specific (Angelsen et al., 2009). In order to realize the change in development patterns agreed in the planning process, a transparent and equitable distribution of incentives among domestic stakeholders, legitimated by secure tenure rights, is key. Such a result cannot be achieved by merely deregulating or liberalizing the flow of international capital (Rankin, 2001). Instead, public authorities can and should play a more active role of intermediation (Zadek, Forstater, Polacow, & Boffino, 2009). This can be done through the establishment of dedicated financial infrastructure and the targeted provision of business development services (BDSs).

The financial infrastructure, i.e. the institutions, information, technologies, and rules that enable financial intermediation (Miller, Mylenko, & Sankaranarayanan, 2009), influences how different actors gain access to funds within a jurisdiction. REDD+ will probably need its own set of rules and institutions to manage a combination of national and international grants, loans and results-based payments, dedicated funds, and other resources, all of which can contribute to the programme goals vis-à-vis a wide spectrum of potential beneficiaries. The task would be to distribute resources at scale, where they are most effective, through a transparent process and with favourable conditions for the recipient (i.e. on a non-commercial basis) so as to promote compliance. Additionally, a dedicated financial infrastructure would have the capacity to combine different funding streams for realizing actions with multiple impacts (such as climate adaptation, biodiversity protection, and rural development) and leverage standard investments in low profitable activities that are capable of delivering REDD+ objectives. These synergies would provide substantial savings in all cost categories.

The shape of a financial infrastructure will change according to the chosen implementation mechanism. In the case of centralized management of REDD+ finance, resources could converge into a trust fund or ‘green development bank’ and be disbursed (as grants or low-interest loans) by financial and micro-financial institutions across the territory in such a way as to prioritize social and environmental
protection over profitability (Rankin, 2001; Vatn & Angelsen, 2009; Wenner, Wright, & Lal, 2004; Zadek et al., 2009). This could reduce opportunity and transaction costs, especially if the micro-financing model becomes economically sustainable. Particular emphasis, however, should be placed on establishing mechanisms that ensure transparency and accountability in REDD+ revenue management so as to prevent rent-seeking behaviour by government officials.

A well-known model of financial intermediation in the context of REDD+ is Brazil’s Amazon Fund, a national funding entity that combines public and private resources and is dedicated to forest-based climate mitigation (Zadek, Forstater, & Polacow, 2010). Another proposal relevant to REDD+ envisages the creation of a sustainability-oriented financial infrastructure that taps into available private capital using standardized financing schemes (i.e. without creating a new asset class such as carbon) and is backed by public resources (Munden et al., 2012).

If a country opts for a decentralized model of implementation, excessive private rents could also be tackled by an authority that oversees the relations between local stakeholders and international investors, or by a specialized ombudsman. Alternatively, regulation can establish a limit to the profit of intermediaries and impose an equitable redistribution of surpluses among stakeholders beyond that ceiling. Finally, where relocation of commercial activities is necessary, public authorities could balance strict environmental regulations with favourable credit conditions or subsidies for relocating agribusinesses onto suitable low-carbon lands. It is crucial that these corrective measures be thought through and harmonized at the international level before market-based implementation is allowed, as leaving them to the discretion of developing countries, who will be competing to secure foreign investments, may cause a race to the bottom similar to other regulatory environments (Mehmet & Tavakoli, 2003).

Finally, the financial governance system should also build the conditions for the efficient and effective use of REDD+ incentives at the local level, for instance through sustainability-oriented BDSs (see Wenner et al., 2004). BDSs lower opportunity costs by facilitating the development of remunerative economic alternatives to deforestation, allowing a gradual shift from grant-based support to loans, and the creation of an economic environment that reduces dependency from international assistance. This deviation from the results-based disbursement of incentives acknowledges that (as discussed in Section 3) information gaps play a major role in fostering unsustainable development models and require upfront investments in capacity building. Indeed, BDSs are important under any funding mechanism (although their content should be tailored to the recipients’ preferences and circumstances).

5. Challenges in reforming governance through REDD+

Looking at past experience (Santiso, 2001), it is clear that REDD+ cannot single-handedly solve governance problems across the tropics, and it is hard to predict how much difference it can make. A probabilistic (rather than deterministic) perspective is warranted: there is no certainty that international support will improve governance, but the likelihood will probably increase the more resources and political capital are invested.

Nevertheless, there is much that the international community can contribute in terms of technical, financial, and political support. Technical assistance for governance reform is important to improve problem diagnostics and the formulation of possible solutions, especially in highly specialized areas such as land tenure, planning, financial infrastructure, and the development of sustainable business
models. Assistance to set up the credible monitoring of decision making and outcomes is crucial to address procedural governance problems (Global Witness, 2009). Financial assistance can cover the material costs and lost profits of implementing the reforms, such as establishing new institutions, strengthening monitoring and enforcement capacity, relocating activities, or intensifying production in non-forested lands (see the example of the Ulu Masen project in Indonesia, Rafli, Usher, & O’Niles, 2007).

The most important contribution of REDD+ is that it can generate forward political momentum in this area. The implicit assumption in this discussion has been that states are self-interested actors that seek to maximize their individual utility and that participation in REDD+ is only possible if their interests are protected. As seen above, the REDD+ programme frames states’ interests in merely economic terms, i.e. in terms of whether participation will bring more benefits or constraints to the economy. Two further elements that affect the acceptability of the programme are its international political significance (e.g. how much national sovereignty is eroded) and its consequences for the domestic political economy (i.e. how participation shifts power among social groups and how this affects political support). These interest variables are independent of each other or even conflicting. For example, political economy considerations may contrast with considerations about the overall economic benefit of participation, and economic incentives may convince a government to relinquish part of its sovereign control, and so forth. The inclusion of governance reform in the readiness phase of REDD+ can arguably generate long-term economic benefits for developing countries, although these are too uncertain and distant in time. By contrast, international pressure to reform national governance may be seen as an intrusion in domestic affairs, while conferring tenure rights on local communities and empowering them with favourable financial conditions may run against the interest of powerful domestic actors. It is no surprise therefore that strong international oversight of governance is opposed by developing countries (Verchot & Petkova, 2010).

There are several possible objections to the proposed governance reform. Governance reform is often sought by stakeholders that are losing out under current arrangements; empowering them reinforces domestic pressure for change, which contributes to creating a sense of national ownership of the reform (Santiso, 2001). Because participation in REDD+ is voluntary and states are in charge of their reform process, the international community would merely be acting as a willing counsellor and supporter. Moreover, financial incentives could be used instrumentally as rewards for governance reform so that the rhetorical stick of political pressure is matched by a very material carrot that – quite literally – pays the political price of reform. In other words, the results-based ethos of the programme could just as well be applied to governance assistance, although some would have to be provided up front.

Those resources that are delivered on a pay-per-result basis would need an ad hoc metric (distinct from that used for carbon) to measure governance performance. Intermediate financial rewards could be awarded based on output indicators (e.g. strategies, policies and laws adopted, institutions created, population consulted). Participation in the third phase of the programme, which is expected to deliver payments measured in billions of US dollars (Eliasch, 2008), could be made to depend on the outcomes of governance reform (i.e. some measure of the actual transparency of decision-making processes, the progress of tenure clarification, the rule of law as perceived by stakeholders), although not on their impacts (e.g. quantified emissions reductions), because improvements in governance do not directly generate emissions reductions. It is crucial that governance indicators are agreed between donor and recipient countries through a participatory multilateral process, one that combines technical and political elements such as those led by the UNFCCC subsidiary bodies.
A further problem is that governance is known to change very slowly (Evans & Rauch, 1999; Wertz-Kanounnikoff & McNeil, 2012). It requires a long-term international commitment to support the process and creates conflict with those interested in progressing swiftly with REDD+ implementation. This problem must not, however, be overstated – Phase 3 of REDD+ will not be implemented at scale until at least 2020, and some countries nearly have the capacity to move to Phase 3 (Estrada, 2012), notably Brazil (Wertz-Kanounnikoff & McNeil, 2012). There is also scope to move ahead with the implementation of REDD+, even if some governance problems still persist and as long as its performance as a whole is deemed acceptable.

All in all, governance reform will be possible only if some support is found at all levels of governance. The international community must be willing to invest the time, financial resources, and political capital. National governments must have control over the process and objectives without being ‘pushed’ too hard. Finally, stakeholders must feel that their interests are protected or at least duly compensated. From this point of view, rather than being insurmountable constraints, the UNFCCC and other international fora can be seen as opportunities to raise the profile of these issues and to reinforce direct cooperation among willing actors, especially between sub-national and international levels.

6. Conclusion

Substantial resources have in the past been invested in forest conservation, with little success (Sizer, 1994). This does not mean, as some have suggested (FERN, 2011), that increasing the financial resources for forest protection is unnecessary. However, the provision of incentives alone is unlikely to succeed, chiefly because the limitations of regulatory policies could greatly increase opportunity and transaction costs, while also allowing rent seekers to capture much of the resources of REDD+.

The ‘institutionalist’ argument has been reinforced here: REDD+ cannot be delivered by the markets without previous investments in national-level governance, because rushing towards results-based payments for changes in emissions reductions would be a very inefficient and ineffective use of international resources. At the same time, the social equity argument – that the effectiveness of REDD+ depends on whether investments reinforce a decentralized, right-based approach to governance – has been corroborated.

The absence of adequate information about current and alternative policy scenarios means that a global quantitative estimate of the potential savings generated by investments in governance cannot be provided and such calculations are better framed within a national or sub-national context. At this level of analysis it is only possible to draw some general conclusions.

Some studies have provided quantitative indications of readiness investments that cover the material cost of some moderate policy reforms. For example, a report commissioned by the UNFCCC (2009) estimates readiness investments to be in the range of US$400–700 million a year, as compared to $3–6 billion a year for the opportunity cost of compensation (for a total cost of roughly $4–7 billion). Other estimates have put the readiness costs even lower compared to other cost categories, particularly transaction costs and rents (Eliasch, 2008; McKinsey & Co, 2009). This suggests that it is likely that even modest reductions in opportunity and transaction costs will offset any additional investment in readiness. Moreover, readiness expenditures are bound to be higher at the beginning, when most far-reaching changes are envisioned, and will gradually diminish over
time as governments strengthen their natural resource management capacity and practices. By contrast, the savings from reduced opportunity and transaction costs will continue to accrue over a much longer period (e.g. the time of operation of the programme). Greater upfront investments will therefore generate long-term economic efficiency as well as a more balanced approach to the sustainable development of tropical regions. In other words, investing in governance would bring the cost of REDD+ to peak earlier and at a lower level than the alternative design, which would make the cost curve downward rather than sloping upward as in a business-as-usual REDD+ scenario (e.g. as dictated by increasing commodity demand and population).

A further argument to support investments in procedural and land governance concerns risk. If a global REDD+ mechanism fails to materialize after 2020, investments in carbon-related technologies and institutions would be rendered useless, while investments in governance would still have positive impacts on the environment and the development of recipient countries (Westholm et al., 2011). This could, incidentally, still reduce forest emissions in the absence of an international legal framework.

Additionally, improving national governance systems could also alleviate potential conflicts that may arise with the development agenda. The level of public resources mobilized to date is alarming with regards to the political commitment to reduce forest emissions: if REDD+ pursues an aggressive conservation agenda that disregards, or even competes with other policy objectives, such as poverty alleviation and agricultural production, high-level political support could vanish altogether. In particular, it is likely that food security concerns will be aggravated in an increasingly crowded and hungry world battered by extreme weather events, new pests, and declining biodiversity (Beddington et al., 2011). Although our understanding of the ecosystem services provided by forests will increase (e.g. as a driver of global change, buffer against extreme weather events, and regulator of local climate), the political imperative to increase agricultural production would override any interest in protecting forests if governments were to perceive that food security is at risk as a result of an ‘unpredictable’ food crisis. The effect of these shocks cannot be estimated in advance, but should be considered at least at the theoretical level. A solid governance framework must thus harmonize REDD+ environmental objectives with domestic sustainable development agendas, consistent with the shared vision of the treaty (UNFCCC, 2010, paragraphs 6, 10, 48, and 65).

Finally, it must be stressed that the phased approach of the current design of REDD+ could still be maintained. In particular, as both the international legal framework for REDD+ and major forest carbon markets are not poised to be operational at least until 2020 (UNFCCC, 2011b), there is time to deal with the current problems in the readiness phase: its legal force must be strengthened in the negotiating text, thorough monitoring and verification should be required, and progress to subsequent phases should be made conditional upon advances in readiness. The magnitude of support must be reviewed upwards so as to ensure that the cost of building capacity in these areas is fully covered by international sources, and that reluctant governments have enough of an incentive to implement politically difficult reforms. This can be done by providing results-based payments for governance reform using *ad hoc* and agreed metrics based on outputs and outcomes. The timeframe for the implementation of readiness activities must also be reconsidered: readiness is not a transitory phase to allow the full implementation of REDD+, but rather a core pillar of the programme itself. As such, realistic objectives must be set over the long term, and support must be planned to continue after a country has made sufficient progress to enter a post-readiness phase, which would allow gradual improvements in governance over several years. Regarding the scope of the readiness phase, developments in areas such
as technology and MRV capacity could be led by the private sector in the emerging voluntary and compliance markets. The priority of donor countries to 2020 must be the provision of political, technical, and financial support in the three areas of governance (procedural, land, financial) discussed, with a particular focus on empowering national stakeholders. The international community must not shy away from the fact that, in many cases, reforming governance will mean changing the development path of large sectors of the economy as well as the power distribution across society.

These changes might seem insufficient to some observers because, for example, the decisive role of industrialized nations’ insatiable demand for forest commodities is not challenged. To others, the governance changes may seem politically unrealistic in the context of the ever tighter political space left available in the UNFCCC negotiations. Both arguments are valid. However, (re)conceptualizing readiness so as to promote genuine governance reforms stretches ambition to what is practically and politically possible at this stage, by building on the current organizational framework and combining socially equitable institutionalism with the long-term use of market incentives. This addresses the concerns of most REDD+ actors (Hiraldo & Tanner, 2011) and requires only a moderate ideological shift away from the neoliberal principles of a scarcely regulated and privately-led approach that are still strong in the REDD+ arena. These principles have become increasingly anachronistic after the global financial crisis, and it is only by wagering on the power of public policies to shape a sustainable development path that the Parties to the UNFCCC will build the future success of REDD+.

Notes
1. For example, compare the available cost estimates in Eliasch (2008) with the programme’s financial firepower in REDD+ Partnership (2012).
2. See e.g. the problem of ‘carbon cowboys’ (Carbon Positive, 2009).
3. For a comparable model, see CPIA (2010).

References
Almeida, A., Hatcher, J., White, A., Corriveau-Bourque, A., & Hoffman, Z. (2012). *What rights? A comparative analysis of developing countries’ national legislation on community and indigenous peoples’ forest tenure rights*. Washington, DC: Rights and Resources Initiative. Retrieved from http://www.rightsandresources.org/documents/files/doc_4924.pdf
Alston, L. J., & Andersson, K. (2011). Reducing greenhouse gas emissions by forest protection: The transaction costs of REDD (Working Paper No. 16756). Cambridge, MA: National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w16756
Angelsen, A. (Ed.). (2008). *Moving ahead with REDD: Issues, options and implications*. Bogor: Centre for International Forestry Research (CIFOR).
Angelsen, A., Brockhaus, M., Kanninen, M., Sills, E., Sunderlin, W. D., & Wertz-Kanounnikoff, S. (Eds.). (2009). *Realising REDD+: National strategy and policy options*. Bogor: CIFOR.
Angelsen, A., Streck, C., Peskett, L., Brown, J., & Luttrel, C. (2008). *What is the right scale for REDD? The implications of national, subnational and nested approaches* (Infobrief No. 15). Bogor: CIFOR. Retrieved from http://unfccc.int/files/methods_science/redd/application/pdf/what_is_the_right_scale_for_redd.pdf
Beddington, J., Asaduzzaman, M., Fernandez, A., Clark, M., Guillou, M., Jahn, M., & Wakhungu, J. (2011). *Achieving food security in the face of climate change: Summary for policy makers from the commission on sustainable agriculture and climate change*. Copenhagen: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Retrieved from http://www.ccafs.cgiar.org/commission
Blom, B., Sunderland, T., & Murdiyarso, D. (2010). Getting REDD to work locally: Lessons learned from integrated conservation and development projects. *Environmental Science & Policy, 13*, 164–172.

Böttcher, H., Eisbrenner, K., Fritz, S., Kindermann, G., Kraxner, F., McCallum, I., & Obersteiner, M. (2009). An assessment of monitoring requirements and costs of ‘Reduced Emissions from Deforestation and Degradation’. *Carbon Balance and Management, 4*(7). Retrieved from http://www.cbmjournal.com/content/4/1/7

Boucher, D. (2008). *Out of the woods: A realistic role for tropical forests in curbing global warming*. Washington, DC: Union of Concerned Scientists. Retrieved from http://www.ucsusa.org/assets/documents/global_warming/UCS-REDD-Boucher-report.pdf

Cadman, T., & Maraseni, T. (2012). The governance of REDD+: An institutional analysis in the Asia Pacific region and beyond. *Journal of Environmental Planning and Management, 55*(5), 617–635.

Carbon Positive. (2009). Indonesia warns of REDD carbon cowboys. Retrieved from http://www.illegal-logging.info/item_single.php?it_id=3824&it=news

Carr, D. L. (2004). Proximate population factors and deforestation in tropical agricultural frontiers. *Population & Environment, 25*(6), 585–612.

CCBA. (2008). *Climate, community and biodiversity standard* (Version 2.2). Washington, DC: Climate, Community and Biodiversity Alliance. Retrieved from http://www.climate-standards.org

Clements, T. (2010). Reduced expectations: The political and institutional challenges of REDD+. *Oryx, 44*(3), 309–310.

CMIA. (2011). *Response to the Munden report*. London: Carbon Markets and Investors Association.

Cohn, A., Bowman, M., Zilberman, D., & O’Neill, K. (2011). The viability of cattle ranching intensification in Brazil as a strategy to spare land and mitigate greenhouse gas emissions. (Working Paper No. 11). Copenhagen: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Retrieved from http://cgspace.cgiar.org/bitstream/handle/10568/10722/ccafs-wp-11-the-viability-of-cattle-ranching-intensification.pdf?sequence=6

Corbera, E., Estrada, M., & Brown, K. (2010). Reducing greenhouse gas emissions from deforestation and forest degradation in developing countries: Revisiting the assumptions. *Climatic Change, 100*(3–4), 355–388.

Cotula, L., & Mayers, J. (2009). *Tenure in REDD – Start-point or afterthought?* (Natural Resource Issues No. 15). London: International Institute for Environment and Development.

CPIA. (2010). *Country policy and institutional assessments 2010: Assessment questionnaire*. Washington, DC: World Bank. Retrieved from http://www.worldbank.org/ida/IRAI/2010/CPIA-criteria-2010.pdf

Dalal-Clayton, B., & Dent, D. (1993). *Surveys, plans and people: A review of land resource information and its use in developing countries* (Environmental Planning Issues No. 2). London: International Institute for Environment and Development.

Dalal-Clayton, B., Dent, D., & Dubois, O. (2000). *Rural planning in the developing world with a special focus on natural resources: Lessons learned and potential contributions to sustainable livelihoods – An overview* (Environmental Planning Issues No. 20). London: International Institute of Environment and Development.

Davis, C., Nakhooda, S., & Daviet, F. (2009). Ready or not? A review of the World Bank forest carbon partnership R-Plans and the UN REDD joint program documents. (Working Paper). Washington, DC: World Resources Institute.

Davis, C., Nakhooda, S., & Daviet, F. (2010a). Getting ready: A review of the World Bank forest carbon partnership facility readiness preparation proposals. (Working Paper). Washington, DC: World Resources Institute.

Davis, C., Williams, A., Goers, L., Daviet, F., & Lupberger, S. (2010b). Getting ready with forest governance: A review of the World Bank forest carbon partnership facility readiness preparation proposals. (Working Paper Version 1.4). Washington, DC: World Resources Institute.

Deininger, K. W., Augustinus, C., Enemark, S., & Munro-Faure, P. (Eds.). (2010). *Innovations in land rights recognition, administration, and governance*. Washington, DC: World Bank.

Densham, A., Czebiniak, R., Kessler, D., & Skar, R. (2009). *Carbon scam: Noel Kempff climate action project and the push for sub-national forest offsets*. Amsterdam: Greenpeace International.
Dimitrov, R. S. (2005). Hostage to norms: Institutions and global forest politics. *Global Environmental Policy, 5*(4), 1–24.

EC. (2010). Summary Report on the work carried out by European Climate Change Programme (ECCP) group on Climate Policy for Land Use, Land Use Change and Forestry (LULUCF), Directorate-General Climate Action, European Commission, Brussels. Retrieved from http://ec.europa.eu/clima/events/0029/summary_eccplulucf_en.pdf

Eliasch, J. (2008). *Climate change: Financing global forests*. London: Office of Climate Change, UK Government.

Emerson, K., Nabatchi, T., & Balogh, S. (2011). An integrative framework for collaborative governance. *Journal of Public Administration Research and Theory, 22*, 1–29.

Estrada, M. (2012). *Comparative study on REDD+: Recommendations for action*. Jisp, The Netherlands: Silvestrum.

Evans, P., & Rauch, J. (1999). Bureaucracy and growth: A cross-national analysis of the effects of ‘Weberian’ state structures on economic growth. *American Sociological Review, 64*(5), 748–765.

FAO. (2010). *Global forest resource assessment 2010: Main report* (FAO Forestry Paper No. 163). Rome: Food and Agricultural Organisation of the United Nations.

FAO. (2011). *Framework for assessing and monitoring forest governance*. Rome: Food and Agricultural Organisation of the United Nations/World Bank Programme on Forests. Retrieved from http://www.fao.org/docrep/014/i2227e/i2227e00.pdf

FERN. (2011). Carbon markets will not deliver for southern governments, forests and people (NGO Briefing). Brussels: Author. Retrieved from http://www.fern.org/sites/fern.org/files/carbonleaflet_25nov.pdf

FIP. (2012). *Brazil investment plan for the Forest Investment Program (FIP) v.3*. Washington, DC: Author.

Fisher, B., Lewis, S. L., Burgess, N. D., Malimbwi, R. E., Munishi, P. K., Swetnam, R. D., & Balmford, A. (2011). Implementation and opportunity costs of reducing deforestation and forest degradation in Tanzania. *Nature Climate Change, 1*, 161–164.

Fogarty, D. (2011, August 16). Special report – How Indonesia crippled its own climate change. *Reuters Africa*. Retrieved from http://af.reuters.com/article/idAFTRE77F12W20110816

Forsyth, T. (2009). Multilevel, multifactor governance in REDD+: Participation, integration and coordination. In A. Angelsen, M. Brockhaus, M. Kanninen, E. Sills, W. D. Sunderlin, & S. Wertz-Kanounnikoff (Eds.), *Realising REDD+: National strategy and policy options* (pp. 113–122). Bogor: CIFOR.

French, W., & Natarajan, L. (2008). *Some perceptions of Latin America planning priorities: An analysis of responses to the self-diagnostic assessment of the capacity for planning worldwide* (GPN Self Diagnostic Tool Briefing Note). London: The Royal Town Planning Institute.

Geisler, M. (2010). Must biodiversity hot-spots be social not-spots? Win–win ecology as sustainable social policy. *Consilience: The Journal of Sustainable Development, 4*(1), 119–133.

Gibbs, H. K., Ruesch, A. S., Achard, F., Clayton, M. K., Holmgren, P., Ramankutty, N., & Foley, J. A. (2010). Tropical forests were the primary sources of new agricultural land in the 1980s and 1990s. *Proceedings of the National Academy of Sciences USA, 107*(38), 16732–16737.

Gingold, B., Rosenbarger, A., Muliastra, Y. I. K. D., Stolle, F., Sudana, I. M., Manessa, M. D. M., ... Douard, P. (2012). How to identify degraded land for sustainable palm oil in Indonesia. (Working Paper). Washington, DC: World Resources Institute/Sekala. Retrieved from http://pdf.wri.org/working_papers/how_to_identify_degraded_land_for_sustainable_palm_oil_in_indonesia.pdf

Global Witness. (2009). *Building confidence in REDD: Monitoring beyond carbon*. London: Author.

Goers, L., Williams, A., Daviet, F., Davis, C., & Lupberger, S. (2010). Getting ready with forest governance a review of the World Bank forest carbon partnership facility readiness preparation proposals and the UN-REDD National Programme Documents. (Working Paper Version 1.5). Washington, DC: World Resources Institute.

Goers-Williams, L., Davis, C., Lupberger, S., & Daviet, F. (2012) (and previous versions from 2009, 2010, and 2011). Getting ready: A review of the World Bank forest carbon partnership facility readiness proposals. (Working Paper). Washington, DC: World Resources Institute. Retrieved from http://www.wri.org/publication/getting-ready
Goers-Williams, L., Larsen, G., Lupberger, S., Daviet, F., & Davis, C. (2011). Getting ready with forest governance: A review of the World Bank forest carbon partnership facility readiness preparation proposals and the UN-REDD National Programme Documents. (Working Paper Version 1.6). Washington, DC: World Resources Institute.

Goodstadt, V., & Rosário Partidário, M. (2012). Spatial planning and environmental assessments. In H. Wittmer & H. Gundímeda (Eds.), The Economics of ecosystems and biodiversity in local and regional policy and management (pp. 165–194). New York, NY: Routledge.

Gregersen, H., & Contreras, A. (2010). Rethinking forest regulations: From simple rules to systems to promote best practices and compliance. Washington, DC: Rights and Resources Initiative.

Gregersen, H., El Lakany, H., Karsenty, A., & White, A. (2010). Does the opportunity cost approach indicate the real cost of REDD+? Rights and realities of paying for REDD+. Washington, DC: Rights and Resources Initiative.

Groosman, B. (2000). Pollution tax. In B. Bouckaert & G. De Geest (Eds.), Encyclopedia of law and economics (pp. 538–568). Cheltenham: Edward Elgar.

Gullison, R. E., Frumhoff, P. C., Canadell, J. G., Field, C. B., Nepstad, D. C., Hayhoe, K., … Nobre, C. (2007). Tropical forests and climate policy. Science, 316, 985–986.

Hall, R. (2010). REDD: The realities in black and white. Amsterdam: Friends of the Earth International.

Hansen, C. P., Lund, J. F., & Treue, T. (2009). Neither fast, nor easy: The prospect of Reduced Emissions from Deforestation and Degradation (REDD) in Ghana. International Forestry Review, 11(4), 439–455.

Hiraldo, R., & Tanner, T. (2011). The global political economy of REDD+: Engaging social dimensions in the emerging green economy, Occasional Paper 4. Geneva: UNRISD.

Humphreys, D. (2001). Forest negotiations at the United Nations: Explaining cooperation and discord. Forest Policy and Economics, 3, 125–135.

Humphreys, D. (2006). Logjam. London: Earthscan.

Humphreys, D. (2009). Discourse as ideology: Neoliberalism and the limits of international forest policy. Forest Policy and Economics, 11, 319–325.

Kaimowitz, D. (2003). Forest law enforcement and rural livelihoods. International Forestry Review, 5(3), 199–210.

Kanowski, P. J., McDermott, C. L., & Cashore, B. W. (2011). Implementing REDD+: Lessons from analysis of forest governance. Environmental Science & Policy, 14, 111–117.

Karsenty, A. (2009). Deforestation and climate change: Acting on the causes. What the (carbon) market cannot do…, Perspective No. 1. Montpellier: CIRAD.

Karsenty, A., & Ongolo, S. (2012). Can ‘fragile states’ decide to reduce their deforestation? The inappropriate use of the theory of incentives with respect to the REDD mechanism. Forest Policy and Economics, 18, 38–45.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). The worldwide governance indicators: Methodology and analytical issues (Policy Research Working Paper No. 5430). Washington, DC: World Bank.

Kindermann, G., Obersteiner, M., Sohngen, B., Sathaye, J., Andrasko, K., Rametsteiner, E., … Beach, R. (2008). Global cost estimates of reducing carbon emissions through avoided deforestation. Proceedings of the National Academy of Sciences USA, 105(30), 10302–10307.

Klooster, D. J. (2002). Toward adaptive community forest management: Integrating local forest knowledge with scientific forestry. Economic Geography, 78(1), 43–70.

Knox, A., Caron, C., Miner, J., & Goldstein, A. (2011). Land tenure and payment for environmental services: Challenges and opportunities for REDD+. Land Tenure Journal, 2, 17–55.

Krahmann, E. (2003). National, regional and global governance: One phenomenon or many?. Global Governance, 9, 323–346.

Larson, A. M., Cronkleton, P., Barry, D., & Pacheco, P. (2008). Tenure rights and beyond: Community access to forest resources in Latin America. Bogor: CIFOR.

McKinsey & Co. (2009). Pathways towards a low-carbon economy: Version 2.0 of the global greenhouse gas abatement cost curve. New York, NY: McKinsey & Company. Retrieved from https://solutions.mckinsey.com/ClimateDesk/default.aspx
Mehmet, O., & Tavakoli, A. (2003). Does foreign direct investment cause a race to the bottom? *Journal of the Asia Pacific Economy, 8*(2), 133–156.

Miller, M., Mylenko, N., & Sankaranarayanan, S. (2009). Financial infrastructure: Building access through transparent and stable financial systems (Financial Infrastructure Policy and Research Series). Washington, DC: World Bank.

Mimicopoulos, M. G., Kyi, L., & Sormani, N. (2007). Public governance indicators: A literature review. New York, NY: United Nations Department of Economic and Social Affairs.

Mitchell, D., & Zevenbergen, J. (2011). Toward administration systems to support climate change mitigation projects. *Land Tenure Journal, 2*, 57–78.

Solm, A., Liddle, M., Bracer, C., Khare, A., White, A., & Bull, J. (2007). Community-based forest enterprises in tropical forest countries: Status and potential. Washington, DC: ITTO, RRI and Forest Trends. Retrieved from http://www.rightsandresources.org/documents/files/doc_3453.pdf

MoU. (2009). Memorandum of Understanding between the Government of the Cooperative Republic of Guyana and the Government of the Kingdom of Norway regarding Cooperation on Issues related to the Fight against Climate Change, the Protection of Biodiversity and the Enhancement of Sustainable Development, Joint Concept Note on REDD+ cooperation between Guyana and Norway (pp. 11–12). Retrieved from http://www.regjeringen.no/upload/MD/Vedlegg/Internasjonalt/miljøsamarbeid_utviklingsland/mou__norway_guyana.pdf

Munden, L. (2011). REDD and forest carbon: Market-based critique and recommendations. New York, NY: The Munden Project. Retrieved from http://www.mundenproject.com/forestcarbonreport2.pdf

Munden, L., Holmgren, P., Reeve, R., Riggs, P., Prabhu, R., Bowie, B., ... Cheney, E. (2012). INARI: A proposal for financing sustainable land use at Scale. New York, NY: The Munden Project. Retrieved from http://www.fao.org/docrep/016/ap076e/ap076e.pdf

Munden, L., Holmgren, P., Reeve, R., Riggs, P., Prabhu, R., Bowie, B., ... Cheney, E. (2012). INARI: A proposal for financing sustainable land use at Scale. New York, NY: The Munden Project. Retrieved from http://www.fao.org/docrep/016/ap076e/ap076e.pdf

Pagiola, S., & Bosquet, B. (2009). Estimating the costs of REDD at the country level (Version 2.2). Washington, DC: Forest Carbon Partnership Facility, World Bank. Retrieved from http://www.forestcarbonpartnership.org/fcp/sites/forestcarbonpartnership.org/files/Documents/PDF/REDD-Costs-22.pdf

Palmer, D., Fricska, S., & Wehrmann, B. (2009). Towards improved land governance (Land Tenure Working Paper 11). Rome: FAO/UN-HABITAT.

Parker, C., Brown, J., Pickering, J., Roynestad, E., Mardas, N., & Mitchell, A. W. (2009). The little climate finance book: A guide to financing options for forests and climate change. Oxford: Global Canopy Programme.

Pesquet, L., & Brockhaus, M. (2009). A review of realities, opportunities and challenges. In A. Angelsen, M. Brockhaus, M. Kanninen, E. Sills, W. Sunderland, & S. Wertz-Kanounnikoff (Eds.), Realising REDD+: National strategy and policy options (pp. 25–44). Bogor: CIFOR.

Pfaff A., Sills, E. O., Amacher, G. S., Coren, M. J., Lawlor, K., & Streek, C. (2010). Policy impacts on deforestation lessons learned from past experiences to inform new initiatives (Report). Durham, NC: Nicholas Institute, Duke University.

Pfaff A., Sills, E. O., Amacher, G. S., Coren, M. J., Lawlor, K., & Streek, C. (2010). Policy impacts on deforestation lessons learned from past experiences to inform new initiatives (Report). Durham, NC: Nicholas Institute, Duke University.

Pfaff A., Sills, E. O., Amacher, G. S., Coren, M. J., Lawlor, K., & Streek, C. (2010). Policy impacts on deforestation lessons learned from past experiences to inform new initiatives (Report). Durham, NC: Nicholas Institute, Duke University.

Pfaff, A., Sills, E. O., Amacher, G. S., Coren, M. J., Lawlor, K., & Streek, C. (2010). Policy impacts on deforestation lessons learned from past experiences to inform new initiatives (Report). Durham, NC: Nicholas Institute, Duke University.

Pfaff, A., Sills, E. O., Amacher, G. S., Coren, M. J., Lawlor, K., & Streek, C. (2010). Policy impacts on deforestation lessons learned from past experiences to inform new initiatives (Report). Durham, NC: Nicholas Institute, Duke University.

Pfaff, A., Sills, E. O., Amacher, G. S., Coren, M. J., Lawlor, K., & Streek, C. (2010). Policy impacts on deforestation lessons learned from past experiences to inform new initiatives (Report). Durham, NC: Nicholas Institute, Duke University.

Pfaff, A., Sills, E. O., Amacher, G. S., Coren, M. J., Lawlor, K., & Streek, C. (2010). Policy impacts on deforestation lessons learned from past experiences to inform new initiatives (Report). Durham, NC: Nicholas Institute, Duke University.
Rankin, K. N. (2001). Governing development: Neoliberalism, microcredit, and rational economic woman. *Economy and Society, 30*(1), 18–37.

Rival, L. (2012). Sustainable development through policy integration in Latin America: A comparative approach. *Development, 55*(1), 63–70.

Robledo, C., Blaser, J., Byrne, S., & Schmidt, K. (2008). *Climate change and governance in the forest sector: An overview of the issues on forests and climate change with specific consideration of sector governance, tenure, and access for local stakeholders.* Washington, DC: Rights and Resources Initiative.

Ruysschaert, D., Darsoyo, A., Zen, R., Gea, G., & Singleton, I. (2011). *Developing palm-oil production on degraded land: Technical, economic, biodiversity, climate, legal and policy implications* (Report). Sumatera Utara: YEL/PanEco/ICRAF.

Sandbrook, C., Nelson, F., Adams, W. M., & Agrawal, A. (2010). Carbon, forests and the REDD paradox. *Oryx, 44*(3), 330–334.

Santiso, C. (2001). Good governance and aid effectiveness: The World Bank and conditionality. *The Georgetown Public Policy Review, 7*(1), 1–22.

Sayer, J., Mcneely, J., Maginnis, S., Boedhiharsono, I., Shepherd, G., & Fisher, B. (2008). *Local rights and tenure for forests: Opportunity or threat for conservation?*. Washington, DC: Rights and Resources Initiative.

Scott, J. (2000). Rational choice theory. In G. Browning, A. Halcli, & F. Webster (Eds.), *Understanding Contemporary Society: Theories of the Present* (pp. 126–138). London: Sage Publications.

SES. (2010). *REDD+ Social & Environmental Standards, version 1*. Washington, DC: REDD+ SES Secretariat. Retrieved from http://www.redd-standards.org/documents

Sheng, Y. K. (2012). *What is good governance?*. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific. Retrieved from http://www.unescap.org/pdd/prs/ProjectActivities/Ongoing/gg/governance.pdf

Sikor, T., Stahl, J., Enters, T., Ribot, J. C., Singh, N., Sunderlin, W. D., & Wollenberg, L. (2010). REDD-plus, forest people rights and nested climate governance. *Global Environmental Change, 20*(3), 423–425.

Sizer, N. (1994). *Opportunities to save and sustainably use the world’s forests through international cooperation*. Washington, DC: World Resources Institute. Retrieved from http://archive.wri.org/publication_text.cfm?id=2691

Skutsch, M. M., & McCall, M. K. (2010). Reassessing REDD: Governance, markets and the hype cycle. *Climatic Change, 100*, 395–402.

Stern, N. (2007). *Stern Review: The economics of climate change*. Cambridge: HM Treasury/Cabinet Office, Cambridge University Press.

Streck, C., O’Sullivan, R., Jason-Smith, T., & Tarasofsky, R. (Eds.). (2009). *Climate change and forests: Emerging policy and market opportunities*. Baltimore, MD: Brooking Institution Press.

Sunderlin, W. D., Hatcher, J., & Liddle, M. (2008). *From exclusion to ownership?: Challenges and opportunities in advancing forest tenure reform*. Washington, DC: Rights and Resources Initiative.

Tacconi, L., Downs, F., & Larmour, P. (2009). *Anti-corruption policies in the forest sector and REDD+*. In A. Angelsen, M. Brockhaus, M. Kanninen, E. Sills, W. D. Sunderlin, & S. Wertz-Kanounnikoff (Eds.), *Realising REDD+: National strategy and policy options* (288 pp). Bogor: CIFOR.

Tacconi, L., Mahanty, S., & Suich, H. (Eds.). (2010). *Payments for environmental services, forest conservation and climate change: Livelihoods in the REDD?* Cheltenham: Edward Elgar.

UNDP. (1997). *Governance for sustainable human development: A UNDP policy document*. New York, NY: United Nations Development Programme. Retrieved from http://mirror.undp.org/magnet/policy

UNFCCC. (2009). Report of the Informal Working Group on Interim Finance for REDD+ (IWG-IFR) (Discussion Document). Bonn: UNFCCC Secretariat.

UNFCCC. (2010). Decision 1/CP.16, The Cancun agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention. Bonn: UNFCCC Secretariat.

UNFCCC. (2011a). Draft decision –/CP.17, Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention. Bonn: UNFCCC Secretariat.
UNFCCC. (2011b). Draft decision –/CP.17, Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action. Bonn: UNFCCC Secretariat.

UNFCCC. (2011c). Draft decision –/CP.17, Draft decision on guidance on systems for providing information on how safeguards are addressed and respected and modalities relating to forest reference emission levels and forest reference levels as referred to in decision 1/CP.16, appendix I, UNFCCC Conference of the Parties, Durban.

Van der Werf, G. R., Morton, D. C., DeFries, R. S., Olivier, J.G. J., Kasibhatla, P. S., Jackson, R. B., & Randerson, J. T. (2009). CO2 emissions from forest loss. *Nature Geoscience*, 2, 737–738.

Vatn, A., & Angelsen, A. (2009). Options for a national REDD+ architecture. In A. Angelsen, M. Brockhaus, M. Kanninen, E. Sills, W. D. Sunderlin, & S. Wertz-Kanounnikoff (Eds.), *Realising REDD+: National strategy and policy options* (pp. 57–74). Bogor: CIFOR.

Verchot, L. V., & Petkova, E. (2010). The state of REDD negotiations: Consensus points, options for moving forward and research needs to support the process, An update following COP 15 in Copenhagen. Bogor: CIFOR.

Viana, V. M., Grieg-Gran, M., della Mea, R., & Ribenboim, G. (2009). *The costs of REDD: Lessons from Amazonas*. London: IIED.

Wendland, K. (2008). Rewards for ecosystem services and collective land tenure: Lessons from Ecuador and Indonesia (Tenure Brief No. 9). Madison, WI: University of Wisconsin Land Tenure Centre.

Wenner, M. D., Wright, N., & Lal, A. (2004). Environmental protection and microenterprise development in the developing world: A model based on the Latin American Experience. *Journal of Microfinance*, 6(1), 95–122.

Wertz-Kanounnikoff, S., & Angelsen, A. (2009). Global and national REDD+ architecture: Linking institutions and actions. In A. Angelsen, M. Brockhaus, M. Kanninen, E. Sills, W. D. Sunderlin, & S. Wertz-Kanounnikoff (Eds.), *Realising REDD+: National strategy and policy options* (pp. 13–24). Bogor: CIFOR.

Wertz-Kanounnikoff, S. & Kongphan-anpirak, M. (2009). Emerging REDD+: A preliminary survey of demonstration and readiness activities (Working Paper No. 46). Bogor: CIFOR.

Wertz-Kanounnikoff, S., & McNeill, D. (2012). Performance indicators and REDD+ implementation. In A. Angelsen, M. Brockhaus, W. D. Sunderlin, & L. V. Verchot (Eds.), *Analysing REDD+: Challenges and choices* (pp. 233–246). Bogor: CIFOR.

Westholm, L., Sabine Henders, M. O., & Mattsson, E. (2011). *Learning from Norway: A review of lessons learned for REDD+ donors*. Oslo: Focali. Retrieved from http://www.focali.se/en/articles/artikelarkiv/learning-from-norway-a-review-of-lessons-learned-for-redd-donors

Whatmore, S., & Boucher, S. (1993). Bargaining with nature: The discourse and ‘practice’ of environmental gain. *Transactions of the Institute of British Geographers, New Series*, 18(2), 166–178.

White, A., & Martin, A. (2002). *Who owns the world’s forests? Forest tenure and public forests in transition*. Washington, DC: Forest Trends.

Williamson, I., Enemark, S., Wallace, J., & Rajabifard, A. (2010). *Land administration for sustainable development*. Redlands, CA: ESRI Press Academic.

World Bank. (2006). *Strengthening forest law enforcement and governance: Addressing a systemic constraint to sustainable development* (Report No. 36638). Washington, DC: World Bank. Retrieved from http://www.illegal-logging.info/uploads/Forest_Law_FINAL_HI_RES_9_27_06_FINAL_web.pdf

World Bank. (2011a). *Estimating the opportunity costs of REDD+: A training manual* (Version 1.3). Washington, DC: World Bank. Retrieved from http://wbi.worldbank.org/wbi/Data/wbicms/files/drupal-acquia/wbi/OppCostsREDD+manual.pdf

World Bank. (2011b). *Readiness preparation template* (Version 6, Working Draft). Washington, DC: Forest Carbon Partnership Facility, World Bank.

Zadek, S., Forstater, M., & Polacow, F. (2010). *The Amazon fund: Radical simplicity and bold ambition – Insights for building national institutions for low carbon development*. Panama City: Fundaciòn AVINA.

Zadek, S., Forstater, M., Polacow, F., & Boffino, J. (2009). *Radical simplicity in designing national climate institutions: Lessons from the Amazon fund* (Climate Policy Briefing Series No. 2). London: AccountAbility.