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### Agents, assumptions and motivations behind REDD+

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## 4. The Assumed Effectiveness of REDD+

### 4.1 Introduction

This chapter analyzes the assumptions regarding the effectiveness of the REDD+ regime in the literature and compares those with those of REDD+ actors. It thus contributes to the analysis of the motivations of the potential agents behind the REDD+ regime. It addresses the question of how different actors expected REDD+ would work out in comparison to existing international forest policy regimes in terms of its environmental effectiveness. Each section first analyses the views on the potential effectiveness of REDD+ in the literature and subsequently summarizes the assumptions of the actors who were interviewed on the potential effectiveness of REDD+. The effectiveness and the cost efficiency of a regime are the cornerstones of its output legitimacy (Vatn and Vedeld, 2013). The effectiveness of an international environmental regime can only be judged against a defined objective of that regime, and whether this objective has been achieved (Chester and Moomaw, 2008). This study assumes that REDD+ has two complementary objectives: (a) to reduce GHG emissions, and (b) to reduce deforestation and forest degradation. This double objective is not necessarily undisputed (4.2).

The chapter first analyses the assumed effectiveness of REDD+ as a climate change mitigation policy (4.2), addressing issues like the role of forests in overall climate policy (4.2.1), measurement (4.2.2), baselines, reference levels and additionality (4.2.3), and permanence, liability and leakage (4.2.4). This will be followed by an analysis of REDD+ as a forest conservation policy (4.3), addressing the need for a comprehensive forest policy and the need to distinguish between forests and plantations (4.3.1) and the influence of REDD+ on the level of political support for forest conservation (4.3.2). It particularly analyzes whether REDD+ is a suitable mechanism to address the drivers of forest loss (4.4). The chapter ends with an analysis of some of the assumptions about the future effectiveness of REDD+ in light of the December 2015 Paris Agreement (4.5).

### 4.2 REDD+ as a Janus head

Many pro-REDD scholars (e.g. Chomitz et al., 2007; Richards and Jenkins, 2007; Angelsen, 2008b)<sup>107</sup> define REDD+ as a global system of performance-based payments for the environmental services (PES) provided by countries that succeed to sequester or store a certain amount of GHG emissions through forest conservation or other forest-related activities. Hence, REDD+ was explicitly designed as a climate change mitigation policy to enhance the implementation of the objectives of the UNFCCC.<sup>108</sup> It was assumed by many actors to be cost-effective and relatively fast and easy to implement so that time could be bought to develop more complex technologies and policies in other sectors (Chomitz et al., 2007; Humphreys, 2008; Dutschke, 2010; Gupta, 2012; Matthews et al., 2014). Because REDD+ was assumed to be more cost-effective than other mitigation policies, it was

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<sup>107</sup> See also: Dutschke and Wertz-Kanounnikoff, 2008; Peskett et al., 2008; Streck et al., 2009a; Putz and Redford, 2009; Redford and Adams, 2009; Corbera et al., 2010; Elias, 2013.

<sup>108</sup> FCCC/CP/2010/7Add. 1. See <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf> (last visited 16 January 2016).

assumed to allow countries to commit to higher emission reduction ambitions (Chomitz et al., 2007), especially if countries were able to use it as an offset mechanism. As deforestation was estimated to cause at least one sixth of human-induced GHG emissions at the time the REDD+ proposal was introduced, it was considered essential to reduce forest loss if long-term climate mitigation objectives were to be reached (Livengood and Dixon, 2009; Angelsen, 2009; Dutschke, 2010). The fact that REDD+ was also assumed to contribute to forest conservation turned it into a “win-win” option in the eyes of many actors (Gupta, 2012).

Some scholars claimed that issues like poverty and biodiversity distracted REDD+ from its core purpose of reducing emissions (Van der Hoff et al., 2015). The contribution of deforestation to human-induced GHG emissions has actually decreased significantly, from 38% in 1960, and 20% in 1990, to only 8% in 2013 (Matthews et al., 2014: 920, see also IPCC, 2014). Some authors therefore caution that the potential to use REDD+ as an offset mechanism is limited, as “the potential for fossil GHG emissions is much higher than the total hypothetical potential of forests to sequester these” (Dutschke, 2010: 212; See also Nilsson and Schopfhauser, 1995).

However, others point out that because the carbon reservoir of the biosphere is about 7.4 Gt of CO<sub>2</sub>, the inclusion of all potential forest carbon offset credits in the carbon market would crowd out emissions reductions in other sectors and thus discourage the development of more expensive clean technologies (Graichen, 2005; Chomitz et al., 2007; Livengood and Dixon, 2009). Several scholars suggested that the real motivation behind REDD+ was to divert attention away from the impacts of fossil fuel consumption and thus allow for the continuation of business as usual in climate policy (Humphreys, 2008, van, 2009, Norgaard, 2010). In general, REDD+ policy formulation has developed much more slowly than originally expected (Brockhaus and Angelsen, 2012), and Minang et al. (2014: 703) found “very little evidence of how national-level emission reduction targets will be implemented on the ground” in the national REDD+ policies that have been developed so far.

Some of the interviewees argued that it was ‘the biggest mistake’ to think of REDD+ as a forest policy, as it would not be effective if it would remain only a forest policy.<sup>109</sup> “REDD+ focuses on carbon, not on forest values.”<sup>110</sup> However, when asked how they saw the effectiveness of the REDD+ regime, remarkably few interviewees addressed issues that might compromise the effectiveness of REDD+ as a climate change mitigation regime, even though those issues seem to be dominant in the literature on REDD+ effectiveness. Several interviewees<sup>111</sup> argued that the REDD+ negotiations became dominated by actors from the forest sector after 2007,<sup>112</sup> so many of the actors who negotiated the regime were particularly interested in REDD+ as a mechanism that might be able to also address the drivers of deforestation and forest degradation and/or promote SFM.<sup>113</sup>

Several interviewees supported a strong role of forests in climate change policy, as “the world can no longer afford to ignore what happens between the biosphere and

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<sup>109</sup> Interview 19, September 2012.

<sup>110</sup> Interview 2, December 2011.

<sup>111</sup> Interview 14, June 2012; interview 33, December 2012; interview 40, December 2012.

<sup>112</sup> The interviews took place between 2012 and 2015.

<sup>113</sup> Please note that reducing deforestation and forest degradation and sustainable forest management are not necessarily synonymous, especially if forests are defined as forest ecosystems rather than random collections of trees.

atmosphere, we have to manage the fluxes..... the best geoengineering is LULUCF and REDD+.”<sup>114</sup> One of the interviewees also pointed out that land use had to be included in climate mitigation policies as a major perverse incentive would be created to convert natural ecosystems like forests into biofuels in the absence of such inclusion.<sup>115</sup> Others however cautioned that atmospheric and biospheric carbon pools are not interchangeable, and that there had been good reasons to limit the inclusion of land-use related credits under the Kyoto Protocol (see also Graichen, 2005).<sup>116</sup>

Some of the interviewees highlighted that the emphasis on results-based performance fitted well into the contemporary development aid jargon of industrialized countries,<sup>117</sup> although others pointed out that REDD+ had not exactly been performance-based until now, as most funding had been spent on research and other Readiness activities rather than actual reductions of deforestation.<sup>118</sup> Some of the interviewees also supported the neoliberal economic approach that has been embedded in REDD+. As it was stated by one of the interviewees, “If forests do not give economic benefits to people they will be lost.”<sup>119</sup> It was pointed out in this respect that the traditional commercial forestry industry was a “sunset industry”, and that this had triggered interest in community-based forest management (CBFM), but that CBFM requires extra investment to make it economically viable.<sup>120</sup> REDD+ aims “to give a value to standing trees”<sup>121</sup> so that the opportunity costs of deforestation would become higher than the opportunity costs of forest conservation<sup>122</sup> (see also 5.3.2). However, one interviewee highlighted the destructive effect of this discourse, as the assumption that you need to be compensated for not destroying forest resources basically undercut over twenty years of awareness-building on the multiple values of forests for sustainable development<sup>123</sup> (see also Stephan and Paterson, 2012). It was reported that at the community level this has triggered an attitude of first asking how much people were going to profit when they conserved their forest.<sup>124</sup>

### **4.3 The Assumed Effectiveness of REDD+ as a Climate Change Mitigation Policy**

I now discuss issues related to the inclusion of REDD+ in carbon offset markets, such as problems of measurement (4.3.1), baselines, reference levels and additionality (4.3.2) and permanence, leakage and limited participation (Fry, 2008; Murray, 2008; Angelsen, 2008b; Humphreys, 2008; Huberman, 2009; Karsenty, 2009).

The climate effectiveness of REDD+ may vary depending on whether a national government chooses for a market-oriented architecture of individual PES projects, or a national approach. Vatn and Vedeld (2013) conclude that the market and project based

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<sup>114</sup> Interview 45, June 2013.

<sup>115</sup> Interview 12, March 2012; interview 59, January 2014.

<sup>116</sup> Interview 45, June 2013.

<sup>117</sup> Interview, 8, December 2011; interview 41, December 2012.

<sup>118</sup> Interview 39, December 2012.

<sup>119</sup> Interview 11, March 2012.

<sup>120</sup> Interview 21, September 2012.

<sup>121</sup> Interview 36, December 2012.

<sup>122</sup> Interview 44, June 2013; interview 55, November 2013.

<sup>123</sup> Interview 16, June 2012.

<sup>124</sup> Interview 61, January 2015.

system was the weakest alternative from an effectiveness, efficiency and equity point of view, especially due to problems with accountability, leakage, permanence, coordination across sectors, transaction costs and the delivery of co-benefits. They also emphasize the need for government ownership over the REDD+ system, if only because about 75% of the world's forests are legally owned by the State (White and Martin, 2002), although an independent national REDD+ fund co-managed by civil society actors might help address some (but not all) potential problems with corruption and governance in general.

Some major forest countries that foster the environment as a public good will not allow REDD+ to be translated into a system that promotes privatization of environmental values, despite the fact that such privatization fits well within the legal framework and mindset of donor countries like the US.<sup>125</sup> In countries like Vietnam, the national PES mechanism has remained heavily State-controlled and could be seen as a mechanism to further enhance State control over forest management rather than an approach leading to privatization and capitalization of commodities (see also McElwee, 2011, Gupta, 2012).<sup>126</sup>

#### 4.3.1 Measurement

For REDD+ to be effective, there must be effective measurement. Although significant REDD+ funds have been invested in monitoring, reporting and verification (MRV) mechanisms, there are, first, still no satisfactory technologies available to accurately measure the exact amount of carbon in a certain forest area (Bond et al., 2009). Rather, a forest's carbon content is normally estimated through a combination of ground-based and remote-sensing measurements of biomass (Gibbs et al., 2007; Stephan and Paterson, 2012). This leads to variations in total forest carbon estimates ranging from 51% in Brazil to 149% in Indonesia – which would mean that for Brazil alone there is uncertainty of some 102.7 billion tonnes of carbon (Stephan and Paterson, 2012; see also Gibbs et al., 2007). The 2006 IPCC guidelines for GHGs Inventories suggest a 60% uncertainty in carbon stock changes (IPCC, 2006, Fry, 2008). Monitoring forest degradation is even more complicated than monitoring deforestation, and requires extensive on-the-ground monitoring, preferably using participatory approaches (Skutsch et al., 2009; Skutsch et al., 2011; Mertz et al., 2012; Pelletier et al., 2015) as one cannot rely on remote sensing (Karsenty, 2008). It is also more complicated to monitor the emission reduction impacts of halting forest degradation (Salvini et al., 2014). There also is a tendency to underestimate or even ignore non-wood plant mass, and especially soil carbon (Cacho et al., 2004; Siikamaki and Newbold, 2012). It should also be noted that the non-carbon related impacts of forests on, for example, regional rainfall patterns are usually ignored (Siikamaki and Newbold, 2012). This also triggers more fundamental questions about the policy consequences of “the apprehension of reality in calculable units” (Moreno et al, 2015: 15).

Second, many countries do not have the capacity to use the MRV technologies that are available (Fry, 2008; Corbera et al., 2010), while the costs are significant, especially in the case of small projects (Chomitz et al., 2007). This is especially so when REDD+ project sites are located in remote areas that have often been neglected by official government institutions (Faeth et al., 1994).

Third, where project developers and/or governments themselves are responsible for measuring and estimating uncertainty (Stephan and Paterson, 2012; Minang et al., 2014), this concentration of multiple responsibilities in the hands of the same organizations

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<sup>125</sup> Interview 47, June 2013.

<sup>126</sup> Interview 16, June 2012.

leads to conflict of interests (Bond et al., 2009; Mertz et al., 2012). “Experience with top-down bureaucratic government programmes shows that local forest officers tend to report successful implementation regardless of actual outcomes if they are the ones who not only assess compliance but also handle financial transactions” (Mertz et al., 2012: 69). In the voluntary REDD+, market compliance has also been a challenge due to the absence of comparative data (Bond et al., 2009). While there is some international oversight on the verification of carbon offsets, mechanisms that would permit stringent scrutiny have been successfully resisted by developing countries as they were seen as neo-colonial (Gupta, 2012).

Fourth, especially if REDD+ is financed through offsets, the uncertainty of carbon measurements in forests, whether because of inadequate methods, or the biased application of faulty methods, is a key threat to the integrity of the climate regime (Pelletier et al., 2015). If inaccurate calculations are allowed, real emissions will be compensated by dubious carbon offsets, leading to a net loss for the atmosphere. However, even if REDD+ is financed through public funding, the accuracy of MRV is important as REDD+ commitments are part of the overall GHG emission reductions of countries, and financed through results-based payments, and the money and efforts spent on REDD+ could also be used for other climate mitigation actions. Hence any future accounting system for GHG fluxes in land use has to provide a sufficient level of certainty if land-use related emissions are included in quantified emission reduction commitments (Dutschke, 2010). These unresolved measurement problems were a key reason why deforestation was excluded from the CDM (Vatn and Vedeld, 2013).

The interviewees agreed that there are many challenges regarding the monitoring and accurate measurement of the impact of forest loss on the atmosphere, and that there is still a “big risk” of false reporting.<sup>127</sup> They confirmed that there was a lack of capacity, especially in developing countries,<sup>128</sup> and that this endangers the environmental integrity of the climate regime.<sup>129</sup>

#### **4.3.2 Baselines, Reference Levels and Additionality**

To measure the contribution of a certain policy or project to reducing emissions from deforestation and forest degradation, one should adequately measure to what extent the performance has been additional to what would have happened in the absence of that action, i.e. the baseline (De Jong et al., 2005; Fry, 2008; Pirard and Karsenty, 2009). This requires setting a proper baseline, an accurate reference level, and a proper estimation of the additionality of the action (Grondard et al., 2008; Humphreys, 2008; Dudley, 2010).

However, first, relevant data about the baseline are lacking in most developing countries (Corbera et al., 2010). In many land-use situations there will be carbon uptake without any human intervention due to natural (re-) growth of vegetation (Dutschke, 2010), so it is hard to estimate the additional effect of a certain action (Alvarado and Wertz-Kanounnikoff, 2007). Also, a spatially explicit analysis is needed as many forested areas might not be threatened in the first place, as they are too remote or otherwise unattractive for commercial activities like logging or agriculture, so forest conservation does not necessarily imply reduced or even avoided deforestation (Castillo-Santiago et al., 2007). PNG and Costa Rica’s initial REDD+ proposal included a historical reference level,

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<sup>127</sup> Interview 14, June 2012; interview 40, December 2012; interview 46, June 2013.

<sup>128</sup> Interview 36, December 2012.

<sup>129</sup> Interview 40, December 2012.

but such an ex post baseline only refers to past trends, which are often not accurately measured (Pirard and Karsenty, 2009)

Second, proving additionality is problematic.<sup>130</sup> Reforestation and afforestation are not necessarily additional, as industrial tree plantations, which are a normal commercial activity (Graichen, 2005). There are diverse views on whether the reduction of forest conversion in the Brazilian Amazon region since 2005 has been due to REDD+ or to Brazilian forest policies that were designed long before the first REDD+ funds arrived (see also Aubertin, 2015).<sup>131</sup> This raises questions about the validity of the relevant reference levels,<sup>132</sup> and hence additionality. A classic example is Costa Rica, which established a country-wide deforestation ban at the same moment that it established a national PES mechanism through which it provided payments to individual forest owners that pledged to conserve part of their forests. This makes it highly questionable whether the payments have had any effect that was additional to the deforestation ban itself (see also 5.3.2; Pfaff et al., 2008; Karsenty, 2012; Rosendal and Schei, 2014).<sup>133</sup> Many protected areas in Costa Rica lacked additionality, as they were established in areas that were not threatened with significant deforestation (Andam et al., 2008).

Third, such baselines, reference levels and additionality fail to take into account so-called forest transition theories (Angelsen, 2007; Karsenty 2008; Kothke et al., 2013; see also 4.5). These theories predict that massive deforestation initially triggered by the shift from subsistence agriculture to commercial agriculture, industrialization and urbanization processes will often be followed by reduced deforestation levels due to increasing scarcity of forest products, variability in commodity prices in general due to economic price and demand cycles, or the increasing marginal costs of deforestation in landlocked areas (Karsenty, 2008; Gupta et al., 2013; Kothke et al., 2014). It should be pointed out that the predictive power of forest transition theories has been questioned as they seem to be applicable to North America, Europe and a limited number of tropical forest countries only (Gupta et al., 2013). Even though forest transition processes are quite distinct and depend on many factors and policy measures (Gupta et al., 2013), it is clear that historical deforestation trends have limited predictive value for future deforestation trends and are thus a dubious basis for future reference levels.

Fourth, in general, baselines established ex ante are questionable, as they assume an accurate knowledge of the direct and underlying causes of deforestation and the exact amount of forest loss they would cause in different countries and forest areas (Grondard et al., 2008, Pirard and Karsenty, 2009, see also 4.5). Even when models are able to estimate where deforestation might take place, they will seldom be able to tell when it will occur as this depends on highly unpredictable variables like commodity prices (Karsenty, 2009, Dudley, 2010). It is also complicated to establish an accurate causality between certain policies or actions and whether they have addressed the drivers of forest loss, especially when REDD+ policies are part of a broader policy mix (Angelsen, 2007; Pirard and Karsenty, 2009; Porras et al., 2013). As a result, reference levels will often be negotiated rather than based on empirical facts (Murray, 2008; Combes Motel et al., 2009).

Fifth, as with MRV, the flexibility in the rules of the final REDD+ regime trigger perverse incentives, as reference levels are determined by the REDD+ countries

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<sup>130</sup> Interview 22, September 2012.

<sup>131</sup> Interview 47, June 2013.

<sup>132</sup> Interview 58, January 2014.

<sup>133</sup> Interview 11, March 2012.

themselves, although there is some international verification of the methodology used.<sup>134</sup> As REDD+ payments are made based on the additionality of the emissions reduction, there is a clear incentive for countries to overestimate the additionality of a policy or action and set a reference level that exaggerates the amount of forest loss that would have taken place in the absence of the action (Richards, 2000, Karsenty, 2012, Elias, 2013, Köthke et al., 2014). “Indeed, trusting hypothetical scenarios to determine the amount of credits granted to developing countries is quite unconvincing” (Grondard et al., 2008:8). At project level the perverse incentive is even stronger, as owners of a forest area are only entitled to REDD+ credits if they pretend that they were planning to deforest the land (Humphreys, 2008; Karsenty, 2012). Some interviewees suggested that industrialized countries had deliberately included flexible rules for estimating reference levels and additionality in the LULUCF rules under the Kyoto Protocol (see also Fry, 2008).<sup>135</sup> These rules allowed a country to work with “business as usual projections” in which they could freely include theoretical policies that might lead to future forest loss, even though there was no evidence of the political feasibility or even desirability of such policies. When the rules related to REDD+ reference levels were subsequently negotiated especially the African countries demanded the same kind of flexibility, thus leading to a decision on REDD+ reference levels that leaves it almost entirely up to countries themselves to determine whether or not a REDD+ policy or action is additional or not.<sup>136</sup>

The impossibility of accurately establishing reference levels and measuring additionality affects the effectiveness and integrity of the REDD+ regime, as it might imply that a significant amount of the emission reductions claimed are not genuine (Angelsen, 2008b; Pirard and Karsenty, 2009). This is especially problematic when payments for those fake reductions are done with scarce public funding, but if they are paid through carbon offsets it undermines the climate regime as carbon neutrality will not be achieved. Instead, massive amounts of so-called “hot air”<sup>137</sup> would be created (Karsenty, 2008: 443; Pirard and Karsenty, 2009) and the climate effectiveness of REDD+ might be minimal, or even negative.

#### 4.3.3 Permanence, Liability and Leakage

For effective emission reduction there must be permanence. However, it is difficult to guarantee that emission reductions will be permanent (Fry, 2008). While non-forest climate actions are not necessarily permanent either (Herzog et al., 2003) forests, like all living biomass, are susceptible to fires, droughts, or other factors that might cause biomass loss,

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<sup>134</sup> FCCC/CP/2013/10/Add.1, see <http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf#page=43> (last visited 18 January 2016).

<sup>135</sup> Interview 45, June 2013.

<sup>136</sup> Interview 58, January 2014.

<sup>137</sup> “Hot air” is an expression that originally referred to “the concern that some governments will be able to meet their targets for GHG emissions under the Kyoto Protocol with minimal effort, because this target is higher than their emissions and could then flood the market with emission credits, reducing the incentive for other countries to cut their own domestic emissions”. See United Nations Framework Convention on Climate Change Glossary of Climate Change Acronyms and Terms. [http://unfccc.int/essential\\_background/glossary/items/3666.php](http://unfccc.int/essential_background/glossary/items/3666.php) (last visited 26 December 2016). It is increasingly used to describe concerns related to meeting commitments under the UNFCCC and its Paris Agreement through non-genuine emission reductions.

including factors enhanced by anthropogenic climate change itself (Lovbrand, 2004; Schaphoff et al., 2006; Van Kooten, 2009; Cooley et al., 2012). No government or other actor can guarantee that a forest that is protected now will be protected in the future (Richards, 2000; Alvarado and Wertz-Kanounnikoff, 2007; Grondard et al., 2008). In the voluntary forest carbon offset market there have been dramatic cases of tree planting projects of which only a few hundred of the 10,000 trees planted survived, despite the good intentions (Headon, 2009).

The risk of non-permanence can be reduced, but not eliminated (Grondard et al., 2008). Especially if REDD+ is used as an offset for emissions this poses a major risk for the effectiveness of the climate regime. The market might be able to financially compensate this risk through options like temporary crediting, insurance buffers, or banking carbon credits as a risk buffer, but the if things go wrong, there will still be increased emissions (Fry, 2008). Furthermore, the emissions that are being offset by growing trees will only be compensated over time (Hunt and Baum, 2009). This raises the question of who is liable when the carbon stored in a REDD+ project is unexpectedly released again (van Kooten, 2009, Palmer, 2011, Tacconi et al., 2013). In case of forest carbon offset projects, it is often the buyer of the carbon credit who is liable for potential carbon losses, but in case of a national REDD+ policy it is the host country itself that should be considered liable (Van Kooten, 2009; Corbera et al., 2010; Dutschke, 2010). Liability mechanisms can include risk buffers (withholding a percentage of the credits as insurance), replacement of issued credits by sellers by conserving additional areas, repayment of revenues or fines, temporary credits, payments that are only made after the results have been verified, and insurance and portfolio approaches in which credits are offered from a range of project areas and project types (Peskestt et al., 2008). Meanwhile, the different liability mechanisms that can be established to address the risks of REDD+ can create disincentives for REDD+ projects (Karsenty, 2012).

Lastly, a major factor that compromises the effectiveness of REDD+ as a climate policy regime is that activities that reduce forest loss in one area or country might trigger increased forest loss in another area or country, a phenomenon called “leakage” (Humphreys, 2008; Dutschke, 2010; Skutsch and McCall, 2010; Atmadja and Verschoot, 2012). Aukland et al. (2003) distinguish primary leakage (directly related to the activities modeled in the baseline of an activity and caused by the actors targeted by the REDD+ policy or project themselves) and secondary leakage (when a REDD+ project or policy creates incentives for third parties to increase forest conversion or exploitation elsewhere, for example, by stimulating market forces that trigger deforestation for the production of commodities like palm oil or soy by actors that are not involved in the original project or policy (Chomitz, 2002; De Jong and Esquivel Bazan, 2007; Murray, 2008; Okereke and Dooley, 2010; Vatn et al., 2011; Atmadja and Verschoot, 2012). Furthermore, spatial leakage is different from temporal leakage, which is the displacement of forest loss to the future as a result of REDD+ actions (Humphreys, 2008; Alvarado and Wertz-Kanounnikoff, 2007). Leakage provides an accounting challenge for all mitigation projects (Aukland et al., 2003; Okereke and Dooley, 2010).

While actions at broader geographical levels, such as national REDD+ approaches, can reduce especially primary leakage (Andersson and Richards, 2001; Fry 2008; Karsenty, 2012), secondary leakage tends to be linked to international markets and therefore has an international dimension that is hard to address (Alvarado and Wertz-Kanounnikoff, 2007, Fry, 2008), especially if there is little interest to engage in complicated discussions about international trade (Atmadja and Verschoot, 2012). As a result, there is a “deafening silence”

(Atmadja and Verschoor, 2012: 333) and “myopic view” (Fry, 2008: 173) on effective solutions that might address secondary leakage.

The magnitude of leakage is hard to estimate, but can be anywhere between 0% and 100% (Kuik, 2014; see also Lasco et al., 2007). In fact, leakage is basically unavoidable (Boucher et al., 2011, Nuzunda and Mahuve, 2011). Other authors estimate leakage of 47-52% for, for example, set-aside policies<sup>138</sup> (Sun and Sohngen, 2009). In the worst case, leakage might even lead to increased emissions (Fry, 2008). Especially actions in the agricultural sector to reduce pressure on forests, like agricultural intensification, can have strong primary and secondary leakage effects (Ezzine-de-Blas et al., 2011; Nuzunda and Mahuve, 2011; Kissinger et al., 2012). Other factors that influence leakage include regional variation in natural, economic and technological conditions and related “real-life imperfections in international trade” (Kuik, 2014: 652).

Here again, the impacts of leakage on the integrity and effectiveness of the climate regime are even more significant if REDD+ is financed through carbon offsets (Fry, 2008; Vatn and Vedeld, 2013). However even with national approaches financed through public funds leakage is a problem as it might cause a significant displacement of emissions to countries that are not, or less, benefiting from REDD+ support, while the positive effect on climate change is almost undone (Murray, 2008; Fry, 2008). Full international participation by all forest countries in the REDD+ mechanism has been proposed as a solution to address international leakage (Elias, 2013), but the final REDD+ mechanism as it is incorporated in the Paris Agreement is explicitly voluntary, even though the Paris Climate agreement stipulates that countries need to explain why certain sectors have been excluded from their national climate mitigation strategies.<sup>139</sup>

As the location of emissions is irrelevant for climate change, the emissions caused by leakage should be accounted for in REDD+ project or policy design (Graichen, 2005). However, there is an inherent incentive for policymakers and project developers in the REDD+ mechanism to ignore and even promote the shifting of deforestation from one project area or country to another (Fry, 2008, Kissinger et al., 2012). Especially with the partly market-based approach with weak safeguards against leakage and fraudulent reference levels that has been adopted with the 2015 Paris Agreement, there is a logical economic incentive to focus REDD+ activities on relatively inaccessible lands that were not under threat in the first place, thus creating “hot air” (see 4.3.2), while logging and agricultural activities are being moved to more accessible forest areas (Fry, 2008; Boucher, et al. 2011). The result is a clear lose-lose situation for climate and forest effectiveness.

While interviewees emphasized the importance of reducing deforestation for overall climate policy,<sup>140</sup> some highlighted the problems with, especially, leakage through results-based payments.<sup>141</sup> Some contested whether land-use related mitigation would make the climate regime more effective, pointing out that forests were mainly included to make

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<sup>138</sup> Forests can be set aside by preserving forest land that otherwise would be converted into agricultural land as forest; by banning logging in existing timber production areas in forests; or by restoring non-forest land into forests while banning future harvesting or conversion (Sun and Sohngen, 2009).

<sup>139</sup> Paris Agreement, see [http://unfccc.int/files/essential\\_background/convention/application/pdf/english\\_paris\\_agreement.pdf](http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf) (last visited 7 July 2016).

<sup>140</sup> Interview 38, December 2012; interview 45, June 2013.

<sup>141</sup> Interview 62, May 2015.

the implementation of the UNFCCC cheaper or more palatable.<sup>142</sup> Many actors in the developing countries also saw the generation of financial support as a principal objective of the REDD+ regime.<sup>143</sup> More skeptical interviewees went even further and argued that the main objective of REDD+ was to offset emissions,<sup>144</sup> and to create the suggestion of climate action so that business-as-usual measures could continue in industrial sectors, and that REDD+ had actually been quite effective.<sup>145</sup>

## 4.4 The Assumed Effectiveness of REDD+ as a Forest Conservation Policy

### 4.4.1 A Square View on Trees and Forests

One factor that influences the environmental effectiveness of REDD+ as a forest policy is that it focuses on compensatory payments for one environmental service of forests only (i.e. the regulating service, as opposed to the supporting, provisioning and cultural services (Haug and Gupta, 2013), thus undermining a more comprehensive approach that is necessary to address the spatial and biological complexities of environmentally sound forest conservation and restoration (Stephan and Paterson, 2012; Elias, 2013; Roessing Neto, 2015). The commodification of tangible services requires itemization and quantification that obscures the complexity of ecosystems and establishes artificial boundaries between the biotic and non-biotic components that interact to produce an ecosystem service (Kosoy and Corbera, 2010; Moreno et al, 2015). The PES approach might ignore intangible services (Wunder and Wertz-Kanounnikoff, 2009) and the inherent non-excludability of climate change as an environmental service makes it ill-suited for privatization, commodification and subsequent trade (Farley and Constanza, 2010).

The potential conflict of REDD+ with forest biodiversity conservation is most prominent. Biodiversity was not included as a firm constraint to land-use projects in the UNFCCC regime (Jacquemont and Caparros, 2002), and “it is not given that where carbon is cheapest to store, there is also most biodiversity” (Vatn and Vedeld, 2013: 423) While there is a positive relationship between tree biomass production and tree species richness, old-growth forests have “traditionally been considered to be negligible carbon sinks because it was thought that they have reached a stage of where there is balance between uptake and respiration” (Holm, 2015: 368). As such, REDD+ could promote the expansion of environmentally harmful monoculture tree plantations, and maximizing carbon sequestration might lead to silvicultural practices that strongly prioritize trees over non-arboreal fauna and flora, and are thus highly detrimental to biodiversity (Putz and Redford, 2009; Redford and Adams, 2009; Adekunle et al., 2010; Crossman et al., 2011). Reforestation policies have the potential to accelerate biodiversity loss by providing perverse incentives that promote the conversion of primary and especially secondary forests (Barr and Sayer, 2012; see also Bekessy and Wintle, 2008). The fact that the UNFCCC defines tree plantations as forests is at the root of this problem:

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<sup>142</sup> Interview 45, June 2013.

<sup>143</sup> Interview 31, December 2012; interview 35, December 2012; interview 42, March 2013.

<sup>144</sup> Interview 15, June 2012.

<sup>145</sup> Interview 35, December 2012; interview 56, December 2013; interview 57, December 2013; interview 62, May 2015.

“Perhaps the most insidious and persistent threat to forest biodiversity results from confounding plantations with forests. Although the forest-plantation distinction is sometimes blurred, such as where native tree species are planted, the two land uses nevertheless need to be differentiated lest many of the values of forests, biodiversity in particular, be lost with no change in ‘forest’ cover” (Putz and Redford, 2009: 400).

Other environmental risks of tree plantations are that they might be established on lands that are classified as degraded but that in reality represent rich ecosystems that provide many goods and services to the local communities that inhabit them (Barr and Sayer, 2012) or that may have reverted to natural ecosystems with higher biodiversity and carbon values than plantations again (Bekessy and Wintle, 2008). A related risk is the use of invasive alien species and genetically modified trees, which can lead to significant environmental risks (Heaton, 2005). Genetically modified trees are not explicitly prohibited in REDD+ projects, which means that REDD+ funds can be used to establish genetically modified tree plantations.

Stephan and Paterson (2012: 634) suggest that buyers of forest carbon offset credits will probably prioritize forest conservation projects over tree plantations as they are particularly interested in environmental and social co-benefits which may help green “*brand-enhancement*” through “*visually compelling*” forest images. However, such forests might become “carbonified” (Stephan and Paterson, 2012: 633; see also Moreno et al, 2015; Van der Hoff et al., 2015).

“Achieving multiple objectives with a single policy instrument is only possible if these objectives are properly aligned and closely correlated at all scales. As attractive as multi-purpose REDD+ policies may seem, they require strong correlations in the real world between targets that may not exist. As carbon stocks and biodiversity in tropical forest margins are only partially related, optimization for reduced C(arbon) emissions may not result in the same outcomes as optimization for biodiversity conservation, and an additional, corrective policy instrument may be needed” (Minang and Van Noordwijk, 2013: 62).

Some social impacts of REDD+ include elite resource capture and land grabbing (see 6.3.5), and many researchers argue that effective governance calls for the full and effective participation of Indigenous Peoples and local communities in REDD+ policy development and implementation, and the need to recognize land tenure rights and the potential co-benefits of REDD+ for rural livelihoods (e.g. Lovbrand, 2004; Angelsen, 2009; Bond et al., 2009; Ezzine-de-Blas et al., 2011; Lederer, 2011; Brockhaus and Angelsen, 2012). These concerns are particularly relevant when a mechanism of individual compensatory payments to forest owners is used to implement REDD+ on the ground (Bond et al., 2009).

Interviewees had mixed reactions on whether REDD+ is an effective forest conservation regime. Critics stated that REDD+ “has been a dismal failure”, as it took far too long to develop the mechanism while it had originally been proposed as a regime that could be speedily implemented while more time-consuming transformative change in the energy and transport sectors would take place.<sup>146</sup> For some, REDD+ provided “a very

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<sup>146</sup> Interview 58, January 2014.

square view on forests”<sup>147</sup> and concentrated too much on sustainable forest management (SFM), promoting tree plantations and the forestry sector in general, while forest conservation tends to be more successful in countries where the Ministry of Environment rather than Forestry is the responsible department, as the former tends to promote more holistic approaches.<sup>148</sup> Some interviewees pointed out that the expanded global program on forest biodiversity is far more comprehensive than REDD+, and that the Strategic Plan of the CBD is more ambitious than REDD+.<sup>149</sup>

However, more optimistic interviewees emphasized that REDD+ could potentially become an effective forest conservation regime<sup>150</sup> as it could attract political attention and financial resources for forest conservation.<sup>151</sup> “Any policy is welcome” as they “do not see any other big solutions out there”.<sup>152</sup> They were disappointed by the UN Forum on Forests<sup>153</sup> which had produced “nothing but paper”.<sup>154</sup> They argued that REDD+ could complement existing forest policy regimes like the CBD<sup>155</sup> and funds like GEF, which were considered more comprehensive,<sup>156</sup> but underfunded,<sup>157</sup> small, and marginalized.<sup>158</sup> Other existing conservation regimes had “big brochures but little budgets”.<sup>159</sup> Some interviewees deplored that policymakers did not realize that biodiversity is needed for resilience<sup>160</sup> and that it is not associated with a “catastrophe or a peak environmental issue”.<sup>161</sup>

Optimists felt that including some plantations in REDD+ schemes was not that problematic, and that proper carbon accounting could address the risk of large-scale conversion of forests into tree plantations as the latter generally contain far less carbon than natural forests.<sup>162</sup> Other interviewees, however, pointed out that non-forested ecosystems and mixed systems like mosaic landscapes that might provide less short-term carbon benefits would still be at risk (see also Putz and Redford, 2009; Redford and Adams, 2009), and that the 2010 Cancun safeguards (see 3.5) address the risks of the conversion of forests into tree plantations only.<sup>163</sup> Some interviewees saw these safeguards<sup>164</sup> as a crucial mechanism to enable a more comprehensive REDD+ mechanism that would promote forest biodiversity protection, claiming that REDD+ would be “meaningless” without those safeguards.<sup>165</sup>

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<sup>147</sup> Interview 8, December 2011.

<sup>148</sup> Interview 11, March 2012; interview 37, December 2012; interview 43, June 2013; interview 59, January 2014.

<sup>149</sup> Interview 32, December 2012

<sup>150</sup> Interview 33, December 2012.

<sup>151</sup> Interview 11, March 2012; interview 18, June 2012; interview 22, September 2012; interview 31, December 2012; interview 32, December 2012.

<sup>152</sup> Interview 12, March 2012; interview 26, September 2012; interview 42, March 2013.

<sup>153</sup> Interview 18, June 2012; interview 34, December 2012.

<sup>154</sup> Interview 34, December 2012.

<sup>155</sup> Interview 49, June 2013.

<sup>156</sup> Interview 6, December 2011; interview 8, December 2011.

<sup>157</sup> Interview 21, September 2012; interview 34, December 2012; interview 36, December 2012.

<sup>158</sup> Interview 33, December 2012.

<sup>159</sup> Interview 42, March 2012.

<sup>160</sup> Interview 11, March 2012; interview 45, June 2013; interview 38, December 2012.

<sup>161</sup> Interview 36, December 2012; interview 42, March 2013.

<sup>162</sup> Interview 11, March 2012; interview 14, June 2012.

<sup>163</sup> FCCC/CP/2010/7Add. 1. See <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf> (last visited 16 January 2016).

<sup>164</sup> Ibid.

<sup>165</sup> Interview 21, September 2012; interview 38, December 2012.

However, others pointed at the challenges of properly implementing safeguards, especially in countries with weak forest governance.<sup>166</sup> Several interviewees highlighted the need to address the so-called co-benefits of forests,<sup>167</sup> and balance REDD+ with other demands on land use.<sup>168</sup> They also highlighted the need to promote improved forest governance<sup>169</sup> and to ensure equity and full and effective participation of Indigenous Peoples and local communities, including by guaranteeing their land tenure security,<sup>170</sup> if REDD+ was to become an effective forest conservation policy.

Lastly, some pointed out that the effectiveness of REDD+ as a forest conservation regime was compromised by the fact that it only targets developing countries, and tends to focus on rainforests, thus neglecting continuing forest loss in boreal and temperate forests<sup>171</sup> and dry forests. The latter play a significant role in sustaining local livelihoods, also because they tend to have higher population densities than humid forests (Wertz-Kanounnikoff and Kongphan-apirak, 2008; see also 6.8).

#### **4.4.2 Mobilizing High-Level Support for Forest Conservation and Governance**

A positive effect of REDD+ highlighted by many interviewees was that it had triggered a significant amount of high-level support for forest conservation and improved forest governance. As Gupta (2012: 625) states:

“...the most important legacy of REDD+ to date is the way it has raised global awareness and created a community of people who are willing to look at ways in which deforestation and forest degradation can be addressed.”

Many interviewees highlighted that REDD+ had raised awareness of the importance of forest conservation and the value of forests as a global public good for both climate change mitigation, and sustainable development in general.<sup>172</sup> They praised the good intentions of REDD+ actors,<sup>173</sup> and the results in terms of national forest inventories and strengthened community organization.<sup>174</sup> Several interviewees stressed the importance of having built good relationships, coordination mechanisms (including between relevant UN organizations) and trust.<sup>175</sup> The increased awareness had triggered significant funding,<sup>176</sup> and unprecedented (high-level) engagement in forest policy not seen “in some 20 years”.<sup>177</sup> The personal commitment of some Heads of State in REDD+ had raised the profile of forest issues and triggered action and awareness around forest conservation and enabled improved coordination with, for example, agricultural departments, including at

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<sup>166</sup> Interview 40, December 2012.

<sup>167</sup> Interview 59, January 2014.

<sup>168</sup> Interview 45, June 2013.

<sup>169</sup> Interview 54, November 2013.

<sup>170</sup> Interview 20, September 2012; interview 26, September 2012; interview 30, October 2012; interview 55, November 2013.

<sup>171</sup> Interview 59, January 2014.

<sup>172</sup> Interview 11, March 2012; interview 18, June 2012; interview 22, September 2012; interview 31, December 2012; interview 32, December 2012.

<sup>173</sup> Interview 49, June 2013.

<sup>174</sup> Interview 18, June 2012.

<sup>175</sup> Interview 49, June 2013.

<sup>176</sup> Interview 23, September 2012.

<sup>177</sup> Interview 14, June 2012.

sub-national levels.<sup>178</sup> As one interviewee pointed out: “it is not that the money is now spent more effectively, but because of the greater awareness it has a bigger impact”,<sup>179</sup> also because many new actors and sectors had become involved in forest policy, especially in developing countries. This had given a new impetus to existing forest policy and, together with capacity-building activities under “REDD+-Readiness programs” had facilitated more comprehensive and sustainable approaches.<sup>180</sup>

REDD+ must then be consistent with and build upon existing institutional frameworks for governing forests, at national to international level (Matthews et al., 2014). It was also pointed out that the historic competition between Ministries of the Environment and Forestry Ministries over forest resources had played out in REDD+, although REDD+ had in some countries triggered improved collaboration.<sup>181</sup> However, REDD+ policies “may compete for attention with other global forest-related policy instruments” and a lack of coordination would cause further fragmentation of the global forest regime (Levin et al., 2008: 546).

Moreover, many countries actively engaged in REDD+ activities do not have a high governance level score, and governance tends to be weaker in the forest frontiers where deforestation is concentrated (Wertz-Kanounnikoff and Kongphan-apirak, 2008, Bond et al., 2009). Accepting REDD+ Readiness funding (see 3.5) is a relatively easy and attractive option for governments, but the real test of the attractiveness of REDD+ will only come when countries are expected to deliver results to obtain payments (Neeff et al., 2014).

Some blamed REDD+ for generating a “chilling effect on anything related to forests”<sup>182</sup> due to the fierce opposition it had triggered amongst especially social movements representing rightsholders and other sectors, including sectors that resented the narrow vision on “trees as carbon sticks”.<sup>183</sup> Others raised questions about the relative success of REDD+ in raising funds and suggested that this was only because many funders still believed in a future forest carbon offset market.<sup>184</sup> Several interviewees highlighted that the positive influence of REDD+ in their countries was the result of their own government’s action and the direction it had chosen rather than the international regime itself.<sup>185</sup> For example, the relative reduction of deforestation in Brazil is often mentioned as an example of the success of REDD+ (e.g. Corbera et al., 2010), but this success has its basis in policy measures taken in 2004 and 2005 (see also Sunderlin et al., 2016), so before REDD+ was even introduced in the UNFCCC negotiations (see also 4.3.2).<sup>186</sup> Meanwhile, some interviewees cautioned that there was a significant risk that countries and especially forest-dependent people would be disappointed when the amount of funding that was mobilized by REDD+ was much lower than expected (see also 5.4), and that this might have a significant negative effect on the credibility of overall international forest policy.

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<sup>178</sup> Interview 26, September 2012; interview 31, December 2012.

<sup>179</sup> Interview 22, September 2012.

<sup>180</sup> Interview 43, June 2013.

<sup>181</sup> Interview 43, June 2013.

<sup>182</sup> Interview 37, December 2012.

<sup>183</sup> Interview 37, December 2012.

<sup>184</sup> Interview 34, December 2012.

<sup>185</sup> Interview 9, March 2012; interview 11, March 2012; interview 31, December 2012; interview 53, October 2013.

<sup>186</sup> Interview 47, June 2013.

They feared this would create a situation in which it would be difficult to convince the main actors to undertake any further action for the conservation of forests.<sup>187</sup>

## 4.5 REDD+ and the Drivers of Forest Loss

Last but not least, the litmus test for judging the effectiveness of REDD+ is whether it actually addresses the direct and underlying drivers of deforestation and forest degradation (Skutsch and McCall, 2010, Salvini et al., 2014). Mainstream means of forest conservation like protected areas and payments for environmental services are less effective mechanisms than often thought and will not meet REDD+ goals if complex, structural issues are ignored (Sloan, 2015). This is a complicated task:

“There are many drivers of deforestation that are poorly understood and — beyond qualitative descriptions on a case-study basis — very hard to identify, define and measure...” while... “the causal chains resulting in deforestation can be very long”(Wehkamp et al., 2015: 9; see also Contreras-Hermosilla, 2000).

Moreover, there is a high contextual variability in the drivers of forest loss (Matthews et al., 2014), and they are often subject to feedback loops that might enlarge, modify, or even reverse the initial effects (Angelsen, 2007), which means that addressing them requires multi-sectoral action at multiple scales (Skutsch and McCall, 2010).

While a comprehensive analysis of the drivers of forest loss is beyond the scope of this research, the literature shows that the root cause of forest loss in the continents with the highest deforestation rates, Latin America and Asia is large-scale, commercial agriculture for export markets (Boucher et al., 2011). Agriculture is responsible for 80% of deforestation worldwide, with commercial agriculture and livestock farming being responsible for around 65% of deforestation in Latin America and around 35% of deforestation in Africa and sub-tropical Asia (Kissinger et al., 2012). Kissinger et al. (2012) estimate subsistence agriculture to be of equal importance as commercial agriculture in Asia and Africa, but Boucher et al. (2011: 13) state for Asia:

“Because rural populations have stabilized and tropical farmers are now distant from those who eat the food they produce, deforestation is now driven by global markets, not local populations.”

They subsequently point at the meat and other food consumption by relatively affluent people in industrialized countries as a major underlying cause of forest loss, highlighting that just 6 to 11% of human food is produced on 70% of the pasture and other agricultural lands used.

The question what kind of agricultural practices and conditions turn agriculture into a deforestation driver is a complex one. Angelsen (2007) identifies factors, including high output prices (for example due to increased demand, market efficiency, devaluation or lower taxes), suitability of forest land for agriculture, technological progress like genetically

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<sup>187</sup> Interview 18, June 2012.

modified varieties,<sup>188</sup> poor off-farm employment opportunities, access to cheap credit for agricultural expansion, lower input prices, better roads and transport infrastructure and higher tenure security. However, these factors are all context-specific and interactive (Kaimowitz and Angelsen, 1998). In general, labor-saving agricultural technologies, including the ones often promoted by intensification policies, tend to increase pressure on forests because they free up labor for expanding agriculture, while especially on the forest frontier, a lack of labor, and financial credit, tend to be the limiting factor in agricultural expansion (Kaimowitz and Angelsen, 1998; Angelsen and Kaimowitz, 2001; Rudel et al., 2009; Karsenty, 2009). If the demand for products as well as commodity prices are elastic, agricultural intensification will not necessarily lead to land sparing (Kissinger et al., 2012).

Meanwhile, the role of small-scale farming in forest loss provides a mixed picture. Traditional forms of shifting cultivation and small-scale agriculture by Indigenous Peoples tend to have little or no long-term impact on forest loss, provided the fallow periods allow for a proper regeneration of forests. However, where the remaining forest areas have become too small, also due to deforestation by other drivers, fallow periods tend to become too short for a proper regeneration of forests (Boucher et al., 2011). So-called “colonists” (farmers on the forest frontier) in Latin America play a role in forest conversion (Boucher et al., 2011, Peterson et al., 2012), although their actions are often driven by legal and other perverse government incentives that promote forest conversion as a mechanism to obtain land title, rather than land reform on existing agricultural lands (Kaimowitz and Angelsen, 1998; Angelsen, 2007; Peterson et al., 2012).

Although far less important than agriculture, logging remains a driver of deforestation and especially forest degradation (Kaimowitz and Angelsen, 1998; Boucher, et al., 2011; Kissinger et al., 2012). Wood demand and subsequent higher prices of timber can be an important underlying cause, although the evidence on the impact of timber prices is not conclusive (Kaimowitz and Angelsen, 1998). Logging also acts as an underlying cause of deforestation as it tends to open up previously inaccessible forest areas and makes it financially feasible to convert them, while Ros-Tonen (1993), based on fieldwork in Brazilian Amazonia, observed that timber exploitation followed the colonization frontier. Hence multiple drivers reinforce each other (Gupta, 2012; Gupta et al., 2013). Other drivers include infrastructural projects, mining, and biophysical processes like climate change and forest fires (Gupta et al., 2013).

Several researchers conclude that so-called REDD+ Readiness processes at the country level seldom include the development of policies to address the drivers of forest loss, especially when these drivers are of an international nature (Skutsch and McCall, 2010; Kissinger et al., 2012). The deductive approach that REDD+ represents creates a tendency to focus on technical solutions to forest loss rather than more holistic policy approaches that would address the drivers of forest loss (Okereke and Dooley, 2010).

Based on a comprehensive review of no less than 98 different country REDD+ Readiness strategies, Minang et al. (2014: 703) found “very little evidence of deliberate national-level designs of incentives and policies for addressing drivers of deforestation.” They concluded that there was a weak link between driver analysis, REDD+ strategy

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<sup>188</sup> For example, in the Argentine REDD+ Readiness strategy the introduction of genetically modified Round-Up Ready soy was identified as one of the main drivers of deforestation, especially in the Argentine Chaco region. See: [https://www.forestcarbonpartnership.org/sites/forestcarbonpartnership.org/files/Documents/PDF/Jun2010/Argentina\\_R-PP\\_June\\_2010\\_0.pdf](https://www.forestcarbonpartnership.org/sites/forestcarbonpartnership.org/files/Documents/PDF/Jun2010/Argentina_R-PP_June_2010_0.pdf) (last visited 15 January 2016).

development, reference emission levels exploration and MRV design, and that the proposed enabling interventions included few concrete proposals to remove perverse incentives that drive deforestation (see also Salvini et al., 2014). Only a few countries articulated cross-border approaches to address drivers related to internationally traded commodities like palm oil, soy and wood and less than half of the strategies addressed stakeholder participation, land tenure or access rights (Minang et al., 2014). Moreover, most of the direct interventions proposed focused on reducing forest degradation, for example, by promoting SFM, reducing demand for wood, agroforestry, plantations establishment and management and reforestation and afforestation, in general, rather than interventions that would address deforestation.

The latter might be because deforestation is often caused by large commercial actors who have significant influence over central governments and can successfully block policies that do not support business-as-usual (Salvini et al., 2014; Brockhaus et al., 2014). Since the forestry sector dominates the development of REDD+ strategies (Skutsch and McCall, 2010) they favor policies and measures that can be controlled by them over other policies and measures, even though the latter might be more effective in addressing the drivers of deforestation.

It is also important to demystify some factors as drivers of forest loss, like fuelwood collection, population growth and poverty. Boucher et al. (2011) show that in most countries the assumption that wood fuel collection by local communities was a major driver of forest loss was unfounded, as most firewood collected was dead material or collected from fast-growing species at collection rates below regeneration rates, while supply chains were relatively short (see also Kaimowitz and Angelsen, 1998). However, they note that commercial charcoal production, and especially large-scale industrial bioenergy production, does have a significant impact on forest ecosystems. Yet many REDD+ strategies focus on household use of firewood rather than reducing large-scale bioenergy use by non-local consumers and related biomass trade (Salvini et al., 2014).

Population growth can lead to increased forest loss if it increases the agricultural labor force on the forest frontier (Kaimowitz and Angelsen, 1998; Angelsen and Kaimowitz, 2001), but overall there is no clear relationship between national population growth and forest loss (Kaimowitz and Angelsen, 1998; Scricciu, 2007). In many countries, rural populations are actually declining, especially due to urbanization (Chomitz et al., 2007; Boucher et al., 2011; McCarthy and Tacconi, 2011), and the increased wealth and especially the consumption of products like meat by urban populations has become a far more significant driver of forest loss than population pressure in the countryside (Boucher et al., 2011; Kissinger et al., 2012). Still few REDD+ strategies address meat or other commodity consumption as a driver of forest loss (Salvini et al., 2014).

As far as poverty is concerned, there is conflicting evidence regarding the impact of poor families on deforestation (Kaimowitz and Angelsen, 1998). At a national level, the suggestion that poverty is a driver of forest loss and that countries will automatically undergo a forest transition and see their deforestation rates reduced when they experience a certain level of economic growth – the so-called Environmental Kuznets Curve (EKC) – is disputed (Scricciu, 2007; McCarthy and Tacconi, 2011; Choumert et al., 2013). In fact, Kaimowitz and Angelsen (1998: 96) used an elaborate desk-top analysis of drivers of forest loss, to argue that:

“Many models associate higher national per capita income in developing countries with greater deforestation. They are less clear about whether deforestation later declines as countries become richer.”

The universality of forest transition theories is disputed as well (see 4.3.2). Other scholars also identify a mismatch between the analysis of the drivers of forest loss and the presence of actual strategies to address these drivers in Readiness documents (e.g. Daviet, 2009). Addressing the real drivers of forest loss is further complicated since deforestation is less “State-initiated” and more “enterprise-driven” as it is businesses, rather than rural populations, which drive deforestation these days (Boucher et al., 2011). Deforestation rates continue to be much higher in Latin America where most forest land is in hands of private enterprises, than in Africa where most forest land is State owned (Boucher et al., 2011). A study on deforestation in Chiapas, Mexico, found that deforestation was much more prominent on private property than on communal land (Castillo-Santiago et al., 2007). Both Boucher et al. (2011) and Chomitz et al. (2007) emphasize that small-scale subsistence farmers with little connection to markets play a smaller role in deforestation than wealthy farmers that cater for commercial markets, also because forest conversion itself is quite a costly and difficult process.

However, an inherent challenge in addressing drivers is that wealthy farmers and businesses tend to have more influence over government policymaking (Salvini et al., 2014). Analyzing four different REDD+ countries, Brockhaus et al. (2014) found that powerful commercial actors had, in practically all cases, succeeded to halt the development of transformational national policy measures that would interfere with business-as-usual.

“In some cases, resistance to change is analyzed to the point that active lobbying is no longer necessary – these interests are already deeply entrenched in the State, which is reflected in political inaction and lack of policy debates on the key drivers of deforestation” (Brockhaus et al., 2014: 29).

There is, thus, no guarantee that liberal democracy and greater participation of all stakeholders and rightsholders in forest policy will automatically lead to improved forest conservation (McCarthy and Tacconi, 2011). Rather, powerful actors might use such participation opportunities to more effectively pursue their economic interests. Similarly, business influence can be highly influential in local politics, and decentralization processes might therefore not necessarily lead to forest protection either (McCarthy and Tacconi, 2011).

Table 4.1 describes the main direct and underlying causes of forest loss.

**Table 4.1 Drivers and underlying causes of forest loss and REDD+ responses**

Driver	Main underlying causes	REDD+ response	Sources
Large-scale commercial agriculture and livestock farming for export markets (especially in Latin America and Asia)	<p>Increased demand for meat and other commodities, especially by affluent people</p> <p>Subsidies and other perverse incentives</p> <p>Private property rights over forests</p> <p>Influence of powerful sectors in policymaking</p>	<p>At most research and dialogue, as payments are directed to forestry or environmental sectors in production countries and these sectors often cannot control demand, international trade flows, or subsidies or other perverse incentives</p> <p>REDD+ strategies that promote privatization of forests are counterproductive</p> <p>If anything, REDD+ tends to be counterproductive as it triggers concentration of power</p>	<p>Kaimowitz and Angelsen, 1998; Angelsen and Kaimowitz, 2001; Boucher et al., 2011; Kissinger et al., 2012; Brockhaus et al., 2014;; Salvini et al., 2014; Section 6.3</p>
Subsistence agriculture (especially in Africa, a relatively minor driver)	<p>Shortage of suitable non-forest land</p> <p>Land-reform programs and other perverse incentives</p> <p>Private property rights over forests</p>	<p>PES, but often PES will generate leakage effects as it triggers more land shortages</p> <p>Some strategies include initiatives to recognize land tenure, but this seldom includes comprehensive land-reform, which is steered outside the relevant sectors</p> <p>If anything, REDD+ strategies tend to be counter-productive as they often promote privatization of forests</p>	<p>Ros-Tonen, 1993; Angelsen and Kaimowitz, 2001; Castillo-Santiago et al., 2007; Chomitz et al., 2007; Boucher et al., 2011; Kissinger et al., 2012; Peterson et al., 2012</p>
Logging (especially as a driver of forest degradation)	<p>Wood demand by commercial markets</p> <p>Weak laws and illegal logging</p> <p>Influence of powerful sectors in policymaking</p>	<p>Tree plantation establishment</p> <p>Reduction of wood demand, but only to a limited extent due to dominance of forestry sector in REDD+ policies</p> <p>Strict regulations and enforcement</p> <p>If anything, REDD+ tends to be counterproductive as it triggers concentration of power</p>	<p>Ros-Tonen, 1993; Kaimowitz and Angelsen, 1998; Boucher et al., 2011; Gupta et al., 2013; Brockhaus et al., 2014; Salvini et al., 2014; Section 6.3</p>
Population growth, if it increases agricultural labor force on the forest frontier	<p>A lack of reproductive rights and reproductive health care facilities, and education opportunities for women, overall marginalization of women</p>	<p>Little as forestry and environmental sectors have no influence over reproductive health care and women's empowerment policies</p>	<p>Kaimowitz and Angelsen, 1998; Angelsen and Kaimowitz, 2001</p>
Income increase	<p>Economic growth</p>	<p>REDD+ does not challenge economic growth</p>	<p>Kaimowitz and Angelsen, 1998; Boucher et al., 2011</p>

Driver	Main underlying causes	REDD+ response	Sources
Large infrastructure	Investment policies and other perverse incentives  Economic growth	Little as forestry and environmental sectors have no influence over investment and infrastructural policies  REDD+ does not challenge economic growth	Kaimowitz and Angelsen, 1998; Angelsen, 2007
Mining	Demand for minerals. Investment policies and other perverse incentives Economic growth	Little as forestry and environmental sectors have no influence over demand for minerals or relevant investment policies and incentives REDD+ does not challenge economic growth	Gupta et al., 2013
Droughts, forest fires and other biophysical processes	Amongst others climate change	The impact of REDD+ on climate change mitigation depends on its design	Gupta et al., 2013

REDD+ was originally promoted as a policy that could rapidly reduce some emissions and buy time for technological development that allowed more complex energy and transport policy reform (Dutschke, 2010). Yet, in many countries REDD+ has resulted in “an enormous level of complexity, fragmented decision-making and ambiguity” (McDermott, 2014: 18). Governments are often unable to voluntarily reduce deforestation levels as they do not always have sufficient autonomy to impose public interest solutions on competing parties, especially in the light of potential conflicts of interests between governmental departments and liberalized global markets (Karsenty, 2012).

Some interviewees<sup>189</sup> point out that the original promoters of REDD+ saw it as a “quick fix”<sup>190</sup> based on a “romanticized view”<sup>191</sup> on forest conservation and underestimated the complexities of turning REDD+ into an effective forest conservation and climate mitigation regime, also because many had little experience with forest policy themselves.<sup>192</sup> They argued that REDD+ requires structural changes in institutions, subsidy schemes and other incentives that might trigger forest loss, and bottom-up strategies to promote sustainable livelihoods.<sup>193</sup> The competition between forestry and biodiversity departments over forest-related policies with “different arms of government doing different things”<sup>194</sup> also causes forest loss.

Several interviewees deplored that REDD+ policies and strategies currently fail to address the direct and underlying drivers of forest loss.<sup>195</sup> After significant pressure from

<sup>189</sup> Interview 33, December 2012; interview 36, December 2012; interview 58, January 2014.

<sup>190</sup> Interview 36, December 2012.

<sup>191</sup> Interview 58, January 2014.

<sup>192</sup> Interview 11, March 2012; interview 33, December 2012; interview 14, June 2012; interview 36, December 2012; interview 37, December 2012. See also Chapter 4.

<sup>193</sup> Interview 11, March 2012; interview 16, June 2012.

<sup>194</sup> Interview 39, December 2012. See also interview 11, March 2012 and <http://www.globalforestcoalition.org/wp-content/uploads/2010/11/Report-Getting-to-the-roots1.pdf> (last visited 10 January 2016), which documents a participatory analysis of the underlying causes of forest loss in 24 different countries.

<sup>195</sup> Interview 9, March 2012; interview 26, September 2012; interview 46, June 2013; interview 58, January 2014.

NGOs and others, Parties to the UNFCCC started to discuss the drivers of deforestation and forest degradation in 2011, but after few short and superficial debates the negotiations adopted a less-than-one-page decision that stated that drivers were country-specific and countries should address them (see also Den Besten et al., 2014).<sup>196</sup> Some interviewees felt that the UNFCCC had “utterly failed”<sup>197</sup> to address the direct and underlying causes of forest loss, especially because the final decision does not identify transboundary drivers.

Interviewees pointed out that most REDD+ strategies deliberately focus on relatively small actors like forest people, or national level policymaking, and ignore the far more influential international drivers like international trade and consumption as they are unable to control the latter.<sup>198</sup> The national level focus of REDD+ was seen as a compromise as, contrary to a project-based approach, it allowed at least some action regarding at least nationally determined drivers.<sup>199</sup> However, even such national approaches required significant capacity building at sub-national levels to actually address drivers on multiple levels.<sup>200</sup> Lastly, some interviewees noted that most strategies addressed the drivers of forest loss in a fragmented way, while bundled interventions tend to be more effective. One interviewee pointed out that some donors, like the Forest Investment Program (FIP), were interested in transformational investments, but that the REDD+ countries themselves are not ready to receive such funds.<sup>201</sup> Other interviewees pointed out that paying for REDD+ is a pitfall as the real focus should be on societal changes – without addressing the social and environmental aspects REDD+ will not become a success.<sup>202</sup> These aspects require investments that will not be provided through carbon markets or other market-based instruments (see also Johns et al., 2008). Yet, there is no real incentive to think in a more cross-cutting way.<sup>203</sup>

While REDD+ might be able to influence and potentially alleviate some direct drivers of forest loss, e.g. through results-based payments to local actors or providing incentives for private sector actors to conserve forests, its design does not lend itself well for addressing the underlying drivers of forest loss. Or as an interviewee stated: “REDD+ is not a system to protect forests. It is a system to generate business based on the climate crisis.”<sup>204</sup> Most drivers of forest loss are themselves driven by “global market capitalism...of which offsetting carbon sink functions against carbon emissions in a global system of tradable emissions permits is merely the latest manifestation” (Humphreys, 2003: 50). From this point of view, REDD+ could be seen as a classical example of trying to cure a patient with more of the same poison.

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<sup>196</sup> FCCC/CP/2013/10/Add. 1 See <http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf#page=43> (last visited 18 January 2016)

<sup>197</sup> Interview 58, January 2014.

<sup>198</sup> Interview 58, January 2014; interview 62, May 2015.

<sup>199</sup> Interview 25, September 2012, interview 31, December 2012.

<sup>200</sup> Interview 31, December 2012.

<sup>201</sup> Interview 36, December 2012.

<sup>202</sup> Interview 14, June 2012; interview 20, September 2012.

<sup>203</sup> Interview 37, December 2012.

<sup>204</sup> Interview 9, March 2012.

## 4.6 Conclusions

This chapter has analyzed the assumptions of scholars and potential REDD+ agents on the effectiveness of REDD+ as a climate change mitigation regime and its effectiveness as a forest conservation regime. It explains, first, that the assumed effectiveness of the REDD+ regime is based on the expectation that results-based payments would provide a strong incentive for countries, and actors on the ground to conserve and restore forests.

Second, many REDD+ actors point out that REDD+ has drawn significant political attention and thus significant funding for forest conservation. However, scholars and actors fear that the effectiveness of REDD+ as a climate regime would be compromised by (a) the lack of permanence of forest-related emission reductions; and (b) the difficulty to accurately calculate the impact of certain forest-related actions on the atmosphere. The decisions by the Parties to the UNFCCC acknowledge these challenges, and a generic reference to the need to address them was included in the REDD+ safeguards. However, many of the suggested recommendations in the pre-2014 literature to address these challenges were not incorporated in the REDD+ regime that was adopted by the Parties to the UNFCCC. The final REDD+ regime puts the responsibility for addressing these challenges primarily at the national level, but there are inherent perverse incentives in the REDD+ mechanism that encourage countries to ignore this responsibility. As a result, the environmental integrity of the climate regime would be undermined if REDD+ would be primarily financed through market mechanisms, as emission reductions that are not accurately monitored, accounted and verified would be used to compensate for real emissions (4.3). However even if REDD+ is primarily funded through public sources it is problematic if climate finance is spent on questionable emission reduction actions.

Third, views of actors on the effectiveness of REDD+ as a forest conservation mechanism vary. On the positive side, the outcomes of the UNFCCC negotiations on REDD+ give exceptional freedom to countries to design their own REDD+ system. Several interviewees report that REDD+ has triggered significant public and political awareness of the importance of forest conservation and thus enhanced the potential and capacity to undertake action. They also pointed out that the financial support generated by REDD+ has increased the capacity of many countries to analyze the drivers of forest loss, including subsidies and other government programs that might act as perverse incentives that trigger deforestation, and that this creates an important opportunity to address some of these drivers. Some interviewees also highlight that REDD+ might make it more attractive for the private sector to conserve forests, and that REDD+ was one of the few remaining options to conserve forests. However, many scholars and actors feared that the effectiveness of REDD+ as a forest conservation regime would be undermined by (a) the risk that a carbon sequestration mechanism might inadvertently support tree plantation expansion rather than forest conservation, and; (b) the fact that the design of REDD+ does not address cross-boundary and cross-sectoral drivers of forest loss. An inherent complication is that REDD+ provides results-based payments to a specific governmental or local actor, while scholars have concluded that addressing drivers will require multi-sectoral interventions and policy coherence at multiple scales, including both national and international levels. Effectively reducing deforestation implies interference with consumption patterns, economic incentives and decision-making at many different levels, including levels that are remote from the area and even country where the deforestation

takes place. So it can be concluded that the final REDD+ mechanism is not well-designed to address the drivers of forest loss.