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A reality check on the landscape approach to REDD+: Lessons from Latin America

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ABSTRACT

Developing and institutionalizing cross-sectoral approaches to sustainable land use remains a crucial, yet politically contested, objective in global sustainability governance. There is a widely acknowledged need for more integrated approaches to sustainable land use that reconcile multiple landscape functions, sectors and stakeholders. However, this faces a number of challenges in practice, including the lack of policy coherence and institutional conflicts across agricultural and forest sectors. In this context, the global climate change mitigation mechanism of "reducing emissions from deforestation and forest degradation" (REDD+) has been flagged as a unique opportunity to stimulate the development and institutionalization of more integrated, "landscape" approaches to sustainable land use. In this article, we provide a reality check for the prospects of REDD+ to deliver on this promise, through analyzing three pioneer cases of REDD+ development and implementation in Brazil, Ecuador, and Mexico. We analyze how REDD+ has operated in each of these three contexts, based on field work, key-informant interviews, and analysis of primary and secondary documents. Our findings suggest that REDD+ has stimulated development of "niche" sustainable land-use investments in each case, which aim to integrate forest conservation and agricultural development goals, but has done so while competing with business-as-usual incentives. We conclude that national and international political commitment to more integrated and sustainable land-use approaches is a precondition for, rather than a result of, transformative REDD+ interventions.

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1. Introduction

The interconnectedness of policies and institutional arrangements relating to agriculture, forest management and other land uses in the pursuit of sustainable development is increasingly recognized. Data from the United Nations Food and Agricultural Organization shows that 2.5 billion people on the globe depend directly on agriculture for their livelihoods, and most of them live in poverty (FAO, 2015). Sustainable agricultural production and rural development therefore remain crucial policy objectives, even as global market demand for food and other agricultural commodities continues to increase (Godfray et al., 2010). Yet this is complicated by unfettered agricultural expansion that has caused rampant tropical deforestation and biodiversity loss, and has a significant impact on the global climate. Currently, 24% of anthropogenic greenhouse gas (GHG) emissions are caused by land-use activities – with 50% deriving from deforestation and forest degradation, and 50% from agriculture, including livestock farming (IPCC, 2014). The two are intimately related, however, since agriculture is the main driver of tropical forest loss (Geist and Lambin, 2002; Hosonuma et al., 2012), and potential solutions addressing this relationship remain exceedingly complex (Pirard and Belna, 2012).

Given these interconnections, a variety of concepts reflecting the need for more holistic strategies to sustainable land use have increasingly come to the fore, including so-called "landscape" approaches (see Sayer et al., 2013). A landscape approach takes into account the existence and need for diverse land uses, and works to reconcile these and ensure synergies in developing more integrated approaches to sustainable land use in forested landscapes.

However, the adoption of such a landscape approach to land-use planning and policy making faces a number of challenges. In addition to needing to reconcile multiple and potentially competing land-use objectives (e.g. food production and forest conservation), policies and institutional arrangements for the agricultural and forest sectors have

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evolved separately, with path dependencies that are difficult to overcome (Röhring and Gailing, 2012). Moreover, policy instruments and incentives that influence land use often originate at different governance levels, thus requiring not only horizontal but also vertical policy coherence (Hooghe and Marks, 2003; Flanagan et al., 2011). An integrated approach to sustainable land use has, therefore, a number of crucial policy and institutional dimensions that need to be analyzed and managed, including in developing country contexts where the need for such integration might be particularly pressing as a means to further diverse goals.

In this context, one of the most prominent mechanisms to stimulate international cooperation on integrated land use in recent years is the climate change mitigation mechanism developed under the United Nations Framework Convention on Climate Change (UNFCCC) of "Reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries" (REDD+) (UNFCCC, 2010, p.12). REDD+ has been negotiated within the UNFCCC since 2005, and is designed to be a financial mechanism through which developed countries support developing countries financially for reducing forest-related GHG emissions. Over the years, the goals of REDD+ have expanded from an initial focus on compensating developing countries for reduced emissions from avoided deforestation to also reducing emissions from a variety of forest-related activities such as afforestation and reforestation, while also promoting sustainable development (Visseren-Hamakers et al., 2012; Den Besten et al., 2014).

Although REDD+ finance is to be provided on the basis of results that are measured, reported and verified in terms of carbon emissions in tonnes of CO_2-equivalent per year, it explicitly recognizes the importance of benefits beyond carbon, such as biodiversity conservation, local socioeconomic development, and governance improvements for the long-term sustainability of those results (UNFCCC, 2013, 2015). In other words, REDD+ should not only "do no harm" but also "do good" with respect to these other dimensions (Bastos Lima et al., 2014). Besides being ends in and of themselves, such "non-carbon benefits" to accrue from REDD+ are also increasingly acknowledged to be critical to the legitimacy and long-term effectiveness of REDD+ implementation in diverse national contexts (Visseren-Hamakers et al., 2012; Fox et al., 2014), with some authors especially highlighting the important role of local communities and sustainable forest management in REDD+ (Bayrak and Marafa, 2016; Cronkleton et al., 2011; Loaiza et al., 2015, 2016). Similarly, there is recognition that REDD+ must address diverse drivers of forest loss, which would require harmonizing various relevant land-use activities in order to ensure the sustainability of REDD+ results (see UNFCCC, 2013, Decision 15/CP.19; see also Vijge and Gupta, 2014). As such, some expect that REDD+ may work as a catalyst to help transform existing land-use patterns, promote a green economy, and conserve forests while spurring sustainable development in the global South (Sukhdev et al., 2011; Nepstad et al., 2013; UNEP, 2014).

These expectations often come together in discussions of a landscape approach to land use, within which REDD+ should operate. This article analyzes how and to what extent REDD+ has indeed been able to help further such ambitions in practice. In particular, it provides a "reality check" on whether REDD+ interventions have been able to trigger landscape approaches to integrated land use, by analyzing three Latin American cases where initial REDD+ development and implementation is underway within such broader contexts. This is one of the first studies to make an ex post-assessment of a landscape approach to land use, and the role of REDD+ therein. The case studies represent the different scales at which a landscape approach to REDD+ is being experimented with: a subnational jurisdiction (Acre State, in Brazil), a group of subnational jurisdictions (the Mexican Yucatan Peninsula, which includes the states of Campeche, Quintana Roo, and Yucatán), and the national level (Ecuador). They also represent some of the most advanced cases of REDD+ implementation to date, as suggested by their choice as pilots for initial donor support, such as from Germany's REDD+ Early Movers (REM) Programme.

We utilize a comparative case study methodology to assess the workings of a landscape approach to REDD+ in these three contexts (Yin, 2003). In each one, we have used a combination of different data collection tools, such as document analysis (of primary sources), literature review (including scientific and grey literature published in Portuguese or Spanish), and a total of 39 semi-structured interviews in the field with key informants such as environmental and agricultural ministry government officials and local civil society organizations. The interviews were held in person in each of the three case study contexts, from October 2014 to February 2015. Because of the political sensitivity of this matter, the interviewees were guaranteed anonymity. As such, we attribute specific findings of our analysis to our interviews in each context, taken as a whole, but back these up wherever feasible with references to primary documents as well.

The article is structured as follows: Section 2 reviews and elaborates on the concept of the landscape approach, developing a framework to analyze its institutional dimensions. Section 3 analyzes the key policies, instruments and institutional arrangements related to REDD+ in our three cases, based on the triangulation of findings from document analysis, literature review, and interviews. This allows evaluating what role, if any, REDD+ is playing in enabling greater policy and institutional coherence in land-sector policy and planning in these contexts. With this, the study also aims to shed light on the challenges of cross-sectoral policy integration in developing country contexts, going beyond earlier work on these questions that has focused primarily on industrialized country contexts (see Jordan and Lenschow, 2010; Nilsson et al., 2012; Runhaar et al., 2014). In concluding, we summarize key findings.

2. The landscape approach and policy coherence

The call for an integrated approach to land-use planning, policy and governance has most recently coalesced around the concept of a landscape approach. There is no single, consensual definition of what such an approach entails, but different definitions share a number of common elements. These include: bringing together previously distinct – and frequently conflictive – actors, sectors, and objectives, such as rural development, food security and forest conservation (Scherr et al., 2012; Harvey et al., 2014); reconciling various land uses (Sayer et al., 2013; Milder et al., 2014); replacing "silos thinking" with an integrated systems perspective (Harvey et al., 2014); addressing institutional conflicts and promoting synergies (Scherr et al., 2012; Freeman et al., 2015); and avoiding (De Groot et al., 2010; Kozar et al., 2014) or at least seeking to understand and negotiate (Freeman et al., 2015) trade-offs between conservation and development. The emergence of a landscape approach also responds to the growing tendency to integrate socioeconomic development goals within conservation strategies (Sayer et al., 2013), and of using such strategies as avenues for improving natural resource governance (Thompson et al., 2011).

In this context, institutions play a crucial role. Broadly put, institutions are human constructs designed to steer behavior, such as principles, norms, rules or collective decision-making mechanisms (Krasner, 1982; Young et al., 1999/2005). Institutions do not operate in isolation, however, and actors are influenced by multiple institutions at the same time (see Visseren-Hamakers, 2015), with one institution also influencing the performance and development of another (Oberthür and Gehring, 2011). This applies to both international and domestic contexts, each of which includes a diversity of institutional arrangements and policy mixes at play (Borrás and Edquist, 2013; Cunningham et al., 2013).

In the context of a landscape approach to land use, fulfilling multiple objectives such as forest conservation and rural development requires an adequate mix of policy instruments that work in complementary or synergistic fashion (see Gunningham and Sinclair, 1999; Borrás and

Edquist, 2013). These instruments can include both public and private initiatives, such as land-use zoning, payments for environmental services, demand-side measures (e.g. product certification, moratoria), and the provision of fiscal incentives or direct investments for sustainable production (Agrawal et al., 2014; Lambin et al., 2014). Regardless of the mix used, however, it is fundamental that there be policy coherence in intra-sectoral and inter-sectoral policies and instruments (Nilsson et al., 2012).

Policy coherence, in turn, can be achieved in varying degrees, for example, on a spectrum from cooperation to coordination and integration (Stead and Meijers, 2009). Cooperation is the easiest step to accomplish, and refers to the existence of deliberate attempts at collaboration between otherwise autonomous units (Schermerhorn, 1975; Stead and Meijers, 2009). This may include information exchange, shared resources, and other forms of cooperation to achieve perceived mutual benefits (Alter and Hage, 1993). Coordination goes a step further in requiring that autonomous units adjust their policies in order to reduce contradictions for the pursuit of mutual benefits (Stead and Meijers, 2009). Therefore, coordination usually results in greater interdependence (Mulford and Rogers, 1982). Finally, integration requires sectoral boundaries to be crossed to ensure joint policy making to address cross-cutting issues and challenges (Stead and Meijers, 2009). That is the case, for instance, when environmental objectives are sought to be integrated into sectoral policies for energy or agriculture, rather than remaining subsidiary to them (Lafferty and Hovden, 2003; Jordan and Lenschow, 2010).

The instruments and strategies to realize environmental policy integration (e.g. green budgeting, policy appraisal and impact assessment) have been subject to much scholarly debate, though most of it remains limited to European contexts (see Jordan and Lenschow, 2010; Nilsson et al., 2012; Runhaar et al., 2014). More recently, debates over climate change policy integration – or the mainstreaming of climate concerns into sectoral policies (e.g. climate-smart agriculture) – have also come to the fore (Adelle and Russel, 2013). A prevailing assumption, however, of many advocating environmental policy integration is that the environmental concerns should have "principled priority" over other sectoral goals or over social and economic dimensions of sustainable development (Jordan and Lenschow, 2010). This remains a normative conflict, not only because that is seldom translated into policy making, but also because of the existence of different "varieties of environmentalism" based on distinctive sets of underlying norms (Guha and Martinez-Alier, 1997).

In revisiting debates around policy coherence and institutional interactions, our interest here is to explore how REDD+ development and implementation is both shaping, and is shaped by, the institutional and policy context governing (integrated) land use in a specific context.

3. Integrated approaches to REDD+: experiences from Latin America

Although REDD+, as envisioned within the UNFCCC, is intended to operate at the national level, countries can, as an interim measure, move forward with REDD+ development and implementation at the subnational level. Brazil, Mexico, and Ecuador have begun to operationalize REDD+ using different approaches and at various scales.

In assessing how far REDD+ interventions can go in stimulating integrated landscape approaches to land use, we first identify, for each of the three cases, the mixes of policy instruments envisaged for REDD+ implementation, and explore how these are related to existing land-use policies and instruments. We then assess emerging REDD+ governance arrangements, in terms of who participates, and what decision-making mechanisms are in place, and again consider these in relation to existing land sector governance. In doing so, we pay special attention to agricultural policies and decision-making structures. With these two building blocks (mixes of policy instruments and governance arrangements), we then evaluate the extent to which REDD+ is enabling integrative land-use approaches, using the cooperation – coordination - integration scale to evaluate the extent of policy coherence.

3.1. Acre State (Brazil)

Acre State lies in the western part of the Brazilian Amazon. Its area is 86% covered with rainforest (INPE, 2014). The past decades have seen an explosion in pastureland expansion. Acre's cattle herd grew over 500% between 1990 and 2014, and despite intensification and increases in livestock productivity, area expansion continues to take place, making cattle ranching by far the main driver of deforestation in the state (followed by subsistence slash-and-burn agriculture) (Acre, 2010a; Rodrigues, 2014). Although meatpacking industries are few and concentrated, there are over 40 thousand families of smallholders in Acre, most of which raise cattle, even inside protected areas (Rivero et al., 2009; Freitas, 2012).[1]

As such, Acre's policy to counter deforestation has been to target smallholder behavior. A System of Incentives for Environmental Services (SISA in Portuguese) has been in place since 2010 to channel funds for conservation and sustainable rural development, including from REDD+ (Acre, 2010b). Its mix of policy instruments includes: (1) rural extension services and technical assistance for the creation of smallholder cooperatives and the uptake of agroecological practices (e.g. pastureland management and restoration, to prevent area expansion); (2) bonus payments to farmers who refrain from using fire for slash-and-burn agriculture and, instead, agree to grow nitrogen-fixing leguminous crops such as velvet bean (*Mucuna pruriens*) to restore soil fertility; (3) subsidies to smallholder value-chains for non-timber forest products (NTFPs) (notably wild rubber, grown in the forest instead of as monocultures); and (4) investments in locally-owned industrial processing capacity to have smallholders climb up in the value-chain and obtain increased revenues (see Duchelle et al., 2014; Nascimento, 2014; WWF, 2014).

In this context, REDD+ has worked as a financial boost for SISA. As of 2015, it had acquired over USD 50 million from various funds, including EUR 25 million from Germany's REM Programme. A "Forest Fund" has been developed, working as a green budget to support SISA's policy instruments (CEVA, 2013). According to SISA's policy-makers in Acre, REDD+ funds have enhanced the functioning of these instruments, although they were already in place, by increasing the level of resources invested (e.g. the subsidy to wild rubber grew, see WWF, 2014) and their geographical coverage, helping these instruments reach more families.[2]

However, important challenges remain. SISA may have successfully integrated environmental and development concerns in its policies, but it has not yet succeeded in coordinating or promoting coherence with the agriculture policies that support business-as-usual land use, particularly cattle ranching. Although many of these policies stem from the national level and therefore are outside Acre's policy-making scope, some are generated within the state itself. For instance, between 2011 and 2014, public agricultural credit for business-as-usual from national programs amounted to about USD 56 million in Acre – twice as much as all the REM funds acquired – and much of it went to livestock farming (Moreira and Campos, 2015). Acre itself, too, has given tax incentives such as up to 80% value-added tax (VAT) exemption on cattle sales for slaughtering in neighboring states (Acre, 2014).

Moreover, SISA's policies clearly have not been aimed at any of the drivers of unsustainable land use. Instead, they have built a parallel system of incentives that target the same actors – mostly smallholders – with the goal of swaying them towards more sustainable activities. For instance, in attempting to stem conventional ranching practices and pastureland expansion, SISA has allocated 70% of the resources

[1] Interviews with Acre's government officials, and civil society organizations (CSOs). Rio Branco, 2014.

[2] Interviews with Acre's government officials, and CSOs. Rio Branco, 2014.

from its latest REM contract (or about EUR 6 million) to "sustainable cattle ranching", to finance pastureland restoration and genetic improvement of livestock (see CEVA, 2013). These efforts, however, run in tandem with business-as-usual incentives. In fact, Acre's State Plan for the Prevention and Control of Deforestation, produced by its Secretariat of Environment, fails to recognize – let alone address – the incentives given by the same state to deforestation's main driver, which is agriculture (see Acre, 2010a).

Also, while SISA includes a powerful multi-stakeholder State Commission for Validation and Monitoring (CEVA), its representativeness remains limited. CEVA members include four state-level agencies and four non-state actors (two NGOs, a labor union and a timber industries association), and the Commission possesses policy- and decision-making power (Acre, 2010b). However, none of its members represent farmers, whose livelihoods are at stake, or the livestock industrial sector. As a result, a disconnect persists between the forest sector that has embraced the need for sustainable rural development, and a mainstream agricultural sector where business-as-usual continues unabated.

In addition to those conflictive sectoral policies, there is a set of contextual factors unfavorable to the success of SISA's policies. For one, there are operational difficulties due to the very limited infrastructure in the region. Poor transportation capabilities have hampered physical access to markets for more sustainable produce. Furthermore, smallholders have faced economic barriers, as agro-ecological or sustainably harvested products generally receive undifferentiated market treatment and encounter a lack of demand (see Schmitt et al., 2013; Revollo-Fernández, 2015). As elsewhere, certification has been criticized by NGOs and government officials in Acre for being too limited in terms of products, market absorption and premium prices, while being frequently perceived as burdensome in terms of requirements (see also Hospes, 2014).[3] In contrast, cattle have very easy liquidity as assets, as meat has a large demand and a well-established market. Cattle also work as a "savings account" for ranchers, particularly poor ones, who may easily sell the animals in times of need.[4] Transportation is easy, as the cattle can move by themselves through unpaved roads and muddy terrain, which otherwise are significant hindrances to the commercialization of most crops and NTFP in Acre (Prado and Ribeiro, 2011). Finally, cattle ranching provides social status and enjoys large cultural popularity in Acre (as in other parts of Latin America), encouraged by regular promotional events (e.g. ExpoAcre) sponsored by meat companies, local ranchers and politicians (with musical concerts, entertainment, ample media coverage, etc.)[5] (see Fig. 1).

Summarizing, REDD+ in Acre has supported existing policies that integrate (forest) conservation and rural development, but no cooperation, collaboration or integration has taken place among forest and agricultural sectors. This lack of policy coherence is present at both national and state levels. Thus, while a rather coherent mix of policies is emerging in the specific realm of conservation and its link to rural development, the impact of such coherence is limited, due to lack of engagement with the mainstream agricultural sector.

3.2. Yucatan Peninsula (Mexico)

The Yucatan Peninsula comprises the Mexican states of Campeche, Quintana Roo, and Yucatan. It harbors most of Mexico's remaining rainforests, but also contributes over 40% of the deforestation witnessed in the country (Hansen et al., 2013), caused primarily by unsustainable cropland and pastureland expansion for agro-industrial development (Turner et al., 2001; CONAFOR, 2015). The Yucatan Peninsula is also one of Mexico's poorest regions, dotted with peasant and Maya indigenous communities that control much of the forest under the communal property system of *ejidos* (Robles-Zavala, 2010). Therefore, reconciling sustainable rural development and forest conservation under a landscape approach is regarded by many as a key function for REDD+ in Mexico (CONAFOR, 2015; Fishbein and Lee, 2015).

In 2010, on the occasion of the UNFCCC COP 16 in Cancún, a Mexican city located in the Yucatan Peninsula, the three governors of the peninsula signed a memorandum of understanding for joint action. This later evolved into coordination of ongoing forest conservation activities (see Yucatan et al., 2010), and enabled the identification of the Peninsula of Yucatan as one of the first REDD+ early action areas in Mexico. This joint action primarily comprises three elements: (1) monitoring capacity and cooperation through an integrated Maya Forest Watch system designed to build synergies and avoid duplication across ongoing activities; (2) establishment of a common Peninsular Climate Change Action Fund for joint finance acquisition; and, eventually, (3) coordinated investments from this green budget in policies for sustainable rural development and forest conservation (Fishbein and Lee, 2015).[6]

That said, to date most REDD+ related finance and policy instruments relevant to the peninsula have stemmed from the national level. Although the public consultation of Mexico's National REDD+ Strategy is being finalized (as of June 2016), early actions have been carried out in priority areas, such as through the Special Program for the Yucatan Peninsula (PEPY). Mexico's National Forest Commission (CONAFOR) is in charge of the design and implementation of the REDD+ strategy, although there are multiple NGOs supporting the government's efforts through other national and international resources. CONAFOR's forest conservation and sustainable rural development programs include national and local payment for ecosystem services schemes, community forestry management programs, technical assistance for local organizational capacity, subsidies for forest ecosystems restoration, and rural extension services for agroforestry systems (CONAFOR, 2015). Besides forest conservation per se, these instruments also have the goal of raising the income of local communities through value-chain development on NTFPs, such as *chicle* (gum), Ramón nuts, aromatic herbs (e.g. wild oregano), and beekeeping (see CONAFOR, 2015). Wild honey production, in particular, is economically very relevant in the Yucatan Peninsula and especially to the Mayan indigenous communities, as it is exported to high-end organic markets in Europe.[7] As in the case of Acre, there is thus some observed integration of environmental and rural development objectives in the mix of policy instruments put forth.

Yet, these programs remain in stark dissonance with the much larger business-as-usual agricultural incentives provided via Mexico's Secretariat of Agriculture (SAGARPA). Its incentives, mostly direct subsidies to industrial agriculture, are recognized as major underlying drivers of deforestation on the Yucatan Peninsula (Reyes-Hernandez et al., 2003; Fishbein and Lee, 2015).[8] Its largest program, ProAgro Productivo (formerly *ProCampo*), alone provided USD 16.7 million in subsidies to industrial farming in the Yucatan Peninsula in 2014 – approximately the same amount as PEPY's entire budget for that year (CONAFOR 2014; SAGARPA, 2014a).

SAGARPA's programs have large-scale cattle ranching, soy and maize monocultures as major beneficiaries, because payments are generally calculated in proportion to farm size or to output. As of 2014, ProAgro Productivo started requiring that farmers also "prove" that the resources have been spent on "improvements", which usually means presenting receipts from the purchase of external agricultural inputs (see SAGARPA, 2014b). Other subsidies, meanwhile, such as the Productive Assets Program (*Programa de Activos Productivos*), have provided farmers with vouchers to be exchanged for hybrid seed packages, fertilizers and pesticides (*ibid*). Agricultural credit, too, is frequently conditioned to the purchase of such external inputs, further incentivizing the conventional agricultural production systems that have been

[3] Interviews with Acre's government officials and CSOs. Rio Branco, 2014.
[4] Interviews with Acre's government officials and CSOs. Rio Branco, 2014.
[5] Interviews with Acre's government officials and CSOs. Rio Branco, 2014.
[6] Interviews with government officials and CSOs. Mérida, 2015.
[7] Interviews with government officials and CSOs. Mérida, 2015.
[8] Interviews with government officials and CSOs. Mérida and Mexico City, 2015.

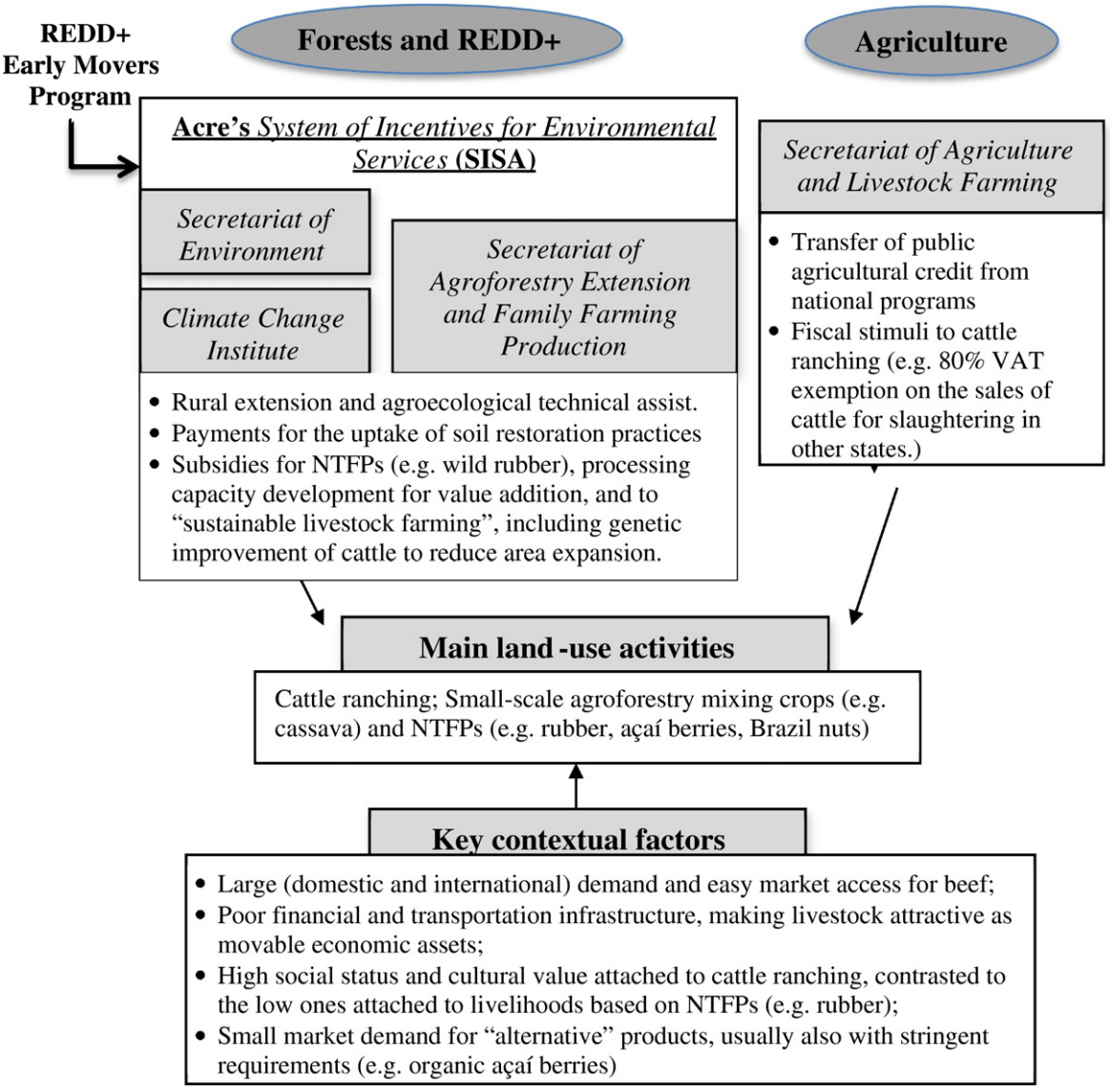

Fig. 1. REDD+ in Acre State (Brazil).

historically responsible for deforestation on the Yucatan Peninsula (see also Hellin and Meijer, 2006)[9] (see Fig. 2).

This continued co-existence of different programs suggests a continuing lack of coherence. The subsidy programs from CONAFOR and SAGARPA often compete for the same actors, incentivizing them in different, and often opposite, directions. As a result of the large subsidies allocated to conventional agriculture, farmers that could opt for one of the more sustainable alternatives have to face high opportunity costs. For instance, SAGARPA once offered an agroecological subsidy (*ProCampo Ecológico*) that fostered organic production; however, as the subsidy was similar to the regular one but with additional requirements, there was no actual incentive for the farmers, and due to the lack of interest it was discontinued (OECD, 2003). Even when instruments do not target the same actors, they still create problems when fostering conflicting activities in the same region. For instance, genetically modified pollen from soybean monocultures on the Yucatan Peninsula has contaminated wild honey production from local peasant and indigenous communities, compromising its organic certification and, thus, access to profitable European markets (Villanueva-Gutiérrez et al., 2014). As a result of such rather intrusive incoherence, the most prominent economic activity promoted by CONAFOR's programs on the peninsula has been undermined.

Finally, while the need for cooperation across the forest and agriculture sectors in Mexico is often articulated, in practice, this collaboration has been largely lacking. An overarching national Law of Sustainable Rural Development formally calls for agriculture's reconciliation with forest conservation, yet it is only partially effective, as rural development issues have been embraced by Mexico's forest policies, but not the other way around (Torres and Delgadillo, 2009; Deschamps et al., 2015). Moreover, REDD+ implementation in the country de facto revolves only around CONAFOR's programs.[10] SAGARPA has claimed to be involved and formally declared its support to REDD+, but this is marginal in its impact, as it does not even acknowledge agriculture's role as a deforestation driver (see SAGARPA, 2009). In practice, SAGARPA's policies are essentially disconnected from Mexico's REDD+ efforts.

In sum, REDD+ in Mexico seeks to stimulate a coherent mix of policies integrating forest conservation, sustainable rural development and

[9] Interviews with government officials and CSOs. Mérida and Mexico City, 2015.

[10] Interviews with government officials and CSOs. Mérida and Mexico City, 2015.

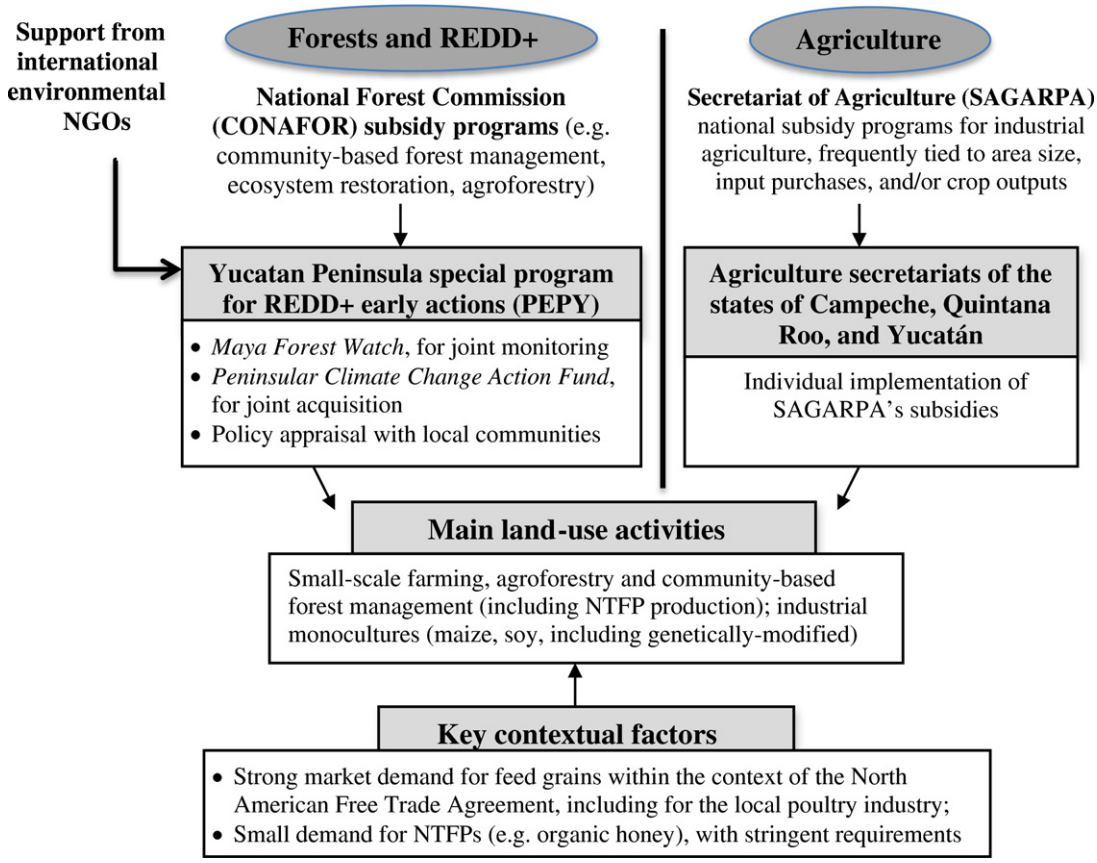

Fig. 2. REDD+ in Yucatan Peninsula (Mexico).

sustainable land use. While interconnections between agricultural and other land uses are formally recognized in policy documents, there is yet no discernible collaboration, coordination or integration in seeking policy coherence.

3.3. Ecuador

Ecuador is a mega-diverse country with 36% of its territory covered by forest, mostly in the Amazon region (FAOSTAT, 2012). Deforestation has been caused primarily by agricultural expansion (e.g. oil palm), extractive industries (e.g. gold mining and oil exploitation), and associated infrastructure development such as road expansion that facilitates access to formerly remote areas (Mena et al., 2006; Sierra, 2013; Pellegrini et al., 2014). These drivers remain strong, as they are at the core of Ecuador's economy, with crude oil accounting for over half of the country's exports, and much of the rest being dominated by cash crops such as banana, cacao and coffee (BCE, 2015). Still, the country has made increasing efforts to counter deforestation, including through policies linked to REDD+.

Ecuador's REDD+ strategy has been developed by the Ministry of Environment (MAE), in consultation with non-state actors through a REDD+ Dialogue Table (Proaño and Ortiz, 2015). Together with Ecuador's National Environmental Fund, MAE controls a dedicated REDD+ Fund created to pool results-based payments. Public resources, in turn, provide for *ex ante* finance (Arroyo and Silva, 2014). It has been the first country to sign a REM contract to demonstrate early actions on REDD+, which foresees up to USD 63 million from Germany and Norway for verified emission reductions (BMZ et al., 2014). Ecuador has also received significant support from UN-REDD, a collaborative multi-agency UN program for capacity building on REDD+ (see UN-REDD, 2015).

Overall, Ecuador's strategy has aimed at increasing the economic value of standing forests while separately tackling drivers of deforestation in "priority areas" – both geographically (e.g. the Amazon) and thematically (e.g. energy and agriculture) (Proaño and Ortiz, 2015).[11] The flagship instrument for such incentivizing – now being expanded with the help of REDD+ funds – is the Socio Bosque Program, an incentive mechanism that pays individual or collective landowners per hectare of conserved forest. Contracts last for 20 years, and for equity reasons the amount paid per hectare decreases after a certain area size (MAE, 2012). As of 2015, Socio Bosque covered 1.4 million hectares and disbursed USD 10 million per year to a total of 173 thousand beneficiaries, mostly peasant and indigenous communities who also receive technical support to elaborate investment plans for the money received (MAE, 2015a). Only a quarter of Socio Bosque's payments have actually gone to forest conservation itself (e.g. equipment for community forest monitoring, local forest rangers), with the rest being used to cover local development needs such as on agriculture, food security, organizational capacity, infrastructure, education and health (MAE, 2015a). It seems that the logic is not to promote behavioral change, but to prevent it, i.e. to reward existing conservation efforts in order to stave off land-use change while financing socioeconomic improvements.

Tackling deforestation drivers, in turn, has been the aim of other elements incorporated into Ecuador's REDD+ strategy, notably the country's policy "Change of the Energy Matrix" (*Cambio de la Matriz Energética*) and the Amazonian Productive Transformation Agenda (*Agenda de Transformación Productiva Amazónica* – ATPA) (Proaño and Ortiz, 2015). These policies are part of the government-wide efforts to move away from Ecuador's historical dependence on fossil fuel and raw material exports through public investments in renewable energy

[11] Interviews with government officials and the UN-REDD country team. Quito, 2014.

and agroindustrial development (SENPLADES, 2013). It remains unclear, however, to what extent these policies help curb or actually increase deforestation, and to what extent they will be (co-)financed by REDD+. Most renewable energy investments to date have been for new dams to power mining operation, with clear negative impacts on forests (Amazon Watch, 2014). Similarly, the ATPA, put forth by Ecuador's Ministry of Agriculture (MAGAP), foresees a budget of USD 416 million by the end of 2017, but has focused primarily on rather conventional agronomic and commercial investments (e.g. productivity increases through genetic improvement of cash crops and livestock, capacity building for local processing, and market access). This also includes known deforestation drivers in Ecuador such as oil palm development (see MAGAP, 2014). This has drawn critique from civil society and from within the government itself, as in a formal request from the National Secretariat of Planning and Development (SENPLADES) for an explanation on how to avoid risks of increasing agricultural expansion in the Amazon (SENPLADES, 2014).[12]

Despite the existence of a multi-stakeholder REDD+ dialogue table, land-use policies from MAE and MAGAP are yet to construct synergies and have occasionally been in conflict. For instance, while Socio Bosque has recently promoted an ecosystem restoration modality using native tree species and another "bio-commerce" modality for sustainable agroforestry and NTFP value-chains (e.g. *guayusa*, a native plant increasingly used for energy drinks) (MAE, 2014), ATPA has fostered industrial cash-crop monocultures in the Amazon and MAGAP even offers its own reforestation program, based on commercial tree plantations, which acknowledges Socio Bosque's ecosystem restoration modality but actually competes with it – and pays more per hectare (see MAGAP, 2014). Thus, in practice, REDD+ remains essentially within the purview of MAE, the only ministry with whom UN-REDD directly engaged (see UN-REDD, 2015). As a result, cross-sectoral coordination has yet to materialize (Fig. 3).

4. REDD+ in a landscape approach: achievements and shortcomings

The case studies show that REDD+ can indeed help deliver benefits beyond carbon, and spur activities geared towards promoting sustainable (rural) development. However, our analysis also makes clear that embracing a landscape approach remains challenging in practice. In all three cases, we show that REDD+ has not landed in an institutional void nor created its own (new) implementation instruments. Instead, it has been proactively added to pre-existing domestic policies and institutional frameworks, thereby enhancing some policy coherence through integration. This implies, however, that the success of REDD+ rests as much on the design of the pre-existing policies it supports as on its own evolving dynamics.

A comparative assessment of the three cases indicates that REDD+ has had a catalytic (boosting) effect on existing policies, mainly through provision of financial support. All three studied regions have established green budgets to pool funds from REDD+ and other sources. In the case of Ecuador and Mexico, REDD+ implementation has also generated additional human resources in the form of capacity building (e.g. from UN-REDD, international environmental NGOs, bilateral cooperation). Arguably, REDD+ has also enhanced the legitimacy and international visibility of forest conservation and related policies, which may help to attract further finance and investments.[13] The effect of REDD+ on domestic policies, such as Acre's SISA or Ecuador's Socio Bosque, has been primarily to improve the means of implementation of such existing policies (see Oberthür and Gehring, 2011). By providing additional financial and human resources, REDD+ has helped to increase the coverage, impacts and, thus, the effectiveness of those domestic policy instruments.

Across all three cases, policies have emphasized delivering benefits beyond carbon from REDD+ implementation, utilizing a mix of instruments aimed both at forest conservation and at sustainable rural development. Policies have focused particularly on creating positive socioeconomic impacts, such as through improvements in local community incomes (e.g. from forest conservation, sustainable agriculture, and/or NTFP value-chains) and, to a lesser extent, organizational capacity and participation in governance. The instrument mixes have combined direct payments and targeted investments in capacity building (including processing capacity for value addition) through the creation of infrastructure, rural extension services, and agro-technical assistance oriented towards the promotion of agroecology.

REDD+ has thus succeeded in identifying and supporting policies that bundle forest conservation and rural development goals, and carbon and non-carbon benefits. Nevertheless, this has been pursued without addressing some structural land-use issues, such as land tenure. These REDD+ early actions have essentially worked within the existing land tenure frameworks, without affecting them (see also Corbera et al., 2011; Sunderlin et al., 2014). Likewise, those policies have not addressed the underlying drivers of deforestation, such as incentives that continue to foster agricultural expansion - the two are instead present simultaneously (see also Weatherley-Singh and Gupta, 2015). Instead of seeking coherence with agricultural policies, the prevalent strategy has been for REDD+ to absorb the responsibility for promoting more sustainable agricultural development pathways. This, however, has resulted in a "schizophrenic" approach wherein REDD-implementing countries are carrying on with both business-as-usual and niche approaches to sustainable rural development and forest conservation. This finding supports the call by others for REDD+ to stimulate transformational change (Fischer et al., 2016).

In Acre, SISA's incentives to promote agro-ecological practices run in parallel to, and have tried to outcompete, those in place for cattle ranching; in Mexico, subsidy programs from CONAFOR and SAGARPA compete for landholders; and in Ecuador, financial payments from Socio Bosque try to compete with market and policy incentives for cash-crop agriculture, such as from ATPA. Across the cases, there is a consistent pattern whereby REDD+ supported policies remain disarticulated from the main international and national drivers of forest loss, even as they seek to mitigate the opportunity costs of forest conservation. Notably, in all three cases, REDD+ implementation is the responsibility of environmental or forest departments, which have traditionally lacked sufficient clout to influence agricultural policies. In recognizing this, interviewees pointed to the antagonistic historical relations between forest and agricultural departments, their divergent political interests and priorities, and the lack of sufficient high-level oversight of such crosscutting issues – all of which are known inhibitors of policy coherence (see Halpert, 1982; OECD, 2009; Stead and Meijers, 2009).[14] Our analysis shows that all three REDD+ implementation strategies examined here have tried to disrupt the undesirable outcomes of conventional agricultural policies, not by tackling these drivers directly, but by seeking to incentivize the same actors – mostly farmers – to shift towards more sustainable practices. These incentives have usually included alternative, forest-friendly income sources to smallholders, in a clear attempt to sway them away from conventional, deforestation-driving activities such as cattle ranching.

This tug of war between REDD+ policies and deforestation drivers, however, raises at least three significant problems. First, conflictive policy instruments clearly hinder the effectiveness of the policies REDD+ is trying to support and, thus, the effectiveness of REDD+ itself. The disruption of local wild honey production due to GM pollen contamination in Mexico, as well as Ecuador's competing forest restoration programs, are cases in point.

[12] Interviews with government officials and CSOs. Quito, 2014.

[13] Interviews with government officials and CSOs. Mérida, Rio Branco, and Quito, 2014/2015.

[14] Interviews with government officials and CSOs. Mérida, Rio Branco, and Quito, 2014/2015.

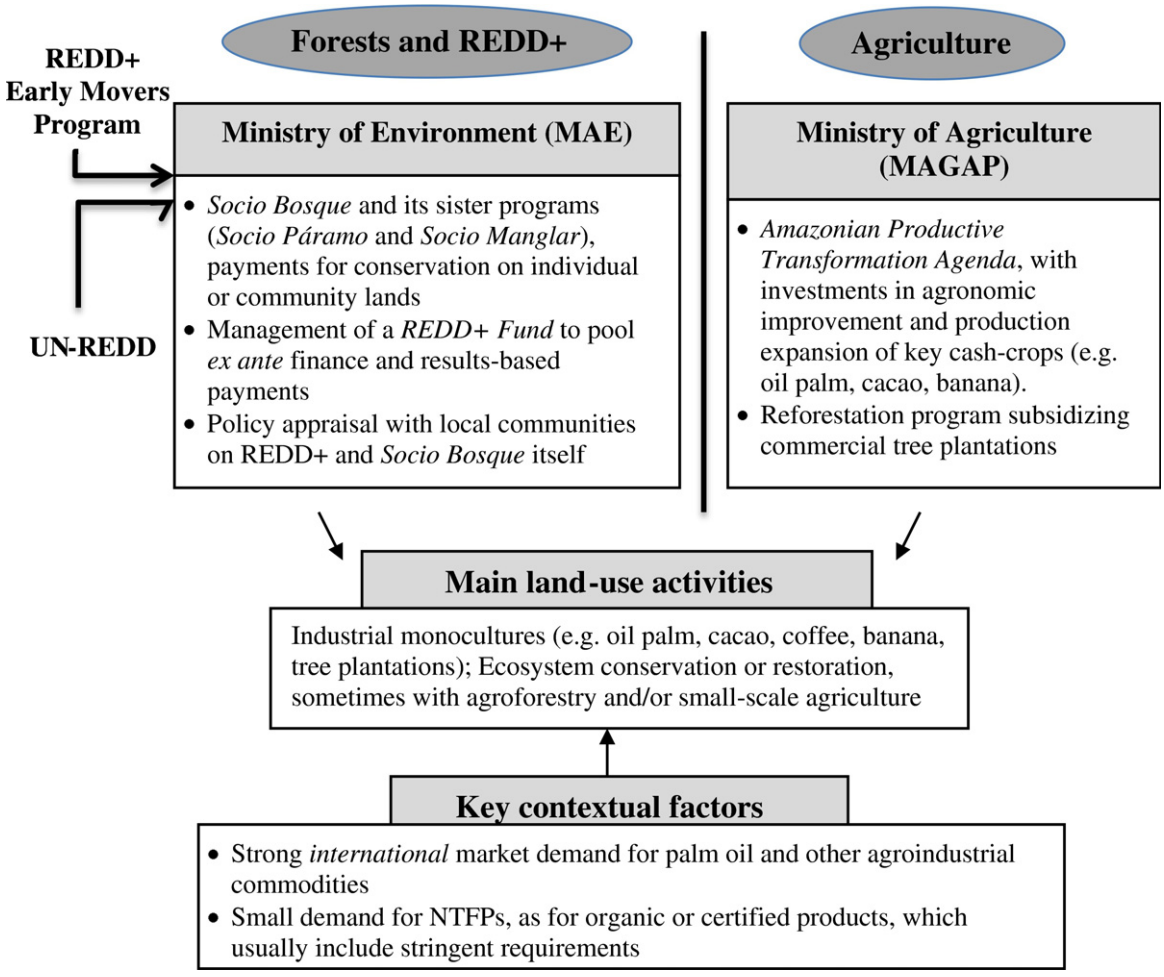

Fig. 3. REDD+ in Ecuador.

Second, competition between REDD+ and unfettered drivers of deforestation is financially unsustainable. Policy instruments for sustainable land use might eventually have to be dismantled or scaled down if REDD+ finance is discontinued before they have become part of the core development agenda. Most current finance, such as Germany's REM finance, is still in the form of contracts with limited duration. It remains unclear where new resources will come from. Without a long-term agenda, REDD+ finance risks becoming just one more temporary subsidy or one more "market" that competes with existing ones – for as long as foreign resources flow. This problem seems particularly critical in Acre, whose SISA program is largely dependent on external finance.

Third, there is a problematic transfer of responsibility underway here, as governments and private actors carry on with business as usual, while leaving activities to promote sustainable rural development to be financed from foreign sources, such as REDD+. For instance, Acre's subsidy to wild rubber is state law, yet it is being financed by Germany's REM Programme. This raises the question whether it is viable – or even appropriate – for REDD+ to finance better practices in cattle ranching, including objectives such as livestock genetic improvement, while longstanding incentives to continue conventional land-use practices remain in place. As such, the lack of coherence between REDD+ policies and institutional arrangements, and mainstream agricultural policies and governance arrangements, confirms the inherently contested nature of efforts to secure policy coherence.

The contested nature of any efforts to secure policy coherence is also reflected in the fact that REDD+ implementation has been handled exclusively by forest or environmental departments, without meaningful participation from either state or non-state actors involved in agriculture (on this, see also Di Gregorio et al., 2013, and Rantala et al., 2014). Agricultural departments and farmers may in some cases be consulted, but without influencing REDD+ policy design or exercising decision-making power (Fung, 2006). Meaningful participation from producer associations, for example, could be critically important for the design and uptake of policies that meet the expectations and needs of farmers whose livelihoods are at stake (Hart et al., 2016). Similarly, the negotiation of trade-offs and reconciliation of various objectives may necessitate more meaningful dialogue with the policy-makers in the sectors behind activities that drive deforestation. REDD+ implementation has largely eschewed such a contentious political process so far.

Finally, the case studies make clear that, while policy initiatives and incentives may be designed to function at varying scales of governance, REDD+ achievements are particularly dependent on national policies. The cases of Acre and the Yucatan Peninsula show that sub-national initiatives can play important roles, including in monitoring forest practices, or in engaging local stakeholders, yet their success is hindered by the persistence of business-as-usual incentives stemming from the national level, and over which sub-national programs have little control. More specifically, in the quest for land-use policy coherence, involvement of national agricultural policy-makers appears to be most crucial.

5. Conclusions

This article has analyzed how, and to what extent, REDD+ has contributed to integrated land-use approaches that reconcile various

landscape functions to promote forest conservation, and rural and agricultural development. We summarize here three key conclusions from the "reality check" we have undertaken through our case studies.

First, the Latin American experiences assessed here show that REDD+ has to date functioned largely by providing additional resources to further the implementation of domestic policies for integrated land use that might already be in place. The case studies thus underscore the importance of having functional domestic policy frameworks in place before REDD+ implementation, if REDD+ is to have an impact on integrated land use. In such contexts, our cases show that it has, to date, served the (limited) function of strengthening their means of implementation through the provision of additional financial and human resources.

Second, REDD+ has succeeded in supporting coordinated and even integrated forest conservation and agricultural policies, but only insofar as these integrated policies are being spearheaded by environmental ministries. In other words, attainment of policy coherence has so far been limited to within the realm of the forest or environmental agencies implementing REDD+. Significant limitations remain with respect to promoting cross-sectoral policy coherence with mainstream agricultural development, one of the main drivers of deforestation. The cases show very little evidence of collaboration, coordination or integration between existing sustainable land-use policy mixes and mainstream agricultural policies and practices. REDD+ so far has also failed to involve actors from different sectors (such as farmer organizations, agricultural commodity chains, or agriculture ministries) in its attempts to forge policy and institutional coherence.

Third, given this failure to build coherence with other policies affecting land use, REDD+ implementation has itself embraced the effort to meet various landscape functions through its own policies. Instead of mainstreaming environmental concerns into sectoral policies (i.e. environmental policy integration), environmental (REDD+) policies have sought to integrate social and economic development needs of rural communities. This may illustrate the importance of developmental concerns to Latin American environmentalism, in contrast to the more conservation-oriented varieties of highly industrialized countries, where most of the environmental policy integration literature originates (see Guha and Martinez-Alier, 1997). However, this has also meant that funds for environmental conservation are increasingly being used to provide for a whole range of other needs that poor rural communities have, in Latin America as elsewhere, such as education, health, food security, and local infrastructure. While this may positively expand the benefits of REDD+ and its related policies, it is financially unsustainable, particularly if much larger financial streams and incentives continue to support business as usual in parallel. This conclusion is in line with other studies pointing to the need to analyze land-use integration within the context both of broader development agendas and of prevailing power dynamics across competing sectors (see Naess et al., 2015; Agrawal et al., 2014).

We conclude, thus, that while REDD+ can be a valuable instrument in catalyzing international support to promote more integrated land-use policies and practices, leaving it to do the job alone is not only ineffective, but will also overburden REDD+. The creation of alternative economic opportunities, such as through payments for conservation or sustainable value-chain development remain key, but without addressing the underlying drivers of deforestation, this leads to a tug-of-war competition that REDD+ will be unable to sustain. Moreover, there is a missed opportunity to harness the substantive resources driving business as usual – such as agricultural subsidies and mainstream finance – in favor of sustainable rural development. In short, broader national and international political commitment for sustainable land use is a precondition for, rather than a result of, successful REDD+ actions.

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