frontiers in Forests and Global Change

ORIGINAL RESEARCH
published: 12 March 2020
doi: 10.3389/ffgc.2020.00027

Commodity-Centric Landscape Governance as a Double-Edged Sword: The Case of Soy and the Cerrado Working Group in Brazil

Mairon G. Bastos Lima and U. Martin Persson*

Division of Physical Resource Theory, Department of Space, Earth and Environment, Chalmers University of Technology, Gothenburg, Sweden

Persistent ecological and socio-economic impacts from the expansion of industrial monocultures in the tropics have raised land use sustainability to the top of the environmental policy agenda. As major crops such as soy continue to experience growing market demand and threaten both natural ecosystems and traditional populations, a number of multi-stakeholder governance initiatives have been established around agricultural commodity chains or key landscapes. Effectiveness in curbing unsustainable land use, however, remains limited. In this context, innovative initiatives have blurred the lines to combine both supply chain and landscape governance. We analyze such arrangements—here conceptualized as commodity-centric landscape governance (CCLG)—with an in-depth case study of the Cerrado Working Group, a multi-stakeholder initiative led by civil society and the soy agribusiness to address land use change in that savanna landscape in Brazil. The paper examines how that initiative has come about, its agenda, as well as usually underexposed political dimensions using agenda-setting theory. The research is based on extensive fieldwork in Brazil, with data collected through document analysis and 56 key-informant interviews. The findings suggest that a sustainable development agenda for the Cerrado has been substantially narrowed to become mostly one of conversion-free soy supply, serving more the interests of that agroindustry and its consumers than those of the landscape's most vulnerable stakeholders, such as local communities. While the Cerrado Working Group has importantly broadened the policy scope beyond commodity certification, its limited inclusiveness and a skewed agenda have led to instruments that target only soy farmers as beneficiaries. We conclude that, although effective for targeting conversion drivers, CCLG can crystallize and reinforce existing land use patterns by granting disproportionate power to dominant stakeholders, thus limiting the agenda to incremental changes. As a consequence, distant demand-side actors may exert greater governance authority than the landscape's own population. If embodying norms of inclusiveness and equitable participation, CCLG may serve as an entry point, but it does not *per se* replace inclusive land-use planning and integrated landscape governance.

Keywords: landscape approach, supply chains, agriculture, power, agenda setting, inclusiveness

OPEN ACCESS

Edited by:
Amy E. Duchelle, Center for International Forestry Research (CIFOR), Indonesia

Reviewed by:
Pablo Pacheco, World Wildlife Fund, United States
Rachael Garrett, ETH Zürich, Switzerland
Samuel Levy, ETH Zürich, Switzerland, in collaboration with reviewer RG

****Correspondence:***
Mairon G. Bastos Lima
mairon.bastoslima@chalmers.se

Specialty section:
This article was submitted to People and Forests, a section of the journal Frontiers in Forests and Global Change

Received: *15 July 2019*
Accepted: *24 February 2020*
Published: *12 March 2020*

Citation:
Bastos Lima MG and Persson UM (2020) Commodity-Centric Landscape Governance as a Double-Edged Sword: The Case of Soy and the Cerrado Working Group in Brazil. Front. For. Glob. Change 3:27. doi: 10.3389/ffgc.2020.00027

INTRODUCTION

Land use governance has come to the fore as a major sustainability issue, particularly for tropical regions of the world, where land use change—primarily deforestation for agricultural expansion—is a key driver of global climate change and biodiversity loss (Lambin et al., 2018; Gardner et al., 2019). In South America, valuable ecosystems such as the Amazon and the Cerrado (Brazil's highly biodiverse savanna) have continuously given way to cattle ranching and monoculture farming, especially soy (Rausch et al., 2019). These are landscape transformations with not only ecological but also social impacts, such as on livelihoods, land rights, and local food security (Borras et al., 2012). These are also global processes, as a large share of those land use changes are driven by agricultural commodity exports, particularly to Europe and China (Yao et al., 2018; Pendrill et al., 2019). However, the policy and governance setting for addressing such land use issues remains fragmented and full of gaps. Most tropical countries suffer from limited domestic regulations, ill-functioning institutions, low enforcement, and shortage both of resources and political will (Lambin et al., 2014). Binding international agreements on sustainable land use and ecosystem protection are also absent, as these issues tend to evoke sovereignty sensibilities and arguments around national interests (Dimitrov, 2005; Bastos Lima and Gupta, 2014).

In this complex context, two main types of governance have emerged. On the one hand, there have been myriad sustainable supply chain initiatives in the forms of multi-stakeholder roundtables, commodity certification, and public or private demand-side policies to promote sustainable land use (Lambin and Thorlakson, 2018; Lambin et al., 2018). They include, for instance, the Roundtable on Sustainable Palm Oil (RSPO), the Round Table on Responsible Soy (RTRS), as well as consumer-country regulations with extraterritorial effects such as France's due diligence law or the European Union's sustainability criteria for biofuel feedstocks (Bastos Lima and Gupta, 2014; Cossart et al., 2017). These initiatives usually are consumer-driven, aspire to be globally applicable, and not rarely encounter resistance from producer countries that resent the imposition of (foreign) environmental standards (Bastos Lima and Gupta, 2014). On the other hand, there has also been growing inclination to landscape or jurisdictional approaches, understood as holistic strategies to accommodate for different actors, sectors, needs, interests, and often competing land use claims in a given geography (Arts et al., 2017). They include various sub-national initiatives, such as the Produce, Conserve, and Include (PCI) strategy by the Brazilian state of Mato Grosso, as well as implementation of global programs such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation) with the help of international climate finance (Boyd et al., 2018; Stickler et al., 2018).

Some initiatives, however, have combined the commodity focus with a landscape approach, targeting a specific commodity identified as an important driver of change in a given place. Two examples of such initiatives are the Cerrado Working Group (*Grupo de Trabalho do Cerrado—GTC*) and the Amazon-centered Soy Working Group (*Grupo de Trabalho da Soja—GTS*) in Brazil. They have involved civil society organizations, the soy sector, government actors, and institutionalized relations also with demand-side players while developing landscape-specific policy instruments. A landmark achievement by the GTS is the Amazon Soy Moratorium, which has successfully reduced forest clearing for soy by having traders agree not to source from areas deforested after 2008 (Gibbs et al., 2015). The GTC, which emerged as an offshoot of the GTS, has established negotiations also with foreign buyers to propose a variety of policy instruments, most notably the possibility of payments for conservation of Cerrado vegetation beyond legal requirements.

This paper conceptualizes the GTS and GTC as *commodity-centric landscape governance* (CCLG), defined here as a mode of landscape governance that is both landscape-specific and centered around an important commodity of concern. Both initiatives signify governance innovation, but they have not yet been sufficiently analyzed through a political science lens in terms of how they involve views and concerns of different stakeholders, how they came about, their achievements and limitations so far, or their prospects. Here we appraise the features, risks and opportunities of CCLG, drawing from the 10 years of GTS experience and focusing particularly on the GTC's policies and structure. In so doing, we broaden the analytical scope—usually limited to the environmental impacts of those initiatives—to include also issues of equity and participation, as well as the links between inclusiveness and effectiveness. For this analysis, we utilize agenda-setting theory, scholarship on power relations, the conservation policy literature, as well as agri-food governance debates around food security and sustainability.

This qualitative research is mostly exploratory in nature. It relies on the triangulation of multiple sources of evidence, including scientific literature on the Cerrado, primary sources such as GTC meeting briefs, and 56 semi-structured interviews with key stakeholders in Brazil. The stakeholders were selected either due to their direct participation in GTC negotiations or expertise on Cerrado environmental policy, using a snowball sampling technique. The interviews were conducted between October and December 2018, in Portuguese (by the first author, who is Brazilian), with representatives from the soy agribusiness, environmental NGOs, grassroots organizations, as well as government officials at national and sub-national levels, to accommodate for a diversity of perspectives by GTC members and non-members alike. Besides information on the GTC's background and structure, they were asked for views on the group's composition and agenda. Direct quotations are used to illustrate various stakeholder views with their own words and to enable voice. However, due to the political sensitivity of these issues the full anonymity of all interviewees and their organizations has been ensured.

The article is structured as follows. First, we briefly review the literature on landscape approaches to develop the concept of CCLG, before elaborating an analytical framework based on agenda setting. After briefly presenting the context in which the GTC emerged, we examine its agenda-setting process and particularly the prospects of its main initial policy proposition: payments for conservation. We draw lessons on the strengths

and weaknesses of CCLG as an emerging governance format and conclude with recommendations for further research.

ON GOVERNING LANDSCAPES: A CONCEPTUAL FRAMEWORK

Landscape Approaches and Commodity-Centric Landscape Governance (CCLG)

Landscapes are coherent socio-ecological systems or land systems with a set of biophysical, socio-economic, cultural and institutional characteristics (Freeman et al., 2015; Arts et al., 2017; Meyfroidt et al., 2019). They generally are multifunctional geographical spaces where different land uses, objectives, interests and stakeholders interact (O'Farrell and Andersson, 2010; Kozar et al., 2014). As such, landscapes are also political spaces, and they can orientate governance initiatives even when their boundaries do not coincide with formal jurisdictions (Kozar et al., 2014; Ros-Tonen et al., 2018; Van Oosten et al., 2018).

The acceptance of multifunctionality as a prevalent feature of landscapes, in turn, has given rise to the concept of "landscape approach." Although it remains loosely defined, a landscape approach is generally understood as one that regards multiple uses, sectors and actors within the boundaries of a coherent geographical space (Sayer et al., 2013; Arts et al., 2017; Reed et al., 2017). Crucially, it aims to reconcile conservation and production goals, environment and development agendas (Reed et al., 2016). At times, the qualifier of "integrated" landscape approach is used to explicitly emphasize this holistic regard (see Freeman et al., 2015). There is not, however, one single integrated landscape approach, but rather multiple ways of pursuing it in practice (Milder et al., 2014; Bastos Lima et al., 2017; Reed et al., 2017). Alternatively, these are sometimes also referred to as integrated landscape-level initiatives (Zanzanaini et al., 2017; Ros-Tonen et al., 2018).

Landscape approaches have become key in land use policy debates, particularly as ways to reconcile agricultural development and forest conservation in the tropics (Stickler et al., 2018). They are sometimes conflated with "jurisdictional approaches," when there is a high level of government involvement from a given jurisdiction, and thus have become increasingly common ways of implementing international policies such as REDD+ (Boyd et al., 2018). As both the GTS and the GTC illustrate, however, landscape-level initiatives do not always correspond to a jurisdiction, nor do they necessarily have to rely on substantive government participation. Either way, these initiatives have sometimes been challenged by and been unable to address outside drivers of land use change such as national-level policies or international market demand for agricultural commodities (Bastos Lima et al., 2017).

Supply chain sustainability initiatives, usually not bound to a particular landscape but national or global in scope (e.g., RSPO, RTRS, Indonesian Sustainable Palm Oil), have also become increasingly keen on moving "beyond certification" and the logic of premium prices (Poynton, 2015). Through suggestions for "jurisdictional certification" (Nepstad et al., 2013), the gap between geography-centric and commodity-centric approaches is becoming blurred and may be moving toward hybrid formats. Indeed, how landscape governance can effectively reduce sourcing risks (e.g., through the creation of verified sourcing areas) and how supply chain initiatives can be entry points for integrated landscape approaches have been key research frontiers (Kissinger et al., 2013; Deans et al., 2018; Ingram et al., 2018; Lambin et al., 2018; Ros-Tonen et al., 2018).

In regions where one or more agricultural commodities stand out as drivers of land use change, their supply chains have become central to landscape governance, as in the cases of the GTS or of the G4 and MPF-TAC cattle agreements in the Brazilian Amazon (Gibbs et al., 2015, 2016), deforestation-free palm oil in Borneo (Van Houten and De Koning, 2018), or sustainable cocoa in Ghana (Deans et al., 2018). We conceptualize such initiatives as *commodity-centric landscape governance* (CCLG), for its features arguably allow for characterizing it as a specific (sub)type of landscape approach. They are, on the one hand, multi-sectoral in their attempt to accommodate both agricultural and environmental demands, multiple policy fields, conservation and production land uses, and a set of public and private actors beyond the ones who are part of the supply chain. On the other hand, they do focus on a key driver of land use change to be addressed as an "anchor commodity," also to engage more systemically with relevant actors from outside the landscape such as buyers and investors.

As CCLG becomes increasingly common for governing agriculture-forest frontiers in the tropics, we argue that it is key to have the conceptual tools to analyze such a governance format: how it emerges, why, by whom, its achievements, limitations, and implications within the respective landscape and beyond. For landscape governance involves not only the technical challenges of dealing with sometimes conflictive goals and their trade-offs, but crucially also with the questions of whose objectives count or receive priority, what challenges are recognized, how they are framed and addressed, who gets to decide, how this in turn affects conservation and welfare outcomes, as well as who benefits from these outcomes (Pascual et al., 2014; Kusters et al., 2018).

A key reason for exploring these questions is not only that issues of inclusion and equity are important in and of themselves, but also that power asymmetries can play a key role in landscape governance and broadly affect environmental outcomes (Duff et al., 2009; Ros-Tonen et al., 2015). The effectiveness of policy instruments under landscape-level initiatives depends not only on (1) their direct outcomes, achieved via included actors (compared to what would have been the case without the institution, what is commonly termed its *additionality*). Also (2) the number of actors included and (3) the instrument's indirect effects (spillovers) on those who are excluded are key to understanding effectiveness on a landscape level (see Borck and Coglianese, 2009, as well as Börner et al., 2017; Garrett et al., 2019). As such, a more inclusive institution may be more effective not only because it affects the behavior of more actors, but also because a conservation intervention that is perceived as too exclusive or unfair is more likely to result in negative spillovers (Börner et al., 2017). Thus, there may be not only trade-offs between inclusiveness and conservation effectiveness,

which need to be dealt with politically (Arts et al., 2017), but also synergies as fair and inclusive governance may boost also conservation outcomes through increased legitimacy and buy-in from landscape actors (Sayer et al., 2015). A key focus of our analysis of the GTC below is therefore how and to what extent multiple uses, actors and objectives have indeed been accounted for in processes and proposed instruments.

Political Dimensions of Landscape Governance: Inclusiveness, Power and Agenda Setting

The questions of "who gets what, when and how" are definitional of politics and crucial to governance, particularly in contested policy areas where multiple interests are at play (Lasswell, 1936; Biermann et al., 2009). Such outcomes, in turn, depend on who participates in decision-making procedures and under what conditions. If land use governance is to address multiple landscape functions, sectors and actors, decisions on who gets included, how, and what comes onto the agenda are critical. In the complexity of multifunctional and contested landscapes, key questions are which issues are to be addressed, whose views are taken into account, and what objectives and courses of action are considered. Despite their relevance, however, these political dimensions of landscape governance all too frequently are overlooked or remain underexposed (Ros-Tonen et al., 2018).

The notion of inclusiveness arguably is at the core of landscape approaches. Often it is taken to simply mean multiplicity—of stakeholders, sectors, landscape functions—without sufficient attention to those that are left out or to structural imbalances amongst the ones included. Yet inclusiveness presumes equitable participation in governance and a focus on vulnerable stakeholders (Gupta et al., 2015). It demands attention not only to poverty, but crucially also to inequality in both its economic and political forms (Rauniyar and Kanbur, 2009), as well as on the means to empower marginalized actors (Cook, 2006). In practice, in spite of its ambitious conceptual scope, a landscape approach is unlikely to be all-inclusive; therefore, the quality of the inclusiveness (or absence of) that it achieves is an important focus of research.

One lens to analyze inclusiveness and the politics of landscape governance is agenda-setting theory. Agenda setting refers on a first level to "what to think about", and on a second level to "how to think about" issues or actors (Balmas and Sheafer, 2010). Situations are not tackled as issues to be addressed unless their framing as problems is accepted (Kingdon, 1995; Knaggard, 2015). Actors constantly frame issues in different ways, attempting to influence perceptions, giving salience to certain aspects at the expense of others, and strategically working to shape the considerations that people take into account when making judgements (Iyengar et al., 1982; see also Hajer, 1995). Agenda-setting theory thus is concerned both with so-called "object salience" (i.e., what or who gets the spotlight) and "attribute salience" (i.e., what facets are presented, overlooked, or emphasized) (McCombs et al., 1997; Balmas and Sheafer, 2010).

In such disputes, power imbalances play a major role. According to Dahl (1957, p. 203), "A has power over B to the extent that he can get B to do something that B wouldn't otherwise do." However, as Bachrach and Baratz (1962, p. 948) articulately put it, power relations can also be manifested more subtly:

> "Of course power is exercised when A participates in the making of decisions that affect B. But power is also exercised when A devotes his energies to creating or reinforcing social and political values and institutional practices that limit the scope of the political process to public consideration of only those issues which are comparatively innocuous to A. To the extent that A succeeds in doing this, B is prevented, for all practical purposes, from bringing to the fore any issues that might in their resolution be seriously detrimental to A's set of preferences."

This relates precisely to power exercised in the form of agenda setting and limiting the range of issues, actors, views, perspectives or choices considered. It is responsible, for example, for the exclusion of certain actors from decision-making processes, for "non-decisions" on certain issues, and for overlooking certain claims while perhaps overemphasizing others. This form of power aims at shaping the structure of governance so as to lean it toward certain outcomes, approaches and courses of action while overlooking or downplaying alternatives (Barnett and Finnemore, 1999). This is sometimes also described as structural power, for power becomes institutionalized and engraved in structural settings and designs that can, in turn, reinforce one's capabilities while limiting the range of action of other actors (Clapp and Fuchs, 2009).

As landscape approaches in general—and CCLG in particular—gain widespread attention and are increasingly embraced, questions around what actually gets to be integrated, how and by whom become fundamental. Besides their normative dimension, they may also affect who wins and who loses from the policies and courses of action adopted. Such questions arguably become even more prominent in contexts of prevalent socio-economic vulnerabilities and persistent historical inequalities, as in much of the tropics, where the production of export commodities and participation of foreign consumer actors in land use governance also creates tensions (Bastos Lima and Gupta, 2014).

BRAZILIAN SOY AND THE CERRADO WORKING GROUP

Unfettered Soy and the Amazon Soy Moratorium

Soy (*Glycine max*) has for the past decades been the flagship of Brazil as an agribusiness powerhouse. In 2018, it surpassed the US as the world's largest producer and exporter of what has become the world's favorite protein crop, used primarily for animal feed (Trase, 2018). Although soy started to be commercially cultivated in Brazil only from the 20th century, it has quickly overtaken sugarcane, coffee and other more traditional cash-crops to become—by far—the country's number one crop in area, traded volumes, and export revenues (MAPA, 2019). Soy cropland in Brazil leapt from 1.3 million hectares (Mha) in 1970 to over 35 Mha in 2018 (Trase, 2018; TNC, 2019). About 80%

of that production is exported, mostly to China and Europe (Trase, 2018).

While prominent from an economic viewpoint and serving to meet growing global protein demand, soy expansion has raised serious socio-environmental concerns. In addition to freshwater and pesticide use, a major environmental impact from soy expansion has been the clearing of natural vegetation, primarily in the Amazon and Cerrado biomes (Gibbs et al., 2015; Rausch et al., 2019), resulting in substantial carbon emissions and threats to biodiversity (Green et al., 2019; Pendrill et al., 2019). About two-fifths of Brazil's 2016/2017 soy harvest—or 3.65 Mha—came from lands cleared after 1999 (TNC, 2019). Such an expansion often is accomplished through instances of land grabbing or forceful—at times violent—acquisitions that exploit prevalent tenure insecurity as well as corruption in Brazilian institutions meant to safeguard land rights (Campbell, 2015, Sauer, 2018).

In the face of seemingly unfettered soy expansion, besides the corpus of public policy enforced to combat deforestation in Brazil since the 2000s (see Soares-Filho et al., 2014) the main policy response to date has been the Amazon Soy Moratorium. It followed an international outcry from the increasing conversion of rainforest into soy monocultures, best illustrated at the time by Greenpeace's 2006 report "Eating up the Amazon" (Greenpeace, 2006). A number of major soy traders affiliated to Brazil's largest sectoral industry associations—the National Association of Cereal Exporters (*Associação Nacional dos Exportadores de Cereais*—ANEC) and the Brazilian Association of Vegetable Oil Industries (*Associação Brasileira de Indústrias de Óleos Vegetais*—ABIOVE)—then agreed not to source from areas deforested after a cutoff date in the Amazon. That date was initially set for 2006 and later updated to 2008. As those two agroindustry associations together account for 80% of Brazil's soy market (ABIOVE, 2018), the moratorium created a major positive bottleneck, and a fledging form of CCLG anchored on soy started to emerge for the Amazon.

Environmental NGOs partnering with the private sector then set up a Soy Working Group (GTS), which later welcomed also Brazilian government representatives, to monitor and govern the implementation of the moratorium. It has set specific rules and procedures (see GTS, 2019). First, a specialized company (Agrosatélite, 2019) utilizes Brazil's public land cover monitoring data (via the PRODES system) to match deforestation and soy cropland maps on the Amazon, identifying non-conforming producers. Greenpeace, in collaboration with ABIOVE, then creates a blacklist of suppliers from whom companies must avoid sourcing. Lastly the NGOs, led by Imaflora, audit the purchases of soy traders to verify compliance. The verification is done for all municipalities with more than 5,000 ha of soy, but monitoring covers only primary forest areas, not savanna or other formations that exist within the Amazon. Protected areas, indigenous territories and land reform settlements—which sometimes do produce soy, though on a small scale—are also excluded (GTS, 2019). The most controversial "blind spot," however, has been the issue of leakage, the perception that land use change impacts may have been deflected to the neighboring Cerrado landscape (Bastos Lima et al., 2019).

After a decade of the moratorium, cultivated soy area in the Amazon quadrupled from 1.14 Mha in the 2006/2007 harvest to 4.66 Mha in 2017/2018, but it expanded essentially over pastures, and by the latter years only 1.4% of the soy produced in the monitored Amazon municipalities did not conform to the moratorium rules (GTS, 2019). Its governance setup also continued to evolve, with the creation of three sub-groups on dedicated themes: indirect impacts, land reform settlements, and the Cerrado. In 2016, after continuous annual renewals, GTS members finally agreed to make the mechanism permanent. This is said to have freed up energy and focus to expand the agenda[1], and the Cerrado sub-group was then transformed into the independent Cerrado Working Group (GTC) in 2018, with its own set of participants, distinct governance structure and goals. The point was not only to have a full-fledged forum on the Cerrado, but also that if negotiations on this biome were to fail, they would not compromise the Amazon moratorium's working success[2].

The Cerrado Working Group

The Cerrado (**Figure 1**) is South America's second largest biome, a vast landscape of mostly wooded savanna vegetation that harbors nearly 5,000 known endemic species and half of Brazil's freshwater resources outside the Amazon (Strassburg et al., 2017). The Cerrado is also home to hundreds of traditional communities, including indigenous peoples, *quilombolas* (communities originally formed by Afro-Brazilian fugitive slaves whose cultures and traditions have been maintained by their descendants), and various other local groups identified around particular livelihoods such as the women-only babassu nutcrackers or the livestock-grazing *Fecho de Pasto* communities (see ACCFC, 2017).

Despite its socio-ecological value, however, the Cerrado has experienced faster deforestation than the Amazon, and it remains significantly more vulnerable (Vieira et al., 2018). Whereas, 46% of the Brazilian Amazon consists of public protected areas, that figure is only 7.5% for the Cerrado (Strassburg et al., 2017); and while Brazil's Forest Code mandates that private rural properties conserve at least 80% of the land as a Legal Reserve of native vegetation in the Amazon, that requirement is of only 20–35% in the Cerrado. As such, and although half of the original Cerrado vegetation has been already lost, as much as 40% of what remains could be legally cleared, even if this would disrupt several of its ecosystem functions (Soares-Filho et al., 2014).

There is, therefore, a major need for halting both illegal *and* legal deforestation in the Cerrado (Vieira et al., 2018). Limiting soy expansion into native vegetation is key to doing so, with more than 1.5 Mha of Cerrado vegetation cleared directly for soy cultivation in the period 2003–2014 (Rausch et al., 2019). Most of this clearing happened without infringing the minimum Legal Reserve requirements, but soy expansion also accounted for nearly 60% of all illegally cleared land in the Cerrado. Soy-driven deforestation is particularly prominent in the Matopiba region (**Figure 1**), where between a quarter

[1] Personal interviews in Brazil, 2018.
[2] Personal interviews in Brazil, 2018.

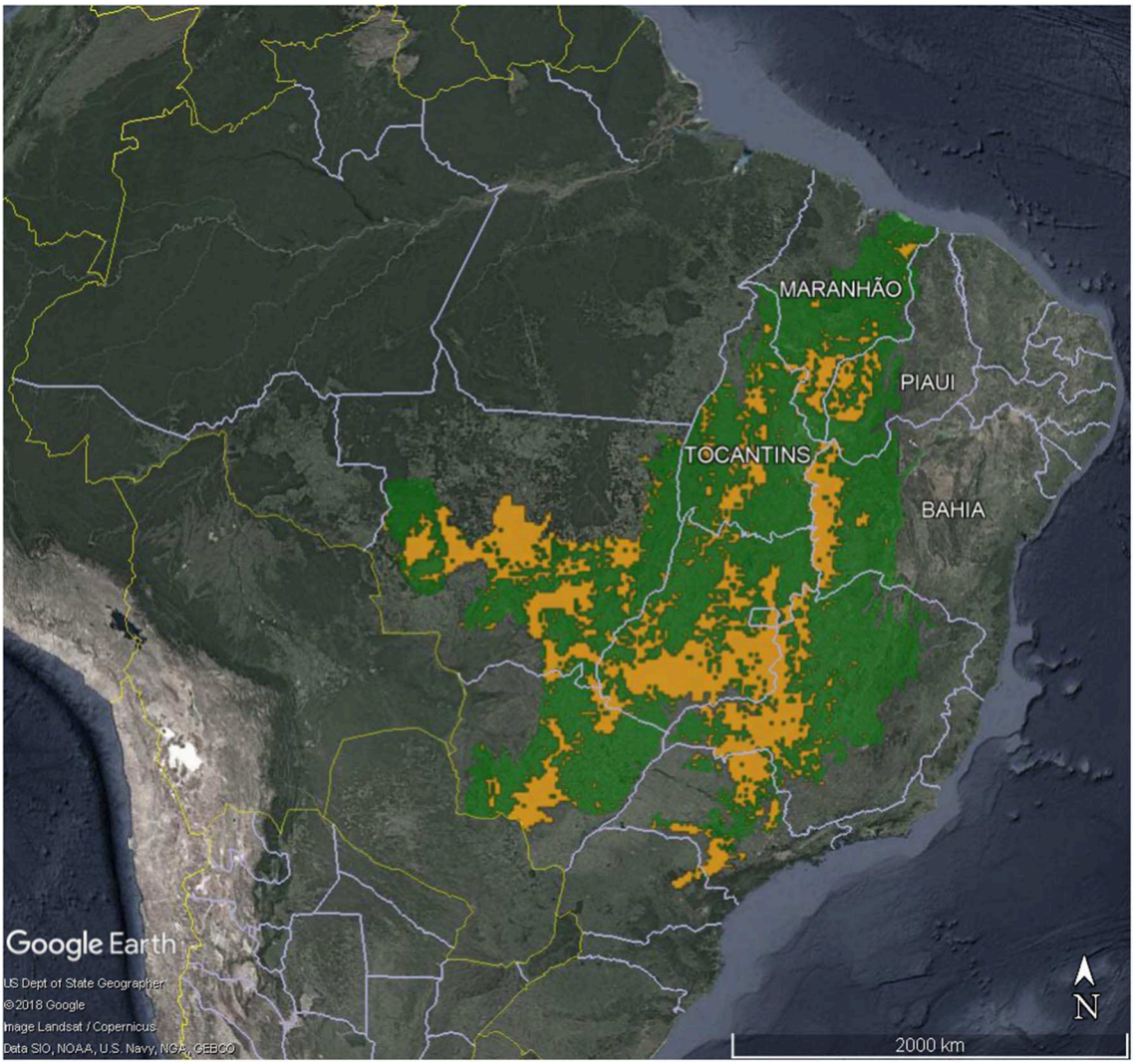

FIGURE 1 | Map of Brazil showing the Cerrado biome (shaded in green) and soy cultivation in the Cerrado (shaded in yellow; crop year 2013–2014) (Agrosatélite, 2019). The states making up the Matopiba soy frontier in the Cerrado are also marked.

and half of Cerrado loss was directly due to soy (Rausch et al., 2019). This region is also where much of the remaining Cerrado land (both protected and unprotected) suitable for soy is located (*ibid*).

Such a rapid loss of native vegetation is part of a broader set of issues. Soil and water degradation, including through pesticide contamination, have been prevalent in the Cerrado's soy-dominated areas (Hunke, 2015). Increasingly, land price speculation and land assetization (i.e., utilization of land as a financial asset) have also fueled land grabbing and rural conflicts to the detriment particularly of local communities with insecure tenure (FIAN International, 2018; see also Visser, 2015). Soy expansion improves macroeconomic indicators but also increases inequality in the Cerrado (Garrett and Rausch, 2016). Violence and exclusion, in turn, have significantly contributed to rural outmigration and local food security risks, as traditional livelihoods are eroded and replaced by precarious living in city outskirts (Favareto et al., 2019). In the words of a representative from a grassroots' organization in Matopiba, "*They destroy our livelihoods and then complain that we don't want to work and just depend on cash transfers and social assistance*."[3]

Only recently has the Cerrado gained more international prominence, but sustainability concerns around its use and fledgling forms of landscape governance have long been in place. At the Rio Earth Summit in 1992, civil society—including grassroots organizations from local communities and indigenous groups—created the Cerrado Network (*Rede Cerrado*) for joint advocacy and action. They also signed the Cerrados Treaty, unusually named in the plural to acknowledge local diversities. The document diagnosed major environmental issues to be addressed and set a common action plan for concerned actors. Its objectives included the creation of new protected areas,

[3]Personal interviews in Brazil, 2018.

TABLE 1 | Members of the Cerrado Working Group (GTC)[a].

Actor type (as classified in the GTC)	Members
Industry	Brazilian Association of Vegetable Oil Industries (ABIOVE) | ADM | Amaggi | National Association of Cereal Exporters (ANEC) | Bunge | Cargill | COFCO | Glencore | Louis Dreyfus Company
Civil society	Earth Innovation Institute | Greenpeace | Institute of Management and Forest and Agricultural Certification (Imaflora) | Amazon Environmental Research Institute (IPAM) | TNC | WWF
Producer organizations	Association of Farmers and Irrigators of Bahia (AIBA) | Brazilian Association of Soy Producers (Aprosoja) | Brazilian Rural Society (SRB)
Governmental and financial institutions	Banco do Brasil, INPE, Ministry of Agriculture, Ministry of Environment, Brazilian Forest Service
Consumer goods	Carrefour, Walmart

[a] *This list comprises the actors invited to integrate the GTC and considered members, irrespective of actual meeting attendance.*

further recognition of indigenous and customary land rights, as well as the promotion of agroecological farming for sustainable development of the Cerrado (Cerrados Treaty, 1992). These calls were reinforced in 1999 by a charter of principles of the Cerrado Network, which as of 2020 included over 300 civil society organizations and continued to work as an umbrella for initiatives on socio-environmental conservation and/or local economic development (see Rede Cerrado, 2020).

It was against this backdrop that the Cerrado Manifesto came to fruition, a document that would ultimately trigger the creation of the Cerrado Working Group (GTC). Launched on 11 September 2017[4] by a group of 60 civil society organizations in Brazil (including large environmental NGOs, indigenous peoples' associations and academia), the manifesto recollects the Cerrado's underrated environmental importance and calls for immediate public and private action toward its conservation and sustainable development (Cerrado Manifesto, 2017). That year had seen the publication of the first PRODES Cerrado data showing that its deforestation was 50% higher than the Amazon's (Observatório do Clima, 2017). Moreover, the market-liberal Temer administration had taken power and many NGOs foresaw little willingness from the government to strengthen conservation efforts. A push was thus perceived as imperative, including for private sector initiatives[5]. The publication of the manifesto, in turn, led several multinational food companies to respond with a Cerrado Statement of Support (SOS), endorsing its goals, pledging to eliminate deforestation from their (soy) supply chains, and committing to work together with Brazilian civil society toward commonly-agreed solutions.[6]

The GTC was thus composed in late 2017 and launched in 2018 with the aim of coming to an agreement for Cerrado conservation already by the end of the year (GTC, 2018a). It presented two important novelties when compared to the older GTS. First, participation was broadened to include government actors from the start, as well as consumer goods representatives and soy farmer associations (see **Table 1**). An independent facilitator was also hired for the meetings. As an agribusiness farmer representative put it, "*The [soy farming] sector used to be hostage to requirements without ever participating in the discussions. In the soy moratorium for the Amazon, for example, we were not represented*[7]" This may be a second thought from some in the sector, whose farmer associations at the time refused to become involved in the Amazon moratorium and continue to mostly protest against it (Aprosoja, 2018).

Second, the GTC is not only more inclusive, but it has also explored a greater diversity of policy options than the GTS. While the latter focuses exclusively on the Amazon Soy Moratorium, the GTC has devoted energies to public policy implementation as well as to designing additional instruments. It created three dedicated sub-groups on: (1) *Territorial Intelligence*, to identify vulnerable Cerrado areas and options for deforestation-free soy expansion; (2) *Incentives*, to develop a system of payments for conservation and consider other market-based and financial instruments (e.g., "green bonds," credit, impact investments); and (3) *Public Governance*, to monitor the implementation of existing public policy on the Cerrado, such as the Forest Code's requirements on farms' Legal Reserves, validate their insertion on the government's rural environmental registry (CAR), and consider new public policies, particularly a national zoning policy for soy akin to what Brazil developed for sugarcane and oil palm, determining go and no-go areas (GTC, 2018b).

After a year of work, soy zoning remains an elusive goal—as has most environmental policy engagement with the Federal Government under the Bolsonaro administration[8]. Coordination with sub-national public policies in Cerrado states, however, such as Mato Grosso's PCI initiative for comprehensive land-use planning and local development, or Maranhão's flagship *Mais IDH* program and its actions on smallholder farming, land tenure and local food security, has also been limited. Rather, the GTC's scope has focused mostly on public policy compliance by the soy industry, deforestation-free expansion, and incentives to (soy) farmers.

The main focus of GTC negotiations has come to be on two parallel agreements to be signed in tandem and with expected

[4]September 11 is, since 2003, the National Cerrado Day in Brazil. The date was chosen for being the birthday of Ary Oliveira (1931–2011, more known in Brazil by his nickname *Ary Pára-Raios*, or Ary "Lightning Rod"), journalist, street artist, and socio-environmental activist who embraced these causes in the Cerrado even during the repressive years of Brazil's military dictatorship (1964–1985). See https://www.xapuri.info/meio-ambiente/11-setembro-dia-nacional-do-cerrado/.

[5]Personal interviews in Brazil, 2018.

[6]See https://cerradostatement.fairr.org.

[7]Personal interview in Brazil, 2018.

[8]An illustration of its position, Bolsonaro's government in November 2019 revoked the 10-years old zoning policy for sugarcane.

TABLE 2 | Sustainability agendas for the Cerrado over time.

Issues	Cerrados Treaty (1992)[a]	Cerrado working group (2018/2019)
Inclusiveness	Promotion of local actor participation in planning and policy development	Governance led by major environmental NGOs and the soy sector
Domestic collaboration	Creation of a permanent network of NGOs and social movements	
International collaboration	Articulation with societies of all countries where Cerrado-like or savanna ecosystems exist	Engagement with soy buyers in developed countries
Awareness raising	Change the institutionalized view that the Cerrado does not offer resources for the survival of humanity	Payments for conservation of native vegetation in soy farms
Legal recognition	Recognition of the Cerrado as national heritage[b], of the same status of the Amazon and other ecosystems	–
Reorientation of finance	Reorientation of international finance that has been incentivizing and making viable the implementation of elitist and predatory occupation projects	Financial instruments to direct soy cropland expansion away from native vegetation and preferably onto already cleared areas (e.g., pasturelands)
Protected areas	Creation of new protected areas with remaining native Cerrado vegetation	—
Sustainable development and smallholder agriculture	Sustainable development in the Cerrado, prioritizing small-scale production	—
Land distribution	Land reform and smallholder-oriented agricultural policy	—
Indigenous land rights	Demarcation and protection of indigenous lands	—
Creation of institutional channels	Permanent bridging mechanisms with the Brazilian Parliament	Participation of government actors in the GTC
Ecosystem regeneration	Reforestation programmes with native species in degraded areas or areas of importance to water resources	Restoration of legal reserve areas within soy farms

[a] *Although translated from Portuguese into English, the original wording of the document has been maintained as much as possible. These 12 points are explicitly organized as such in the Cerrados Treaty.*
[b] *Brazil's Constitution (1988) enshrines the Amazon and other biomes as national heritage, but not the Cerrado.*

support mainly from European demand-side actors (GTC, 2019). The first one, conditional on the second, is a conversion-free sourcing policy for the Cerrado akin to the Amazon Soy Moratorium. (The term "moratorium" is, however, avoided as it would suggest a contingent temporary mechanism, besides striking a negative chord among Brazilian soy farmers)[9]. As in the Amazon, soy traders affiliated to ABIOVE and ANEC, which together comprise about 80% of the market also in the Cerrado (Trase, 2017), would refrain from sourcing from areas cleared after a cutoff date to be set. The second agreement is the creation of a payment scheme for conservation of surplus native Cerrado vegetation (additional to the minimum Legal Reserve requirements) in soy farms. Signatories of the *Cerrado SOS* would fund it via a joint mechanism to be established, targeting soy farmers who hold vegetation clearing permits, and initially for a period of 5 years (GTC, 2019). Jointly, the agreements are sometimes referred to as the Cerrado Conservation Mechanism (Byrne, 2019). Proponents argue that *"this has an important narrative element to it, because we are suddenly speaking of restrictions and advantages, not only yet more restrictions*[10]. Key questions, however, remain on issues such as permanence, sufficiency of funds to compensate all (or most) applicants, and fairness.

Table 2 summarizes how the current GTC agenda compares to the broader one of the Cerrados Treaty, which remains a core reference for advocacy from the Cerrado Network. The list of issues draws from the contents of that landmark document.

ANALYSIS: CERRADO AGENDA SETTING AND ITS IMPLICATIONS

First-Level Agenda Setting: From Sustainable Development to Sustainable Supply Chains

As evident from **Table 2**, the focus of the Cerrado's sustainability agenda has changed substantially over the years, becoming significantly narrower and skewed toward private-sector interests. Grassroots organizations and Brazilian NGOs who initiated such advocacy have had a broad focus, inclusive of indigenous peoples' rights, land issues and sustainable development, with clear attention to social equity and small-scale farming. Such smallholder and indigenous calls, however, have been increasingly sidelined, as have other goals more directly related to public policy (e.g., creation of more protected areas).

Although the Cerrado's growing international prominence has served to attract funding for broad sustainability work, such as by the Critical Ecosystems Partnership Fund (see Sawyer et al., 2017), the GTC agenda and most attention have been on "the expansion of soy without deforestation in the Cerrado" (GTC, 2018b), a goal that some actors then dub as being equivalent to "sustainable" soy (see, e.g., TNC, 2019). This focus addresses primarily the interests and concerns of export markets, and

[9] This communications rationale was clear and consensual among all interviewed stakeholders.
[10] Personal interviews in Brazil, 2018.

it offers an illustration of what has been called "the trade-ification of the food sustainability agenda," whereby international commodity trade has come to dominate agri-food sustainability discussions at the expense of other concerns (Clapp, 2017). It represents predominantly the narratives and particular goals of soy producers and demand-side actors in consumer countries, including their choices of what sustainability issues to address and of how to address them.

In the Cerrado case, the explanation for such a narrowed agenda is two-fold. First, potential funders of the proposed payment mechanism—and soy consumers in general—are not sufficiently concerned about the vulnerable socio-economic status of local communities, but seemingly exclusively with conserving native vegetation. As a soy trader representative in Brazil has put it, "*NGOs put some pressure, but the ones who really pressure are the consumers, if they threaten not to buy from you anymore*"[11]. Buyers are the ones who have real teeth, but their concern is limited, and they also have vested interests in the continuation of (cheap) soy production for supplying their livestock farming systems.

Second, the GTC agenda reflects the priorities, views and interests of its members. The group is composed mostly of—and is led by—soy supply chain and large environmental NGO actors, whose representatives co-chair all the sub-groups. Hence, the focus has been on private governance initiatives such as market-based instruments to be used among soy-chain actors, to the exclusion of non-participants and resulting in limited coordination with public policies but the Forest Code and its requirements on private farms. Likewise, transformative initiatives for radically different land use in the Cerrado, such as through agroecology, support for more diverse small-scale agriculture or uptake of other crops therefore are not under consideration. Prevailing agenda setters clearly exclude issues whose recognition as problems would be detrimental to them, such as questions on increasing pesticide use, water consumption, agrobiodiversity loss, or social exclusion and concentration of land ownership. Meanwhile, the actors who would raise such issues and push for more equitable allocation of incentives are not part of that governance process. They are not represented, nor are their concerns and views.

Such a narrow focus is not for lack of awareness: NGOs in the Cerrado have long been vocal about various socio-environmental issues and the need for action (see Sawyer and Lahsen, 2016). Rather, it is the manifestation of sheer power asymmetries, giving salience to the issues that interest dominant stakeholders while downplaying others. Even within the existing GTC agenda, the leverage from the soy sector is clearly manifested through the emphasis on mere legality and compliance, in addition to land-use planning centered around assessing suitability for soy, opportunity costs and financial compensations (exclusively) for soy farmers. As a senior government official in a Matopiba state assesses, "*soy farmers show their privileged power position when they manage to get these compensations for preserving the Cerrado*"[12]. An agenda of sustainable development for the Cerrado has thus morphed into one of "sustainable" supply chains, with important implications that often remain overlooked.

Second-Level Agenda Setting: Issue Framing and Attribute Salience

Agenda-setting efforts have gone beyond the mere selection of what issues to address and what to ignore. They also involve a second, more nuanced level related to attribute salience.

First, the GTC has been part of a deft effort to make salient the Cerrado's attributes as a carbon sink, as a biodiversity hotspot, and its climate-regulating functions with impacts on soy yields (see TNC, 2019). These ecological attributes have effectively worked to construe a "compelling argument" for its conservation, i.e., highlighting "certain characteristics [that] may resonate with the public in such a way" that object salience increases (McCombs, 2014, p.73). Such features have arguably helped bring the Cerrado into international spotlight. This, however, begs the question of "compelling to whom?," and the answers on whose concerns dominate the agenda and who holds power promptly appear. When the first funding pledges—by European buyers—for Cerrado conservation were announced in December 2019, along with celebratory remarks by feed companies and soy farmers alike, those biophysical features were indeed the ones highlighted, underscoring the rationale for payments (Byrne, 2019). Nowhere were to be seen the perspectives of local communities, who clearly cannot maintain their livelihoods within patches of Cerrado scattered within individual private soy farms.

The GTC thus puts forth a slim interpretation of sustainability, concerned exclusively with the preservation of native vegetation. It implicitly embraces a land sparing paradigm, based on a separation between production and conservation land uses, and follows typical wildlife-oriented Northern environmentalism, as opposed to varieties that incorporate social equity at the core (Clapp and Dauvergne, 2005; Martinez-Alier, 2014). In this way, the Cerrado's sustainability agenda has become more set by the views, preferences and concerns of foreign actors (buyers, traders, and largely biodiversity-focused North-based environmental NGOs) than by those of domestic stakeholders, including vulnerable ones who have their traditional livelihoods impaired, such as women groups (e.g., babassu nutcrackers) or indigenous peoples.

Second, the GTC agenda acknowledges soy as the only development path considered for the Cerrado. Once again, certain attributes are highlighted in order to work as compelling arguments that increase the sector's overall salience. For this purpose, food security and development are strategically framed. Although the GTC does not discuss food security *per se*, the argument of feeding a growing global population is routinely used by soy growers and the soy industry to legitimize their expansion[13] (Oliveira and Hecht, 2016), and major NGOs corroborate such views by speaking of Cerrado lands "needed" for soy—while acknowledging such needs from no-one else (TNC, 2019, p.2). There is a clear contrast between how global

[11] Personal interviews in Brazil, 2018.

[12] Personal interviews in Brazil, 2018.

[13] Personal interviews in Brazil, 2018.

food security is emphasized while local food security is largely overlooked. Moreover, through the salience of global supply availability to the detriment of other food security dimensions, the soy sector itself also becomes strategically salient, being presented as a valuable and legitimate industry in spite of all the social and environmental grievances that many Cerrado stakeholders leverage against it.

Similar legitimacy is conferred to soy as the choice engine of regional development in the Cerrado, to be balanced only against conservation interests. Attributes such as soy's contribution to economic growth, or its correlation with higher Human Development Indexes[14] in Cerrado municipalities, are taken as evidence of a socially beneficial role (see Martinelli et al., 2017). Its skewed distribution of benefits and burdens that augments inequality (Garrett and Rausch, 2016) is generally overlooked, as are socioeconomic attributes on which soy underperforms when compared to other agricultural land uses (e.g., fruit and vegetable crops in Brazil create 25 times more direct and indirect jobs per hectare than soy does[15]; CNA Abrafrutas, 2018). Unfavorable attributes are tactically omitted, alternatives are tacitly ignored, and soy is treated for all practical purposes as the only development path on the agenda.

Considerations on Payments for Conservation in the Cerrado

The above concerns regarding the salience of soy producer and consumer interests in the GTC, resulting in a narrow focus on soy-driven deforestation, are clearly manifested in the key focus of its deliberations: the establishment of a system for monetary compensation for soy farmers conserving native vegetation in the Cerrado, which would serve to make the establishment of a moratorium on further Cerrado clearing for soy tenable.

Actor views on this GTC agenda have varied significantly. Many Cerrado soy farmers have welcomed the announcement of payments (see Byrne, 2019), with ABIOVE and major soy traders being firm defenders both of the Amazon moratorium and of GTC negotiations (Girardi, 2018). However, there have also been strong critics that have chosen to leave the GTC, for different reasons. Aprosoja, Brazil's main soy farmer association, walked out of the negotiations already in early 2018 due to unwillingness to even consider another moratorium on legal deforestation[16] (see Aprosoja, 2018). Then in October 2018 Greenpeace also left the GTC, due to concerns over the fairness and environmental integrity of the payments proposition.

Although the details of this Cerrado scheme (e.g., regarding exact payment levels) are still being negotiated, it resembles a system of payments for ecosystem services (PES), even without explicit service valuation. Payments would be available for a contract period of 5 years, and only to farmers with land suitable for soy and with native vegetation cover that could be legally cleared (i.e., having native vegetation in excess of the minimum Legal Reserve requirement, as well as holding a clearing permit) (GTC, 2019). Through this design, the scheme would target those actors most likely to deforest in the absence of compensation, something that has been shown to increase PES additionality (Persson and Alpízar, 2013; Börner et al., 2017).

However, while targeting payments can potentially increase the additionality of such a PES-like scheme, it also raises a number of concerns in terms of the program's broader effectiveness. First, by making payments eligible only for clearing-permit holders, the proposed scheme creates a perverse incentive for famers with Legal Reserve surpluses to apply for such permits in order to secure payments for abstaining to use them. That the proposed scheme could create a rush for vegetation clearing permits, unduly capitalizing rich soy farmers that then would have no obligation to maintain the conserved vegetation after 5 years, was a key reason given by Greenpeace for walking out of GTC negotiations in 2018.[17]

This risk is especially worrying given the short timeframe for the initial contracts, which means that if payments are discontinued, conserved vegetation could soon face a higher risk of clearing (i.e., so-called temporal spillovers; see Bastos Lima et al., 2019). While some stakeholders in our interviews argued that PES, even if temporary, would suffice to motivate soy farmers to regard native vegetation as economic assets worth preserving (or, in other words, that the initial payments are a way to buy support for the Cerrado conversion moratorium), theory and empirical evidence would suggest the opposite (Börner et al., 2017). There is a growing literature on how payments affect motivations for conservation (Rode et al., 2015; Ezzine-de-Blas et al., 2019). Empirical studies suggest that in contexts of social conflict—as the Cerrado—PES is likely to undermine environmental outcomes over time through the crowding out of intrinsic motivations[18], especially where payments are perceived to strengthen pre-existing power inequalities and contribute to unfair distribution of conservation costs and benefits (Costedoat et al., 2016; Chervier et al., 2019). There is also anecdotal evidence of farmers in Mesoamerica threatening to cut their forests if payments were discontinued (Kaimowitz, 2008).

Notably, motivation crowding may not only affect PES participants, but also agents left out, potentially leading to spillovers and reduced overall effectiveness (Bastos Lima et al., 2019). In the case of the proposed scheme, there are two groups of concern: Amazon soy farmers and non-soy landowners (including local communities) in the Cerrado. The former might—justifiably—ask why they are expected to freely abstain from legal clearing while their neighbors in the Cerrado get compensation to do the same, an argument already heard from soy industry representatives[19]. Similarly, while the design of the proposed scheme aims to maximize additionality by targeting

[14]The Human Development Index is a composite indicator of per capita income, life expectancy, and formal education.

[15]Fruit crops in Brazil do have, however, other issues such as pesticide poisoning Faria et al., 2009.

[16]Personal interviews in Brazil, 2018.

[17]See https://www.greenpeace.org/brasil/blog/greenpeace-deixa-o-grupo-de-trabalho-do-cerrado/.

[18]Even if intrinsic conservation motivations are probably low among many actors in the Cerrado (judging by the landscape's high deforestation rate), antipathy to conservation can still increase. According to the cited literature, the baseline of intrinsic motivation is irrelevant for the argument; what matters is whether payments will shift this baseline toward more or less support to conservation.

[19]Personal interviews in Brazil, 2018.

agents who are "if not outright environmentally nasty, then at least at the edge of becoming so" (Wunder, 2007, p. 53), it also raises issues of fairness and equity with respect to traditional communities or less capitalized farmers not eligible for payments. There is experimental evidence that this type of targeting of payments can lead to motivation crowding and retaliation also among those excluded (Alpízar et al., 2017a,b), suggesting that a disregard for issues of equity may undermine PES credibility and ecosystem service provision in the long run (Corbera and Pascual, 2012; Pascual et al., 2014), leading to a loss in overall effectiveness due to spillovers.

These concerns have been highlighted by actors who have never been invited to join the GTC, such as most grassroots organizations. They have wondered why traditional communities and other Cerrado dwellers, who have been much better at conserving its vegetation, are not eligible to receive payments[20]. These actors generally are also poorer and in greater need of economic support. They have been critical of how a broad and inclusive Cerrado sustainability agenda has been reduced to only a few points of interest to the soy industry or to environmentally concerned buyers in Europe. It illustrates the GTC's detachment from local agendas. In the view of a senior policymaker in a Matopiba state, "*This thing of PES is mostly for large companies, this carbon thing. What we are hoping to do is [promote] greater awareness on environmental values and linking it to food security, besides promoting things like agroforestry with cocoa and coffee*[21]."

As noted by one senior Brazilian researcher interviewed: "*It is the exact same dilemma that happened to REDD+: Do you address only the large farmer that was going to deforest and not the indigenous person who has always conserved? The idea of jurisdictional REDD+ came up precisely because of that, for the sake of benefit sharing*[22]." The challenge in this case is that the landscape approach taken by the GTC does not match a political jurisdiction that could potentially address benefit sharing, and so far this is an issue that has not figured prominently neither in the GTC deliberations in general nor in the specific discussions on the payments scheme. In the view of a local socioenvironmental organization in another Matopiba state:

> "*Regularizing traditional peoples and their communities is the best way to conserve the Cerrado. As to PES, its internal logic is problematic and very different from that of local peoples. It implicitly obliges people to embrace that mercantile logic. They should get policies that help them out in their ways of life, like with REDD+ in Acre*[23]."

In the GTC, although many are pragmatically positive about securing deforestation-free soy, some NGO representatives resent directing so much energy to such a soy-centered agenda, and that the industry may be using their expertise to measure how much extra it can get and quantify opportunity costs to be compensated. Some felt they may have been "slow-cooked" by an agroindustry sector with little appetite for genuine transformations[24]. Indeed, even some Forest Code devices for private farms remain overlooked, such as farmers' little-publicized option to change the legal status of surplus Legal Reserve areas into so-called "environmental servitude," which would lock their conservation status for a period of 15 years or longer and potentially help address permanence concerns (see Brazil, 2012, Art.79). Clearly, not only the range of acknowledged issues but also the mechanisms of choice are subject to agenda setting.

DISCUSSION: CCLG AS AN EVOLVING FORMAT

CCLG has evolved to become an important approach to address deforestation. The GTC, as its newest instance in Brazil, offers many lessons on the evolution of this governance format. As the GTS before it and also the Sustainable Livestock Working Group (*Grupo de Trabalho da Pecuária Sustentável*) on beef in the Amazon, these initiatives emerged out of a perception of insufficiency from public policy to deter detrimental land use changes. Over the years, although the focus has remained on deforestation-free production of specific agricultural commodities, the portfolio of policy instruments has increased substantially. From an initial limitation to moratoria implemented by traders, CCLG in its latest incarnation as the GTC has come to discuss a variety of market-based instruments such as payments for conservation and green finance, as well as advocacy for and implementation of public policy under the umbrella of Brazil's Forest Code. This inductive analysis of the GTC therefore allows also for identifying strengths and weaknesses of the format thus far.

Landscape specificity has allowed CCLG to consider more creative policy instruments (beyond the usual and elusive rationale of premium prices) and be more tangible than conventional roundtables in changing realities on the ground. The Amazon Soy Moratorium has done more to reduce soy-driven deforestation than existing certification schemes have (Gibbs et al., 2015; Van der Ven et al., 2018). Such a specificity has also allowed actors to interweave new instruments in the existing framework of public policies, promote policy coherence, and address particular (perceived) vulnerabilities of a landscape. In the Cerrado case, this is clear from the identification of its vulnerability to legal deforestation and the tailoring of GTC policy instruments to that landscape's specific Legal Reserve requirements and the need for vegetation clearing permits, which may become a condition for receiving payments under the compensation scheme being devised.

Commodity specificity, in turn, has on the one hand allowed for addressing face-front a relevant driver of land use change, unlike broad jurisdictional approaches that sometimes devise end-of-pipe solutions with little impact in the face of outside driving forces (such as in REDD+; see Bastos Lima et al.,

[20] Personal interviews in Brazil, 2018.
[21] Personal interviews in Brazil, 2018.
[22] Personal interviews in Brazil, 2018.
[23] For an assessment of REDD+ implementation in Acre, see (Bastos Lima et al., 2017).
[24] Personal interviews in Brazil, 2018.

2017) or other general landscape governance initiatives that do not engage with a given sector as much. CCLG, rather, takes a focused approach and brings various supply chain actors to the negotiation table—even those that do not belong to the landscape but whose decisions influence it, such as consumers and investors. This means acknowledging and starting to target the important teleconnections that may exist between land systems and faraway food systems (Meyfroidt et al., 2019). This advantage of commodity specificity has also been observed in the G4 and MPF-TAC cattle agreements for beef from the Amazon (Gibbs et al., 2016).

On the other hand, issues of indirect land-use change and deforestation leakage remain unaddressed—as observed also in the cattle agreements (see Alix-Garcia and Gibbs, 2017). Soy-driven displacement of pastures into native vegetation is a major persistent issue in Brazil (Arima et al., 2011). Moreover, bringing powerful supply chain actors on board has proven ambivalent, as their particular views and values have shown to disproportionately influence the landscape's agenda setting—while enjoying greater legitimization through such a multi-stakeholder process (see Schouten and Glasbergen, 2011). Some NGO representatives in the GTC felt that their advocacy, personnel and finance-acquisition capacity have been hijacked to serve the soy industry's "legality plus PES" agenda[25]. The emphasis on conversion-free soy has resulted in limited attention to other environmental issues, or to broader socioeconomic development needs perceived as key for landscape conservation—and accommodated in jurisdictional initiatives such as Mato Grosso's PCI and Acre's REDD+ program, where governments play a role in benefit sharing (see Bastos Lima et al., 2017; Arvor et al., 2018). This shortage of attention to broader social issues may be particularly critical in cases of highly concentrated commodity sectors that involve relatively few people, such as soy.

As a proverbial double-edged sword, which has advantages but also carries significant and sometimes not-so-obvious risks, CCLG is an ambivalent governance format with certain strengths but also particular risks to be managed. There is a clear contrast between the variety of tools it employs and the narrow agenda it discusses. CCLG may therefore serve to address the concerns of dominant players, but risks leaving unaddressed various other environmental and social concerns from other actors who have different understandings of what landscape governance should accomplish. Broader sustainable development goals likely remain elusive. CCLG thus brings inherent tensions to conservationists, as it risks becoming too oriented to and by the dynamics of the selected anchor commodity and its key actors—discussing primarily the favored approaches, accepted views, preferred instruments and courses of action of the targeted sector. Importantly, the example of the payment scheme proposed for the Cerrado suggests that, if the scope of the policies considered becomes too narrow (and is, therefore, perceived as unfair), the legitimacy of the landscape-level initiative as a whole (in that case, the GTC) may suffer. We posit that a balance may need to be maintained between CCLG's supply chain "anchoring" and broader landscape concerns for it to attract large stakeholder support, but this clearly needs further research.

Using GTC examples to illustrate, **Table 3** summarizes some of the format's strengths and weaknesses (broadly from the normative standpoint of inclusiveness and sustainability), on the basis of its hybrid features that make it narrower than most landscape approaches but broader than typical supply chain sustainability initiatives. The derivation of those characteristics is inductive, on the basis of features that stood out in this empirical case.

Whether CCLG's strengths and weaknesses indeed constitute necessary trade-offs or not remains an object of research. That should not be assumed to be a zero-sum game, lest it become a convenient excuse for the ones involved to explain the exclusion of others under the guise of being allegedly more effective in achieving environmental goals. As the cases of PES illustrate, there can be positive correlations between inclusiveness and conservation effectiveness. What our analysis shows is that the narrowing of the Cerrado sustainability agenda is borne out of power relations in setting the agenda, not out of necessity.

Furthermore, as much as CCLG results from prevailing power relations, it will also affect them in return. To the extent that some participants make use of structural power, they further entrench their relatively dominant positions in that setting unless checkered by norms of inclusive and equitable governance. If not, CCLG risks deepening inequalities, vulnerabilities, and exclusion if only the interests of already powerful actors are negotiated. The mere participation in such instances of governance may already boost the legitimacy of participant actors while further obscuring others.

Finally, a key remaining question is whether—and how—CCLG may work as an entry point for more comprehensive, integrated landscape governance. Clearly, more inclusive landscape governance is unlikely to spontaneously arise. In the Cerrado case, agribusiness still commands substantive political and economic leverage. These strong players deliberately avoid changes that could disrupt the dominant agenda hinged on increasing soy supplies. As such, unless there is major political change in Brazil, the likeliest route—reinforced by the CCLG format—is swaying demand-side players toward more comprehensive requirements. As soy-consumer concerns for the Cerrado suddenly rose and have quickly been able to influence the governance of that landscape, more may happen if such environmental concerns are more meaningfully translated into action while also expanded to include other sustainability issues such as land rights or water access, or to demand the involvement of other stakeholders. Similarly, the GTC strength would also increase if European companies were joined by other major soy buyers, such as Chinese ones. Clearly, much of CCLG's effectiveness relies on demand-side readiness to foster changes through different carrots and sticks (e.g., targeted funding, selection against bad practices, preferential purchasing), broaden their agenda, and act responsibly on the basis of the power they hold over faraway landscapes and their people (see Munroe et al., 2019).

[25]Personal interviews in Brazil, 2018.

TABLE 3 | Summary of CCLG's hybrid features.

Governance features	Implications	GTC examples
Takes on drivers, focusing on an anchor commodity	**Strengths:** Engages a key driver of change, in place of end-of-pipe solutions. Clearer understanding of what it takes to shift current patterns. Focus may increase likelihood of consensus. A setting for reaching compromises and negotiated solutions acceptable to that industry. – **Weaknesses:** May overlook other drivers. Leakage and indirect land-use change may still require attention. Actors that drive land use change get disproportionate agenda-setting power. Focus on a key driver may have trade-offs with the multi-sector and multi-actor ideal of the landscape approach; more radical actors are likely to be excluded.	Focus on soy as a key driver of land use change in the Cerrado. Soy traders playing key governance roles both in rule-making and implementation, given their market leverage to enforce decisions.
Engages influential actors from outside the landscape	**Strengths:** Tackles key food system interactions with the land system, including influences from remote demand-side actors. Room for cooperation with consumers and investors whose decisions affect the landscape. – **Weaknesses:** Outsiders may come to have more authority in landscape governance than local actors who have higher stakes but less power.	Engagement with *Cerrado SOS* signatories (soy processors and retailers) to fund payments for conservation and avoid legal deforestation
Includes landscape actors beyond the anchor commodity's supply chain	**Strengths:** Potentially broadens the issues, concerns, perspectives and resources beyond those of supply chain actors, resulting in greater legitimacy, implementation capacity, and agreement on actions to be taken. – **Weaknesses:** Greater inclusiveness may reduce consensus and make compromises harder to achieve. May still fall short of inclusiveness for more marginalized groups.	Public monitoring and enforcement (PRODES Cerrado) joined by NGOs' expertise and private sector capacity
Accounts for landscape-specific environmental issues and vulnerabilities	**Strengths:** Can address public regulation gaps, especially around undesirable but legal impacts. Possibly easier than modifying laws. – **Weaknesses:** Limited external validity or applicability of policy lessons beyond that landscape.	Focus on the Cerrado's particular vulnerability to legal deforestation
Tailors policy instruments to the landscape's existing institutional setting	**Strengths:** Builds upon and seeks synergies with existing public policies, possibly filling gaps. Easier policy coherence and more variety of instruments than only certification and premium prices. – **Weaknesses:** Limited diffusion and replicability of policy lessons, as instruments are tailored to the context.	Rules and incentives drawn based on Legal Reserve and clearing-license requirements.

CONCLUSIONS

Innovative landscape governance initiatives have come into play in the face of persistent inability to rein in the expansion of industrial monocultures over native ecosystems in the tropics. In Brazil, a decade of experience with the Amazon Soy Moratorium led to the creation of the GTC, arguably the latest example of an initiative type that combines both a landscape focus and targeted supply chain governance to address face-front some key drivers of land use change. We have conceptualized that hybrid governance format as CCLG, which generally involves public and private actors, the tailoring of private policy to public regulations, as well as attention to the particular vulnerabilities of a landscape and the contingencies of supply chain actors.

The GTC case illustrates the format's strengths and achievements as much as its limitations and pitfalls. Through its comprehensive approach—from identification of deforestation hotspots, to devising compensation mechanisms, and supporting public environmental regulatory frameworks—the GTC has been broader than any private certification initiative. By negotiating with demand-side signatories of the *Cerrado SOS*, it has also gone farthest in seeking to address drivers of change and promoting international collaboration for conserving that landscape. However, the GTC does not escape the grips of existing power imbalances, but rather reproduces them. Although CCLG would in principle have allowed for greater inclusiveness, the GTC has pursued essentially a narrow agenda of deforestation-free soy expansion that does not match broader sustainable development goals for the Cerrado, nor does it respond to the pleas of its most vulnerable stakeholders. The soy agroindustry thus succeeds in avoiding consideration of thorny issues such as agrobiodiversity loss, unequal freshwater access, pesticide contamination or land rights. It is counterbalanced not by the local demands of those who are impacted, but

only by the (limited) environmental concerns of distant consumers, as represented by consumer good companies and international NGOs. The proposed payments scheme thus does not broadly address the needs of Cerrado stakeholders but is rather a product of the agendas of soy traders and international NGOs represented. Its limited focus may increase the additionality of payments, but it may also undermine overall effectiveness (through increased spillover risks) and the GTC's perceived legitimacy.

In sum, our analysis shows that CCLG is a double-edged sword, for while it has advantages over less focused initiatives, the governance process and its agenda risk being captured by sectoral interests, sidelining more marginal landscape actors. The GTC could potentially become an entry point for more comprehensive landscape governance in the Cerrado, but only if there is pressure for attention to broader sustainability issues and greater inclusiveness. Further research may investigate how comparable CCLG initiatives may be surfacing in other contexts, such as in other countries or in relation to other commodities. Case study comparisons to assess variation between commodities (e.g., more export-dependent vs. those which are more domestically consumed) could be particularly yielding. Finally, there is a clear role for science to inform landscape governance initiatives more systematically, providing not only spatial analyses and the natural-science basis for decisions, but also evidence on policy performance and assessments that can make such processes more inclusive and sustainable.

DATA AVAILABILITY STATEMENT

Qualitative data from the field interviews are protected to preserve the identity and secure the full anonymity of the interviewees.

ETHICS STATEMENT

This study has involved neither animal nor human experimentation, nor the handling or storage of any sensitive personal data. In line with institutional guidelines and legislation, it has been exempt from prior ethical approval, while conforming to international standards on good research practice and the ethical principles of Frontiers Research Integrity. In compliance with these norms, all references to the interviews have been fully anonymized to preserve the identity of the persons and organizations consulted.

AUTHOR CONTRIBUTIONS

MB conceptualized the study and conducted the fieldwork. MB analyzed the results and drafted the manuscript, with contributions from UP. Both authors contributed to manuscript revision, read, and approved the final version.

FUNDING

This research was funded by the Swedish Research Council for Sustainable Development (FORMAS), grant number 2106-00351.

ACKNOWLEDGMENTS

The authors would like to thank all interviewees for their time and contributions for this study, as well as Tiago Reis, Gabriela Russo Lopes, Vivian Ribeiro, and the reviewers for comments on earlier drafts of this manuscript. The final product is stronger than it would have been without their inputs. More broadly, we also thank the Global Land Programme (GLP) community. This publication contributes to the GLP science plan.

REFERENCES

ABIOVE (2018). *Informativo: Verificação Independente da Moratória da Soja.* Associação Brasileira das Indústrias de Óleos Vegetais. Available online at: http://www.bunge.com.br/downloads/Informativo-ABIOVE.pdf (accessed December 12, 2019).

ACCFC (2017). *Comunidades tradicionais de Fechos de Pasto e seu modo próprio de convivência e manejo da sociobiodiversidade do Cerrado: história, direitos e desafios.* Associação dos Pequenos Criadores do Fecho de Pasto de Clemente – ACCFC. Available online at: https://ispn.org.br/comunidades-tradicionais-de-fecho-de-pasto-e-seu-modo-proprio-de-convivencia-com-o-cerrado-historia-direitos-e-desafios/ (accessed July 15, 2019).

Agrosatélite (2019). *Geospatial Analyses of the Annual Crops Dynamic in the Brazilian Cerrado Biome: 2000 to 2014.* Available online at: https://www.idhsustainabletrade.com/uploaded/2016/04/Geospatial_analyses_of_the_annual_crops_dynamic_in_the_brazilian_Cerrado_biome.pdf

Alix-Garcia, J. and Gibbs, H. K. (2017). Forest conservation effects of Brazil's zero deforestation cattle agreements undermined by leakage. *Global Environ Chang.* 47, 201–217. doi: 10.1016/j.gloenvcha.2017.08.009

Alpízar, F., Nordén, A., Pfaff, A., and Robalino, J. (2017a). Unintended effects of targeting an environmental rebate. *Environ. Resour. Eco.* 67, 181–202. doi: 10.1007/s10640-015-9981-2

Alpízar, F., Nordén, A., Pfaff, A., and Robalino, J. (2017b). Spillovers from targeting of incentives: exploring responses to being excluded. *J. Econ. Psychol.* 59, 87–98. doi: 10.1016/j.joep.2017.02.007

Aprosoja (2018). *Aprosoja Reforça Contrariedade à Moratória da Soja e Exige Cumprimento da Legislação Brasileira.* Available online at: http://www.aprosoja.com.br/comunicacao/release/aprosoja-pede-que-tradings-respeitem-legislacao-ambiental-brasileira (accessed July 15, 2019).

Arima, E., Richards, P., Walker, R., and Caldas, M. M. (2011). Statistical confirmation of indirect land use change in the Amazon. *Environ Res Lett.* 6:024010. doi: 10.1088/1748-9326/6/2/024010

Arts, B., Buizer, M., Horlings, L., Ingram, V., van Oosten, C., and Opdam, P. (2017). Landscape approaches: a state-of-the-art review. *Annu. Rev. Environ. Resour.* 42, 439–463. doi: 10.1146/annurev-environ-102016-060932

Arvor, D., Daugeard, M., Tritsch, I., De Mello-Thery, N. A., Thery, H., and Dubreuil, V. (2018). Combining socioeconomic development with environmental governance in the Brazilian Amazon: the Mato Grosso agricultural frontier at a tipping point. *Environ. Dev. Sust.* 20, 1–22. doi: 10.1007/s10668-016-9889-1

Bachrach, P., and Baratz, M. M. (1962). Two faces of power. *Am. Polit. Sci. Rev.* 56, 947–952. doi: 10.2307/1952796

Balmas, M., and Sheafer, T. (2010). Candidate image in election campaigns: attribute agenda setting, affective priming, and voting intentions. *Int. J. Public Opin. Res.* 22, 204–229. doi: 10.1093/ijpor/edq009

Barnett, M. N., and Finnemore, M. (1999). The politics, power and pathologies of international organizations. *Int. Organ.* 53, 699–732. doi: 10.1162/002081899551048

Bastos Lima, M. G., and Gupta, J. (2014). The extraterritorial dimensions of biofuel policies and the politics of scale: live and let die? *Third World Q.* 35, 392–410. doi: 10.1080/01436597.2014.893484

Bastos Lima, M. G., Persson, M. P., and Meyfroidt, P. (2019). Leakage and boosting effects in environmental governance: a framework for analysis. *Environ. Res. Lett.* 14:105006. doi: 10.1088/1748-9326/ab4551

Bastos Lima, M. G., Visseren-Hamakers, I. J., Brana Varela, J., and Gupta, A. (2017). A reality check on the landscape approach to REDD+: lessons from Latin America. *Forest Policy Eco.* 78, 10–20. doi: 10.1016/j.forpol.2016.12.013

Biermann, F., Betsill, M., Gupta, J., Kanie, N., Lebel, L., Liverman, D., et al. (2009). *Science and Implementation Plan of the Earth System Governance Project*. Bonn: IHDP.

Borck, J. C., and Coglianese, C. (2009). Voluntary environmental programs: assessing their effectiveness. *Annu. Rev. Environ. Resour.* 34, 305–324. doi: 10.1146/annurev.environ.032908.091450

Börner, J., Baylis, K., Corbera, E., Ezzine-de-Blas, D., Honey-Rosés, J., Persson, U. M., et al. (2017). The effectiveness of payments for environmental services. *World Dev.* 96, 359–374. doi: 10.1016/j.worlddev.2017.03.020

Borras, S. M., Franco, J. C., Gomez, S., Kay, C., and Spoor, M. (2012). Land grabbing in Latin America and the Caribbean. *J. Peasant Stud.* 39, 845–872. doi: 10.1080/03066150.2012.679931

Boyd, W., Stickler, C., Duchelle, A. E., Seymour, F., Nepstad, D., Bahar, N. H.A., et al. (2018). *Jurisdictional Approaches to REDD+ and Low Emissions Development: Progress and Prospects*. Working Paper. Washington, DC: World Resources Institute.

Brazil (2012). *Lei N° 12.651, de 25 de maio de 2012*. Presidência da República. Available online at: http://www.planalto.gov.br/ccivil_03/_Ato2011-2014/2012/Lei/L12651.htm (accessed December 12, 2019).

Byrne, J. (2019). *Tesco, Nutreco and Grieg Seafood announce Funding for Soy Farmers in the Cerrado Region of Brazil*. Available online at: https://www.feednavigator.com/Article/2019/12/06/Businesses-announce-funding-for-soy-farmers-in-the-Cerrado (accessed December 12, 2019).

Campbell, J. M. (2015). *Conjuring Property: Speculation and Environmental Futures in the Brazilian Amazon (Culture, Place, and Nature)*. Seattle, WA: University of Washington Press.

Cerrado Manifesto (2017). *The Future of the Cerrado in the Hands of the Market: Deforestation and Native Vegetation Conversion Must Be Stopped*. Available online at: https://www.wwf.org.br/informacoes/english/?65083/Sixty-one-companies-in-Brazil-have-committed-to-combating-deforestation-in-the-Cerrado (accessed July 15, 2019).

Cerrados Treaty (1992). *Tratado dos Cerrados*. Available online at: https://redecerrado.org.br/tratado-dos-cerrados (accessed July 15, 2019).

Chervier, C., Le Velly, G., and Ezzine-de-Blas, D. (2019). When the implementation of payments for biodiversity conservation leads to motivation crowding-out: a case study from the Cardamoms forests, Cambodia. *Ecol. Eco.* 156, 499–510. doi: 10.1016/j.ecolecon.2017.03.018

Clapp, J. (2017). The trade-ification of the food sustainability agenda. *J. Peasant Stud.* 44, 335–353. doi: 10.1080/03066150.2016.1250077

Clapp, J., and Dauvergne, P. (2005). *Paths to a Green World: The Political Economy of the Global Environment*. Cambridge, MA: MIT Press. doi: 10.7551/mitpress/5265.001.0001

Clapp, J., and Fuchs, D. (eds). (2009). *Corporate Power in Global Agrifood Governance*. Cambridge, MA: MIT Press. doi: 10.7551/mitpress/9780262012751.001.0001

CNA and Abrafrutas (2018). *Relatório Cenário Hortifruti Brasil 2018. Confederação da Agricultura e Pecuária do Brasil (CNA) and Associação Brasileira dos Produtores Exportadores de Frutas e Derivados (Abrafrutas)*. Available online at: https://abrafrutas.org (accessed December 08, 2019).

Cook, S. (2006). Structural change, growth and poverty reduction in Asia: Pathways to inclusive development. *Dev. Policy Rev.* 24, 51–80. doi: 10.1111/j.1467-7679.2006.00341.x

Corbera, E., and Pascual, U. (2012). Ecosystem services: heed social goals. *Science* 335, 655–656. doi: 10.1126/science.335.6069.655-c

Cossart, S., Chaplier, J., and Beau de Lomenie, T. (2017). The French law on duty of care: a historic step towards making globalization work for all. *Business Hum. Rights J.* 2, 317–323. doi: 10.1017/bhj.2017.14

Costedoat, S., Koetse, M., Corbera, E., Ezzine-de-Blas, D. (2016). Cash only? Unveiling preferences for a PES contract through a choice experiment in Chiapas, Mexico. *Land Use Policy* 58, 302–317. doi: 10.1016/j.landusepol.2016.07.023

Dahl, R. (1957). The concept of power. *Behav. Sci.* 2, 201–215. doi: 10.1002/bs.3830020303

Deans, H., Ros-Tonen, M. A. F., and Derkyi, M. (2018). Advanced value chain collaboration in Ghana's cocoa sector: an entry point for integrated landscape approaches? *Environ. Manage.* 62, 143-156. doi: 10.1007/s00267-017-0863-y

Dimitrov, R. S. (2005). Hostage to Norms: States, institutions and global forest politics. *Global Environ. Polit.* 5, 1–24. doi: 10.1162/1526380057747 85499

Duff, G., Garnett, D., Jacklyn, P., Landsberg, J., Ludwig, J., Morrison, J., et al. (2009). A collaborative design to adaptively manage for landscape sustainability in north Australia: lessons from a decade of cooperative research. *Landsc. Ecol.* 24, 1135–1143. doi: 10.1007/s10980-008-9236-5

Ezzine-de-Blas, D., Corbera, E., and Lapeyre, R. (2019). Payments for environmental services and motivation crowding: towards a conceptual framework. *Ecol. Eco.* 156, 434–443. doi: 10.1016/j.ecolecon.2018.07.026

Faria, N. M.X., Rosa, J. A.R., and Facchini, L. A. (2009). Poisoning by pesticides among family fruit farmers, Bento Gonçalves, Southern Brazil. *Rev. Saude Publica*, 43, 1–10. doi: 10.1590/S0034-89102009005000014

Favareto, A. S., Nakagawa, L., Pó, M., Seifer, P. G., and Kleeb, S. C. (2019). *Entre as chapadas e baixões do Matopiba: Dinâmicas territoriais e impactos socioeconômicos na fronteira da expansão agropecuária no Cerrado*. São Paulo: Greenpeace and Ilustre Editora.

FIAN International, Rede Social de Justiça e Direitos Humanos, and Comissão Pastoral da Terra. (2018). *The Human and Environmental Cost of Land Business: The Case of Matobiba*. Heidelberg: FIAN International.

Freeman, O. E., Duguma, L. A., and Minang, P. A. (2015). Operationalizing the integrated landscape approach in practice. *Ecol. Soc.* 20:24. doi: 10.5751/ES-07175-200124

Gardner, T. A., Benzie, M., Borner, J., Dawkins, E., Fick, S., Garrett, R., et al. (2019). Transparency and sustainability in global commodity supply chains. *World Dev.* 121, 163–177. doi: 10.1016/j.worlddev.2018.05.025

Garrett, R. D., Levy, S., Carlson, K. M., Gardner, T. A., Godar, J., and Villoria, N. (2019). Criteria for effective zero-deforestation commitments. *Global Environ. Change* 54, 135–147. doi: 10.1016/j.gloenvcha.2018.11.003

Garrett, R. D., and Rausch, L. L. (2016). "Green for gold: social and ecological tradeoffs influencing the sustainability of the Brazilian soy industry". *J. Peasant Stud.* 43, 461–493. doi: 10.1080/03066150.2015.1010077

Gibbs, H. K., Munger, J., L'Roe, J., Barreto, P., Pereira, R., Christie, M., et al. (2016). Did ranchers and slaughterhouses respond to zero-deforestation agreements in the brazilian amazon? *Conserv. Lett.* 9, 32–42. doi: 10.1111/conl.12175

Gibbs, H. K., Rausch, L., Munger, J., Schelly, I., Morton, D. C., Noojipady, P., et al. (2015). Brazil's soy moratorium. *Science* 347, 377–378. doi: 10.1126/science.aaa0181

Girardi, G. (2018). *Abiove Reafirma Compromisso Com Combate ao Desmatamento e Moratória da Soja*. O Estado de São Paulo. Available online at: https://economia.estadao.com.br/noticias/geral,abiove-reafirma-compromisso-com-combate-ao-desmatamento-e-moratoria-da-soja,70002562455 (accessed July 15, 2019).

Green, J. M. H., Croft, S. A., Durán, A. P., Balmford, A. P., Burgess, N. D., Fick, S., et al. (2019). Linking global drivers of agricultural trade to on-the-ground impacts on biodiversity. *Proc. Natl. Acad. Sci. U.S.A.* 116, 23202–23208. doi: 10.1073/pnas.1905618116

Greenpeace (2006). *Eating Up the Amazon*. Available online at: https://greenpeace.org (accessed December 12, 2019).

GTC (2018a). *GTC Briefing – March 2018*. Grupo de Trabalho do Cerrado (Cerrado Working Group). São Paulo: Olab.

GTC (2018b). *GTC Briefing – May 2018*. Grupo de Trabalho do Cerrado (Cerrado Working Group). São Paulo: Olab.

GTC (2019). *GTC Briefing – February 2019*. Grupo de Trabalho do Cerrado (Cerrado Working Group). São Paulo: Olab.

GTS (2019). *Moratória da Soja: Monitoramento por imagens de satélites dos plantios de soja no bioma Amazônia. Safra 2017/2018*. Grupo de Trabalho da Soja (GTS). Available online at: http://abiove.org.br/relatorios/ (accessed July 15, 2019).

Gupta, J., Pouw, N. R.M., and Ros-Tonen, M. A.F. (2015). Towards and elaborated theory of inclusive development. *Eur. J. Dev. Res.* 27, 541–559. doi: 10.1057/ejdr.2015.30

Hajer, M. (1995). *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford: Oxford University Press.

Hunke, P., et al. (2015). The Brazilian Cerrado: assessment of water and soil degradation in catchments under intensive agricultural use. *Ecohydrology* 8, 1154–1180. doi: 10.1002/eco.1573

Ingram, V., van den Berg, J., van Oorschot, M., Arets, E., and Judge, L. (2018). Governance options to enhance ecosystem services in cocoa, soy, tropical timber and palm oil value chains. *Environ. Manage.* 62, 128–142. doi: 10.1007/s00267-018-0996-7

Iyengar, S., Peters, M. D., and Kinder, D. R. (1982). Experimental demonstrations of the "not-so-minimal" consequences of television news programs. *Am. Polit. Sci. Rev.* 76, 848–858. doi: 10.1017/S00030554001 8966X

Kaimowitz, D. (2008). The prospects for reduced emissions from deforestation and degradation (REDD) in mesoamerica. *Int. Forestry Rev.* 10, 485–495. doi: 10.1505/ifor.10.3.485

Kingdon, J. W. (1995). *Agendas, Alternatives, and Public Policies*. Harlow: Pearson Longman.

Kissinger, G., Brasser, A., and Gross, L. (2013). *Reducing Risk: Landscape Approaches to Sustainable Sourcing*. Washington, DC: Landscapes for People, Food and Nature Initiative.

Knaggard, A. (2015). The multiple streams framework and the problem broker. *Eur. J. Polit. Res.* 54, 450–465. doi: 10.1111/1475-6765.12097

Kozar, R., Buck, L. E., Barrow, E. G., Sunderland, T. C.H., Catacutan, D. E., Planicka, C., et al. (2014). *Towards Viable Landscape Governance Systems: What Works?* Washington, DC: EcoAgriculture Partners.

Kusters, K., Buck, L., de Graaf, M., Minang, P., van Oosten, C., and Zagt, R. (2018). Participatory planning, monitoring and evaluation of multi-stakeholder platforms in integrated landscape initiatives. *Environ. Manage.* 62, 170–181. doi: 10.1007/s00267-017-0847-y

Lambin, E. F., Gibbs, H. K., Heilmayr, R., Carlson, K. M., Fleck, L. C., Garrett, R. D., et al. (2018). The role of supply-chain initiatives in reducing deforestation. *Nat. Climate Change* 8, 109–116. doi: 10.1038/s41558-017-0061-1

Lambin, E. F., Meyfroidt, P., Rueda, X., Blackman, A., Borner, J., Cerutti, P. O., et al. (2014). Effectiveness and synergies of policy instruments for land use governance in tropical regions. *Global Environ. Change* 28, 129–140. doi: 10.1016/j.gloenvcha.2014.06.007

Lambin, E. F., and Thorlakson, T. (2018). Sustainability standards: interactions between private actors, civil society, and governments. *Annu. Rev. Environ. Resour.* 43, 369–393. doi: 10.1146/annurev-environ-102017-025931

Lasswell, H. D. (1936). *Politics: Who Gets What, When, How*. New York, NY: Whittlesey House.

MAPA (2019). *Balança Comercial do Agronegócio – Janeiro/2019*. Brasilia: Ministério da Agricultura, Pecuária e Abastecimento, Secretaria de Comércio e Relações Internacionais.

Martinelli, L. A., Batistella, M., Bicudo da Silva, R. F., and Moran, E. (2017). Soy expansion and socioeconomic development in municipalities of Brazil. *Land* 6:62. doi: 10.3390/land6030062

Martinez-Alier, J. (2014). The environmentalism of the poor. *Geoforum* 54, 239–241. doi: 10.1016/j.geoforum.2013.04.019

McCombs, M. (2014). *Setting the Agenda*. Cambridge: Polity Press

McCombs, M. E., Shaw, D. L., and Weaver, D. H. (1997). *Communication and Democracy: Exploring the Intellectual Frontiers in Agenda-Setting Theory*. Mahwah, NJ: Erlbaum.

Meyfroidt, P., Abeygunawardane, D., Ramankutty, N., Thomson, A., and Zeleke, G. (2019). Interactions between land systems and food systems. *Curr. Opin. Environ. Sust.* 38, 60–67. doi: 10.1016/j.cosust.2019.04.010

Milder, J. C., Hart, A. K., Dobie, P., Minai, J., and Zaleski, C. (2014). Integrated landscape initiatives for African agriculture, development, and conservation: a region-wide assessment. *World Dev.* 54, 68–80. doi: 10.1016/j.worlddev.2013.07.006

Munroe, D. K., Batistella, M., Friis, C., Gasparri, N. I., Lambin, E., Liu, J., et al. (2019). Governing flows in telecoupled land systems. *Curr. Opin. Environ. Sust.* 38, 53–59. doi: 10.1016/j.cosust.2019.05.004

Nepstad, D., Irawan, S., Bezerra, T., Boyd, W., Stickler, C., Shimada, J., et al. (2013). More food, more forest, few emissions, better livelihoods: linking REDD+, sustainable supply chains and domestic policy in Brazil, Indonesia, and Colombia. *Carbon Manage.* 4, 639–58. doi: 10.4155/cmt.13.65

Observatório do Clima (2017). *Desmatamento do cerrado supera o da Amazônia, Indica Dado Official*. Available online at: http://www.observatoriodoclima.eco.br/desmate-no-cerrado-supera-o-da-amazonia/ (accessed July 15, 2019).

O'Farrell, P. J., and Andersson, P. M. L. (2010). Sustainable multifunctional landscapes: a review to implementation. *Curr. Opin. Environ. Sust.* 2, 29–65. doi: 10.1016/j.cosust.2010.02.005

Oliveira, G., and, Hecht, S. (2016). Sacred groves, sacrifice zones, and soy production: globalization, intensification and neo-nature in South America. *J. Peasant Studies* 43, 251–285. doi: 10.1080/03066150.2016.11 46705

Pascual, U., Phelps, J., Garmendia, E., Brown, K., Corbera, E., Martin, A., et al. (2014). Social equity matters in payments for ecosystem services. *BioScience* 64, 1027–1036. doi: 10.1093/biosci/biu146

Pendrill, F., Persson, U. M., Godar, J., Kastner, T., Moran, D., Schmidt, S., et al. (2019). Agricultural and forestry trade drivers large share of tropical deforestation emissions. *Global Environ. Change* 56, 1–10. doi: 10.1016/j.gloenvcha.2019.03.002

Persson, U. M., and Alpízar, F. (2013). Conditional cash transfers and payments for environmental services—a conceptual framework for explaining and judging differences in outcomes. *World Dev.* 43, 124–137. doi: 10.1016/j.worlddev.2012.10.006

Poynton, S. (2015). *Beyond Certification*. Oxford: Do Sustainability.

Rauniyar, G., and Kanbur, R. (2009). Inclusive growth and inclusive development: A review and synthesis of Asian Development Bank literature. *J. Asia Pacific Eco.* 15, 455–469. doi: 10.1080/13547860.2010.517680

Rausch, L. L., Gibbs, H. K., Schelly, I., Brandão, A. Jr., Morton, D. C., Filho, A. C., et al. (2019). Soy expansion in Brazil's Cerrado. *Conserv. Lett.* 12:e12671. doi: 10.1111/conl.12671

Rede Cerrado (2020). Quem Somos. Available online at: https://redecerrado.org.br/quem-somos/ (accessed January 21, 2020).

Reed, J, van Vianen, J., Barlow, J., and Sunderland, T. (2017). Have integrated landscape approaches reconciled societal and environmental issues in the tropics? *Land Use Policy* 63, 481–492. doi: 10.1016/j.landusepol.2017.02.021

Reed, J., van Vianen, J., Deakin, E. L., Barlow, J., and Sunderland, T. (2016). Integrated landscape approaches to managing social and environmental issues in the tropics: learning from the past to guide the future. *Glob. Change Biol.* 22, 2540–2554. doi: 10.1111/gcb.13284

Rode, J., Gómez-Baggethun, E., and Krause, T. (2015). Motivation crowding by economic incentives in conservation policy: a review of the empirical evidence. *Ecol. Eco.* 117, 270–282. doi: 10.1016/j.ecolecon.2014.11.019

Ros-Tonen, M. A. F., Reed, J., and Sunderland, T. (2018). From synergy to complexity: The trend towards integrated value chain and landscape governance. *Environ. Manage.* 62, 1–14. doi: 10.1007/s00267-018-1055-0

Ros-Tonen, M. A. F., Van Leynseele, Y. P. B., Laven, A., and Sunderland, T. (2015). Landscapes of social inclusion: Inclusive value-chain collaboration through the lenses of food sovereignty and landscape governance. *Eur. J. Dev. Res.* 27, 523–540. doi: 10.1057/ejdr.2015.50

Sauer, S. (2018). Soy expansion into the agricultural frontiers of the Brazilian Amazon: the agribusiness economy and its social and environmental conflicts. *Land Use Policy* 79, 326–338. doi: 10.1016/j.landusepol.2018.08.030

Sawyer, D., and Lahsen, M. (2016). Civil society and environmental change in Brazil's Cerrado. *Environment* 58, 16–23. doi: 10.1080/00139157.2016.12 29541

Sawyer, D., Mesquita, B., Coutinho, B., Vaz de Almeida, F., Figueiredo, I., Lamas, I., et al. (2017). *Ecosystem Profile: Cerrado Biodiversity Hotspot*. Critical Ecosystem Partnership Fund. Available online at: https://www.cepf.net/sites/default/files/cerrado-ecosystem-profile-en-updated.pdf (accessed March 03, 2020).

Sayer, J., Margules, C., Boedhihartono, A. K., Dale, A., Sunderland, T., Supriatna, J., et al. (2015). Landscape approaches; what are the pre-conditions for success? *Sust. Sci.* 10, 345–355. doi: 10.1007/s11625-014-0281-5

Sayer, J., Sunderland, T., Ghazoul, J., Pfund, J. L., Sheil, D., Meijaard, E., et al. (2013). Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses. *Proc. Natl. Acad. Sci. U.S.A.* 110, 8349–8356. doi: 10.1073/pnas.1210595110

Schouten, G., and Glasbergen, P. (2011). Creating legitimacy in global private governance: the case of the roundtable on sustainable palm oil. *Ecol. Eco.* 70, 1891–1899. doi: 10.1016/j.ecolecon.2011.03.012

Soares-Filho, B., Rajão, R., Macedo, M., Carneiro, A., Costa, W., Coe, M., et al. (2014). Cracking Brazil's forest code. *Science* 344, 363–364. doi: 10.1126/science.1246663

Stickler, C., Duchelle, A., Ardila, J. P., Nepstad, D., David, O., Chan, C., et al. (2018). *The State of Jurisdictional Sustainability: Synthesis for Practitioners and Policymakers.* Earth Innovation Institute, Center for International Forestry Research (CIFOR), and Governors Climate and Forests Task Force (GCF). Available online at: https://www.cifor.org/library/6999/ (accessed July 15, 2019).

Strassburg, B., Brooks, T., Feltran-Barbieri, R., and Crouzeilles, R. (2017). Moment of truth for the Cerrado hotspot. *Nat. Ecol. Evol.* 1:0099. doi: 10.1038/s41559-017-0099

TNC (2019). *Incentives for Sustainable Soy in the Cerrado*. *The Nature Conservancy*. Available online at: https://nature.org (accessed December 12, 2019).

Trase (2017). *Transparency for Sustainable Economies.* Available online at: https://trase.earth (accessed July 15, 2017).

Trase (2018). *Trase Yearbook 2018: Sustainability in Forest-Risk Supply Chains – Spotlight on Brazilian Soy*. Available online at: http://yearbook2018.trase.earth (accessed July 15, 2019).

Van der Ven, H., Rothacker, C., and Cashore, B. (2018). Do eco-labels prevent deforestation? Lessons from non-state market driven governance in the soy, palm oil, and cocoa sectors. *Glob. Environ. Change* 52, 141–151. doi: 10.1016/j.gloenvcha.2018.07.002

Van Houten, H., and De Koning, P. (2018). *Jurisdictional Approaches for Deforestation-Free and Sustainable Palm Oil on Borneo*. Leiden: Mekon Ecology, Support Unit of the AD Partnership.

Van Oosten, C., Moeliono, M., and Wiersum, F. (2018). From product to place – Spatializing governance in a commodified landscape. *Environ. Manage.* 62, 157–169. doi: 10.1007/s00267-017-0883-7

Vieira, R. R.S., Ribeiro, B. R., Resende, F. M., Brum, F. T., Machado, N., and Loyola, R. (2018). Compliance to Brazil's Forest Code will not protect biodiversity and ecosystem services. *Diver. Distrib.* 24, 434–438. doi: 10.1111/ddi.12700

Visser, O. (2015). Finance and the global land rush: Understanding the growing role of investment funds in land deals and large-scale farming. *Can. Food Studies La Revue Can. Des études Sur L'alimentation* 2, 278–286. doi: 10.15353/cfs-rcea.v2i2.122

Wunder, S. (2007). The efficiency of payments for environmental services in tropical conservation. *Conserv. Biol.* 21, 48–58. doi: 10.1111/j.1523-1739.2006.00559.x

Yao, G., Hertel, T. W., and Taheripour, F. (2018). Economic drivers of telecoupling and terrestrial carbon fluxes in the global soybean complex. *Glob. Environ. Change* 50, 190–200. doi: 10.1016/j.gloenvcha.2018.04.005

Zanzanaini, C., Trân, B. T., Singh C., Hart, A., Milder, J., and DeClerck, F. (2017). Integrated landscape initiatives for agriculture, livelihoods and ecosystem conservation: an assessment of experiences from South and Southeast Asia. *Landsc Urban Plan* 165, 11–21. doi: 10.1016/j.landurbplan.2017.03.010

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.