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# Institutional foundations for environmental conservation: an analysis of nongovernmental organizations' engagement strategies in the Amazon

Pedro Frizo<sup>1</sup> · Paulo Niederle<sup>2</sup>

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## Abstract

Non-governmental organizations (NGOs) operate in the Brazilian Amazon, mobilizing actors and resources to promote sustainability, mainly by supporting the construction of alternative farming systems. The main efforts are focused on reducing deforestation by means of agroforestry projects, which are introduced as alternatives to extensive livestock farming. This study analyzes the strategies adopted by the Amazonian Institute of Conservation and Sustainable Development and the World Wide Fund for Nature to engage farmers and other actors in their programs. The study was conducted in Apuí, one of the target municipalities of public policies aimed at combating deforestation. The findings reveal that these NGOs adapt their strategies throughout time in face of expressive institutional complexity in local and macro spheres. Acting as “institutional entrepreneurs,” NGOs have changed their discourses from an eminently preservationist focus to one that is more adapted to the economic concerns of local actors and connected to their moral and cultural norms, which also imply a reframing of “sustainability” through a scientific discourse that embodies a more technocratic approach to forest conservation.

**Keywords** Sustainable development · Amazon · Social skills · Institutional entrepreneurship

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✉ Pedro Frizo  
pedro.frizo@gmail.com

Paulo Niederle  
pauloniederle@gmail.com

<sup>1</sup> Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Brazil

<sup>2</sup> Postgraduate Programs in Sociology (PPGS) and Rural Development (PGDR), Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Brazil

## Introduction

Following repercussions from disasters in the international press and multilateral forums, in 2020, the world realized that the Brazilian Amazon rainforest has burned in large-scale fires. Despite government denials, scientists have once again stated that most of these fires started in deforestation areas and with the objective of clearing land for agricultural and cattle production (Hecht & Rajão, 2020; Rajão et al., 2020). However, what remains unclear is the complexity of the conflicts that hinder the construction of economic alternatives based on the sustainable management of the forest. To shed light on a small piece of this complex social puzzle, this study analyzes nongovernmental organizations' (NGOs) engagement strategies to attract local actors to a feasible narrative of sustainable development for the Amazon.

In the first decade of this century, several public policies, programs, projects, laws, and rules have prioritized the “valorization of the standing forest.” Among the most important initiatives were the Pilot Program for Tropical Forest Protection in Brazil (i.e., PPG7), a multi-stakeholder international initiative coordinated by the Brazilian Ministry of the Environment; the Action Plan for Prevention and Control of Deforestation in the Legal Amazon; and the creation, in 2008, of the Amazon Fund, which became the most important financing mechanism for community-based forestry businesses. All these initiatives revealed an important change in the strategies of both the state and the NGOs, from a purely “preservationist” intervention to a narrative that, instead of advocating forest protection from the market, maintain that the conservation of socio-biodiversity depends on the economic valuation of forest assets via new productive practices and fair-trade markets (Abramovay, 2019; Frizo, 2019).

A major problem faced by the actors involved in executing these projects has always been how to engage local farmers. In addition to the creation of innovative businesses, the rise of eco-economics also depends on the conversion of environmental-predatory producers into actors of sustainability (Carneiro, 2008). Accordingly, the research question is as follows: What narratives have been produced by the NGOs to engage farmers in their projects for the sustainable development of the Amazon?

This question emerges in consideration of two contemporary approaches in the New Economic Sociology regarding the production of collective action. First, it assumes that “institutional entrepreneurs,” skillful actors—operating the political construction of new markets by mobilizing resources to foster cooperation—play a key role (Fligstein & McAdam, 2012). Complementarily, it highlights the importance of narratives of the future—“fictional expectations” (Beckert, 2016)—as a major resource for such actors in these processes. Finally, from the institutionalism and organization studies, it states that strategies to produce engagement are built in face of institutional complexity (Greenwood et al., 2011), since organizations have to deal with and adapt to different norms, rules, and values—i.e., institutional prescriptions—that orients other social actors decisions to engage or not.

The study was conducted in Apuí, one of the target municipalities of Brazilian public policies aimed at combating deforestation in the Amazon. The data stem from observations, documental analyses, and interviews conducted in 2017 with farmers, researchers, social leaders, rural extensionists, and policymakers. Because of its relevance in the local context, we focused mainly on the engagement strategies employed by the Amazonian Institute of Conservation and Sustainable Development (IDESAM),

a Brazilian organization whose projects—mainly sponsored by philanthropic institutions—focus on structuring sustainable value chains for forestry products. This NGO's work in the Brazilian Amazon is more focused on reverting deforestation in municipalities that have relatively higher rates of deforested areas. We also analyzed the work developed in Apuí by the World Wide Fund for Nature (WWF).

The rest of this article is organized into three sections. The next section presents the theoretical and methodological framework. Subsequently, another section discusses the study's empirical context. Then, we analyze the projects developed by IDESAM to understand the engagement mechanisms created by this organization. Finally, we conclude that to connect farmers' projects, this NGO changed its discourses from a preservationist focus that criticized the effects of the marketization of nature to another one that, closer to the economic concerns of local actors, highlights the construction of new markets as a route to sustainability. We also demonstrate that this change includes reframing the meaning of "sustainability" through a scientific discourse that sustains a more technocratic approach to forest conservation.

## Theoretical approach and methodology

The concept of "entrepreneurship" has become a mantra among impact-based initiatives, including those aimed at conserving the Amazon (Abramovay, 2019). Classical approaches attribute entrepreneurial action to individuals capable of orchestrating labor and technological resources for structuring productive processes that enable productivity increases (Schumpeter, 1962, 1982). However, institutionalist authors, such as Douglass North (1983), have gone far beyond the idea of new combinations of means of production as the main path to innovation and transformation. They maintain that entrepreneurship relies on the mobilization of ideas, discourses, and symbols that draw other actors toward a common project. In other words, entrepreneurial action mobilizes not only material factors of production, but also immaterial assets that enable the rise of innovative projects.

North's approach to entrepreneurship did not reverberate in economics nor was it used by himself in empirical or theoretical studies (Frizo & Niederle, 2019b). Instead, it was in sociology—and more specifically, in the sociology of organizations (Powell & DiMaggio, 1999) and sociological neo-institutionalism (Hall & Taylor, 2003)—that this discussion gained traction, mainly in the North American debate about the production of collective action and institutional change. Fligstein and McAdam (2012), for instance, defined "institutional entrepreneurs" as social actors who devise engagement strategies to reconfigure the power dynamics of "social fields," which implies the transformation of rules, meanings, and identities that define social positions and hierarchies.

As a producer of engagement, institutional entrepreneurs catalyze the potential transformative critique dormant in other actors who have similar interests but find themselves atomized in their solitary individuality and routine spaces (Fligstein, 2001). To this end, discourses are adjusted to the social reality in which actors are immersed. Because a social field is formed by asymmetric positions of power and unequal division of benefits and opportunities of positioning (Bourdieu, 2008), narratives promoted by institutional entrepreneurs have to be founded on practical problems that individuals

face in their social context in the field. As such, the project promoted is a call-to-action built on pragmatic issues. A game-changing factor arises when an institutional entrepreneur succeeds in arousing positive expectations among other actors regarding the prospects of realizing their individual interests by engaging in the collective project.

In line with Beckert (2016), we consider that a key element in this engagement effort is the production of an “imagined future,” that is, a future vision created by the institutional entrepreneurs informed by the “reality of things,” taking into consideration the “evidence” they produce. The narrative acts as a guide for implementing practices, routines, habits, and procedures that try to anticipate the new development prophecy. As shown later, the production of a new narrative about the future, one that considers an idea of “ecological modernization” supported by scientific evidence, is at the core of the entrepreneurial activity developed by the NGOs to engage farmers in their projects.

Nevertheless, to achieve an appealing and representative narrative, these institutional entrepreneurs must comprehend the immediate social contexts, which, for Fligstein and McAdam (2012), are essential in understanding the institutions at stake that constrain behavior and orient decision-making in the field. Since institutions are not substances but, rather, are founded in social relations, they only make sense in the fields in which the individuals are embedded. Seeing through the lens of contemporary perspectives on organizational studies, institutional entrepreneurs face a certain degree of institutional complexity when leading their organizations (Greenwood et al., 2011; Schildt & Perkmann, 2017). Different institutional prescriptions coming from existent norms, rules, and values in the organizational field bring an enormous challenge for organizations to combine distinct—and potentially conflictive—interests in order to access critical resources for their functioning and goals. Organizational success, among other factors, can often be understood as an outcome of smart changes in organizations’ strategies and/or in their organizational structure in order to embrace different institutional prescriptions.

This idea is close to Ostrom’s (2015) concept of “rules-in-use” (or working rules) and draws attention to the need to identify *in loco* the institutions that effectively guide actors in the organization about their practices, whether the choice of a seed, the management of the forest, or even the decision about whom to sell their produce. Briefly, comprehending social contexts is essential to the effectiveness of the engagement strategies posed by the institutional entrepreneurs. The stronger the link between the proposed narrative and the individuals’ “operational problems” (Ostrom, 2015), the easier for NGOs to support the “interpretative frames” they create to sustain the legitimacy of their projects.

Drawing on this conceptual framework, we sought to understand how NGOs have attempted, between 2008 and 2016, to engage other social actors in projects of sustainable farming in the Juma River Directed Settlement Project (hereinafter, PA Juma) in Apuí, which consisted of a qualitative analysis focused on the NGOs’ projects for sustainable development in the Brazilian Amazon.

Data were collected through interviews, documentary research, and systematic observations. The interviews were conducted in the municipalities of Apuí and Manaus (state capital) between January 27 and March 24, 2017. They comprised 45 semi-structured interviews with representatives and technicians of NGOs, farmers, policymakers, middlemen, and businesspeople. The questionnaires introduced some

topics for discussion, although it was not our intention to drive the conversation excessively to delimited themes. As much as possible, we tried to allow the interviewees to express their opinions, interests, and values freely.

Systematic observations were directed to different types of social meetings and social routines in the city of Apuí. First, we accompanied NGO technicians during rural extension activities, where agronomic techniques, such as agroforestry, were taught to the respective families. These moments became crucial for the study, as they allowed us to observe the frames displayed by NGO technicians in the field. Second, we followed three monthly meetings of rural associations in Apuí. Even though rural associativism in Apuí is weak and does not engage many farmers, these meetings were valuable in seizing the moral and value ties (Paugam, 2013) that connect them around common problems and interests. These findings are essential for understanding how NGOs' narratives produce identity and engagement by dialoguing on issues directly connected to farmers' lives.

In addition, documental analysis enabled us to grasp discourse production among NGOs and above all, the narrative of sustainability in its multiple facets. This analysis focused on 13 documents produced by NGOs to advertise their sustainable development projects to farmers, donors, environmental organizations, and private companies. The institutional landscape was also mainly investigated through documents, since it was possible to understand the public projects of government agencies through past publications and reports.

Data from interviews, observations, and documental analyses were qualitatively examined, focusing on the construction of thematic groups of content (Bardin, 2009). The qualitative data were grouped into 25 categories according to the frequency they were quoted in the interviews (Table 1). This enabled a deeper and more organized content analysis, establishing interdependencies, and identifying the most relevant social issues raised by the actors investigated. All thematic categories, except for the categories "conceptions about sustainability" and "conceptions about development," were created *a posteriori*, that is, from the content analysis of data collected in the field, manifested voluntarily by the interviewees.

Complementarily, we analyzed the quantitative data from three main bases. The first one was the "Technical Assistance and Rural Extension Data" consolidated by the IDESAM in partnership with the National Institute of Colonization and Agrarian Reform (INCRA). These data refer to the main socioeconomic indicators of farmer families attended by the IDESAM in the PA Juma. It is possible to compare some important indicators, such as off-farm employment, annual income, and the number of families that have contracted credit. The second database was the demographic statistics provided by the Brazilian Institute of Geography and Statistics (IBGE), which made possible to understand, for example, the processes of rural exodus. Finally, for a primary understanding of the technical assistance offered by the state in Apuí, we analyzed the "2016 Activity Plan" from the Institute of Agricultural and Sustainable Forest Development of the State of Amazonas (IDAM), which is a public agency for rural extension in the State of Amazonas, focusing on an analysis of public initiatives to improve agricultural sustainability.

**Table 1** Analytical categories derived from the qualitative analysis according to the frequency they were mentioned in the interviews

Category	Description
Agroforestry	Considerations about the agroforestry system
Interests (economic, political, and social)	Aspirations where interests are reflected. Here are also included projections about how the future is expected to be
Technical assistance	Considerations about the technical assistance offered by NGOs and State agencies
Agrarian commercialization	Considerations about the commercialization of agricultural products
Cattle commercialization	Considerations about the commercialization of cattle and animal-origin products
Comparisons	Comparisons, of any type, between Apuí and other regions
Conceptions about development*	Ideas about the definition of development
Conceptions about sustainability*	Ideas about the definition of sustainability
Rural credit	Considerations about the rural credit in Apuí
Settlement creation	Personal histories about the creation of the PA Juma, in Apuí
Power demonstrations	Expressions of power, inflexibility, suppression of interests, opinions. Attempts to impose a way of life, a vision, an understanding of reality
Engagement	Aspects of solidarity, cooperation, or social engagement between individuals positioned differently in the social field
Rural exodus	Dynamics that drive the migration of families from rural Apuí
IBAMA	Considerations about the actions of the environment protection state agency
Social identity	Considerations about social identity, otherness, and lifestyle conceptions
Deforestation	Justifications about deforestation and why it is supposedly “necessary”
Logistics	Reports regarding locomotion, road quality, time for locomotion, and product flow
Politics	Ideas and thoughts on the local and national political disputes
Productivity	Farming and livestock systems economic results
Land issues	Considerations on land ownership, land struggles, and land reform
Solitude and institutional abandonment	Demonstrations of loneliness, abandonment, and non-representativeness in the public sphere
Rural work	Considerations about labor in agriculture and other rural activities

Note: The categories “conceptions about development” and “conceptions about sustainability” have a high frequency because they were deliberately mentioned by the interviewer

Source: elaborated by the authors (2018)

## The empirical context

Apuí is a municipality with 20,000 inhabitants, formally recognized in 1987, and is situated on the borders of the Trans-Amazonian Highway, the 4000-km-long road built in the 1970s by the military government to integrate and lead the development of the Amazon region. At the start of the occupation, Apuí was a rural settlement called the PA Juma, which was established in 1982. At that time, it was the largest rural settlement in Latin America, with more than 670,000 hectares and the capacity to

house 7500 families. Most of the farmers who migrated to this settlement came primarily from the southern states of Paraná, Santa Catarina, and Rio Grande do Sul, and for the second time, in the late 1980s and the early 1990s, from Espírito Santo, Bahia, and Rondônia. The migration of these people was motivated by four main reasons: the demographic pressure created by the expansion of the families in their regions of origin, the high prices of land in those regions, the reduced cost of accessing land in the new agricultural frontier, and state support by means of colonization policies (Frizo, 2019).

The colonization project of the Brazilian military government aimed at both mitigating land conflicts in the most populated rural regions and occupying a supposedly “uninhabited” territory (Ianni, 1979). The construction of a fictional “frontier,” a territory “invented” by the state as a wild space waiting for “civilization,” was a major component of this process; for once, the frontier was symbolically understood and appropriated as the region for realizing socioeconomic opportunities (Velho, 2009). The main piece of this fiction was the opportunity—assured by the state—for definitive settling in a large land plot from which farmers could guarantee families’ livelihood and even become rich by exploiting the forest assets. At that time, deforestation was not only allowed but also a practice stimulated by public policy.

Similar to most of the Amazonian region, the Apuian rural society is marked by authoritarian control exercised by local elites that intermediate farmers’ access to resources and markets. Among the main resources, land is a critical problem because of institutional instability that historically defines the local forms of occupation. Most of the Apuian rural inhabitants originally settled at the PA Juma. However, because of the intense demographic movements caused by rural exodus, the remaining settlers bought (or simply occupied) other parcels situated on their outskirts, assuring a broader area for agricultural production (Carrero & Fearnside, 2011). Such expansion breaks the rules of the INCRA, and consequently, these farmers cannot have land titles for these new areas, which, in some cases, are much larger than the original parcel occupied by the settler family.

Institutional instability concerning formal property rights for land has three major effects. First, it makes the region a focus of violent agrarian conflicts. According to Niederle and Wesz (2020), conflicts in the Amazon account for 44% of all the conflicts over land tenure in Brazil, between 2000 and 2015. Second, it obstructs farmers’ access to public policies and resources, since formal recognition of land tenure is a basic requirement for most public programs. Consequently, it also impacts farmers’ capacity to invest in new agricultural or rural projects. Third, it accentuates farmers’ dependence on economically and politically influential local elites, such as middlemen who control both upstream and downstream agricultural markets. These circumstances provide the first explanation for local farmers being tied to a model of extensive expropriation of natural resources, even though it has long demonstrated decreasing economic results.

An analysis of the average agricultural income per hectare from 2006 to 2014 revealed a reduction of approximately 30%, from BRL 18,245.25 to BRL 12,934.31 in deflated values (Frizo, 2019). In the face of this rising economic squeeze, instead of the originally planned 7500, only about 2000 families remain in the PA Juma. This situation has produced a huge crisis of expectations among the farmers, implying not



only absence of a sense of future, but also distrust of projects designed by the government or other “outsiders”:

If we take the book I have at home, the project that INCRA implemented for us... I have the whole project... INCRA was going to build agro-villages, schools, cereal dealers, and extraction of wood for charcoal. If you look at the project, you are delighted, and say, “I’m going.” However, it fell far short, and land productivity was low. (Farmer, March 2017)

The situation is terrible, and there is no way to improve it. We do not see a future; we do not see anymore. Ten years ago, we had another vision; today we no longer have that vision, we do not have that mood anymore. (Farmer, February 2017)

We worked with the land with pig production and agriculture. And then we came here to do this adventure; we practically disposed of our assets there [in the South] to come and invest here, and if today we had what we had then and sold and brought our assets here, what we have today would be multiplied by ten. Because of the appreciation of the land, the quality of life is much higher. Just to give you a hint, the land we had there is worth today around 200,000 reais a hectare; here, 10,000 or 15,000 reais. There, we were near an asphalt road, near a good hospital; everything was there. We are frustrated with this. (Farmer, March 2017)

Anticipating some results, it is interesting to mention how the farmers themselves interpret the causes of land productivity decrease: 21% of the interviewees mentioned soil degradation as the first problem. According to them, soil has become increasingly difficult to manage, becoming more prone to pests than before. However, they do not directly link this to inappropriate farming techniques or climate change. Second, 14% of them blame the fast reduction of the young population in rural areas. Indeed, in the first decade of the 2000s, the young population in Apuí decreased by nearly 5% (IBGE 2010). Thus, according to the farmers, having fewer youngsters in the family makes it difficult to invest in labor-intensive activities and, consequently, induces less demanding activities such as cattle raising in extensive portions of land. Third, 12% of the farmers mentioned the precariousness of rural extension services. Finally, only 7% of them referred to scarce options in terms of market channels and the effects of local monopsony on price dynamics. However, as shown later, the latter is the focus of IDESAM’s current projects.

All these factors contribute to perpetuating what some authors have defined as a “neo-extractivist model of development,” a regime of accumulation based on the spoliation of natural resources, which also combines subordinate integration into scarcely diversified international commodity markets (Acosta, 2016; Giraldo, 2018). Over the last two decades, this model has been boosted by the constitution of the “soy–meat complex” between Brazil and China (Escher & Wilkinson, 2019; Oliveira & Hecht, 2017). The pressure on natural resources to improve commodity production and export has led the Amazonian region to lose 20% of its forest over the last three decades

(Prodes, 2017). In Apuí, until 2018, the total deforested area was 2621.9 km<sup>2</sup>, ranking second among cities with the highest deforestation rates in the Amazonas state, leading the Brazilian Ministry of Environment to include it in the high priority list of municipalities in the fight against deforestation (Fig. 1) (Brazil 2019).

According to the data displayed by Frizo and Niederle (2019a), deforestation in Apuí was a clear consequence of the gradual replacement of crops and subsistence activities, such as the cultivation of rice, beans, maize, and cassava, for extensive cattle production, which reached nearly 140,000 heads. Nonetheless, besides the so-called “China effect”, the expansion of this activity is directly associated with the way local institutions get frustrated with any alternative model for sustainable rural development. The farmers’ reasoning is quite simple and logical: if they do not have (a) legal certainty about the land property, (b) public resources and assistance to support farming diversification, (c) diversified markets to sell their production, and (d) household-based working force, then the best option is to introduce cattle in extensive production. Thus, it is not rare to find farmers settled in more than 1000 hectares occupied with cattle; however, this does not mean that they are wealthy entrepreneurs, given the low productivity of their activity. Undoubtedly, such an agrarian model can only subsist if land, with plenty of ecological resources, is cheap, and no effective control concerning deforestation—and even on other practices such as precarious work and violence—is in place.

All these circumstances impelled IDESAM to start operating in Apuí in 2008. According to this NGO, it sought to implement sustainable farming and marketing systems, which should couple income generation with “keeping forest standing,” that is,



**Fig. 1** The areas monitored in the Brazilian Legal Amazon and the priority municipalities for combatting deforestation, with Apuí highlighted. Source: INPE – PRODES (2019)

avoiding deforestation for extensive livestock introduction. To this end, seven projects were developed between 2008 and 2017 (some of which are still in progress), with variable degrees of effectiveness, as indicated, for example, by the great oscillation in the number of farmers involved in these projects. Between 2008 and 2016, the percentage of families implicated in the projects varied from 1.7 to approximately 25% of Apuí's rural population, with a significant expansion between 2014 and 2016. More recently, in 2017, there was a reduction, and figures returned to the level of 2013, at about 4%.<sup>1</sup> Such significant variability represents the main indicator for the present study, as it captures the NGOs' ability to engage local actors in sustainable farming systems.

## Results and discussion

Understanding IDESAMs' engagement strategies involves comprehending their main projects, which are shown in Table 2. As we can see, each of these projects mobilized different resources and organizations that pursue somewhat different goals, although all of them aim at reducing deforestation and recovering deforested areas. The work of IDESAM in Apuí began in 2008, when the organization started the Project Greener Apuí (PAMV). This year can be considered a landmark year for environmental debate in the municipality. Since then, various projects have been proposed by this organization, involving several initiatives, intervention models, and partnerships, and demonstrating different levels of effectiveness in terms of the engagement of local farmers.

According to the IDESAM director interviewee, the first initiative of this organization was essentially focused on monitoring enforcement of the environmental regulations provided in the new Brazilian Forest Code (Federal Law 12.651/2012), such as the respect and recovery of permanent protection areas (PPAs) and forest reserve areas (FRAs).<sup>2</sup> For instance, this was the main goal of the *Apuí Mais Verde Project* (PAMV), conceived in partnership with the Apuí Mayor's Office, the Municipal Department of Environment, and the Avina Foundation—a Latin American philanthropic institute. The objective was to recover degraded areas due to the depletion of forest resources, by recovering riverbanks and springs, as well as part of the original areas of the forest within rural settlements. The farmers' participation was voluntary; that is, they intentionally look for IDESAM and express their interest in recovering the degraded areas in their respective farms.

The PAMV envisaged implementing one of the first initiatives to reduce emissions from deforestation and forest degradation in Amazonas, which would include payments for "environmental services." To do so, the narrative strategy created by IDESAM was focused on the advantage that being part of PAMV would represent in terms of forest conservation. For this purpose, on the one hand, the NGO mobilized a regulatory

<sup>1</sup> The decreasing rate of engagement in 2017 is mainly related to political reasons, particularly the rise of a new municipal government. Since this is not directly related to the NGOs' engagement strategies, this study did not analyze the causes and impacts of this change on the environmentalists' coalition. For more information, see Frizo (2019).

<sup>2</sup> PPAs are areas along the rivers, lakes, and other sources of water, where a legal limit on agriculture and cattle raising is imposed. Meanwhile, FRA is a unit of protection of forest resources that is mandatory for any rural property in Brazil. The size (in percentage) of the FRA varies according to each Brazilian biome and can be used economically through the existence of a management plan approved by the environmental agencies.

**Table 2** Projects coordinated by IDESAM and WWF in Apuí

Project	Objective	Target audience	Main supporters
Apuí Mais Verde (PAMV) (Greener Apuí) 2009-2011	“To recover degraded areas, areas of Forest Reserve and Permanent Preservation, by action of farmers and cattle breeders of Apuí, so that to restore the health of the soil and the rivers of the municipality, and promote carbon sequestration that contributes to combat global warming”	Farmers with degraded areas, liable to environmental penalties	Municipal Department of Environment, Apuí Mayor’s Office, Fundação Avina
Semeando Sustentabilidade I, II e III (SSA) (Sowing sustainability I, II and III) 2011-2017	“To strengthen environmental management in Apuí and empower the population to develop more sustainable productive activities”	Farmers and the Municipal Department of Environment	Fundo Vale, Apuí Mayor’s Office, Municipal Department of Environment, Trade Unions
Projeto de Microcrédito (Microcredit project) 2015-Present	“To recover the area in use and not to clear new areas”	Farmers and beef cattle breeders	Dutch religious philanthropic agency
Café Agroflorestal (Agroforestry coffee) 2012-Present	“To encourage and strengthen the agroforestry coffee chain in Apuí as a sustainable alternative for income generation and social growth”	Coffee producer parceleiros	Natura, IMAFLOA, Apuí Mayor’s Office, Cooperativa I, EMBRAPA, USP-ESALQ, INCRA, CATIE, INPA, Ouro Verde
Projeto de ATES (Rural extension project) 2014-2017	“To implement a model based on economic viability, environmental sustainability and territorial development”	Settled families	INCRA

Source: Elaborated by the authors based on interviews and analysis of the following documents: Apuí Mais Verde Project; Report of activities of SSA I; Report on Results and Perspectives of the Agroforestry Coffee Project; and Informativo Apuí Rural n. 4 (Idesam 2019)

dimension of institutions that were supposed to be close to the social context, as all farmers were expected to be somehow concerned about the ecological resources. Complementarily, it promised to increase income through ecological service payments, without explaining what it would truly represent in terms of farming practices reorientation—especially since the reduction of extensive cattle production would be one of the main effects of the project.

Over time, this first interpretative frame mobilized by IDESAM in the PAMV proved to be far from the farmers' reality. First, the organization was unable to turn environmental services into an attractive alternative. According to a technician of the NGO, the project failed to attract investors interested in paying for environmental services provided by the farmers. Second, due to the low capacity of enforcement of the new Forest Code by the Brazilian State, it was revealed that ecological spoliative practices would have a much longer existence than previously imagined.

Accordingly, IDESAM's staff soon acknowledged that the PAMV did not encompass proposals compatible with the farmers' expectations, not only for economic reasons, but also because it was disconnected from other institutional dimensions that are socially valuable in the region. For instance, cattle raising dictates social hierarchies and political opportunities in Apuí. The activity has been established over time not only as a productive system, but also as a culture; therefore, cattle breeders enjoy considerable prestige: the largest commercial establishments belong to cattle breeder families; the last election was won by a traditional rancher, who was supported by beef cattle middlemen; and the biggest local festival is the Bull Riding.

In the end, no more than 70 farmers engaged in the PAMV, in a region with more than 10,000 farmers. According to the interviewees, one of the main problems with this project was that it did not tackle the issues farmers consider as the "real" problems, such as soil recovery, productivity increment, or technical assistance. Hence, IDESAM's office noticed that mingling environmental goals with productive activities would not only be a means to generate income, but also a potential strategy to engage farmers, by combining other social, cultural, and political concerns that surround local values:

Initially, our job was to restore. We mapped more than 1,500 PPAs, with GPS and so forth, but the job was never carried out, because the producers, as they say, "When you're in the red you do not think of green." In short: our strategy changed gradually because, if you go there just saying "let's restore," nobody would buy the idea. Thus, the strategy was also changing toward this side, from a stricter initiative of restoration and mitigation of climate change to actually involving value chains. (IDESAM technician, March 2017)

The low rates of engagement suggested that NGOs should change their projects and discourses. Therefore, IDESAM subsequently tried to combine environmental and economic purposes in a different way, creating new projects (namely, Agroforestry Coffee; Sowing Sustainability I, II, and III; Microcredit Project; and Project of ATES) that included terms such as "development," "income," "sustainable production," "growth," and "productive chains" as key elements of the NGOs' narrative. From then on, the capacity of "sustainable farming systems,"

based on agroforestry and/or silvopastoral production to increase land productivity, became one of the most relevant components of the IDESAM discourse. Instead of an almost pure “environmentalist approach,” the organization compromised on keeping the family farmers on their land, and considered the promotion of what these “real famers” care about most in terms of values and morals: cultivating or raising something and not only “taking care of the forest.” At the same time, this new semantic frame appealed to sponsors such as Fundo Vale—an investment and development fund created by the Vale do Rio Doce mining company—to support the three phases of the project “Sowing Sustainability”:

The IDESAM project [...] is one of the projects that most resembles what Fundo Vale wants, to have an impact. There should be more projects like this. What was different? (...) It was one of the few projects that managed to bring quick results and that also organized the next step, that is, if I proved that this concept is cool, ok, it works... increases the productivity of the farmer... we can make economic mechanisms that generate these models without dependence... Anyway, all this arrangement that was built brought a relatively quick result to enlarge the scale. (Financial agent, Fundo Vale; March 2017)

To understand this change, it is important to reflect on the institutional formation of Apuí. As an agrarian reform settlement conceived as part of the Amazon colonization project, PA Juma’s occupation summed up various aspirations and expectations on the part of farmers desiring to consolidate finally what Wanderley (2009) calls the “family territory:” a rural space from which the individual and his/her family—drawing on the family labor force and on the legally legitimized control of the land—can earn their own subsistence, reproducing the family structure over time. In this sense, for these farmers, failing to control the “family territory” represents a risk not only to their survival, but also to their social identity. Therefore, it is not surprising that in their discourses, the word “land” was largely dominant in all levels of the interviews concerning the category “Social Identity,” with 34 references coming from 18 different farmers. In addition, not only secure family subsistence but also a sufficient quality of life for spouses, children, and relatives is a sort of moral obligation upheld within each family that is also valued and discussed between families. When asked, “What makes a rural producer a rural producer,” the answers were directed toward enumerating elements that are necessary for the productive exploitation of their land.

Therefore, from the first phase, characterized almost exclusively by recovery of ecological areas, the IDESAM projects turned to actions such as (a) strategic partnerships with rural associations to promote organic certifications; (b) cooperation agreements with public agencies to provide technical assistance for agroforestry and organic production; (c) partnerships with investors to make microcredit available to silvopastoral systems; (d) implementation of demonstrative units of agroforestry and silvopastoral systems; (e) direct operations in coffee, copaiba, and beef value chains, including negotiating and interacting with final buyers and middlemen; and (f) holding workshops and seminars for technical training of farmers’ families in agriculture, extractivism, and livestock. All these changes

implied a new discourse about sustainability, which became closer to the farmers' representation of "material subsistence," as expressed in the following interview: "In my understanding, [sustainability] it's something that you ... will live on. You see? Like the andiroba [native tree]... we have andiroba and we are beginning to sell the andiroba and extract its oil. You know? I think is it [about]sustainability. To plant and live on that."

Disposing of the prior definition of sustainability allowed the research to identify the concepts of sustainability that arose in the field, their similarities, and their contradictions. While the NGOs' agents understood the term as a representative concept of agroecology practices and a rural production mode that conserves the standing forest, farmers comprehended it to be closer to the economic dimension. The apparent contradiction is then suppressed by the NGOs through an economic frame of sustainability, as agroforestry and silvopastoral systems allow farmers to increase their gross income, while conserving riverbanks, forests, and biodiversity on their land. In a way, the conservation aims during the first period of the NGOs' presence were achieved, but through a different discursive and practical approach.

Another discursive innovation was the increasing role of science in legitimizing these new projects. Originally conceived as a scientific research institution, IDESAM has gradually evolved to implement social intervention projects. However, after the first phase, in which the mobilization strategies were focused on criticizing the environmental effects of conventional farming practices—with poor results—the organization decided to put technical justification on the forefront of its discourses. Thus, numerous reports, articles, and evaluation plans drafted by IDESAM experts began to be used as evidence to convince farmers and other supporters to engage in the projects. For instance, income and productivity forecasts are now presented at public meetings (and interviews) to legitimize the narrative. The economic viability of ecological systems is understood by the NGO agents as an "objective factor" unveiled by techno-scientific knowledge, and all IDESAM technicians must, when presenting the projects to farmers, demonstrate how the adoption of agroforestry and silvopastoral systems has an irrevocable economic benefit, as a technician of these NGOs has put in the interview:

I think there is scarce knowledge about this [agroforestry and silvopastoral systems]. They [farmers] are people who left their homes in the south and southeast of the country and came here and were abandoned by the government in that area. So, the rule they had was ... to get there, occupy the land, deforest, and produce. And I do not know how it has changed recently, but I think it is still not grasped... there is not much knowledge, so they do not quite understand, you know? I think it is not even about being unwilling, but because this is not yet an absolute truth. (IDESAM technician, January 2017)

Although most NGO technicians acknowledge that the farmers' knowledge is essential for the construction of an effective agroforestry and silvopastoral system, the primary content of these systems is taken by the technician and has already been defined previously. For example, in the case of demonstrative units, the size of the

paddocks, the consortium of trees, the number of animals per paddock, the length between the trees, and the chemical inputs needed in the early years of the system are defined by the technician, based on previous studies, and constitute the main foundation for the structuring of these agricultural systems. The farmers' knowledge is used in secondary decisions, such as choosing the area inside the property where the system will be developed.

In my view, the rural extensionist ends up taking technical knowledge to people who are, in fact, rural producers. Because they have a lot of empirical knowledge, whether in cattle breeding, in raising anything, or in cultivating, they have a lot of knowledge, but maybe their knowledge is a little outdated. As in the case of leafhoppers... they are relatively new. The guys invented a trillion things, that is all; they even bless; they think it would work, so they need technical support and technical knowledge, because things have changed. Thus, this is where the technician comes in to tell them the correct way to do that. (IDESAM technician, March 2017)

Similar to the other projects and interventions of the NGOs, this rural extension method is legitimized among farmers mainly because of their consequences in terms of productivity, as there is a clear increase in yield within these systems due to the intensification of capital and labor. In other words, moving forward to an economic approach, the NGOs' approach on sustainability has increasingly incorporated the discourse on agricultural productivity. Rather than accentuating ecological outcomes or focusing on participatory learning-by-doing mechanisms, agroforestry and silvopasture are assumed to be technical systems that ensure the most effective nutrient fixation in the soil, reduce dependence on chemical inputs such as limestone, reduce the rate of degradation of pastures, increase the productivity of plantations, increase product quality, and, therefore, increase economic profit. All of these are supported by a series of publications and analytical reports published by the research branch of IDESAM and its partners.

Such a "technocratic approach"—natural and forestry conservation understood through productivity indexes, rate of nutrient fixation, and other technical measures relevant to the farming activity—positions forest conservation itself far from being understood as providers of environmental services; these productive systems are now understood by most of the interviewees as capable of providing "economic services through conservation," or an "economicized environmental service." In silvipastoral systems, for example, the combination of specific species of trees and pasture increases its nutrient stockage and consequently leads to faster and better development of cattle. In addition, the presence of trees in the production system yields better thermal comfort for animals.

Such changes inside the producers' propertities tend to demotivate them to adopt an extensive mode—marked by higher rates of deforestation—for two main reasons: first is the high level of sunk costs involved in the necessary investments to form silvipastoral systems; second is that NGOs and technicians demonstrate (through studies and demonstrative units) that extensive modes have lower rates of productivity when compared with silvipastoral systems. Indeed, 65% of the farmers understand agroforestry and silvipastoral systems as projects to "increase the productivity of the land"; this is also true for the technicians of the NGOs, as it is described below by one of them:



Today, we have a herd of 400,000, and these new systems [silvopastoral] can triple [that], on average: if the guy has a [head of cattle], he can get three. Today, we have 400,000; if they could have three in the same size of area that is cleared today, we would have 1.2 million heads of cattle. It would boost the economy and what is best: the guys become self-sustaining. (Technician, March 2017)

The intensity of production is, then, understood by local agents as a sustainable practice, since it avoids extensive production and its associated rates of deforestation. The effects of these sustainable modes of production in terms of family subsistence and quality of life were emphasized by the interviewed farmers. While the regulatory dimension of environmental norms is no longer pointed out as the main goal of the technical assistance provided by the NGOs, the “technological and economic benefits” enabled by the projects are widely reported (46% of references in the technical assistance category), with emphasis on practices such as the loan of machinery and equipment, the provision of fertilizers, and the frequency of technical visits to monitor production. Next are the benefits associated with the “capitalization” of farmers (10% of the references), which is attributed to the “decomoditization of production and incentives to new products” (23%).

The legitimization of the narrative of sustainability was possible not only because of the role of science as a credibility tool, but also because of the wide network of social actors and organizations mobilized by the NGOs. To make the designed initiatives feasible, engaging middlemen, private companies, other types of donors, and investors was a crucial and necessary step, which was totally dependent on the social skills held by the NGOs. Most of all, these resources were mobilized to add economic value to organic and agroforestry products elaborated by supported farmers, promoting their better positioning in local, regional, and national markets. IDESAM initiatives, for example, aimed at occupying a “niche market” within the coffee value chain, which allows the payment of differentiated values per coffee bag produced by the farmers participating in the Agroforestry Coffee project.

In facilitating commercialization of organic and agroforestry grains, IDESAM engages in dialogues directly with the only two coffee middlemen operating in Apuí. Being representatives of an economic “elite” of the municipality, both of them are fundamental supporters of the consolidation of a market niche for organic and agroforestry coffee. One pays an extra price of US\$ 6 for coffee beanbags produced under organic and agroforestry practices then resells them to a local middleman after peeling off the beans. The other, in turn, roasts and packs the product in a packaging especially designed for this type of coffee, with the brand *Café Apuí Agroflorestal* and the logos of IDESAM and *Fundo Vale*—the main sponsor of the project. IDESAM assists in the commercialization of the product in urban centers such as Manaus, São Paulo, and Rio de Janeiro, having hired an employee specifically assigned to contact commercial establishments and organic product fairs.

These partnerships demonstrate how IDESAM performs as a broker, mobilizing resources and useful networks to engage the farmers, since the latter attain higher yields by integrating into the organic and agroforestry value chain. However, it is noteworthy that the adoption of agroforestry and silvopastoral techniques is also connected with the deep social and cultural interests of the farmers, which is the reproduction of their social identity as rural producers, that is, the reproduction of

their family territory. To achieve this condition, income generation by rural activities is an essential step to avoid a scenario of salaried work on other properties or, in extreme cases, migration to urban centers. This is the main reason why the new interpretative framework offered by the NGO regarding sustainability appears coherent to the farmers, while addressing an important ecological goal held by IDESAM since the beginning of their presence in Apuí: environmental conservation through new modes of economic use of land.

Securing the partnership of donors was also an essential step in enabling the strategies to increase the economic value of farmers' sustainable production. Among the main partnerships, Fundo Vale provided the total amount of resources for machinery, technical assistance, and organic certification, as well as for institutional enhancement of IDESAM and its local presence at a new level. Resources for branding and labeling organic coffee were also channeled through the partnership with Fundo Vale, as well as connections for the exhibition of Café Apuí in national fairs related to the sector. Even though Café Apuí was a remarkable marketing strategy, it had little impact on the number of involved farmers. However, none of that would be possible without the "Projeto de ATEs" (Technical and Social Assistance Project). By forming a partnership with INCRA, IDESAM was credited as being responsible for providing technical assistance to the families settled in the PA Juma, which significantly increased the resources for employing technicians. Even though such an opportunity can be explained in terms of what Fligstein and McAdam (2012) call exogenous effects, one should not disregard IDESAM's social skills in reaching these public resources.

## Conclusions

This study focused on the strategies entrepreneurs deployed to secure cooperation among different social actors to prevent the advance of deforestation and promote sustainable farming practices. It contributes to the understanding of social and interactional foundations of economic changes, positioning framing strategies, and institutional foundations of discourse as key elements to produce engagement.

The cooperation strategies we observed were not static over time; there was a deep transformation of NGOs' discourses and actions, in view of the institutional context that defines the socio-historical reality of the farmers in Apuí. Over time, the "sustainability" narrative of these organizations abandoned the strongly preservationist bias, which, being disconnected from the material needs of local actors, prevented mutual identification of NGOs and farmers. Instead, an idea of "ecological modernization" (Carneiro & Assis, 2015) was put forward in line with both the more immediate interests of these settlers and the image of PA Juma as a "transitional territory" a frontier still awaiting civilization, as imagined by military governments in the 1960s and the 1970s, and perpetuated in the local collective memory. Furthermore, such combination of different institutional prescriptions coming not only from local actors but also from donors, companies, and state agencies demonstrated the necessary social skills of NGOs in building an effective environmentalist coalition in Apuí.

The adoption of agroforestry and silvopastoral practices was mediated by moral and cultural institutions, since the fundamental expectation of the farmers was the maintenance of their social identity—the consolidation of the "family territory"—through the

implementation of sustainable production practices that allow higher levels of income. To achieve this, the NGOs' engagement strategies involved not only the mobilization of funds, obtained from public and private financing agencies, to build up partnerships and strategic relations with other individuals and organizations, but also, fundamentally, the semantic re-framing of development projects and, accordingly, of the very notion of sustainability.

Scientific evidence was an important element mobilized by NGOs to present themselves as legitimate organizations in the field, founding natural and forestry conservation in technical measures connected to farming reality. Engaging social actors traditionally not in favor of the environment conservation agenda became an easier task when the NGOs presented themselves as research organizations knowledgeable in the scientific approach to rural production. In this sense, studies and technical findings on the productivity parameters of silvopastoral and agroforestry systems were an important strategy in engaging not only farmers, but also unions, city hall, and other public and private agencies, making the cooperation among these agents possible.

These findings highlight the iterative dynamics that underlie the emergence of sustainable production systems, positioning the role of engagement strategies in the center of the analysis. From that analysis, we grasped the social architecture that made possible the rise of production systems that conserve the standing forest in one of the regions with the highest index of annual deforestation in the Brazilian Amazon. We believe that the empirical findings of this research contribute to the knowledge about the processes surrounding the social construction of sustainable farming practices.

**Availability of data and material** The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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## Declarations

**Ethics approval** Not applicable.

**Consent to participate** All interviewees were consulted prior to their interviews and a term of consent of participation was signed.

**Consent for publication** Not applicable.

**Conflict of interest** The authors declare no competing interests.

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