Management of natural resources in protected areas

Interinstitutional dialogue, social capital, and agency in the transition to agroecological systems[1]

Aico Sipriano Nogueira*
https://orcid.org/0000-0001-9471-7966

Introduction

In the last decades, participation of local communities and achieving development goals has been increasingly debated in the development literature, and widely promoted by scholars (Blackburn *et al*., 1999; Chambers, 1983, 1997; Hagedorn, 2015; Ostrom, 1990, 2005; Pretty and Smith, 2004), and multilateral agencies (Cornwall, 2000; Dongier *et al*., 2004). They look for ways to associate these groups with actions that at the same time preserve biodiversity, respect traditional forms of life and adopt actions that contribute to the transition to sustainable societies and reduce poverty.

* Universidade de São Paulo, São Paulo, Brasil.

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In this context, the change of conventional methods of agricultural production into agroecology is seen as an essential aspect of sustainability, as it contributes to food and nutrition security, socio productive inclusion of family farmers, reduced emissions of greenhouse gases and global warming. The techniques required to achieve this transition go beyond technological or agronomic aspects of production. They also incorporate broad and complex dimensions such as economic, social, and environmental, cultural, political, and ethical components (Caporal and Costabeber, 2000; 2002a; 2002b; 2004; Guzmán Casado *et al*., 2000; Gliessman, 2000; Wezel *et al*., 2009).

These initiatives have been particularly challenging in the context of groups living in and around protected areas (PAs), as they are subjected to restrictive environmental laws that often have a negative impact on their traditional lifestyles (Andrade and Rhodes, 2012; Lane, 2001; Pretty and Smith, 2004; Wilshusen *et al*., 2002). In order to deal with these challenges, several studies have demonstrated the importance of strengthening local institutions as a way of empowering these actors in decision-making processes. It aims to guarantee community autonomy and self-management and access to common resources through an effective interinstitutional dialogue with official institutions operating in these areas.

However, the real transformative potential of the participation and empowerment of these groups has also been the subject of criticism by researchers, emphasizing the decontextualization and over-simplification of local social structures (Eversole, 2003; Henry, 2004; Loker, 2000; Sesan, 2014). In reaction, these groups sometimes express their agency by subverting the proposed objectives, showing their ability to mobilize effectively their identity relationships around specific issues (Gilmour *et al*., 2013; Sampson *et al*., 1997; Durham *et al*., 1997; Bandura, 2000; Newman and Dale, 2005; Nogueira, 2018). Through this process strategies are created, and advantage taken of political opportunities, in support of their own demands for development, which are not always in line with the officially defined objectives. Among these schemes, the way some groups develop the ability to incorporate sustainability narratives as a way of strengthening their dialogue with other levels of governance, but sometimes eventually becoming an instrument of compliance and reproduction of the dominant agrifood regime, is something not widely discussed in the literature. Thus, the central questions that this work seeks to answer are: what elements of the internal social structuring of these groups allow them to perform this dual process?; and, how does this information contribute to more effective interventions in terms of public policies aiming at agroecological transition?

To explore these issues, we have done research in Vale do Ribeira in the State of Sao Paulo, Brazil. It is an area which since the 1950's has been under various forms

of environmental protection, as it concentrates the main contiguous remaining areas of Atlantic Rainforest in the country.

Our case study is the Guapiruvu community in the municipality of Sete Barras, a place where over the last 30 years environmental issues, with the implementation of two large conservation units neighbouring the area in the long-term context of a struggle for land ownership, have guided its social processes of development. The way in which the community has built local social organizations, capable of establishing an effective dialogue among themselves and with other levels of governance operating in the area, has enabled it to be recognized as an effective community working towards development (Bernini, 2009; Grigoletto, 2018; Valentin, 2006).

In this paper we argue that the appropriation of the environmental discourse by some community leaders has allowed initially contentious relations to be gradually converted into a more cooperative relationship across many issues and scales. Moreover, the discourse of the transition from conventional agriculture to agroecology came to represent the peak of this process, a strategy that has been the foundation of local organizations' action.

Nevertheless, despite the presence of favourable social organization conditions agroecology has been a means rather than an end in itself, and the community performs a double development. While most of the community members are committed to continuing the reproduction of the dominant agrifood regime, through its insertion in the conventional agricultural production markets, it is at the same time part of a new process of legitimation and consolidation of new sustainable short circuits formats of production and commercialization. Furthermore, also for the consolidation of new patterns of responsible consumption, especially in the urban areas (Bava, 2012; Feenstra, 2002; Sevilla Guzmán and Soler Montiel 2010). This second movement is responsible for the visibility and gains of the community in terms of income generation, public facilities of education, health, and infrastructure. This has arisen from a political rhetoric constructed by a community that knew how to organize and make the most of this strategy (Levidow *et al*., 2014; Smith and Raven, 2012). It shows the importance of considering the internal structuring of local groups in the formulation of public policies, and the agency of the subjects in response to the lack of support from public authorities.

The research was conducted from a theoretical perspective on the transition to a sustainable society, agroecology, food security, multilevel governance/ interinstitutional dialogue, and the participation of local communities in the management of common natural resources, especially in protected areas. The field work was carried out based on qualitative methods, with primary and secondary data collected between September 2019 and April 2020 from 3 sources: published government

documents and academic works; informal and semi-structured interviews; and field observations.

The article is organized as follows: firstly, discussing the relationship between local communities, multilevel governance/ dialogue, and the transition to agroecology in protected areas. It is followed by an explanation of the methodological procedures. The research object is then characterized, showing the historical importance of the environmental issue in the Vale do Ribeira region, and the problems involved in the formation of the community. In the next section, the different institutional spheres in the community are analysed, followed by a discussion of the aspects of shared mental representations, the community's internal classification system, leadership and their effects on local organizations and the community's production system. The paper then discusses the community's agroecological production, as well as its connections with the family production and commercialization of Sete Barras, and with largest urban centres of the state of São Paulo. The paper is concluded with a discussion of the double process verified in the community, as a product of its existing social capital and agency, which are mobilized efficiently by the group to guarantee their subsistence, and in response to the absence of official support to their actions.

Protected areas (PAS), local communities, and agroecology

It has been widely recognized that many areas sensitive to biodiversity loss and in need of conservation are also areas of high social vulnerability. They are generally characterized by elevated levels of poverty, repressive and unstable anti-democratic regimes, and problems linked to the struggle for land tenure (Brechin *et al*., 2002; Myers, 1998; Myers *et al*., 2000; Brüggemann *et al*., 1997; West and Brechin, 1991). In many such areas, ecologically sustainable interrelationship systems between humans and the land, sometimes evolved over millennia by Indigenous peoples, are under pressure from 'outside' populations, extraction, and political considerations. Furthermore, these areas are frequently arenas of conflicts (Ostrom, 2005) with disputes between groups representing such diverse interests as tourism, mineral and oil exploration companies, guerrilla groups and drug cartels (Brechin *et al*., 2002). All of this makes these spaces a complex mixture of social, economic, and political disputes, which present further challenges in the management of environmental conservation programs, and especially for the implementation of transition practices towards more sustainable societies. The question of who has access and rights in such spaces is therefore central.

Regarding protected areas, and especially the populations living in and around them, there is a vast literature dealing with the often-contentious relationship

between the management of PAs and these communities. And these works are focused mainly on the impacts caused by conservation programs and policies on the traditional ways of life of local people, particularly regarding changes to their access to natural resources (Andrade and Rhodes, 2012; Bennett *et al*., 2017; Bernini 2009; Brüggemann *et al*., 1997; Chape *et al*., 2008; García-Frapolli *et al*., 2009; Pretty and Smith, 2004; West and Brechin, 1991). The frequent prohibition of communities' access to important natural resources, and even the removal of some of these groups from their lands, in many cases has harmed these communities rather than helped them. Hence, this naturally undermines the effectiveness of environmental protection policies (Anthony, 2007; Hamilton *et al*., 2000; Jim and Xu, 2002; Lane, 2001).

Likewise, thinking about how these conflict arenas and multiple levels of governance and institutional actors can achieve not only conservation, but also the integration of surrounding communities and their commitment to the transition to agro-sustainable practices has been a challenge for researchers and policymakers. of public policies. This difficulty has been particularly evident when considering conservation units, characterized by environmental and social vulnerability and restrictive environmental laws.

Hence, the transition to agroecology, as part of a wider effort to establish sustainable societies is being driven by a growing concern over global food insecurity, as well as the significant contribution of the food system to greenhouse gas emissions and global warming. Furthermore, agroecology has been also recognized as a potential alternative to current agrifood systems (Altieri *et al*., 1998, Altieri and Toledo 2011, Levidow *et al*., 2014; Wezel *et al*., 2009), and has become increasingly central to the global debate. This interest is not only concerned with technical issues around sustainable food production, but also been identified as improving the access and distribution of natural resources through breaking away from conventional models of exploitation.

In this arena of debates, several studies emphasize the need to redesign the economic and social structures that govern our food systems, and especially the relationship between agroecology and politics. Furthermore, also the importance of socio-political and institutional reforms that allow the construction of sustainable agrarian systems (Altieri *et al*., 1998; Altieri and Toledo, 2011; Buttel, 1997; De Molina, 2009, 2013; Rosset, 2003).

In developing countries, the rural population is unequal access to resources such as water, land, energy, and environmental services builds pressure on these resources, driving social conflicts. Moreover, the wealth these resources generate is often appropriated by a limited number of actors, widening social inequalities.

Hence, resource inaccessibility leads to environmental degradation and increasing inequality, constituting a persistent source of instability, and delineating the strong relationship between equity and sustainability (Guzmán Casado *et al*., 2000). And these relationships depend "critically on the institutional settings that structure interactions among agents" (Baland *et al*., 2018, p. 8).

Thus, the importance of local institutions and the participation of local actors in the management and conservation of biodiversity, and for the transition strategies for sustainable societies have been increasingly recognized in the literature (Hagedorn, 2015; Ostrom, 1990, 2005; Pretty and Smith, 2004), showing the difficulties faced when local communities are not co-participants in such processes (Andrade and Rhodes, 2012; Anthony, 2007; Grainger, 2003; Pretty and Smith, 2004). In these studies, especially those by Elinor Ostrom (1990, 2001, 2009a, 2009b, 2010) and her adherents, existing social dynamics and processes that allow or hamper the construction of appropriate institutional arrangement, designed to manage shared natural resources, have been identified in many places (Leroy, 2016; Perkins *et al*., 2017; Santana *et al*., 2010). However, the degree of participation of local populations in these processes, as a way of ensuring better compliance with preservation policies (Wilshusen *et al*., 2002), and the factors that most influence communities' agreement with these actions, have been attributed generally to local specificities, especially their capacity to engage in interinstitutional dialogue.

Therefore, the capacity of local actors to engage in discussions with other instances of power is seen as crucial for concerted conflict solutions, especially due to the lack of legitimacy that external regulations have, often contrary to the customary practices of traditional communities (Brechin *et al*., 2002). This ability to enter dialogue is at the basis of governance, seen as a "processes of interaction and decision-making among the actors involved in a collective problem that lead to the creation, reinforcement, or reproduction of social norms and institutions" (Hufty, 2011, p. 405), is a fundamental element within this process. Although authors also recognize the existing difficulties mainly due to the multiple power relations in these communities, and the great heterogeneity of these groups in terms of classes, ethnicities, religious and political orientations, they point to the importance of incorporating governance strategies in conservation initiatives (Brechin *et al*., 2002; Gibson *et al*., 2000; Ostrom, 1990; Ostrom *et al*., 1994).

Multilevel and multi-actor governance, understood as a set of initiatives or actions that express the ability of a territorially organized society to manage public affairs, based on the joint and cooperative involvement of social actors (Forsyth, 2009; Kern and Alber, 2008; Piattoni, 2009; Stein and Turkewitsch, 2008), has been increasingly seen as an important tool to augment participation and reduce competition

between people and agencies. This happens as far as vertical and horizontal relations, respectively established between actors with the same degree of influence and interest, and those located at different spatial levels can act collaboratively (Cudney-Bueno and Basurto, 2009). Therefore, important components such as actors, spheres of authority and interests constitute central aspects of multilevel and multi-actor governance (Forsyth 2009), based on essential elements of good governance such as participatory democratic processes, transparency, and accountability[2].

Hence, the search for sustainable development involves a change in existing social and institutional dynamics, which implies the redesign of public policies and their internal mechanisms, on which to build new sustainable agroecosystems.

In addition to the recognized importance of structuring local communities to establish an effective dialogue with other governance bodies, agency is another important element of this process, defined as the ability of groups to plan and to initiate actions through intentional causality aiming at a desired effect (Bandura 2000; Onyx and Bullen, 2000). In this sense, as Newman and Dale state (2005, p. 482), agency is the engine that moves the action, and this occurs when the actors are aware of their power to transform their aspirations and desires into results. Even though there are cases in which agency is not necessarily linked to the internal structure of local communities (Krishna, 2001), it is certain that the existence of a strong local organization is a great facilitator of this process.

Nevertheless, notwithstanding social capital and agency being seen as important components for sustainable development processes, analysis of specific cases in which multiple levels of institutional action are present – with a strong local relations of trust; reciprocity and exchanges; system of common norms and penalties; and networks and groups connections, elements that classically characterize social capital (Newman and Dale, 2005; Pretty and Ward, 2001) –, they do not guarantee alone the effectiveness of biodiversity conservation actions and transition to sustainable agroecological systems.

In this context, the Guapiruvu community is an example of this process, in which the existence of these elements, combined with an efficient appropriation of sustainability rhetoric, acts to reduce conflict, and facilitate interinstitutional dialogue. However, the community's socioeconomic and cultural cleavages make local institutions a reflection of these internal divisions, whose actions result in a double process. On the one hand, the community subscribes to conventional patterns of production and commercialization through an increase and strong

2. https://www.undp.org/content/dam/aplaws/publication/en/publications/democratic-governance/dg-publications-for-website/a-users-guide-to-measuring-local-governance-/LG%20Guide.pdf.

insertion in the markets; on the other hand, it also plays a role of resistance and countermovement to the deepening of market forces. This process is thus the result of self-protection actions of subordinate groups, through social disputes and other silent practices unleash for structures of domination e tensions between the state, markets, and civil society at local and global level (Block and Somers, 1984; Schneider and Escher, 2011).

Methodology

From the reading of official and historical documents, as well as academic works such as Grigoletto (2018), Bernini (2009) e Marinho (2006; 2012), five subsequent visits to the community were carried out, with informal and semi-structured interviews (Longhurst, 2016) with local leaders, settled families and other residents. The visits and interviews were based on three main axes: 1- *temporal* – looking for the movement of people in and through the community; the connections of these people with past and future; 2- *cosmological* – trying to understand their ideas and believes, conceptions of time, nature and environment; agroecology; notions of equity and social plurality; 3- *social* – observing the internal organization of the community; the relations of the community with the local society; of the community's residents with society as a whole, and with formal and informal institutions; cooperation and conflicts.

TABLE 1

SEX	SETTLERS	NO SETTLERS	TOTAL
Women	2	4	6
Men	3	6	9
TOTAL	5	10	15

Semi-structured interviews were also carried out with representatives of other spheres of power present in the community at the federal and state levels, respectively from the National Institute of Colonization and Agrarian Reform, Incra, the Fundação Florestal (FF) and the Intervales State Park (PEI). These interviews were organized around the following thematic axes: 1- interinstitutional dialogue with other levels of government and at the local level; 2- the main obstacles faced in this dialogue and for the implementation of policies; 3- the main advances and challenges in the process of converting traditional agriculture to sustainable agroecological systems in the territory.

TABLE 2

	INCRA	FF	PEI	TOTAL
TOTAL	2	2	1	5

As a way of complementing the collection of qualitative data, a closed-ended questionnaire was also applied to 69 of the 83 rural producers in the community (83.14%). It aimed to assess their perception of issues such as environmental preservation, conventional / agroecological production, and aspects related to the agroecological transition.

The Guapiruvu Community and environmental issue in Vale do Ribeira

The currently Guapiruvu social organization originated from the conjunction of some factors: the location of the community in the Vale do Ribeira, an area strongly marked by the presence of conservation units and restrictive environmental laws; the struggle on the part of the community for the possession of the land that they occupied for more than 100 years; for being located in the buffer zone of a large state park; and, for the presence of local leaders committed to the environmental issue.

Vale do Ribeira is a territory made up of 25 municipalities, whose area is covered by 60 % vegetation with 35[3] Conservation Units[4], comprising the largest area of state parks and reserves in the state of Sao Paulo (Brancher, 2006; Galvanese and Favareto, 2014; Resende, 2002). This has made the environment an extremely sensitive issue for the economic and social development of the region.

After a crisis in the region´s rice production, due to the drop in prices resulting from the competition with other country´s large production centres, in the second half of the 19th century, part of the population living in rice producing municipalities has left these areas in search of other forms of survival and fertile lands. This process created new population centres in the region, such as the Guapiruvu community (Bernini, 2009; Grigoletto, 2018; Zan, 1986), formed by the Alves, Teixeira and Pereira families in the 1860s. These families settled in this place occupying a land hitherto without owners, and until the first decades of the 20th century lived on forest resources and growing foodstuffs for survival.

3. http://www.sigrh.sp.gov.br/cbhrb/apresentacao.
4. Conservation areas in Brazil are divided into: Environmental Protection Area (APA); Area of Relevant Ecological Interest (Arie); Ecological Station (EE); State Park (PE); National Park (PN); Sustainable Development Reserve (RDS); Extractive Reserve (Resex); Private Reserve of Natural Heritage (RPPN); Wildlife Refuge (RVS).

FIGURE 1

Vale do Ribeira Territory	
Municipalities	25
Area	18.112,80 Km2
Population	443.231
Urban population	328.410 (74,09%)
Rural population	114.821 (25,91%)
Settled families	159
Family farming enterprises	7.037
Fishermen	3.438
Extreme poverty families	33.904
Quilombolas communities	33
Indigenous communities	13
Conservation units	35

Source: IBGE, Censo Demográfico (2010); Incra (2014); *Atlas do desenvolvimento Humano* (2014); *Human Development Index/UNDP* (2014).

The growth in urban-industrial in the state of São Paulo from the 1940s onwards, associated with the expansion of the road system incorporated the Vale do Ribeira into a new social and economic dynamic. It generated a major boost to real estate speculation in the region (Bernini, 2009; Grigoletto, 2018), favouring major private interests and ignoring the presence of squatter families (Bernini, 2009; Grigoletto, 2018). This led to an intense struggle for lands traditionally occupied by families in the area throughout the 1970s and 1980s, with countless cases of violence, evictions, and repossessions in the 1990s.

In 1996, the community's social organization process intensified due to recognition of Guapiruvu by the NGO Vitae Civillis[5] for its leadership amongst disadvantaged groups in the area, especially dispossessed families. Therefore, the community was selected by Vitae Civilis for a pilot project to the development of an Agenda 21, as a document that aims to create local solutions to global socio-environmental problems[6]. One of the first initiatives was the creation of the Association of Solidary Economy and Sustainable Development of Guapiruvu – AGUA, in 1997.

5. For an overview of Vitae Civilis' work in Guapiruvu, see the video: https://www.youtube.com/watch?v=q3n53Hg3X-k.
6. See: https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf.

FIGURE 2
The location of the Guapiruvu community and surroundings PAs

Source: Instituto Socioambiental – ISA – Programa Monitoramento de Áreas Protegidas, 2019; Sivam/Sipam, 2004; MMA, 2006.

The launch of Agenda 21, in 1998, also marked a closer relationship between the Guapiruvu community with the public authorities aiming at obtaining basic services theoretically guaranteed by law, such as income generation projects and activities related to eco-tourism and environmental preservation. In 2000, AGUA started supporting the creation of a rural settlement in the area, in which the historical roots of the Alves, Teixeira and Pereira families in the region could be recognized (Grigoletto, 2018).

Thus, the growing organization of the community and the approach to state public agencies and NGOs linked to the environmental issue, made the struggle for land start to attract the attention of the authorities in another way. In 2000, AGUA, with the support of the Instituto Florestal and Vitae Civilis, presented a proposal to the National Institute of Colonization and Agrarian Reform (Incra) to create a Sustainable Development Project (PDS) in the area, using alternative formats of rural settlements created by Incra[7] as a way to mitigate land conflicts, especially in the Amazon region (Paula and Silva, 2008).

7. The approximately 9,000 rural settlements in Brazil created by Incra, can be divided into two groups: 1- Settlement Projects (PAs), created by obtaining land from Incra; Agroextractive Settlement Projects (PAE), those that are environmentally differentiated; Sustainable Development Project (PDS); Forest Settlement Project (PAF); e- Decentralized Sustainable Settlement Project (PDAS). 2- Settlement projects created by other government institutions, and recognized by Incra.

Since the claimed area is in the buffer zone of the PEI, there was an initial refusal by Incra to proceed with the establishment of the settlement, due to environmental impediments. However, as Bernini (2009) points out, the combination of the land issue with the environmental ideal resulted in the expropriation of the farm, which had been a key objective for dispossessed families, and the creation of the Alves, Teixeira, and Pereira Sustainable Development Project, in 2005.

The proximity to the park largely determines the community's relationship with the environment and its forms of local social organization, profoundly impacting the traditional practices of the local groups, as they were prevented from making their livelihood from the forest and land. Access to traditional resources was always limited by checkpoints and inspections carried out by the police inside and outside the park, seeking to prevent poaching of prohibited species and animal-hunting, and especially the illegal extraction of juçara heart of palm (*Euterpe edulis*) for family consumption and mainly for sale. Given the importance of the juçara, whose fruits are essential for the balance of the food chain of birds and mammals in the Brazilian Atlantic Rainforest ecosystem, and due to the fact that after the extraction of the heart of palm the tree is totally discarded and does not regenerate (Janishevski *et al.*, 2015), its removal became an environmental crime in Brazil. Thus, these families became targets of repression and even arrests (Bernini, 2009), while deprived them of one of their main means of subsistence.

The different community institutional spheres

The struggle for land ownership by part of the community triggered an increasing process of local organization, given the need to coexist and dialogue with multiple institutions spheres: at the federal level, the agroecological settlement managed by Incra; at the state level, the PEI, managed by the São Paulo State Forestry Foundation; and at the community level, the local organizations.

Since its creation in 1997, AGUA has become the leading organization in the area (Raelin, 2003). It started a series of programmes such as ecotourism activities, production and commercialization of medicinal plants, courses on agroforestry, support for the creation of the Municipal Secretariat for Rural Development, mapping tourist trails in the PEI and beginning of guided activities, and fundraising from various sources for activities aimed at environmental sustainability. Agua thus constituted initially an organization of a mainly political character. It was responsible for bridging the gap with other institutions outside the community, such as local public authorities and the agencies of the federal and state government, formulating public policies demands and defending sustainable development in the area.

FIGURE 3
The Guapiruvu institutional governance

From Agua, other local organizations were formed. While AGUA had mainly a political role, other instances such as Asas, Dasmu and Amas represent specific groups and community interests.

In Guapiruvu, the interaction of local institutions with the federal and state levels is done through official agencies that represent them.

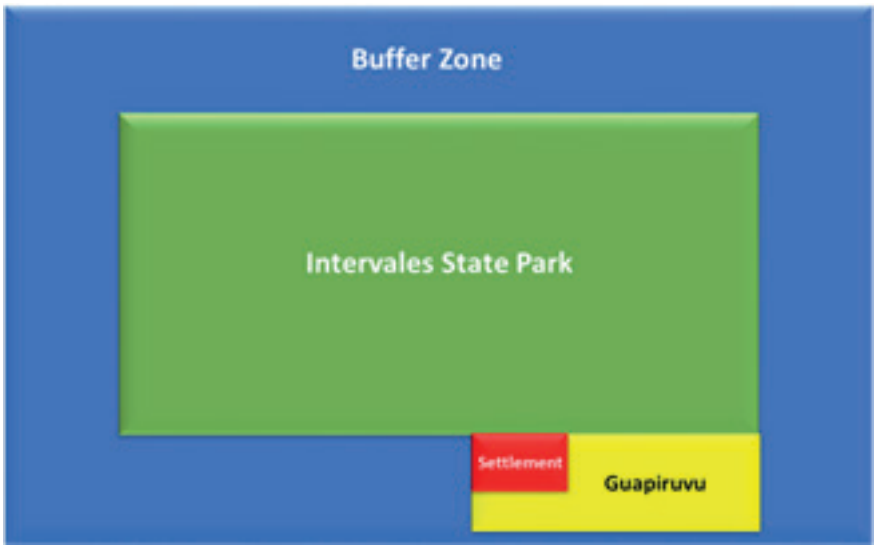
TABLE *3*

Local Institution	Role in the Community
COOPERAGUA - Cooperative of Sustainable Products of Guapiruvu	Responsible for the commercialization of most of the community's agricultural production
ASAS - Association of the Sustainable Development Project Alves Teixeira Pereira Agro-environmental Settlement	It is the sphere of representation mainly of the interests of the agrarian reform settlers, without much force for dialogue with INCRA and the Fundação Florestal.
AMA – Friends of the Forest Club	It seeks to build eco-citizenship in the young people in the community, encouraging them to participate actively in the processes of necessary society changes aiming at social justice and sustainable development. The activities developed by AMA over time have been discontinuous, especially training as ecotourism guides.
DASMU - Women's Club	It aims to strengthen the role and positions of women in the neighborhood development process, mainly encouraged by AGUA's leaders. However, the strong local patriarchal culture and the absence of female leaders meant that the actions undertaken were only spasmodic, so that DASMU basically exists only on paper.

At the state level, the main regulatory body for the conservation units is the FF of the State of São Paulo. It also manages the PEI, and its remit is stated in its Management Plan as it "establishes specific rules regulating the occupation and use of land in its buffer zone and suggest ways to integrate the unit into the Continuum of Paranapiacaba[8]; promoting the socioeconomic integration of the surrounding

8. The Ecological Continuum of Paranapiacaba is an Atlantic Forest corridor that exceeds 120,000 hectares, formed together by the Intervales Park, the Carlos Botelho State Park, the Alto Ribeira Tourist State Park (Petar), the Xitué Ecological Station, the Serra do Mar APA and the Atlantic Forest Biosphere Reserve.

FIGURE 4
The location of the Guapiruvu and its settlement in the PEI buffer zone



communities and valuing their traditional knowledge as principles of governance" (Furlan *et al*., 2008).

The federal action in the community is carried out by Incra, the agency responsible for the division of plots, selection and installation of families, land credit, construction of houses, opening of roads, electricity, and technical assistance in the rural settlement. After being installed, the families cannot sell, lease, rent, lend or give the plots to private individuals.

In the case of the Alves, Teixeira, and Pereira settlement, Incra technicians and an entity called Agricultural, and Forestry Studies and Research (Fepaf) were involved in its implementation. Likewise, two residents of the neighbourhood were hired for this work, which also had the support of Agua and Copperagua.

After the families took possession of their plots in the settlement, Incra started supporting them with work tools and monthly food basket. In addition, it also provided some resources for building houses. However, this support has been discontinuous and today it is totally paralyzed due to the changes implemented by the Bolsonaro government, which has drastically reduced the resources for land reform, including settlements support.

Leadership, community shared mental representations and internal structuring

As indicated by the classic work of Ostrom (1998), understanding the cooperation mechanisms and the internal structuring of the community is an essential element

for the comprehension of the communication channels built by the subjects with other institutional levels. In Ostrom's work, variables such as "individual attributes that are particularly important in explaining behaviour in social dilemmas", that "include the expectations individuals have about other's behaviour (trust), the norms individuals learn from socialization and life's experiences (reciprocity), and the identities individuals create that project their intentions and norms (reputation)" (1998, p. 14), are driving cooperation forces. In other words, cooperation depends on how the subjects ensure reciprocity, and invest in their reputation to achieve mutual trust. Likewise, the existence of effective communication channels is also seen as a key element in the construction of agreements and rules for the use of these resources. This deeper consideration enables a focus on more subtle and subjective aspects that guide the actions of people, based on mental models built alongside existing social processes (Bicchieri, 2006). In this sense, people´s preferences depend on the context in which they are produced, and on the social institutions that formed the interpretive frameworks through which individuals see the world (Basu, 2010). Furthermore, the understanding of these worldviews and how they are formed makes it possible to contribute to a more sophisticated perception of public policies, which would not only be more consistent with the expectations and motivations of the local actors, but also to channel the existing agency for the development goals. Hence, in order to understand how the process of internal community organization and dialogue with other institutions take place in Guapiruvu, it is important to analyse its community leaderships.

An analysis of the narratives collected from the community, as an essential source of shared mental representations (Hoff and Walsh, 2018), allow us to observe subtle aspects of the existing community social classification system that reflect on the formation of their leaders, and in the constitution and use of their local organizations.

In this structure, six basic criteria are used by the inhabitants to mentally categorize each other within the community, and to allocate everyone to a cognitive model that works not only to order, rank and map each person in the broader group. It guides also their likely reactions to specific situations. These criteria are: 1- to be born or not in the district (insider or outsider); 2- socioeconomic level (class); 3- educational level; 4- size of their property; 5- whether the agrarian reform allows them to be settled or not; 6- defend conventional agrarian practices or support a move towards sustainable development practices.

In this context, there are those people who boosted Guapiruvu's social organization process in the 1980s, culminating in the formation of Agua. Among them, two leaders stand out for incorporating the ideals of struggle and social transformation. Our interviews with them revealed not only important aspects about the history of the area,

but also essential elements that contribute to explain the emergence and consolidation of these leaders, and their importance for the community's social organization.

The literature states that a leader's success is closely linked to his/her ability to create legitimacy, credibility and motivate their communities around them (Sutton and Rudd, 2019). In this sense, their motivation can largely be explained by their backgrounds, which led them to embrace the causes advocated in the locality.

The first of them (A) was trained in the Base Ecclesial Communities of the Catholic Church in the 1980s, at the time of the strong call by the Church for reflection on the relationship between faith and politics, and the necessary social changes in Brazil (Betto, 1985; Hewitt, 1990). Yet he still plays an important role in the local Catholic Church. The second leader (B) identifies himself as an atheist. He is the son of a former mayor of the city of Sete Barras, who holds of large tracts of land in the region. He has a university degree, a strong humanistic background, identifies himself as a Marxist, often citing vast list of contemporary authors, and has great interest in social mobilization and the transition to sustainable societies.

> [...] We must consider the difficult time the world is going through in all sectors. The limits of constant growth, of intensive exploitation of natural resources are clear. It is very important to strengthen our spirit of community, to act together, to unite, to organize ourselves. We've been trying to do that here. Despite so many difficulties, we have achieved many gains talking to various public and private institutions, and NGOs [...] ("B").

Despite their different backgrounds, our interviews with them also showed that both have great admiration and mutual respect, a critical capacity for understanding and leading current social processes, and an emphatic desire to defend the need for social inclusion and agroecological transition. This resulted in converting all their lands into organic production, developing agroforest experiences, and encouraging other producers to do the same. These elements give both a strong motivation for the work they perform.

Another aspect that draws attention is that the literature generally highlights local origins as being an important attribute for the success of community leadership (Sutton and Rudd, 2019). However these leaders were not born in the Guapiruvu community, but rather in the city of Sete Barras. Furthermore, they also have no links with the pioneer families in the area, but rather acquired lands and were linked, above all, to large banana producers in the region. Despite this background they embraced the cause of landless families, started to defend the transition from conventional to agroecological agriculture, and were responsible for the intense social mobilization in the area.

Much of their legitimacy can be explained primarily by the fact that they know and respect the local culture and its demands. In addition, over time they demonstrated a great capacity for articulation and dialogue with residents and other constituted powers around local needs, a feature that according to authors like Krishna (2002) is essential for an effective interinstitutional horizontal dialogue. Furthermore, their achievements were not seen as promoting their own interests, but rather the wider community. Thus, both were primarily responsible for the choice of Guapiruvu by the NGO Vitae Civillis for the pilot for the development of Agenda 21 in the locality.

On the other hand, other community leaders differ from these two examples above. They are natives of Guapiruvu, have low socioeconomic, social, and educational levels, and most of them are settled by the agrarian reform. This means that they do not belong to the traditional families of Sete Barras, have small farms or plots in the agroecological settlement, and are thus part of the largest portion of the community's population.

Furthermore, they advocate an increasing investment in traditional agriculture with a strong criticism of the high costs of organic production, the lack of government support and the absence of markets. For this group, the key leader (C) is paradoxically the main representative of Asas, an agrarian reform settler who therefore should be supposedly committed to the objectives of the area where he lives. Nevertheless, he represents the conventional vision of production and development. In an interview with him, when asked about the role of the environmental issue in the community development, the answer was that the environment is more of a problem than a solution to the challenges of Guapiruvu.

> [...] It's a very difficult life, and we don't have any support from the authorities. We don't even have a basic infrastructure here. Almost everything we try to do to help the settlement is blocked by environmental issues, such as installing a power grid. The bridge that we asked the government to build, connecting us to the rest of the community was denied, and we had to do it ourselves anyway. And how are we going to plant organic, if there's no technical support and places to sell it? [...] ("C").

Therefore, the above elements confer a strong relationship of identity, legitimacy, and credibility of these leaders with most people in the neighbourhood, ending up dividing the community into two basic groups. On the one hand, an economic, cultural, educated, and enlightened outsiders, who advocate a transition agenda for sustainable societies having agroecology as their flagship. On the other hand, an insiders' working-class with limited access to resources that differentiate them

from the first. Especially given the absence of official support for their activities, they come to defend conventional forms of development.

Community perception and practices on environmental preservation, and conventional / agroecological production

The semi-structured interviews revealed important aspects about the perception and practices of the inhabitants of Guapiruvu regarding the environment, sustainability, agroecology, and territorial institutions. These aspects were confirmed through a closed-ended questionnaire applied in 69 of the 83 rural producers in the community.

The first aspect refers to the way the inhabitants see the environmental issue in the neighborhood. In the interviews, the importance of preserving the environment was always highlighted. However, while they demonstrate this concern and a commitment to preservation, they also point out that the biggest obstacle to community development is the rigid existing environmental legislation and lack of government actions.

> [...] Of course, we don't want the water to be polluted, for the animals to end up, for the forest to be cut down. We know that this is very important for our survival. The problem is that people can't do anything here without a forest guard fining us or arresting us. If we want to make a new garden or increase the one we have, and we have to cut down some trees, even small ones, we are not allowed. If we cut a palm tree, even if it is for us to consume the palm heart, we can be arrested. If we want electricity in the settlement, we need an environmental license that has not been approved for more than 10 years [...].

This aspect was confirmed through the questionnaires. On a Likert scale: Very concerned, Moderately concerned, Neutral, Moderately unconcerned, Not at all concerned, the Very concerned percentages for aspects of environmental preservation were as follows: air pollution (57.97%), water pollution (75.71%), extinction of animals (67.16%), extinction of plants (51.43%), infertile land (67.16%), global warming (52.11%), garbage recycling (52.94%). In addition, on a Likert scale: Very Important, Fairly Important, Important, Slightly Important, Not at all important, 44.93% and 34,78% of the residents say that environmental preservation in Guapiruvu is respectively Very important and Fairly important. Nevertheless, 50% of those interviewed said that the environmental issue, especially restrictive environmental laws, and lack of government support are the main obstacles to community development.

> [...] A few years ago I participated in some meetings with people from the community about agroecology. I liked that and decided to plant some banana trees, and also an organic vegetable garden. But that requires lots of care, otherwise the pests will wipe out everything. And I didn't have much knowledge on how to do that. Then, when I tried to sell the products, nobody wanted to pay a little more for organics, and they kept saying that the products didn't look so good. I then decided to produce only conventionally. When it comes to selling it's also easy, and our cooperative helps a lot. I would like to produce only organic products, but my financial conditions do not allow it [...].

About organic production in the community, semi-structured interviews showed that the little financial return, along with technical difficulties and lack of access to markets are the main obstacles to its implementation by most producers. The idea of organic production seems to please most of the interviewees, but its implementation is always understood as something utopian in the face of the need for survival. Thus, the conventional production of bananas and pupunha heart of palm (*Bactris gasipae*), which it is not a native plant can be planted and after harvesting the tree regenerates, appear as the preferred crops in the community. Even the majority of those who produce organic do so on a small scale, concentrating mainly on conventional production. The only residents of the neighborhood who dedicate themselves entirely to organic production are the two community leaders who introduced this issue to the territory.

The questionnaire with closed questions once again showed this aspect. First, showing 55.07% of respondents have already produced organic. However, they abandoned this production because: 1- they did not have a market (21.15%); 2- low productivity (19.87%); very expensive products (15.38%); and lack of technical support (10.90%).

Another factor revealed by the questionnaire concerns the analysis of the items that refer to the commitment that the interviewee considers having with the preservation of the environment; the degree of interest in preserving the environment and; the probability of changing the way of life to better adapt to the preservation of the environment, in view of family income. The crossing of these data shows us a decrease in the respondents' commitment/interest and willingness to change their ways of life in terms of environmental preservation, as their family incomes increase. This may be an indication that, in general, lower-income residents have a better perception of general and specific issues of environmental sustainability than higher-income residents.

Local institutions as an expression of different views of development

Consequently, the community´s local institutions end up expressing not only the interests of groups that defend or not sustainable production practices, but also the

socio-educational and economic divisions of the neighbourhood and different views of development. Hence, Agua is the locus of action and expression of ideas led by the local "elite", and Cooperagua as the instance of domination of the poorest, as well as the space for the consolidation and reproduction of conventional forms of development and ideological confrontation.

However, despite being dominated by groups and different views of development, these two local institutions end up playing complementary and interdependent roles: Agua, for its political function and the effective way in which it formulates demands for public policies, dialogues with different institutional levels, and builds a public image of Guapiruvu as an example of a community committed to sustainable development; Cooperagua, for giving a voice and strengthening the poorest families and improving the economic conditions of the neighbourhood, and making local production viable.

Although the social organization of the neighbourhood today was a creation of this first group, due to the intensification of disputes over different views of agricultural production, and the strengthening of the group of natives in face of the progressive expansion of conventional banana production, made Cooperagua the locus of these disputes. Thereby, it is divided between those who defend "solidarity cooperativism", inspired by the principles of self-management, cooperation, solidarity, economic viability, equal relations, and sustainability (Singer, 2002, 2008); and those who support "business cooperativism", with its traditional and practical managerial characteristics and customary participation in the market economy, which bring them very close to established mainstream companies (Costa and Stöberl, 2016).

From Cooperagua's 83 members in 2020, 6 of them produced organically: respectively 7,23 % and 92,77 % of organic and conventional production and representation. This shows the cooperative as an instrument for the inclusion of small farmers in broader commercial relations under capitalism, through conventionally produced products.

As a result of this, through an agreement between the residents of the neighbourhood, Cooperagua started to dedicate itself exclusively to the commercialization of bananas produced in a conventional way, while Agua became responsible for making the community's organic production viable. It is basically composed by lemon, papaya, mango, yam, custard apple, orange, tangerine, pupunha heart of palm, as well as gold, bread, silver, and dwarf bananas.

In this way, the appropriation of the local institutions by both groups was consolidated, which started to use them as a way of instrumentalizing ideologies and strategies of agricultural production and commercialization. This clash of forces

within Cooperagua is therefore a reflection not only of their different views of development, but also of their local social, cultural, and political relations.

Agroecological production in the community and its insertion in alternative agrifood systems

Currently, there are 15 organic food producers in Guapiruvu. From them, 2 are working exclusively with agroecological products, withdrawing their production entirely from agroforestry systems. The others 13 producers work with mixed systems: organic gardens and crops and small agroforestry, but also with conventionally produced products. It means that 9.86 % of the neighbourhood families (152) produce organics (but also conventionally produced products), and only 1.31 % are dedicated to agroecology.

The PDS, which should be the great showcase for agroecological production not only for the community but for the wider region, is experiencing a paradoxical situation. While its main strategy regarding the transition to sustainability and environmental preservation should be the adoption of ecological agriculture, combining the production of agricultural products with the conservation of biodiversity, today it represents about 2 % of the neighbourhood's organic production. At the same time, it accounts for 55 % of conventional banana production at Cooperagua.

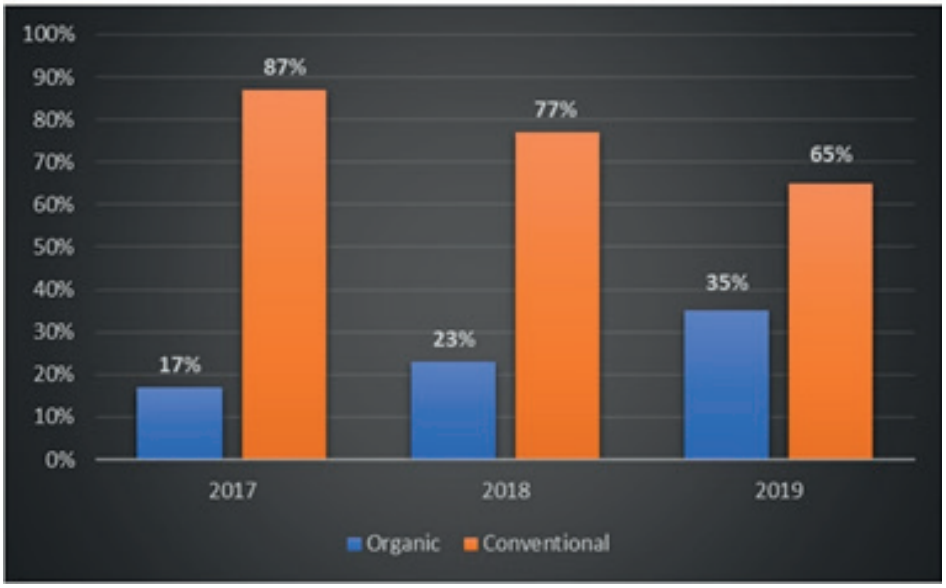
In terms of commercialization, insofar Agua became responsible for the commercialization of the neighbourhood's organic production, it also contributed greatly to setting up a system of selling family agricultural organic products of Sete Barras, integrated with the growing alternative agri-food systems in large urban centres.

Thus, having Cooperagua as a model, and with the support of the Municipal Council for Rural Development of Sete Barras, in 2011 was created the Cooperative of Family Agriculture of Sete Barras, Coopafasb. Its objective is to promote the solidarity economic viability of family farmers in the municipality, seeking market opportunities and supplying products to institutional and conventional markets[9].

For this proposal, 5 Centre for Cooperation and Solidarity Integration (Nicos) were created, each of them integrating family producers of different districts in the city. Through this model, Coopafasb acts as an umbrella aggregating the production of 160 families of these Nicos, and selling their products to different markets: organics fairs, solidarity economy initiatives, responsible consumption groups, restaurants, and cultural groups, above all located in the São Paulo and Campinas metropolitan

9. See: https://coopafasb.com.br/.https://coopafasb.com.br/coopafasb

FIGURE 5
Conventional and organic Coopafasb commercialization – 2017-2019



Source: Coopafasb.

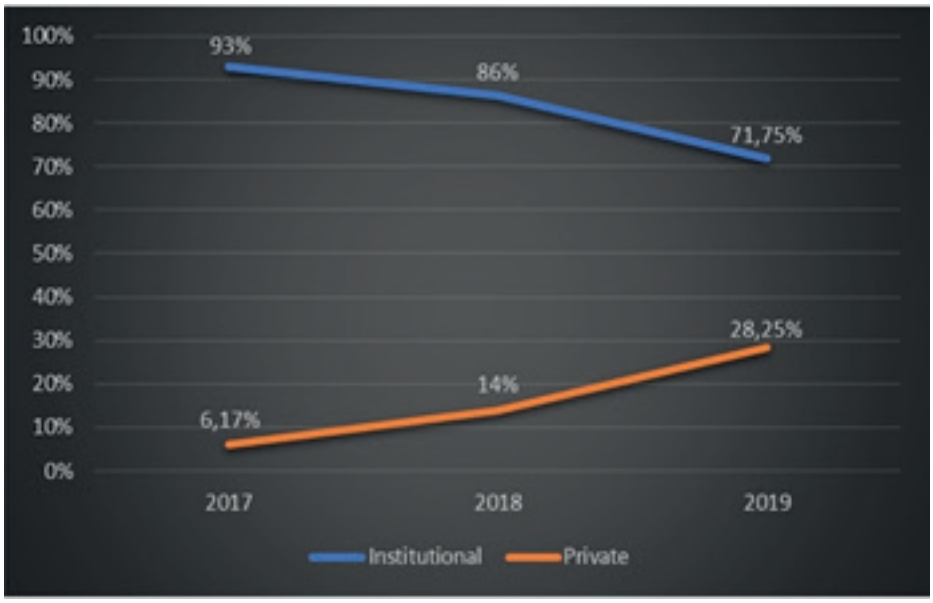
centres. More than 100 products are sold, including non-conventional food plants[10] (Kinupp and Lorenzi, 2014).

The main market for Coopafasb products is primarily official purchases through two government programs. The first is the Food Acquisition Program (PAA), whose main objective is to guarantee the basic rights to food and nutritional security, and the second is the National School Feeding Program (PNAE), which requires that 30% of school meals must be purchased from local producers. Their main tool is the government purchase – with no bidding – of food from family farmers, settled by agrarian reform, indigenous communities and other traditional peoples and communities, for the formation of strategic stocks and distribution to the most socially vulnerable population.

As can be seen in Figure 6, from 2017 government sales have been steadily decreasing, while private sales that include organic products have been growing ever since. This can be explained by the reduction in purchases made by the government through the PAA, but also by a strengthening of the alternative production and marketing network of which Sete Barras is a part.

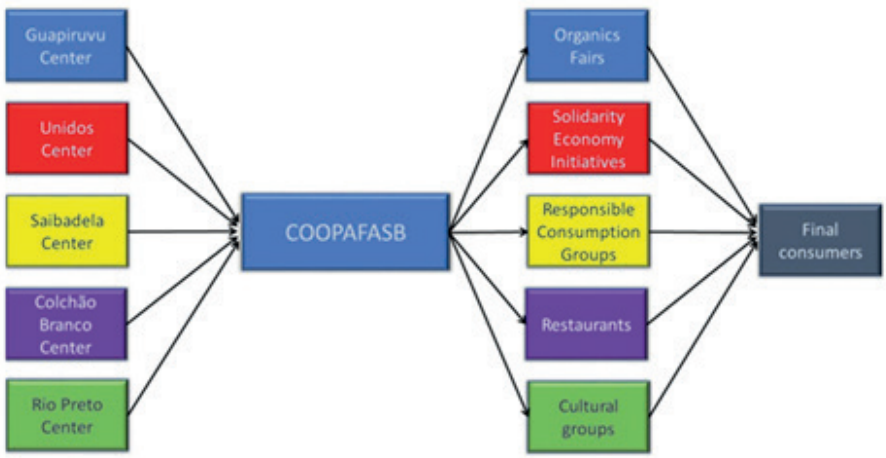
10. Non-conventional food plants (Pancs), is a term created in 2008 by the biologist Valdely Ferreira Kinupp to refer to plants or parts of plants that can be used in food, but that are not used in the daily lives of people in general. These vegetables, however, do not constitute a homogeneous group, like a plant family, and can include, for example, both native and exotic plants, spontaneously produced or cultivated plants.

FIGURE 6
Coopafasp public and private sales – 2017-2019



Source: Coopafasp.

FIGURE 7
Flow of agroecological production and commercialization of Sete Barras



Source: Prepared by the author.

Representatives of the cooperative stated that the in 2019 their income was around R$ 3,000,000.00 ($ 572,136.93), with each family annually gaining of around R $ 18,759.00 ($ 3,575.85). That mean a monthly amount of R $ 1,563.00 ($ 293.31), which represents a 49.57 % increase over the minimum wage in Brazil in 2020, that was R$ 1,045.00 ($ 196.10)

Thus, the experience of agroecological transition initiated in Guapiruvu overcame the limits of the community, influenced sustainable agriculture practices in the municipality and contributed to the strengthening of an agrifood system that transcends Sete Barras. It completes itself in the niches of consumer markets in large urban centres in the state of São Paulo, in which authors like Moraine *et al.* (2018, p. 2) call Agroecological Farming Systems.

Conclusion

The literature has increasingly underlined the multifactorial aspects of the transition from current models of conventional rural development and agriculture to patterns of sustainable rural development. In this sense the Guapiruvu community has different elements articulated in this process. However, this study shows that even with the presence of elements pointed out by the literature as essential to the process of sustainable development, such as the capacity for interinstitutional dialogue, social capital and agency by local communities, the participation of the state as a facilitator of this process is often vital.

In the case of the other levels of governance that operate in the Guapiruvu area, the broader situation of the community in adhering to sustainable development practices has arisen basically from poor intergovernmental support to foster the agroecological transition, especially technical assistance, and the broader socio-productive viability of sustainable products. This has happened despite official documentation planning joint activities for this purpose, as stated in the PEI Management Plan zoning. Another factor leading to failure is the lack of support for basic infrastructure improvements. The struggle for electricity in the settlement drags on for 10 years, not only harming development activities in the area but also negatively affecting the families' living conditions. Due to these difficulties, many of them prefer to live in the village, going to their plots just for work. In fact, the only constant presence of state power in the community is aimed at suppressing deforestation, hunting wild animals, and especially the extraction of juçara hearts of palm.

Hence, although agroecological production has been practiced entirely by only 1.31 % of the inhabitants, and despite its great influence on the organization and support to family farmers in the municipality, at the community level agroecol-

ogy and sustainable development practices have become the great showcase of the neighbourhood.

The efficient use of this image by a small group of residents was responsible for gains on other fronts. In addition to the agroecological settlement, there has been the construction of 2 schools; selected garbage collection; and obtaining a tractor by the cooperative that can now be used by the entire community. Moreover, important partnerships have been founded with institutions such as the Vitae Civilis, Brazilian Foundation for biodiversity – FUNBIO, Ford Foundation, and with the government of the state of São Paulo and the World Bank for the Watershed Project, for numerous sustainable development activities.

In this way, the absence of incentives but having the sustainability as its main banner, in Guapiruvu most of its members were able to make an efficient use of the sustainability discourse, although strengthening the sectorial character of production and commercialization. Furthermore, also supplying the market with conventionally produced products, especially from the banana monoculture in the area. It shows, as Jansen (2015) states, that part of the crisis in the agrarian capitalism today is due to the desire for participation by those who feel excluded from it.

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Abstract

Management of natural resources in protected areas: interinstitutional dialogue, social capital, and agency in the transition to agroecological systems

This article analyses the processes of participation and integration of groups living in and around protected areas, in efforts to convert conventional methods of agricultural production into agroecologically sustainable practices. Taking as a case study a community located in the buffer zone of a large conservation unit, and part of the main contiguous remaining areas of the Brazilian Atlantic Rainforest, this work focuses on the articulation among multiple existing elements in this area: an agroecological settlement, different levels of governance, internal social differentiation and classification systems, community agency, antagonistic visions of development, and their effects on community development practices. It also examines the external connections that the community establishes, acting as an instrument of compliance and reproduction of the dominant agrifood regime, and contributing to the formation and strengthening of an alternative short circuit of production and commercialization network, integrating local family producers to the consumers in large urban centres.

Keywords: Agroecological transition; Protected areas; Local development; Multilevel governance.

Resumo

Gestão de recursos naturais em áreas protegidas: diálogo interinstitucional, capital social e agência na transição para sistemas agroecológicos

Este artigo analisa os processos de participação e integração de grupos que vivem dentro e ao redor de áreas protegidas, na tentativa de converter métodos convencionais de produção agrícola em práticas agroecologicamente sustentáveis. Tomando como estudo de caso uma comunidade localizada na zona de amortecimento de uma grande unidade de conservação no Estado de São Paulo, e parte dos principais remanescentes contíguos da Mata Atlântica brasileira, este trabalho foca na articulação entre os múltiplos elementos existentes nesta área: um assentamento agroecológico, diferentes níveis de governança, sistemas internos de diferenciação e classificação social, agência comunitária, visões antagônicas de desenvolvimento e seus efeitos nas práticas de desenvolvimento comunitário. Examina também as conexões externas que a comunidade estabelece, atuando ao mesmo tempo como instrumento de reprodução do regime agroalimentar dominante, e contribuindo para a formação e fortalecimento de um circuito curto alternativo de produção, comercialização e consumo, integrando produtores familiares locais aos consumidores nos grandes centros urbanos.

Palavras-chave: Transição agroecológica; Áreas protegidas; Desenvolvimento local; Governança multinível.

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Aico Sipriano Nogueira possui graduação em Ciências Sociais, mestrado e doutorado em Sociologia pela Universidade de São Paulo, e pós-doutorado em Ambiente e Sociedade pelo Núcleo de Estudos e Pesquisas Ambientais da Universidade de Campinas, Nepam (2013). Foi *Visiting Research Fellow* no Department of International Development da London School of Economics, LSE, Reino Unido (2013-2014 e 2016-2017); Visiting Research Student (Bolsa Sanduíche) no Development Studies Institute da London School of Economics, LSE, Reino Unido (1998-1999); e *Scholar* do Canadian Queen Elizabeth II Diamond Jubilee, University of York, Toronto, Canadá. Atualmente, é pesquisador colaborador do Departamento de Ciências Florestais da Escola Superior de Agricultura Luiz de Queiroz, da Universidade de São Paulo, e finalizou em maio de 2022 estágio como Research Fellow no Centro Maria Sibylla Merian de Estudios Latinoamericanos Avanzados (Calas), em Guadalajara, México, com financiamento da Universidade de Kassel, Alemanha. E-mail: aico.nogueira@gmail.com.