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“When We Stand up, They Have to Negotiate with Us”: Power Relations in and between an Agroindustrial and an Indigenous Food System in Bolivia

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Abstract: Our global food system is characterized by an increasing concentration and imbalance of power, with trade-offs between hunger, inequality, unsustainable production and consumption, and profit. A systematic analysis of power imbalances in food systems is required if we are to meet the 2030 Agenda vision of promoting sustainable production and consumption patterns and ending hunger and poverty. Such an analysis, with a view to a transformation to more sustainable and just food systems, requires tools to be developed and tested in real-life case studies of food systems. To better understand the structures and mechanisms around power in food systems, this study applies a political ecology lens. We adapted the “power cube” analysis framework that was proposed by the Institute of Development Studies for the analysis of spaces, forms, and levels of power. We apply the analysis of these three dimensions of power to two food systems in the tropical lowlands of Bolivia: one agroindustrial and one indigenous. After identifying food system actors, the food system spaces in which they interact, and what forms of power they use at what levels, we discuss some implications for an emerging scientific culture of power analyses in critical sustainability assessments. Mechanisms of hidden power undermine visible legislative power in both case studies, but in our example of an indigenous food system of the Guaraní people, visible power stays with a local community through their legally recognized and communally owned and governed territory, with important implications for the realization of the right to food.

Keywords: spaces of power; power cube analysis; political ecology; agroindustrial food system; indigenous food system; Guaraní people; Bolivia

1. Introduction

The right to food has been defined as “the right of every individual, alone or in community with others, to have physical and economic access at all times to sufficient, adequate and culturally acceptable food that is produced and consumed sustainably, preserving access to food for future generations” [1]. Through this definition, the former United Nations (UN) Special Rapporteur on the Right to Food, Olivier De Schutter, added a sustainability dimension to the existing UN definition of the right to food. However, food systems are often characterized by the unequal distribution of food and the resources to produce or access it. Scholars have described today’s food systems as facing multiple crises [2–4], with food systems falling short in terms of human rights and sustainability.

Food security frameworks have tended to frame hunger as a technological problem and point to a need to increase production [5,6]. However, food system activities and access to resources are to a large

extent shaped by power relations, while different forms of power are a central part of social relations between different actors, e.g., as described by Barnett and Duvall [7]. In terms of actors, globalized food systems are often hour-glass shaped: one side comprises the producers, the other the consumers, and in between are the few actors who control how food is moved from producers to consumers [4,8]. The International Panel of Experts on Sustainable Food Systems (IPES-Food) [9] describes how more horizontal and vertical restructuring is an ongoing trend in globalized food systems, towards more concentration of power in input provision, storage, and distribution.

Given the importance of power relations in food systems, studying these should not be neglected [10]. Local assessments of households and of community-level processes have tended not to focus on the broader role of power in the political and economic context [11]. Barnett and Duvall [7] note that there has been much analysis on governance, including resource governance [12], but very little on power relations in food systems. In particular, the discursive power and agency of social groups in agri-food value chains has been widely overlooked [13].

Scholars have argued that a political ecology lens is needed for the analysis of sustainability and human rights related to food systems, i.e., the fair and sustainable production, distribution, and consumption of food [6,14]. Political ecology investigates political dynamics, including unequal power relations, that influence environmental change from local to global scales [15,16]. In relation to food and agriculture, political ecology reinserts the topics of power, exploitation, politics, and especially environmental degradation, which have long been ignored in research and politics on agriculture and food ([17], cited in [18]). Used as an actor-oriented approach, political ecology allows for a focus on marginalized groups, who may be negatively affected by the decisions of other, more powerful actors, with the aim of making them visible [16].

According to the Swedish International Development Cooperation Agency [19], social and political thinkers have long debated what power is, making it an “essentially contested concept” with no unified theory. Clapp and Fuchs [20] have specifically discussed the political role that corporations play in global food system governance, and IPES-Food [9] analyzed an increasing concentration of power in the global food system. Different entry points to the analysis of power structures have been developed, from Marxist and neo-Marxist approaches and the critical theory of Habermas, to the work of Bourdieu and Foucault [21]. For Bourdieu, class conflicts and material interest were root causes of social inequality [21], and power structures could be observed in discourses, an approach that was also deepened by Foucault. Navarro [21] described Bourdieu’s understanding of power as a relational process that “sustains the fabric of society,” concluding that power is not an isolated variable or influencing factor but connected to existing structures. According to Navarro, Bourdieu’s sociological theory is a promising one by which to analyze power relations because it permits us to understand legalized forms of domination that are influenced and reproduced by both structure and agency (see also Reference [16]). This is important for food system research, because a focus only on structural power can lead to a deterministic view that leaves little space for agency and therefore innovation [16]. Habermas argued that a shift from strategic to communicative action would render power relations less significant in terms of decision-making; Rist et al. [22,23] applied Habermas’ theory of communicative action to the field of natural resource governance, and concluded that the sustainable governance of natural resources in communities needs new spaces where communicative action is possible and where a common understanding of situations, aims, and ways to achieve them can be formed and validated.

One entry point that has gained importance in development research and practice is Gaventa’s [24] power analysis framework “power cube,” which features three power dimensions: spaces of power, forms of power, and places (levels) of power. For “forms of power,” Gaventa [24] distinguishes between visible, invisible, and hidden power (see Section 4.1). This concept was made applicable for research and development projects by the Institute of Development Studies (IDS), with the aim of making norms, beliefs, and practices tangible and visible, as well as identifying strategies and responses [24].

To our knowledge, there is to date no tool to analyze power relations in food systems that addresses actors, their interaction, and their rights. Power in the governance of natural resources has been widely analyzed using the theories of Habermas (e.g., References [22,23,25,26]), Bourdieu (e.g., References [21,27–29]), and Foucault [30]. However, these approaches seem to be difficult to apply to the complex structures of food systems. Picking up on Nelson's [13] study on power relations in Kenyan agri-food value chains, we therefore explore the use of the “power cube” tool proposed by Gaventa [31] for the study of different food systems in Bolivia. For this purpose, we ask the question of what spaces and forms of power exist, and how they play out among different groups of actors in different places of selected food systems. We aim at contributing to critical sustainability research with a qualitative assessment of different types of power and related mechanisms in two different food systems in the lowlands of Bolivia.

2. Theoretical Background

2.1. What Does Power Mean in Food Systems and How Can It be Framed for Research

Power analysis comes from critical social theory, anthropology, political sociology, and feminist theory. It is used to better understand socialized and internalized norms and behavior, and to explore the links between agency and structure. The “Action Research” tradition (e.g., Reference [22,32,33]) bases the search for solutions to “real-world problems” on the integration of scientific and other forms of knowledge. Regarding the analysis of power, “critical or emancipatory” action research aims at connecting the personal and political levels in order to “overcome felt dissatisfactions, alienation, ideological distortion, and the injustices of oppression and domination” [22] (p. 220). In the same context, Dürr [34] speaks of holistic thinking that is necessary for the analysis of power as implicit in everything, not limited to the background, but present in interactions, interrelations, co-dependences, and bridges, all of which are possible in spaces of multi-actor agreement.

Following Gaventa [24] (p. 26), “spaces” can be regarded as “opportunities, moments and channels where citizens can act to potentially affect policies, discourses, decisions and relationships that affect their lives and interests (. . .) these spaces for participation are not neutral, but are themselves shaped by power relations, which both surround and enter them”. The concepts of power and space are, thus, closely linked. In sustainability and development research, this affects the mechanisms of participation: Empowered participation means not only to participate, but also to have the right to define and shape the space and thus the decisions that are made [24]. Participation alone is not a guarantee to be heard, and the loudest voices are easily favored. One should therefore differentiate between the quality of interaction spaces, and find out how such arenas are formed and by whom (see Reference [13]). We start in the next subchapter by conceptualizing spaces of power as food system arenas: specifically, where do food system activities take place and where are forms of power exerted among different actors (see Reference [24]).

2.2. Food Systems and Food Value Chains

Food systems can be defined as “interdependent networks of stakeholders (companies, financial institutions, public and private organizations, and individuals) in a geographical area (region, state, or multinational region), that participate directly or indirectly in the creation of flows of goods and services geared towards satisfying the food needs” [35] (p. 19). For the purpose of assessing power relations, it is important to investigate differences in power, which can be done by comparing different actors and their activities. In food systems, this means looking at food value chains (seen as activities and their links [36]) from production to processing and storage, retail and trade, consumption, and beyond. We conceptualize these food system stages as possible “spaces of power”—where food system activities take place, decisions are taken, and actors meet (Figure 1).

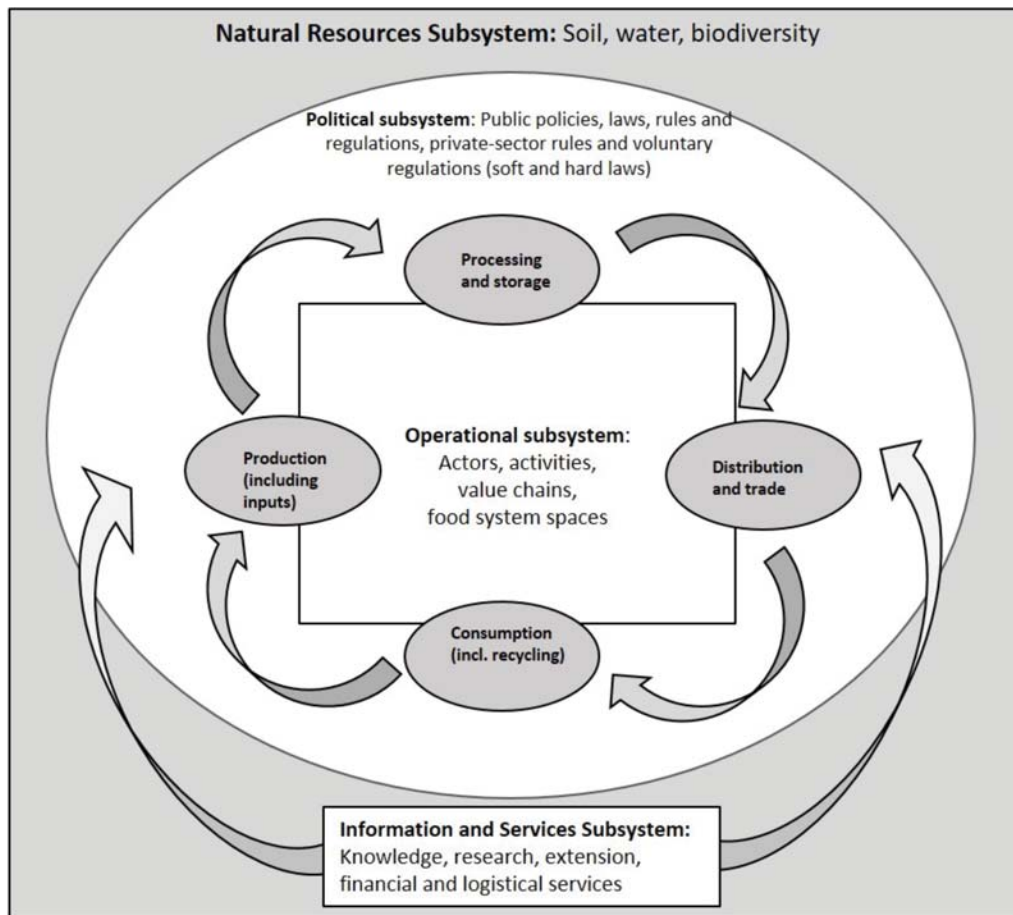


Figure 1. Food system stages as spaces of power, based on Rist and Jacobi [37], and Rastoin and Ghersi [35].

For our understanding of “food system,” we consider more than food flows or agri-food value chains because we focus on actors and because material and immaterial context features are fundamental parts of food systems. Among these are (i) the natural resource base of a food system; (ii) the flows of information and services (e.g., financial); and (iii) the political context of a food system (including, e.g., international trade agreements) (see Reference [35]). While it is possible to conceptualize one global food system (e.g., Reference [8]), there are a wide range of (strongly differing) forms of production, processing, distribution, and consumption in place in a given area, with different outcomes in terms of the right to food or sustainability. For comparative purposes, it therefore makes sense to distinguish between different types of food systems according to their modes of production, distribution, and consumption not only spatially (e.g., local, national, regional, and global), but also qualitatively, e.g., based on their degree of reliance on external inputs. Colonna et al. [38] differentiate between (1) agroindustrial food systems, (2) domestic food systems, (3) regional food systems, (4) local food systems, and (5) differentiated-quality food systems [38].

3. Case Studies and Study Area

This analysis was part of a research project on “food sustainability” in Bolivia and Kenya [39], which also investigated the right to food as one of five pillars of food sustainability (besides food security, environmental performance, poverty and inequality, and social-ecological resilience). We base this analysis on results from our study area in Bolivia, where the right to food has been enshrined in the 2009 Constitution, following a long history of struggle by peasants and indigenous communities for

their rights to their ancestral territories. Using the typology by Colonna et al. [38], we observed different, coexisting food systems in Santa Cruz Department (Bolivia is subdivided into nine Departments: Santa Cruz (where this study took place), Chuquisaca, Tarija, Potosi, Oruro, Cochabamba, La Paz, Beni, and Pando), in the tropical lowlands of Bolivia. Our case studies comprise one predominant agroindustrial food system and a much smaller, but culturally and historically important, indigenous food system of the Guaraní people. The Department produces a large part of the country's food supply (wheat, rice, corn, beef, and others), and therefore plays an important role in terms of national food security. Santa Cruz accounted for more than half (54%) of the country's total agrarian exports [40] in 2016, and politicians have coined the Department the economic engine of Bolivia.

The production stage of the agroindustrial food system in Santa Cruz Department covers about 1 million ha of land, mainly cultivated with soybeans (58.8% in 2013 [41]). Wheat, rice, maize, sesame, and sugar cane are also produced, albeit to a lesser extent, with the products circulating along national to global food value chains. Since we were unable to investigate all value chains belonging to this food system, the project team decided to focus on the most important value chain in terms of resource use, investment, and political attention. This value chain is based on soybean production (see Figure 2), and it provides edible oil to the national market as well as feed for dairy and meat production in the study region, at the national level, and abroad. While 78% of the soybean farmers share only 9% of the land, a mere 2% of large-scale soybean producers use 71% of the cultivated area [42]. Urioste [43,44] describes how enterprises, mainly from Brazil, acquired large landholdings in Bolivia for soybean production (Grupo Monica, UNISOYA, and the GAMA group alone cultivate at least 200,000 ha) and links this “concentration and foreignization” of the largest and most productive lands in Santa Cruz Department to the increased demand for soybeans overseas. The expansion of soybean production is linked to unprecedented deforestation in Santa Cruz Department [45–47]. Annual deforestation rates rank among the highest in the world, at 463,000 ha in 2017 [48]. Bolivia's five-fold increase of pesticide imports from 2004 to 2016 is correlated with the legislation of genetically modified, herbicide-resistant soybeans in 2005. Among the registered active ingredients, 72% are on Pesticide Action Network's list of “highly hazardous pesticides” [49].



Figure 2. Left side: Soybean field near Pailón. Right side: Sugar cane transport in San Pedro, both Santa Cruz Department, Bolivia 2016.

It is important to note that the agroindustrial sector of Santa Cruz is not operating in an empty space. Bolivia has 36 official indigenous peoples, of which the Aymara, Quechua, and Guaraní-speaking groups are the largest. Large areas of Santa Cruz Department are part of the Gran Chaco region, a semi-arid ecosystem that stretches over Bolivia, Paraguay, and Argentina. The Guaraní people have inhabited the Bolivian Chaco region since pre-colonial times and have a strongly developed food identity around maize. Most typical food is related to maize (see Figure 3): *Achi* (maize flour), *pito* (toasted maize, also *avatikui*), *frangollo* (soup with ground maize and meat), *atiruru* (boiled maize),

and *guñimimo* (cake). *Somó* and *kāgui* (chicha) are culturally important beverages made of maize [50]. We selected this food system as a case study located in the Municipality of Cabezas, about 120 km south of the city of Santa Cruz. Part of this municipality is the official indigenous territory of 11 Guaraní communities called “the Captaincy of Takovo Mora”. Following Colonna et al. [38], the food system of the Guaraní communities may be classified as a “domestic food system”: It consists of both subsistence- and market-oriented food production, processing, and consumption in and around small Guaraní settlements. Besides maize, this food system comprises cassava, peanuts, peppers, beans, fruits, vegetables, chicken, pigs, and wild meat (e.g., armadillo). A large share of this food is processed, stored, and consumed within the producing households, and the surplus is traded or exchanged in local to regional markets. Commercialization of products (e.g., maize or animals) can be tracked to the city of Santa Cruz. A high diversity is not only present in terms of types of crops and food products, but also in family structures and social organization (see Section 5.2).



Figure 3. Guaraní women in the village of Yateirenda preparing *achi* (maize flour), 2017 (image credits: Carlos Silvestre).

4. Methods

4.1. The “Power Cube” Framework

As an analytical tool, we applied the “power cube tool” from the Institute of Development Studies [31] to the analysis of power relations in food systems. The “power cube” is a three-dimensional tool for analyzing the different dimensions of power and the way power works in processes of governance, in organizations, and in social relationships. The model for this tool is the Rubik’s cube, a three-dimensional toy with many configuration possibilities. Gaventa [24] calls the three dimensions of the cube “spaces,” “places,” and “forms of power”: Each of them has at least three dimensions, which are conceptually linked (Figure 4). By allocating observed actors and activities in these dimensions, the framework can be helpful for identifying the possibilities of transformative action in various settings [31].

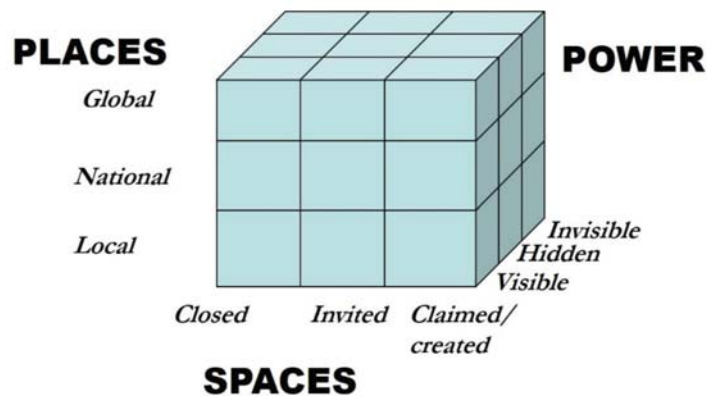


Figure 4. The power cube framework [51].

Power cube analysis allows us to go further than actors' perceptions, which we assessed previously in the same food system case studies [52], and perceptions on what constitutes "good food" [53]. Using the power cube, we can analyze three dimensions of power in a specific setting, investigating horizontal relationships in relation to vertical governance levels. Gaventa [24] differentiates between three different types of power spaces: *closed spaces*, where elites or empowered groups or individuals make decisions with little consultation or involvement of other actors; *invited spaces*, where authorities create opportunities for involvement and consultation, often legally constituted, e.g., "participatory governance"; and *claimed or created spaces* of participation in which subaltern, apparently powerless or excluded groups create collective action by themselves, e.g., through social movements or community associations, often outside formalized policy arenas.

In addition to the spaces, a distinction is made between three forms of power in the cube: visible, hidden, and invisible. *Visible power* refers to observable decision-making, often according to formal rules and structures, e.g., related to governmental or juridical authorities, with their related legal procedures. However, observable decision-making processes are not always democratic and often take place in closed spaces. Therefore, democratization and accountability of visible power are some of the main topics in power analysis [24]. We address this form of power in terms of norms and rules as well as a compilation of groups of actors who visibly make decisions. In contrast, *hidden power* represents those mechanisms in (mostly informal) decision-making that set or influence the political agenda behind the scenes. Actors of hidden power are people and institutions that are influential in terms of who decides and what is being discussed and decided in arenas of visible power. A typical example is discourse shaping, i.e., framing storylines by interpreting phenomena, often broadened or simplified, that target or attract different actors for different reasons [54]. A third form of power on the power cube is *invisible power*, which refers to peoples' attitudes and consciousness, i.e., what people think and how this influences their psychological and ideological boundaries of participation in decision-making. This form of power is extremely important, as people's ideals and beliefs determine whether or not they accept a certain political decision or their situation. Ideals and beliefs also determine what is regarded as normal, acceptable, and desirable or whether people would consider developing collective action to change a subaltern situation.

The spaces and forms of power can be located on at least three different levels, in power cube terminology known as *local*, *national*, and *global places*, which imply a notion of boundaries and the level at which participation takes place (or not) [24], and whether power processes are top-down or bottom-up (Ibid.). Globalization and decentralization processes can also be located in this power dimension.

The next section describes how we applied the power cube analysis to our two case studies. Nelson et al. [13] applied power cube analysis to flower value chains in Kenya, specifically analyzing labor rights. However, we are not aware of any power cube analyses in food systems. Therefore,

our approach may be regarded as explorative, and is meant as an initiation of further power analyses in food systems.

4.2. Analytical Steps for Applying Power Cube Analysis to Food Systems

For the analysis of power relations in food systems, we first elaborated a characterization of key actors at every stage of the food system (*Step 1*). Key actors in food systems are those actors whose *livelihoods* (not only income, but also access to food or the means of its production) depend directly on their involvement in respective food value chains, or whose *decisions* have far-reaching impacts on a food system. We conducted this step in the framework of a previous study in the larger research project [39] (see also Section 4.3.1).

Step 2 was the identification and characterization of *spaces* in which food system actors interact. We conceptualized four main food system stages (production, in which we include input provision, processing, distribution, and consumption) as spaces of power (see Section 2.2 on food systems). These spaces can be closed, invited, created, or claimed, or a mix of these, depending on their components and actors. Food system stages of production, processing, distribution, and consumption provide arenas for the exchange (and associated power exertion) of different groups of actors. Interaction can be direct (e.g., producer–consumer on a farmers’ market) or indirect (e.g., seller–purchaser on the stock market). For example, soybean producers in Santa Cruz Department usually do not meet the consumers of their produce (e.g., when soybean from South America is used for feed in meat production in Europe and China). However, the actors who organize agricultural extension are often the same transnational companies (TNCs) that provide agricultural inputs (seeds and agrochemicals). We characterize the spaces according to how decisions are made and whether these spaces permit interaction and participation. The quality of interaction of food system actors is strongly influenced by the types of spaces, their distances, connections, or overlaps.

Step 3 implied finding out in what spaces or actor relationships what *forms of power* play out, and how. This step is linked to a definition and analysis of the *places of power* in which the spaces are located and in and between which actors interact. For this, we located actors and forms of power in places of power (local, national, global, or transversal), and identified how they are linked in the sense of a political ecology approach, e.g., how a decision in another place influences the natural resource base of a local food system [6]. While our work focuses primarily on the local level in two Municipalities in Santa Cruz Department, we identify and characterize spaces and forms of power that are organized at the national up to the global level and show how this vertical integration influences the food systems at the local level. After this assessment, possibilities for collective action for more transparency and democratization may be explored as a further step [24].

Step 4 of the analysis is therefore the identification of possible, or already implemented, strategies for mobilization or collective action to reorganize power relations [24] and to claim or create new spaces as food system actors.

4.3. Sources of Information

4.3.1. Key Actors and Food System Activities

In a participatory food system mapping process [55], we identified the key actors in the two different food systems who interact in the identified spaces of power. *The agroindustrial food system* in Santa Cruz Department is characterized by the presence of TNCs, who are important actors in input provision (seeds, agrochemicals, and machinery), as well as in processing and storage (silos, transport, processing into edible oil, soy cake, and derivatives), and commercialization (organization of export) [42,56]. Several TNCs are represented by the Association of Agricultural Input Providers (APIA, also known as CropLife).

Farmers are locally classified into small-scale (<50 ha) and medium-scale (50–500 ha) farming families, and large-scale enterprises (>500 ha) [56]. Agroindustrial farmers in Santa Cruz Department

are organized in the Association of Wheat and Oilseed Producers (ANAPO) and receive institutional support from the Bolivian Institute of Foreign Trade (IBCE) and the Eastern Agribusiness Chamber (CAO). Small-scale farming families are active in organizations of national political representation, called the Unified Syndical Confederation of Rural Workers of Bolivia (CSUTCB).

Women play a crucial role in food systems and participate at all stages, from being a part of the workforce to ensuring family food security, while being disadvantaged in many aspects. Small-scale women farmers are politically organized in the National Confederation of Peasant Women “Bartolina Sisa,” a member of the international farmers’ grassroots organization La Vía Campesina. This nationwide group is known as “Bartolinas” and negotiates for favorable conditions in access to land, inputs, credits, and markets.

Several Bolivian civil society organizations (CSOs) have been working with the agroindustrial sector as a way of trying to improve the situation of small-scale farming families. These CSOs include Fides (which works on local food security and home gardens in San Julian); Probioma (which provide eco-friendly alternatives to widely-used hazardous chemicals in soybean production) [49]; and Fundación Tierra (which conducts analyses of land distribution).

The State Enterprise to Support Food Production (EMAPA) buys rice, wheat, and maize from small-scale and medium-scale farmers at favorable prices to balance low farm gate prices. Private silos also purchase yield but mainly focus on soybean. On a scale not significant for the soybean market, processing companies such as Pil and Puravida include soy beverages in their food offerings for national consumption. Their products are offered on the national market from their own distribution channels, and mainly in supermarkets such as Hipermaxi, Ketal, and Fidalga.

Other relevant actors of the agroindustrial food system include small-scale farming families who are not practicing agroindustrial farming but live in the area, local health experts from healthcare centers, and the local office of the Ministry of Work.

As a case study for the *indigenous food system*, we identified the food system of the Guaraní people living in the Municipality of Cabezas, around 120 km south of Santa Cruz. The Guaraní people are spread over Brazil, Argentina, Paraguay, and Bolivia, historically in search of the “land without evil” (*Ivy Marei*), which, according to their collective memory, once brought them to the Bolivian Chaco [50]. The “Capitania Takovo Mora” where we conducted our research, is therefore a historical territory of the Guaraní people that they inhabited long before Spanish colonization. European invaders used part of the land for cattle, but the Chaco remained largely uncolonized until the late 19th century. Jesuit missions in the 18th century, and Franciscans in the 19th, founded settlements (*reductions*) in which they forced the Guaraní to live.

After independence in 1825, Guaraní communities achieved more autonomy, but mining and large-scale agriculture combined with governmental military forces consolidated a system known as *empatronamiento*. This meant that many Guaraní were forced to work under slave-like conditions for mestizo families (*patrones*) on large haciendas in a debt–peonage system. Families usually received food and clothes in return for their work, and temporarily a small piece of land to produce food. The Bolivian state distributed lands to non-indigenous settlers, and Guaraní resistance against the *patrones* and their allies rose until 1892 when they were defeated in the massacre of Kuruyuki (today Monteagudo). The Chaco War (1932–1935) further opened the region for in-migration, and more haciendas were established.

After the 1952 agrarian revolution and the agrarian reform in 1953, a state-organized colonization of “empty lands” was further pursued. The achievements of the agrarian reform (land for small farmers and citizenship for (highland) indigenous people) did not apply to Guaraní, who continued under the *empatronamiento* system: Many civil servants who were in charge of redistributing the land were large-scale landowners themselves or allies of these [57]. Furthermore, the *patrones* used the land for crop production and/or kept animals, which was recognized as fulfilling the socio-economic function of the land.

Upon the spread of industrial agriculture and cattle rearing as of the 1970s, there was widespread mobilization among Guaraní communities in the Chaco region for land, freedom, and identity against dominant “assimilationist” visions of development [58]. In 1987, the Guaraní People’s Assembly (APG) was founded, supported by CSOs that included religious organizations. By the end of the 1980s, Guaraní families without land initiated a process of settlement in what is today the municipality of Cabezas. Bolivia recognized indigenous communal lands in 1996 after a strong rise of indigenous movements across Latin America. Since then, the APG has initiated negotiations for the demand of the Indigenous Communal Territory of Takovo Mora with National Institute for Agrarian Reform (INRA) authorities in the Municipality of Cabezas.

Takovo Mora today has about 2400 Guaraní-speaking members in around 400 families. They practice smallholder agriculture, hunting, fishing, and handicraft. They also keep cows, pigs, sheep, goats, chicken, and horses. Being a food system of local scale, much of the food produced around households is processed and consumed by families. Women have an important role in these processes of sustenance of life, because they are responsible for care activities including nutrition. For example, they share and barter food (or local inputs for food production) in extended families through self-organized collaboration systems [59]. However, the persistent drought in the area, and the difficulties in producing hybrid maize for commercial purposes, pushes the Guaraní families to search for income sources such as charcoal production or informal labor on neighboring farms and in the surrounding cities. With the income generated as workers, families buy food from the agroindustrial food system in community stores and in nearby markets. There are several organized groups in Takovo Mora, e.g., women’s groups and CSOs supporting different topics, e.g., Probioma in agroecological production, Pastoral Social Caritas (PASOC), or Plan International, which implements nutrition programs. Other important actors in terms of research, publications, and events with and about the Guaraní people include the Jesuit organization CIPCA and scientists such as Guaraní philosopher and anthropologist Elias Clurey.

4.3.2. Qualitative Research Methods

This study was conducted within a larger research project [39]. We conducted 31 interviews with different food system actors following the value chains we had identified as important for the agroindustrial and the Guaraní food systems (see Section 2.1 and Table 1). The interviews covered different food system aspects, and we derived the information on power indirectly, without asking explicit questions on its dimensions. This was possible because in the interviews we used guiding questions for the participants to answer in a narrative way. To study the Guaraní food system, we decided to work with women’s groups because we quickly realized that they provided us with many crucial insights into the food system. Complementary information on our research questions on power came from observations and conversations during events and workshops, and from review of the media and communication channels of the food system actors (websites, newsletters, publications, presentations, etc.). A complementary study on the right to food and its enforcement at local food system levels [60] provided additional insights on access to land and participation in decision-making processes of different actors such as smallholder farmers in the soybean sector. Research took place between January 2015 and April 2017. Field notes and recorded interviews were transcribed and codified in ATLAS.ti (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany, version Win 5.0). We codified the material according to the variables of the study (spaces, places, and forms of power, related discourses, and strategies). For the interpretation of the qualitative results, we used results from other studies and data from the broader research project.

Table 1. Food system actors interviewed/observed according to food system stages; based on [52].

	Production (Including Inputs)	Transport and Processing	Distribution/Commercialization	Consumption
Agroindustrial food system	Private enterprises: APIA (Crop Life), Syngenta (seeds, chemicals), Bayer (chemicals), Unimaq (machinery) Fides (CSO), Agronomists and Veterinarians without Borders (CSO), Fundacion Tierra (CSO), Probioma (CSO). Small producers (properties no larger than 50 hectares)—Soybean producing families of San Pedro, Landless Workers' Movement (MST) Bolivia, National Confederation of Rural Women Bartolina Sisa National Service of Agricultural Health and Food Safety (SENASAG)	State Enterprise to Support Food Production (EMAPA), Silos de Montero SRL, Ministry of Labour, Montero processing enterprises (Pi, Puravida).	Supermarket Okinawa, Bolivian Institute of Foreign Trade (IBCE) Supermarket (Hipermaxi, Ketal, Fidalga) Enterprises (PIL)	Health expert, soybean producing families of San Pedro, Citizens of Montero and San Pedro (in an event) National consumers of soya milk and soya meat (small-scale consumption)
Indigenous food system	National Agriculture and Forestry Innovation Institute (INIAP), Center for Tropical Agricultural Research (CIAT), Probioma Guarani families in the village of Yateirenda Guarani People's Assembly (APG) Center for Peasantry Research and Promotion (CIPCA), Guarani anthropologist	Guarani families as small processors of corn and as cooks	Local markets around municipal frontier, community	Local consumers in Yateirenda community

5. Results and Discussion

5.1. Spaces of Power

5.1.1. Agroindustrial Food System

In the *agroindustrial food system*, the stages of production, processing, distribution, and consumption are highly separated spaces in spatial, social, and economic terms. For example, production of soybeans and their consumption as cattle feed or meat can span more than half the globe.

“Soy goes to the international markets; almost all the soy from Santa Cruz leaves through the port of Iquique, and from there it goes to other places. They do not take much care in the port with the product, because they say it’s for animals.” (soy transport driver, Cabezas, 2016)

Socio-economic differentiation takes place within the value chain, for instance between small- and large-scale farmers or between monthly incomes that farmers earn compared to input providers [61].

“There are years in which we work only to pay for our debts. Companies give us everything on credit, they come to our house to offer [their products], but for us, it is not like for the big producers—they have the advantage of buying wholesale; they buy it cheaper.” (small-scale soybean producer, San Pedro, 2016)

At the *production stage*, production of soybean and other commodities takes place in spaces that were claimed by the landowners, input providers, and purchasing companies, but tended to be closed for other actors. For example, municipality of San Pedro staff reported being unable to enter large-scale production areas:

“We cannot access the large-scale soybean farms in the municipality to verify whether environmental laws are being respected. They do not allow us enter.” (Head of the environment and natural resources management division, San Pedro Municipality [52])

We therefore classify the production space of the agroindustrial food system in our case study as a closed space. The accessibility of soybean production for small producers is used as an argument for the existence of private-sector technical advisors, who visit small producers on their land. Discursively, they help to reduce risks in production and to adapt to climate change [62]. However, the advisory system is connected to the dissemination of new technological packages (inputs such as seeds and agrochemicals) for small producers, as the following statement indicates:

“ANAPO as an organization represents large, medium, and small producers. We are at the service of more than 12,000 small-scale producers, so we are concerned that the varieties are more efficient—we always advise them.” (ANAPO technician, San Pedro, 2016)

A possible invited space is the Roundtable of Sustainable (later renamed “Responsible” [63]) Soybean (RTRS), which unites actors from industry and civil society (e.g., ANAPO, World Wildlife Fund (WWF), and the Bolivian “Friends of Nature Foundation” (FAN)). Initiatives in Bolivia have been taking place since at least since 2010. However, no Bolivian soy production area had yet been certified at the time of research. Furthermore, assessments of the RTRS criticized its low non-binding standards and insignificant environmental sustainability and social justice outcomes (see References [63–66]).

Food system activities of *processing and storage* were in our case study organized by two main groups of actors: (1) TNCs, namely Archer Daniels Midland (ADM), Bunge, Cargill, and Dreyfus, called “the ABCD” [67], which control about 80% of soybean trade worldwide [68], plus additional actors such as silo companies or cooking oil producers; and (2) the state enterprise EMAPA which also ran silos. While the first group manage the space of processing and storage in a closed manner (i.e., without participation of other actors in decision-making), the second actor, EMAPA, may be classified as an invited space between state policy and local actors, which provides favorable terms of

trade to small- and medium-scale farmers, providing an alternative structure within the logic of the agroindustrial food system.

Regarding *distribution and trade*, nearly 90% of Bolivian soybean and its derivatives is exported [69]. As far as we were able to investigate regarding the export of soybeans, decisions are taken in closed spaces. For example, prices for soybeans are set at the Chicago Board of Trade [68], a closed space without much possibility of participation for soybean farmers. We did not primarily focus on *consumption* because these activities took place mainly outside our study area. However, there are cooking oil companies in Bolivia whose products are present in virtually every household (e.g., “Rico” and “Fino” oil). Chicken feed is one important destination of soybeans within Bolivia. Chicken consumption in Bolivia, usually as fried chicken, has risen from 10 kg per capita per annum in 1993 to 42 kg in 2016 [70]. The space of consumption can be classified as closed, because we were not able to identify possibilities for interaction on industrial food for concerned consumers. A typical communication channel took the form of a private sector advertisement in public spaces, e.g., “*En Sofía se confía*” (“Sofía is trustworthy”) for a sausage company (see also Section 5.3 for interaction with the Guaraní food system). However, we noted that spaces are being increasingly claimed and created from the consumer side, for instance, through ongoing food movements in the major cities (e.g., “*Comida Conciente*,” “conscious food” in La Paz, Cochabamba, and Santa Cruz). These movements aim explicitly at promoting and providing alternatives to ultra-processed, sugary, fatty-acid rich foods originating in the agroindustrial food system.

Against this background, the consumption space of industrialized food may be regarded as being in transition from a closed to a claimed space. Recycling was not a strong aspect in this food system: issues of environmental pollution from waste and waste water were widely ignored and only broached by few CSOs. The only recycling mechanism we identified in the agroindustrial food system was a voluntary industry commitment to receive empty pesticide bottles in Santa Cruz (the “*Campo Limpio*” programme by APIA/CropLife), which was planned and implemented in the closed space of the group of affiliated TNCs (see Section 5.2).

5.1.2. Guaraní Food System

In contrast to the agroindustrial food system where spaces were more clearly separated, all food system activities and stages of the Guaraní food system could be observed on the community land. Even though not all processes involved took place there (e.g., when purchased food was consumed), every activity within this food system, from production to consumption, was present locally. The spatial extent is much smaller than in the agroindustrial food system, if we understand the communal indigenous land of Takovo Mora as the food system space representative of the Guaraní food system. Similarly, the social and economic extent were smaller than in the agroindustrial food system, but most components were in the sphere of influence of the Guaraní communities, e.g., land, identity, knowledge, practices, seeds, home gardens, and agricultural plots.

The “created” space that makes this possible is the communal land of the group. “Indigenous Communal Territories” (TCOs) were legally recognized in 1996 as “*inalienable, indivisible, irreversible and collective [lands], composed of communities or groups of communities, exempt from seizure and imprescriptible*” ([58], pp. 82–83). However, the law recognizes private property claims within TCO limits, as long as they fulfill the “socio-economic function,” which is usually interpreted as a productive use of the land. Furthermore, subsoil is considered state property, rather than a part of the communally-owned land (see Reference [58]). In turn, indigenous communities do not need to demonstrate a socio-economic function of their community land, which can be understood as a legal recognition of their ancestral territorial claim and extensive use of the land. Along with many other indigenous communities, Guaraní groups of the Chaco region presented TCO proposals to the state. In 1997, the TCO Takovo Mora was formally recognized as Guaraní territory. However, only 8514 ha have been legally granted as a community property land title to the 11 Guaraní communities in five discontinuous areas, which is 3.1% of the land area within the TCO boundaries that were recognized by

INRA [71]. National media have reported that the communities of Takovo Mora have asked for 19 years that their community land receive a title [72]. In 2006, the communal land title for the community of Yateirenda (which was founded in 1999) was granted [73]. According to the Vice Ministry of Land, 92% from the TCO Takovo Mora area has been titled, or is in the process of being titled to other actors (“tertiaries”). The TCOs were renamed “TIOCs” (Territorios Indígenas Originarios Campesinos) in the 2009 Constitution of Bolivia, and we shall hereafter refer to them thus. For comparison, in the Guaraní TIOC Machareti further south, 30% of the land has a communal land title, while 70% has been titled as private property to “tertiaries” [74]. There are also five registered large-scale private properties of over 5000 ha in the Municipality of Cabezas within the limits of the TIOC. Some 44% of the municipality’s inhabitants are from Mennonite communities, and only 11.75% of the municipality’s inhabitants identify as Guaraní, making them a minority in the TIOC Takovo Mora [41]. Against this background, it becomes clear that the local level of the agroindustrial food system surrounds the indigenous food system.

5.2. Forms of Power

5.2.1. Agroindustrial Food System

Legislation is a form of *visible power*, which in the case of the agroindustrial food system in the Department of Santa Cruz, is enforced by the National Service of Agricultural Health and Food Safety (SENASAG) regarding, e.g., agricultural inputs. Worker’s rights are defended by the Ministry of Work, which has an office in the town of Montero near the Soybean areas of the Municipality of San Pedro, and which supports employees’ claims regarding, e.g., delayed payments. In an interview, the representative of the Ministry of Work stated:

“Here, the landowners (. . .) use short-term workers for 40–60 BOB (USD 5.7–8.5) per day. When they have to pay, they often refuse to pay the correct wages, and in disregard of the law, they do not pay for social security. Thus, the workers come to us, we argue, and they receive part of the amount in question. Not everything, but part of it.”

INIAF is another state organization enforcing seed laws, with control posts along major roads. The Bolivian Constitution, as well as several laws, prohibit or restrict genetically modified organisms (GMOs). However, nearly 100% of the soybean area was cultivated with genetically modified varieties [69], which was legalized in 2005 by Supreme Decree 28225. This was possible because although the 2009 Constitution prohibits the import, production, and commercialization of GMOs, the 2012 Framework Law of the Rights of Mother Earth (Law No. 300, Art. 24/7) restricts this ban to organisms where Bolivia is the “center of origin or of diversity”. TNCs that sell these inputs and related organizations were present in mass media communications and organized various public relations activities, among them a twice-weekly newsletter (“AgroAvances”). IBCE and ANAPO regularly organized public events in the city of La Paz inviting ministries, universities, and other public actors. Events had titles such as “Good news for genetically modified crops” [75]. Besides technological leadership and efficiency, we observed during the events a narrative of social corporate responsibility combined with expressions of respect for the national legislation. Regarding environmental responsibility, conservation agriculture referring to minimum tillage in soybean cultivation was mentioned by ANAPO in different events. TNCs also presented themselves as major actors in preventing harm from agriculture inputs and practices. For example, APIA/CropLife, an organization of input-providing TNCs, organized a program of voluntary acceptance of empty agrochemical bottles:

“The “Campo Limpio” programme is organized by APIA, in favour of affiliated enterprises, within a policy of corporate social responsibility. The affiliated enterprises provide inputs to the country’s agriculture, which they do in a responsible way, conducting a follow-up until the end of the life cycle of the product, which means recycling the (agrochemical) bottles.” (APIA representative, Santa Cruz)

The effects of *hidden power* were omnipresent during our research, for example regarding the concentration of large amounts of land in few hands despite regulations to limit this. While the Constitution only allows landholdings of up to 5000 ha, there were at least 23 registered private properties over 5000 ha in the municipality of San Pedro, the largest one with 25,849 ha [41]. Furthermore, large-scale producers join up the land of their relatives or rent land from small and medium producers. Ongoing concentration of land is exacerbated through the “al partir” arrangement (where the harvest is shared between the landowners and the land users) as a mechanism of exclusion of smallholders from agriculture, and of uniformization of land use [42].

Likewise, the modality of agricultural land rent is in the form of verbal agreements between small producers and intermediaries connected to large-scale investors. Often, the land is formally in the hands of communities, but it is used by other actors, as for instance in the “al partir” arrangement. Informal agreements may be established with the intermediaries of private entrepreneurs, for the rights to make productive investments on the community land. In some cases, the intermediaries have managed to become part of the community. We observed another, similar, mechanism (also described by Wesz Jr [67]): a form of outsourcing that consists of commitments between TNCs and small producers, where the type of production is defined in the exchange of credits and a guarantee to buy the yield. In this agreement, the land functions as a guarantee, while successful production is the responsibility of the small producer. Small producers perceived that this alternative opens up business opportunities for them on their lands. The small producers are usually organized in communities, which means that they comply with internal rules regarding water, health, education, and roads, which the large-scale producers do not.

One issue of persistent tension has been whether “unproductive lands” should be reverted to the state. Although the allocation of the Guaraní indigenous territory occurs within the framework of the rights of indigenous peoples, critics have claimed that the indigenous people have not sufficiently carried out the sustainable and productive management of the TIOCs. Using this argument, which was also described by Svarstad [16], several legal mechanisms that grant free, prior, and informed consent, or state that the TIOCs are inalienable, indivisible, exempt from seizure, and imprescriptible, have recently been weakened or amended [59,71].

Another finding related to the hidden power of input-providing TNCs were highly unequal incomes between large-scale farmers and smallholders: Large-scale farmers had profit margins approximately 250% higher per hectare of soybean, due to arrangements with TNCs relating to inputs as well as to farm gate prices which were positively related to soybean quantities sold. Input providers (vendors of seeds, pesticides, and fertilizers) earned on average 220% more than the other food system actors [61].

Enforcement of laws relating to the environment and to agricultural inputs was found to be lacking in Santa Cruz Department [60]. One example was that the environmental unit of the Municipal Government was not able to access large-scale soybean farms to check whether environmental laws were being respected (see Section 5.1). The presence of banned and restricted pesticides in shops and on farms was another sign of hidden power superposing on visible power. For instance, we found several products containing methamidophos, an insecticide that is listed on the Rotterdam Convention (which Bolivia has signed), and which has been banned in Bolivia since 2015. Another indication was that in 2017, at least 30,000 ha cultivated with genetically modified maize were identified in the Chaco region [76,77], despite being banned by the Constitution and several laws. At the time of research, there was, to our knowledge, no independent, official research at the national level on the effects of the application of agroindustrial production on environmental impacts and on the Bolivian food and agricultural system. Most available information came from TNCs or related organizations. As an example, a representative of APIA described the situation as follows:

“When we want to commercialize a product, we transfer knowledge on its application, in presentations, with print materials, and with audiovisual materials; at the same time, we reach out to farmers in

“field days” which we organize in the Municipalities, where we present the new products and their use.” (APIA representative, Santa Cruz de la Sierra, 2016)

A drought in 2016 built the basis for a discursive argument around the permission to import genetically modified corn for the secured supply of feed chicken farms, considering that chicken is the most consumed meat nationwide. For a short period of time, the import of a certain amount of genetically modified corn from Argentina was thus permitted. However, activists claimed that the import of corn in grain form had the intention of inserting GMOs not authorized by national legislation, and that the climate crisis became the justification to create an alliance of the private sector with a part of the State:

“We have investigated, and neither INIAF nor customs said anything about corn grain trucks. This is not allowed, because they should have imported broken corn. This corn was for seed. There are now more or less 60,000 hectares of transgenic corn growing in the Chaco of Santa Cruz.” (anonymous activist, Santa Cruz de la Sierra, 2017)

We identified the effects of *invisible power* within the agroindustrial food system when we interviewed two representatives of the national peasant women farmers’ organization “Bartolinas,” an official member organization of the international agroecological farmers’ movement La Via Campesina. However, one of the main activities of the Departmental group of Santa Cruz was to demand land from the national government for its members, together with agroindustrial inputs to cultivate soybeans:

“We are 6367 members in the department, all small-scale producers. Only 30% of the women have a land title document with their name on it. We demand land for groups of us. The largest [available] lands are in the Chaco region. There we can spray pesticides on those crops that we sell, while avoiding spraying close to our homes and on the crops that we eat (. . .) we want to have a closer link to La Via Campesina, we want to aspire to their vision, but we are still far away.” (Departmental representative, Bartolinas, Santa Cruz de la Sierra, 2016)

Such internalized concepts or perceptions of not being able to change the prevailing mode of operation were also observed in consumption: In a previous study, we found a pronounced perception among consumers regarding pesticide residues and unhealthy food, but at the same time, a low level of related actions to change the situation. Interviewees explained that consciousness was strong, but that they did not see enough room for action [52].

5.2.2. Guaraní Food System

We identified several strong formal and informal norms and structures of *visible power* in the Guaraní food system. First, and maybe most importantly, through the legal communal land title, visible power over the land is allocated to the community. Second, the collective land requires a communal, territorial governance structure for the use and management of natural resources. The specific form of governance in the Guaraní communities was therefore another mechanism of visible power. Recognized by the Constitution, this parallel system of administration of territories and justice may be described as parastatal.

The Guaraní communities we researched had a collective ownership structure within their TIOC defining access to, protection of, and responsibilities regarding communal resources. This applied, e.g., to food production (including usufruct rights for land use for individual families), and to reciprocity mechanisms (e.g., community work, known as *faena* or *motirō*), which required a formal invitation and the provision of food and the maize drink *chicha*, and could not be declined [50]. Sharing food was described as a usual mechanism in the Guaraní communities of Takovo Mora (ibid.).

Guaraní groups in the Bolivian Chaco live in relatively small communities with 50–1500 inhabitants. Every Guaraní community elected their *Mburuwoicha* (an, often elderly, person elected by the community, also known as “captain”). Several communities together formed a “captaincy,” as in the case of Takovo Mora. The leaders of those captaincies represent the Guaraní communities in the APG. The communities

are legally equipped with three visible powers: legislative, executive, and judicial. The legislative power consists of the communal assembly for the definition of internal norms. The executive refers to the directive of representation, named “captaincies”. Finally, the judicial power evaluates situations of violation of rights, a factor that generated permanent conflicts between the families, and that at the same time constituted an opportunity for the territorial governance:

“The assembly is our highest instance, there we solve our problems, as a captain I have to see if the statutes are complied with, but sometimes they [the families] do not want to give in, and they quickly hold me responsible.” (Capitan Grande, Yateirenda, 2016)

Decisions are made in extended families, and the representatives in power were selected among them, taking into account which families had been represented in previous turns. In the Directoral Guaraní People’s Assembly, the communal captain or *Mburuvicha* is the highest authority with the mandate of safeguarding harmony and justice within the community. The assembly, in this case the *Mburuvichas* of the 11 communities of Takovo Mora, met regularly. The assembly started with the words “Those who do not discuss, do not live well” [50]. During often more than a day, problems were debated until a consensus or compromise was reached, and at the end, all *Mburuvichas* signed the documentation of the gathering. The right to the parastatal governance structures of indigenous peoples in Bolivia is granted through the supranational structure of the 2007 Declaration on the Rights of Indigenous Peoples, ILO convention 169, and national legislation that recognizes and protects indigenous governance systems and defines the coordination of indigenous and state constitutional legislation. According to Article 15/2 of ILO Convention 169, the signatory governments have to consult indigenous peoples before the realization of mining, oil, or other concessions (free, prior, and informed consent). This visible legislative power is challenged by conflicting interests when it comes to the rich natural resources, particularly oil and gas reserves, of the Chaco region [78]. Indeed, during our research in Takovo Mora, a violent conflict over an oil and gas concession within the TIOC erupted. The villagers from Yateirenda blocked the interdepartmental road that passes the village after an unsatisfying dialogue process with the Ministry of Hydrocarbons. After two days and nights of road blockage, hundreds of armed soldiers attacked the village and destroyed several homes, arresting and harassing many villagers, including the elderly and children. Children fled to the forest where some of them got lost and were only found after several days. The event represents a sad collective memory in the history of Takovo Mora [50].

Hidden power: According to the 2005 Hydrocarbon Law, oil companies have to pay 18% of their income as royalties to Departments, in addition to the 32% they pay the state. This contribution is then distributed to the communities including the TIOCs. Since the TIOCs allow for private land titles, and the resources below the surface are not part of the TIOCs, negotiations are often fierce. In the case of Takovo Mora, the TIOC built the legal grounds for negotiation for the Guaraní community. The building of the captaincy of Takovo Mora was financed by the national oil company YPF [50]. However, several villagers commented during our research that royalties had disappeared in the communities. Even though we were not in a position to verify these claims, we noted an influence of the discourses of mainly young men in the village about projects to buy improved cattle breeds, to which the payments were officially channelled. A possible explanation is that due to territorial overlap (the Guaraní communities only hold legal land titles for parts of the TIOC; other parts are in private hands), the captaincies are pushed to permanently negotiate with the State to obtain royalties from oil exploitation. The presence of royalties provides the possibility of executing projects for the Guaraní families, because the funds come with the objective of improving the local economy. However, it is common for negotiations to be carried out only with the larger captaincies of the territories, and the broader public is rarely informed or involved in decision-making about the destination of the funds, the amounts, and the beneficiaries [59].

“One does not know what they are doing there in Mora, sometimes we get support, but it does not provide for all families, it would be better if they spread the money by community and here we see what we do with it.” (anonymous priest, Yateirenda, 2016)

Another way to build hidden power within the community was through family support networks. Women organized community networks with family support, based on the exchange of inputs and services. Practices such as community work for tasks of collective interest, the organization of festivities, baptisms, or burials have an important component of bartering food, in exchange for work or social support. This is a source of power as these practices constitute spaces for building alliances and making decisions prior to the communal assemblies. In terms of communal political organization, women show an active presence, although they are not strongly visible in the assemblies and supra-communal interaction spaces [59]. Family properties and family possessions in the communities were usually inscribed in the name of men. We identified only five cases in Yateirenda where women had land titles in their names; all were widowed or separated, which points to a disempowerment of women with regard to the right to food. Furthermore, we noted internal divisions in Takovo Mora. Power relations divided communities according to political parties (pro-government and opposition), religion (Catholic vs Protestant), and gender (women groups, and the men-dominated assembly) [59]. This weakening of the community was exacerbated by a seeming disempowerment regarding production. This was shown through a loss of native maize varieties and seeds (due to more difficult cultivation conditions, the Guaraní could no longer store certain seeds and instead had to purchase them from seed stores), and a change in diets towards less diversified food such as fried chicken and rice [53]. Access to land depended on internal rules as defined in the Guaraní People’s Assembly in the Takovo Mora Captaincy. The Guaraní territory was distributed according to a system of territorial regulation, which comprised a housing area, a family or communal agricultural production area, a small forest reserve, and a communal livestock farming area. From the perspective of Guaraní women, the right of access to land is subject to agreements between groups of families with greater power. There are differences between old and new members, and between women and men. Women have access to small productive areas around their homes. In fact, access to agricultural land depends on marital status: unmarried women work in the areas assigned to their relatives.

“They gave us a piece of land when I got together with my husband, he produces corn, and although he does not dedicate much time to production anymore, he helps, together with my eldest son. My sister is not married and lives with my father, that’s why she does not have land.” (community member, Yateirenda 2016)

A mechanism to receive land within the TIOC for non-Guaraní is marriage with a Guaraní woman. The respective person must not possess other lands and must marry a Guaraní woman from the community. Other studies found that various Quechua men came to Takovo Mora and to Yateirenda with the aim of marrying a Guaraní woman [50].

Due to a dry period that spanned several years prior to our research, a portion of productive TIOC land was not cultivated by the community. Some families, who reportedly had power within the community, rented the temporarily uncultivated lands to private landowners, under informal agreements that were rarely in accordance with the communal assemblies. In addition, there were cases within the Guaraní territory where the rights to productive investments on community land were sold to buyers who were gradually included as members of the community. Community members who sell rights to productive investments are known as *white sticks* and reportedly worked for large-scale investors, whose names cannot appear on a communal TIOC land title.

Invisible power: During our research, we noted a certain level of inactivity of the villagers regarding their food system, especially in consumption: First, villagers reported that food traditions were rarely practiced. Also, Mendoza [53] identified a loss of knowledge related to food traditions and identity. This author describes an internalization of a non-traditional, uniform diet, as the common daily diet had changed to fried chicken with white rice. A food festival that we co-organized within the research

project where around 25 different traditional dishes were presented showed that knowledge was still available, but the ingredients had to be bought in Santa Cruz as they were no longer produced by the villagers. Comments on the shift in diets were mostly to the tune of “*that is how it is*”. There seemed to be a similar attitude towards the illegal renting out of community land, as well as the apparently very unequal distribution of royalties. Representatives from CSOs who worked with Guaraní communities interpreted this attitude to accept suffering and marginalization as historically cemented in the form of an internalization of dependence. Llanque [59] describes how, in the local territorial context, a source of power that is invisible but fundamental for the continuity of the food system is managed by some of the Guaraní women within their habits of food production and processing. The Guaraní women described their agricultural practices as their main activity together with the work in their homes. Home gardens in Yateirenda produced an average of 13 different types of food and had a high symbolic value for the women: they mentioned that there were always times when they were unable to buy food. The majority of the women did not have other sources of additional income, but they reported that for those Guaraní women who lived closer to urban centres, the reproduction of life depended on the combination of income-generating practices and taking care of the family, including the production of food for their own consumption. In this sense, invisible power in the form of a diversification logic included the Guaraní women in a market economy, as an intermediate system that is dependent on, and at the same time moves away from, the dependence on the massive production of monocultures.

5.3. Places of Power

5.3.1. Agroindustrial Food System

The agroindustrial food system was not only globally vertically integrated, but also influenced remotely in terms of prices, demand, and technology, which was in marked contrast to the Guaraní food system. For instance, *production*, though taking place at the local level of the Municipality of San Pedro, was part of a regional “Soybean Cluster,” which in 2016 covered 585,047.3 km² of Brazil, Argentina, Paraguay, Uruguay, and Bolivia, and produced 16,967,141 t or 50.7% of the world’s soybean yield [79].

Oliveira and Hecht [63] described how local land use change related to soybean production in South America was driven by regional and global commodity markets. These authors describe a “*sowing pools phenomenon*,” which refers to TNCs who pool their capital from a range of investors from the local to the global level and thus draw from transnational flows of capital and knowledge (corresponding to the subsystem of information and services presented in Section 2.2.), to expand throughout the continent, leading to a pattern of few TNCs operating hundreds of thousands of farms (operational food system). The resulting “*soy republic*” (so described in a Syngenta advertisement [80]) has its own governance system, transcending individual countries’ borders and political frameworks (Figure 5). Oliveira and Hecht [63] argue that the territorial expansion over countries represents the source of power over individual farmers.

Processing and distribution, as well as commercialization of soybeans in Bolivia, was concentrated (to over 90%) in the hands of six companies, ranging from national (e.g., Granos) to transnational (e.g., Cargill) [42]. Wesz Jr [67] analyzed strategies and dynamics of TNCs in different spaces and concluded that their power as displayed at a global scale has its roots in local relationships with farmers and landowners, based on proximity, trust, reciprocity, and family friendship linkages [63]. Indeed, the national representative of Bayer who we interviewed was from Brazil, and the national representative of Syngenta was from Argentina, which likely played a role in connecting to the soybean producers, many of whom, especially among those farmers with more capital, are from Brazil and Argentina (see also Reference [43]).

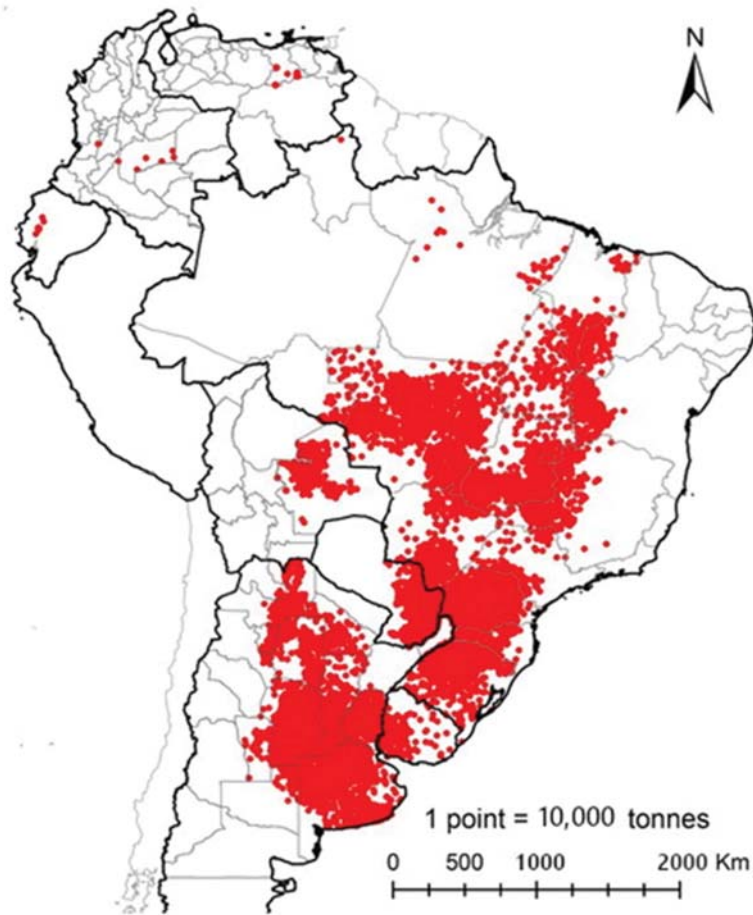


Figure 5. Soybean production in South America in 2013. Source: Reference [63], with permission from the authors.

5.3.2. Guaraní Food System

Although most food system activities took place on the local level within the TIOC, the Guaraní communities were supranationally linked through the backing of ILO Convention 169 and the 2007 Declaration on the Rights of Indigenous Peoples. The territorial organization also corresponded to a supraterritorial structure (the regional captaincies); in the case study this was the Captaincy of Takovo Mora, which in turn was structured within the APG. The APG was part of the continental movement of the Guaraní people, an active entity that gathered continuously to analyze their issues in a geopolitical context. One Guaraní community member, a former *Mburuvicha*, explained that the APG members held contact and frequently travelled to Paraguay or Brazil to meet with the APG members there.

5.4. Strategies for Negotiation and Action

As the analysis of spaces of power showed, spaces in which key actors interacted were mainly closed or invited, but seldom created. The production and local level of the industrial food system surrounded the Guaraní food system with mainly closed spaces, with the local level of the Guaraní system representing, at least in part, all food system spaces from production to consumption in a created space (the community land). This created space was manifested through a land title which we interpreted as a form of visible power. Visible power was also important in the agroindustrial food system, in the form of interrelations of the rule of law and corporate concentration. Locating the two food systems on the power cube, we see the industrial food system acting in closed spaces which were

in some, very specific cases, moving towards claimed spaces. The food system actors and activities were present in global, national, and local places, and were related to visible, hidden, and invisible forms of power. The Guaraní food system operated in a claimed space, with some supranational links, also making use of, and influenced by, visible, hidden, and invisible power.

Hidden power was the most present form of power in both case studies. The analysis provided indications on how hidden power undermined legal visible power, e.g., regarding the maximum permissible land size and the actual landholding size in both municipalities of San Pedro and Cabezas, or pesticides and genetically modified crops that are restricted by law but nevertheless in use.

Power cube analysis is also intended to help understand the possibilities for (or also limitations and even dangers of) changes in spaces, forms, and levels of power [24]. In the agroindustrial food system, negotiation possibilities for the most marginalized actors, i.e., the small-scale farmers, seemed limited to the “al partir” arrangement. Regarding the food system space of consumption, intransparency shifted the decision-making power from consumers to retailers.

In the case of resource exploitation and conflict in Takovo Mora, negotiations are difficult despite the existence of a comprehensive visible power: Schilling-Vacaflor [71] describes how results of prior consultations about extractive projects have not been taken into account by decision-makers, also in Takovo Mora. Our interviews confirmed this, but they also suggest that the TIOC provided possibilities to negotiate. Pointing to the attractiveness of negotiating with the oil companies, a founding member of the APG stated:

“The topic of the oil companies to me seems crucial to understand the negotiation forms of the guaranties with municipal institutions. While the negotiations with the oil company are direct and the petitions are responded to relatively quickly, the processes to negotiate a budget with the municipality and the departmental government are too long and complicated, and therefore, the brothers sometimes say: the best would be if they found oil here.” (APG member, 2016)

Another example in the case of Yateirenda is the sausage enterprise Sofia, which used a road passing through Yateirenda community land to their production site. For this, they delivered 540 eggs to the community weekly, and constructed a small health post which they provided with medicines [50]. The presence of private land titles between disconnected TIOC parts and within claimed indigenous land has been interpreted as an entry point for extraction activities [58,78]. As the conflict in Yateirenda in 2015 showed, after not being heard by the central government and the state oil company, the *Mburuvichas* decided to block a major road. This strategic use of a power resource may also be interpreted as a resort to claim and negotiate about their share [59]. After the conflict, the families of Yateirenda received chicken and cows as compensation from the national government [50]. A former village authority indicated the captaincy’s negotiating power by stating:

“As APG, we are strong regarding hydrocarbons. When we stand up, they have to negotiate with us.” (former female *Mburuvicha*, Yateirenda 2015)

Another important strategy we observed was the interest and initiative of some of the women in the community to produce their own food. The participatory observation and related activities with them showed us that they did not need much to proactively improve their production and diet: In the framework of a small home-garden project, we observed that they quickly diversified their existing production and started to produce a variety of vegetables with some fencing and seeds provided by the research project. One woman said: *“Now we are eating our own produce, like before, when we had natural food”* (community member of Yateirenda, 2016).

The experience of food production in the Guaraní communities can be regarded as a potential form of “food resistance”. Only maize had the double purpose of consumption and sale; all other crops produced around the homes (e.g., squash, beans, groundnut, watermelon, sweet potato, and cassava) were for the families’ own consumption. Llanque [59] interpreted the home gardens as having a double purpose, to sustain both life and culture. The author describes how, for instance, the families’ own

sweet potato increasingly replaced the usually consumed rice bought from the agroindustrial food system on the plates of the Guaraní families. According to Larimore and Schmutz [81], building a new sense of community and place may shift the focus from simply “eating local” to experiencing place as a critical ingredient to food systems that are more socially and environmentally just, as well as equitable and sustainable. This experience may also apply to restoring a food identity related to sustainable production and consumption. For this purpose, it is not enough to create spaces: a shift in forms of power is also needed, e.g., as in the example of the legal basis regarding indigenous land rights. Nelson et al. [13] concluded from their power cube analysis in Kenya, that although there is increased public participation in governance, the creation of invited or claimed spaces is not enough to shift power relations or even to challenge the status quo.

In the case of the Guaraní food system, we could see that the situation of the communities in a natural-resource rich context is conflictive and difficult. However, we also observed that there is room for negotiation with actors claiming access to land and resources within Guaraní territory, due to visible power and a claimed space in the Guaraní food system. The negotiations may result in comparatively small benefits for the communities due to a range of limiting factors and may not change the power imbalance between the Guaraní and the surrounding agroindustrial food system. The discourses of TNC-related actors of the agroindustrial food system on efficiency and corporate responsibility have been interpreted as a legitimization of agroindustrial activities in Santa Cruz Department and of the search for solutions within the agroindustrial logic [59].

Regarding the relationship of hidden power and legal visible power, social corporate responsibility approaches deserve more analytical attention with regard to their sustainability and justice outcomes, as compared to rights-based approaches. Loconto and Fouilleux [64] analyzed the *International Social and Environmental Accreditation and Labelling Alliance (ISEAL)*, a voluntary sustainability standards organization at the global level, and found that a lack of binding commitments (e.g., on what “sustainability” is or should be) has made some members, especially those with a high credibility in the sector, leave the organization. Clapp et al. [82] complement this view by concluding that voluntary sustainability projects by actors who are not responsive to democratic control may promote their own particular understanding of development. This understanding may not necessarily be in line with the concerns of local actors or more generally, countries in the global South, e.g., in terms of land reform, subsidy policy reform, or anti-dumping policies. Against this background and based on our findings, we argue that a rights-based approach is more likely than a voluntary social responsibility approach to address the root causes of environmental degradation, poverty, and inequality, and to make progress on the fair and sustainable production, distribution, and consumption of food.

6. Conclusions

The analysis of power in two food systems in Bolivia helped to identify visible (but not always official) forms of power, and how this visible power is influenced by the two other forms of power. Spaces of power in the two food systems tended to be closed (or, in some examples, invited) in the agroindustrial food system, and historically created in the Guaraní food system. Forms ranged from visible to hidden and invisible in both food systems, with a strong tendency of hidden power undermining legal, visible power as a linking element between the food systems.

Discourses of corporate social responsibility and sustainability prevailed, determining the few activities related to environmental sustainability in the agroindustrial food system. Actors of this food system maintain a discourse of sustainable intensification, of conservation agriculture, of tackling food scarcity with modern and efficient production methods, and of the adaptability of genetically modified crops to future climate change scenarios. At the same time, deforestation and pesticide use linked to industrial agriculture in Bolivia keep rising.

Places of power connecting the supranational to the local level proved crucial to corporate strategies on the one hand, and to increased negotiation possibilities in the Guaraní food system on

the other. However, in terms of global integration, the magnitude of area and impact of the indigenous food system was not comparable to that of the agroindustrial food system.

Combined with the mostly closed spaces where decisions were taken, the soybean-based agroindustrial food system in the municipality of San Pedro may be regarded as part of a non-democratic global agroindustrial complex spanning the stages of production to consumption. In sum, the historical power relations of the indigenous food system, and those of the agroindustrial food systems that have expanded in the last decades, have very different characteristics. The composition of these characteristics implies a power disequilibrium, transitioning into a form of “power over” [31]: The now predominant agroindustrial food system has been assimilating indigenous and other food systems in the various stages. As we observed, this took place at the production stage, in the value chains, and in the consumption of industrialized–simplified instead of traditional diversified food.

In spite of this predominance and assimilation process, there are local strategies to resist these power imbalances, for instance by consuming own food, produced by Guaraní women around their homes. This food source can be regarded as a response to the crisis caused by insufficient access to adequate food. It is also an expression of the interrelationship of the dominant agri-productive structure and the agency at the local level that generates alternatives, in a food system occurring at a territorial level.

A comparatively favorable legal framework for the indigenous community land provided a considerable space of visible power to the Guaraní communities in our study area. In this respect, the situation in Bolivia may be regarded as special, but visible and hidden power of national resource interests, agroindustrial investors, and other actors put indigenous food systems under pressure.

Against this background, and taking the created space using visible power of the Guaraní food system as an example, democratization processes need to be enhanced. Such processes should shift power from hidden to legitimized visible forms, and from closed to more claimed and created spaces, and hence allow for, and require, more participation of historically and currently disadvantaged actors. Governing claimed and created food system spaces requires a careful analysis of the discourses that take place during the participatory processes, to make visible demands for a better realization of the right to food as opposed to functional demands within the dominant structures.

The power cube as a tool proved useful for shedding light on different dimensions of power that are interdependent, but not one and the same. This differentiation helps to identify weaknesses (in our case for instance the strong presence of hidden power in both food systems) and points to opportunities for improvement. The power cube does not, however, necessarily identify positive or negative expressions of power, e.g., “power over,” “power to,” “power with,” or “power within” ([83] cited in [84]). The testimony of the Guaraní points to another dimension which may need to be addressed in addition to the power cube dimensions: the relationships of claimed spaces and visible power to institutions, i.e., the “rules of the game” [85], that allow for or impede local agency. Therefore, we recommend linking tools such as the power cube, for the analysis of different power dimensions, with institutional analysis [86,87], for a better understanding of why and how hidden power undermines legitimized visible power. One approach could be actor network analysis and “institution shopping” [88], and how these compositions allow for one food system to absorb another. For these approaches to advance, it will be important to focus explicitly on human actors as a starting point of the analysis, to include more marginalized groups and to link actors and their institutions to land use change in the sense of a political ecology approach.

In the face of increasing globally-governed influences on food systems and their natural resource base through commodity markets, it will be crucial to undertake critical analyses of sustainable development topics and food system transformation using political ecology frameworks as a theoretical background. Our interpretation of the power cube analysis framework to food systems, taking two examples from Bolivia, is meant as a contribution to reinserting power relations into sustainable development research on food systems.

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