Chapter 19
Effects of Public Agricultural and Forestry Policies on the Livelihoods of *Campesino* Families in the Bolivian Amazon

Pamela Cartagena and Carmelo Peralta

Abstract In Bolivia, agricultural and forestry policies are more of redistributive nature, and it is difficult trying to understand the complexity of this type of production. In this respect, this chapter addresses agricultural and forestry public policies that operate in the Bolivian Amazon. In particular, we assessed how these policies affect *campesinos*' livelihoods inhabiting the community of Trinchera. Our research used the Sustainable Livelihoods Approach as a multidisciplinary perspective as well as a qualitative scale to measure campesino families' capitals. The results reveal that families possess a very high and high potential in natural and social capitals, whereas the human, physical and financial capitals are on a low and very low levels. Of five agricultural and forestry programs implemented in Trinchera, only two of them have a moderate contribution to the family capitals, and three of them have a low contribution. The human, financial and physical capitals have low values, which restricts the improvement of the families' life strategies in the community. In order to achieve better livelihoods and quality of life, the community's visions for the future are focused on achieving a very high and high level in their capitals supported by their natural capital. The community acknowledged that natural and social capitals are fundamental for the development of strategies and livelihoods of its families, and our study recorded that the programs currently implemented in the community do not contribute significantly in the improvement of their capitals. Consequently, we present a discussion indicating that achieving the community's visions will depend not only on internal but also on external factors to the community.

P. Cartagena (✉)
Centro de Investigación y Promoción del Campesinado, La Paz, Bolivia
e-mail: pcartagena@cipca.org.bo

C. Peralta
National Unit for Development, Centro de Investigación y Promoción del Campesinado, La Paz, Bolivia
e-mail: cperalta@cipca.org.bo

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19.1 Public Policies for the Agricultural and Forestry Sectors in Bolivia

Currently, there are 861,668 agriculture and livestock productive units (unidades productivas agropecuarias, UPA) in Bolivia, of which 91.41% are small units with land surfaces smaller than 50 hectares (INE, 2015). In general terms, these units develop family agriculture, understood in its wider sense as "a way of organizing agriculture, livestock, forestry, fishing, aquaculture and grazing, which is managed and operated by a family, and it depends predominantly of family labor." (Salcedo & Guzmán, 2014, p. 26).

Several laws were promulgated in the last decade in favor of this type of production as follows: Law 338 declares that it is of national interest moving towards a sustainable family agriculture and establishes regulations for its promotion; Law 144 prioritizes national production of food and the transference of resources to producers through the sub-national governments; Law 3525 regulates and promotes agricultural and non-timber and forest production; and Law 300 establishes the vision and fundaments of comprehensive development in harmony and balance with Mother Earth to Live Well (con la Madre Tierra para Vivir Bien) (Gaceta Oficial de Bolivia, 2019). Therefore, derived from this set of laws, various programs and projects were implemented for the promotion of family agriculture; however, the sector continues to lag behind and experiences the lowest revenues in the country. A recent national study carried out in six regions of the country reveals that in Bolivia, the rural area continues excluded of the improvement of living standards and economic growth of the country. According to official figures, the per capita national income is of 3448 US Dollars/year, while per capita income in the Chaco regions and South Amazonia is only of 690 US Dollars/year and 1309 US Dollars/year, respectively (Salazar & Jimenez, 2018).

Bolivia has a development model targeted at extracting natural resources which coexists with the model of traditional production. The first model is based on mining, natural gas extraction, selective logging, and deforestation to promote cattle and monoculture of oleaginous plants; whereas the second one is based on subsistence agriculture, livestock rearing, hunting, fishing, and gathering (Cartagena, 2018). The extractive model generates important visible economic resources in the national accounts and is considered having a high economic importance to the country. In contrast, the traditional family agriculture model generates economic, social, and environmental benefits yet to be quantified or made visible in the national accounts, with benefits to the country and the region. However, there is a kind of collision between these two predominant models which result in socio-environmental and political conflicts that affect *campesinos* and indigenous people. While most

socio-environmental conflicts are solved by the market, the political conflicts go through several processes of negotiation and agreements between social organizations and the government.

On the other hand, there are public policies oriented to the promotion of both productive models, but these are not equal. For the agroindustry, these public policies are specific and favorable, while for the family agriculture these are of redistributive character and assistance oriented. Pérez and Cruz (2018) report that it is common that in Latin American countries, governments guarantee inputs, technology, investment, and market for the agroindustry sector, while for the *campesinos* who are out of this agribusiness dynamics, public policies are not comprehensive and lack of technical assistance, technological support, and marketing conditions.

Notwithstanding Bolivia's wealth of natural resources—similar to other countries in the region, and its political will, which in the last years considered overcoming the primary production model which it could not achieve, it is a peripheral country. Rojas (2009) indicates that to guarantee production and raw material export of commodities, the so-called peripheral countries still respond to economic and political pressures of the called "central countries." This certainly is aligned to a globalized hierarchical system (i.e., the socio-environmental regime; see Parra Vázquez et al. Chap. 1, this volume) which determines that involved actors generate enabling conditions to the consolidation of the model. Within this system, peripheral countries' governments are requested particularly to guarantee propitious legal and tax conditions, facilitate investments, and generate appropriate policies to the productive sectors.

The boosting to the agroindustry production in the region increased in the 1990s; it responds to the necessity of eliminating poverty, especially rural poverty, which is a topic considered as one of the challenges of the Sustainable Development Goals. This is not a new topic, McKay (2019) indicates that in 2008, the World Bank in an annual report claimed that there are three ways out of rural poverty; (i) agriculture, (ii) the sale of labor, and (iii) migration. For that purpose, agriculture must be integrated to the agroindustry value chain. Therefore, it becomes apparent that it is not a question of overcoming poverty through simply any agriculture model, but through the agribusiness model, whose justification is that farmer incomes under entrepreneurial contract are significantly higher than the income of other types of farmers.

The boosting to family agriculture, whose main goal is to achieve food security to the family, is recognized in a wide national legal framework. It has been almost 10 years of the demand of the social organizations to progress towards a law of food sovereignty and security resulting in specific public policies, carried out in times of neoliberal[1] governments; and it is not until 2006 that the National Development Plan (Plan Nacional de Desarrollo) 2006–2010 includes the food security and sov-

[1] We understand the term "neoliberal" a characteristic of neoliberalism, which according to Harvey (2006, p. 145): "Neoliberalism is in the first instance a theory of political economic practices which proposes that human well-being can best be advanced by the maximization of entrepreneurial freedoms within an institutional framework characterized by private property rights, individual liberty, free markets and free trade."

ereignty topics as a priority to be addressed by the government (Dávalos, 2013). The issue has been included as a governmental priority in the Pillar 8 of the National Development Plan 2016–2020 to achieve food security with sovereignty, having as a goal the elimination of hunger, undernutrition, and malnutrition, as well as guaranteeing school supplementary feeding.

Despite this positive picture for the family agriculture, the government lately opts for an agroindustry production, adopting a series of measures for consolidating it as follows: (i) setting a time extension for verification of the Economic Social Function (Función Económica Social) of the private land from 3 to 5 years; (ii) providing credits for agroindustry with resources of workers' pension fund; (iii) political will to expand agricultural frontier from 3.8 to 8 millions of hectares legalizing deforestation; and (iv) an exceptional authorization to National Biosecurity Committee (Comité Nacional de Bioseguridad) to establish fast-track procedures for the assessment of HB4 soybean and intact soybean for the production of plant origin additives for biodiesel, all these being among the main examples.

In this regard, Ormachea (2018) claims that in the 12 years of the current government administration, public policies were oriented to promote a major commodification of the countryside giving priority to the production of large, medium, and small-scale capitalist producers; expanding new crops highly mechanized (soybean, sorghum, sesame, hard yellow corn, among others), whereas some stages of other traditional crops such as sugar cane and rice, have been modernized with negative effects on the magnitudes and characteristics of traditional agricultural wage employment.

This research focuses on the case of small-scale producers of the community Trinchera in the North Amazon of Bolivia and analyzes how the public policies through agricultural and forestry programs have an impact on the livelihoods of *campesino* families. The Sustainable Livelihoods Approach (SLA) of multidisciplinary nature was used because it allows a flexible and holistic analysis of life strategies and livelihoods of small-scale producers, facilitating the understanding of their realities and needs (Henkemans, 2003; Vos, Llanque, & Zonta, 2010). Our research question was, what are the effects of productive public policies on the sustainable livelihoods of inhabitants from the community Trinchera? In this sense, the overall objective of our chapter was to evaluate how these productive public policies (agricultural and forestry) affect the strategies and livelihoods of small-scale agricultural and forestry producers (campesinos) in the community Trinchera.

There have been numerous efforts to give viability to family farming applying a variety of legal adjustments aimed at small producers. However, agricultural and forestry policies in Bolivia have continued to favor agribusiness elites by promoting the production of monocultures and extensive cattle ranches, thus allowing the country to respond to the pressures by commodities of the central economies and to articulate to the market taking advantage of the high prices of raw materials. This shows that the global economic political regime continues to condition the policies of peripheral countries such as Bolivia. The agribusiness sector is an important economic actor and, therefore, subject to investment and specific public policies.

In a democratic regime and with a progressive government that seeks social change, it would be expected that the construction of policies will be participatory and inclusive of diverse actors from the public and private spheres. In addition, it should be considered that Bolivia is a very diverse country in ecoregions and cultures and also in productive terms. Therefore, public policies should not be homogenizing in order to achieve changes and expected improvements in the agricultural and forestry sector.

19.2 The Sustainable Livelihoods Approach as a Theoretical and Methodological Framework

Chambers and Conway (1992) point out that livelihoods are the skills set, entitlements, and assets (material and social resources) and necessary activities to make a living. A livelihood is sustainable when it can withstand tensions and sudden shocks and it can recover from them; at the same time, whenever it can keep and improve its well-being possibilities and assets in the present and in the future, without damaging the basis of the natural resources. On this basis, the Sustainable Livelihoods Approach formally emerged.

The DFID (1999) indicates that livelihoods are oriented to achieve the precise and realistic understanding of the people's strengths, and people require a set of assets or capitals to achieve results in their livelihoods. These livelihoods are subject to a vulnerability context encompassing critical tendencies as well as perturbations or shocks that will affect the capitals on which people have a limited or non-existent control. Public policies are part of these critical tendencies that affect people's assets. Assets or capitals from this approach are framed in five categories, namely human, social, natural, physical, and financial capitals. Given that this set encompasses several dimensions of development it can be regarded as a multidisciplinary perspective to sustainable livelihoods.

In this sense, Ramos (2016) reports that life strategies are the result of what a family or community is capable of doing through the combination of their capitals taking into consideration external factors (i.e., the vulnerability context). In this regard, Pasteur (2001) indicates that it is imperative to understand the relationship between public policies and livelihoods because these will affect substantially to poor people and their community capitals and therefore, they will influence their life strategies. For this reason, we must analyze to which extent public policies support better practices of development initiatives focused on sustainable livelihoods, that is to say, we refer to policy that is a people-centered, participative, holistic, and dynamic. In this respect, Mesa (2014) points out that public policies have to do with the role of the State in organizing efficiently its actions to achieve societal benefits and distinguishes three fundamental aspects: public policies should be deliberative; they take place in public space, and are of collective nature.

19.3 Geographic Context of the Community Trinchera

The community of Trinchera is located in the Municipality of Porvenir, department of Pando, Bolivian Amazon (11°9′12.44″S and 68°30′21.41″W). It is at 265 m above sea level and has 9419.03 hectares with forests of which, 95% are in primary state (Fig. 19.1). According to the Land Use Plan of Pando (Plan de Uso de Suelos de Pando) (DHV, 1996), the community possess the land-use category of agroforestry and livestock rearing (agrosilvopastoril) (63%), and a subcategory for Brazilian nut collection (*Bertholletia excelsa*) and rubber or latex extraction of seringueira (*Hevea brasiliensis*). Towards the southern sector, land-use category corresponds to flood plains with rubber extraction, for which, the community has established rules of use and specifications of management.

While the community was founded in April 29, 1999; the beginning of the land sanitation process started in 2000, and the reception of land title deeds was just in 2016 (PGIBT, 2017). The sanitized and titled land surface is of collective or common property; in other words, the total of the families in the community have a legal right of using and exploitation of its natural resources.

The community of Trinchera has 108 people organized in 25 families. According to oral history registered on February 2019, half a century ago, two Bolivian—

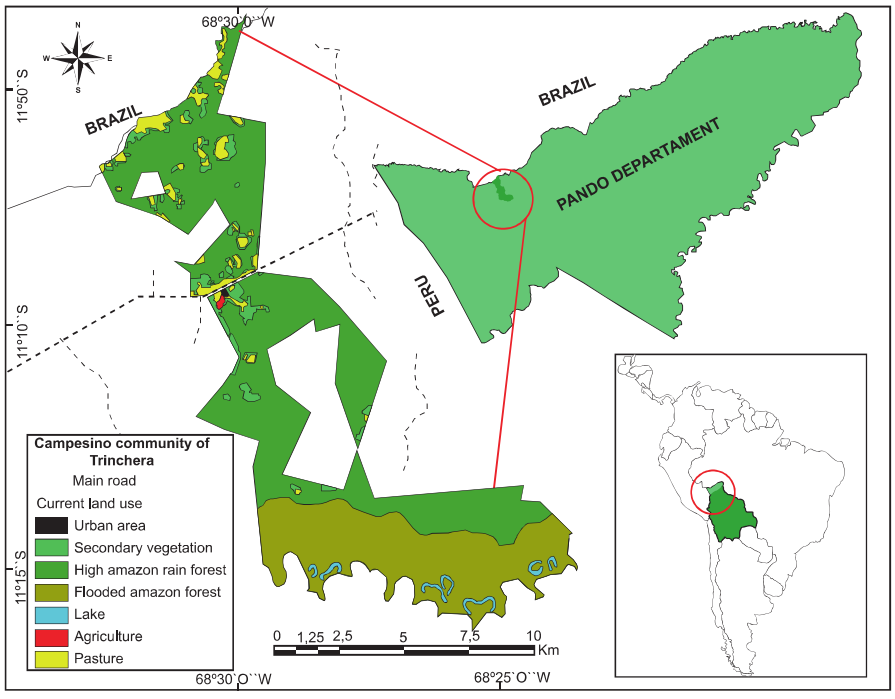

Fig. 19.1 Study area location of the campesino community of Trinchera. (Source: Elaborated by the authors, based on PGIBT (2017))

Brazilian families settled and founded this community. These and other families inhabited in the surrounding area for almost 20 years, when the rubber boom (*Bertholletia excelsa*) was experienced in the region, and these families were commercially related to a rubber company, owned by the Portuguese Antonio Resende Leite. The Amazon belonged to landowners, who had rights on the land, its natural resources, and on people living in those lands. Thus, working conditions were of servitude; people would exchange their production (rubber cylinders) for food, tools, and clothes provided by the rubber company. By 1980, after the construction of the road that would connect the capital of the department with the rest of the country, the monopoly of rubber and Brazilian nut companies in the collection and trading of these products was dissolved. This economic boom lasted more than a century. In 1988, there was a drop of the rubber price, which affected the exploitation of other products of economic interest such as wood, Brazilian nuts, skin of wild animals, and some fruits of the Amazon. By 1990, the landowners had lost the regional economic dominance; the boom of timber production granted by the State to companies had started with forest concessions of 40 years. The opening of secondary and tertiary roads benefited the community because it improved the transport of their products to the main road which allow producers to get better prices; at this time, the exchange was in a monetary form. The logging boom concluded in the decade of 2010, aspect which coincides with the acceleration of sanitation and land-titling in favor of campesinos and indigenous people.

Current economic income of the campesino families depend on collection and extraction of non-timber forest products (Brazilian nut, asai, copoazú, and other Amazonian fruits); agricultural production (rice, corn, yucca, banana, plantain, and agroforestry multilayer systems); livestock production as well as hunting and fishing are complementary to the extractive economy; and timber is for their own use in construction. The average income per family of five members in a year is of 46,825 Bolivianos (USD 6727.72), all this showing that the productive activities are based on the access and management of the forest as the main means of living (PGIBT, 2017).

19.4 Governmental Programs Present in the Community of Trinchera

Governments at the national, departmental, and municipal levels have implemented several productive-oriented programs in the Amazon communities. National programs are implemented from decentralized programs of institutions dealing with productive issues such as the Ministry of Rural Development and Land (Ministerio de Desarrollo Rural y Tierras, MDRyT) and the Ministry of Productive Development and Plural Economy (Ministerio de Desarrollo Productivo y Economía Plural, MDPyEP). In general, these programs respond to the World Bank's policy on the elimination of rural poverty launched in 2007 and still in force and applicable in

Bolivia, suggesting that agriculture should be integrated into the agro-industrial value chain (McKay, 2019) to eliminate rural poverty.

Ormachea (2018) identifies two guiding documents for the existing agricultural policies at the national level, the Patriotic Agenda (Agenda Patriótica) and the Economic and Social Development Plan (Plan de Desarrollo Económico Social) 2016–2020. In the near future, these documents visualize the country as a producing and exporting country of unique and traditional food products of mass consumption, with high added value, ceasing to be a country of agricultural producers with obsolete technology. From these main guidelines, the MDRyT and the MDPyEP introduce different objectives from which derive programs and projects. The MDRyT, besides solving land issues, establishes as a goal to ensure food security for urban and rural population whereas the MDPyEP considers the development of industries or state plants of raw material transformation for 13 productive complexes.

In that framework, the community of our study there are currently implemented projects which derive from the policies of the MDRyT; these being generally oriented to the food security like those described in Table 19.1.

The intervention of the State has been increasing in the last 10 years. There are many programs and projects implemented in the Amazon communities like Trinchera, but in general they do not respond to a plan of development, neither on a municipal level nor on a community level. The case of Trinchera is different because it possesses a Comprehensive Management Plan of Forest and Land (Plan Integración de Gestión de Bosque y Tierra, PGIBT), which has a decennial strategical plan. In general terms, the governmental programs and projects are generally sparsely articulated among them although they can derive of the same institution; their priority is simply to guarantee the provision of materials, input, machinery, and other types of

Table 19.1 Programs and projects implemented in Trinchera

Project/program	Level of government and institution	Project/program implementer	Characteristics of the project/program
Production of dairy cows	National MDRyT	Accesos Bolivia	Equipment with a herd of 31 cows on a community level
Mechanized production (corn)	Municipal government of Porvenir	Indigenous Fund of Municipal government of Porvenir	Mechanized sowing and harvest of corn in one productive common parcel of land of 10 hectares
Irrigation systems for agriculture	National MDRyT	Accesos Bolivia	Equipment with engineered irrigation systems for a group of six interested producer families using a land of three hectares
Processing of Amazon fruits (asai)	National MDRyT	Accesos Bolivia	Provision of lacking machinery and equipment in the artisanal plant of asai production
Reactivation of rubber production	Departmental Government of Pando	Productive unit of the departmental government	Provision of materials for the rubber extraction on a level of interested families

physical assets; however, in general they do not intervene in the formation of capabilities or the development of the social capital.

The historical absence of the State in the Amazon region has accounted for a high presence of non-governmental organizations (NGO) that intervene with programs and projects which are first and foremost oriented to the conservation of natural resources and to the production systems whose progress are diverse. Today, many of the governmental programs and projects overlap with or adhere to already advanced processes, especially within the framework of the comprehensive forest management system, which is the case of Trinchera.

19.5 Methodology

Fieldwork was carried out between December 2018 and March 2019 although the institutional work of the Centre for Research and Promotion of the *Campesinado* (Centro de Investigación y Promoción del Campesinado, CIPCA)—where the two authors of this study are affiliated to—in the community dates from the year 2010. Since then a progress was made in the creation of diverse instruments for the forest management in the PGIBT, as well as on the implementation of diverse productive initiatives. The present investigation counts with the consent of the community as a whole to carry out the research project.

Data collection included the context of vulnerability, the trends, and changes which influence the livelihoods' capitals of the families of Trinchera, which were recorded through workshops, semi-structured interviews, and the application of participative tools (i.e., a diagram of Venn, timelines, history of the community). Moreover, the potential of life capitals of the present 21 families in the community was analyzed. The study was divided into three parts as follows. In the first part, 30 indicators for the five life capitals which refer to what the families have and access to at present (Appendix 1); that is to say, participants in the study answered the question "What is your resource base?" (Fig. 19.3). Also, as quantitative and qualitative data were obtained for the calculation of indicators to human, social, natural, physical, and financial capitals, numerical limits were established in order to assess the indicators independently and pooled them, resulting in a qualitative rating scale for life capitals as proposed by Marín, Bedoya Patiño, and Cárdenas Grajales (2015) (Table 19.2).

In the second part, the impact of the five governmental agricultural and forestry programs of the last 5 years on family's livelihoods was analyzed (Fig. 19.2). In particular, it was assessed how these productive programs contributed to the different livelihoods capitals of the participant families. Likewise, this part addressed a question about the potential of the families in the community, namely "What are they able to do?" (i.e., what strategies they use for the achievement of their livelihoods), and also "What was achieved?" (here we refer to an achievement through the management of government programs at the national, departmental, and municipal levels).

Table 19.2 Scale of values for indicators of life capitals in the Trinchera community

Qualitative scale	Quantitative value
Low	0.00–0.50
Medium	0.51–0.80
High	0.81–0.90
Very high	0.91–1.00

Source: Adapted from Marín et al. (2015)

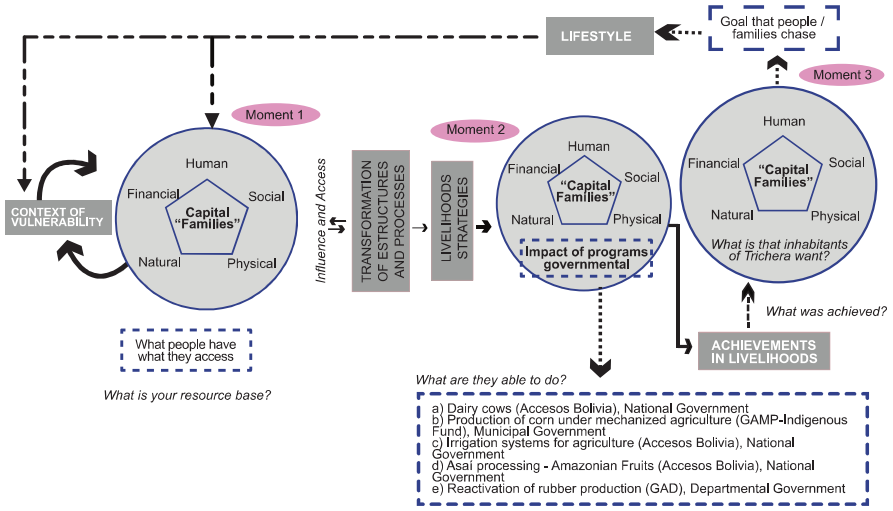

Fig. 19.2 Methodological procedure for the analysis of sustainable livelihoods of Trinchera community. (Source: Own elaboration)

The impact of the five governmental programs of the agricultural and forestry sectors was analyzed according to information provided by the Trinchera's families. To do this, we used an qualitative scale from 1 to 5, where 1 represents a very low value concerning the program contribution; 2 refers to low, 3 to medium, 4 to high, and 5 to a very high contribution to families sustainable livelihoods. For this purpose, a matrix was elaborated for every implemented program with the five livelihoods capitals and its ranging impact. To provide an example of this analysis, Table 19.3 describes the case of the impact assessment of the corn production program with mechanized agriculture which had a low impact.

For example, in Table 19.3 (see its seventh column) the impact on human capital only arrived in the form of informative conversations about implementation of programs because the responsible technicians of the project executed it anyway. On the other hand, referring to the physical capital (see third column of Table 19.3), in addition to having seeds, families were equipped with tools and machinery for seeding and harvesting, but not with means of transportation and/or silos for them

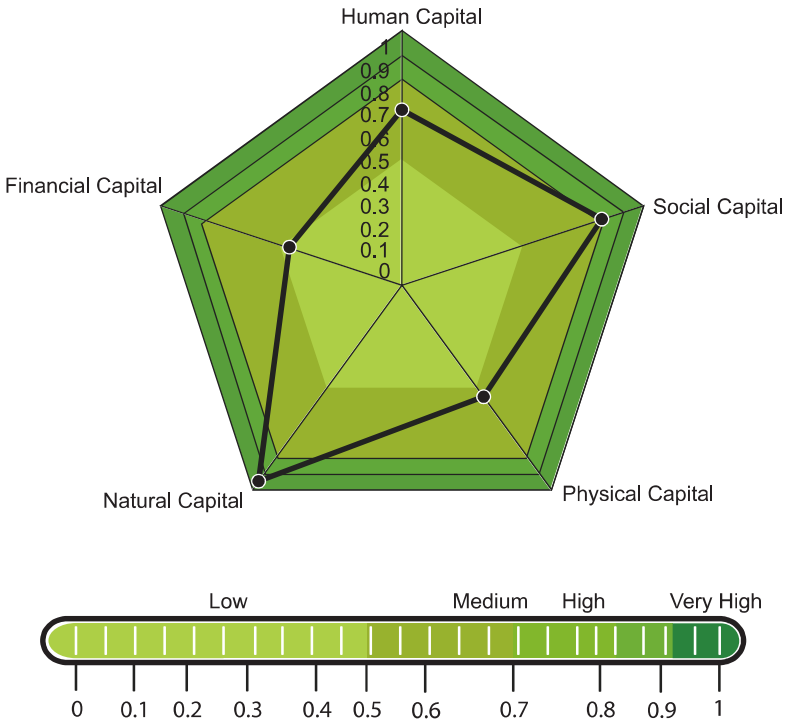

Fig. 19.3 Level of the capitals within the sustainable livelihoods in the community of Trinchera. (Source: Own elaboration based on fieldwork)

to store their produce, which is fundamental to assure that corn will not get lost due to humidity or other factors.

Lastly, in the third part of the research, the addressed question was "What is that the inhabitants of Trinchera want?". In particular, it was targeted at families taking best advantage of their traditional livelihoods; and how they take advantage of both, the local context and the contribution of external actors (public policies and support from non-governmental entities) to generate better life strategies. Also, the question has to do with what are the objectives that community families pursue to achieve a way of life coincident with their expectations for the future (Fig. 19.2). It was therefore also carried out an evaluation using the scale 1–5, being 1 a very low objective and 5 a very high objective.

Table 19.3 Evaluation of the programs' impact for mechanized corn production in Trinchera

Impact scale	Evaluation level	Capitals				
		Physical	Financial	Social	Natural	Human
Very low	0–1	Seeds availability	No subsidy was provided	Families were informed about the program	Program was implemented in pristine forest	**There was an informative talk about the program for its implementation**
Low	1–2	There were provisions of tools	**Seed grant to start-up capital**	**Families were consulted for the implementation of the program**	It was implemented in the primary forest	There was training in situ about the implementation of the program
Medium	2–3	**Machinery for seeding and harvesting was provided**	Access to productive credits	The program was designed with the participation of the community	***It was implemented in fallow land and/or at the secondary forest***	There was training on corn crop handling
Good	3–4	Means of transportation for corn were provided	Capital/investment for harvesting and processing	Consent was obtained from all the families of the community	It was implemented in pasture grounds	Technical innovations were developed
Very good	4–5	Silos were provided for storage (infrastructure)	Capital/investment for commercialization	All families of the community benefited from the program	It was implemented in areas of intensive cultivation	Promoters were trained in the community
Global impact (low)	**Average (2.2)**	**3**	**2**	**2**	**3**	**1**

Family's responses are in bold

19.6 Results and Discussion

Given that objective of our chapter was to evaluate how the established productive public policies (programs on agricultural and forestry) operate in the Bolivian Amazon, and what are its effects on the life strategies and livelihoods of agricultural and forestry campesinos in the community Trinchera, the following paragraphs introduce the results found as well as its implications for the studied community as well as to similar communities in Bolivia.

19.6.1 Capitals from Sustainable Livelihoods in Trinchera

According to our assessment, the families' capitals in Trinchera community (Fig. 19.3) reveal the great natural capital potential (very high) and the social capital (high) people possess. However, human and physical capitals show a medium level, whereas the financial capital shows a very low level according to what people own and have access to the undertaking of their life strategies (Fig. 19.3). This result is related to the statements made by Pokorny et al. (2011) and Vos et al. (2010) who point out that the access to forestry resources is fundamental for the undertaking of life strategies of the families in the Amazonian region; even though most often they cope with difficulties in the commercialization of their products and the access to credits for pursuing their agricultural and forestry activities.

(a) The natural capital is the most precious capital the community possesses. The forest provides them with timber and non-timber resources, flora and fauna, water for both, their consumption and their productive activities. Having legal certainty over land and the communal territory, as well as the potential use of land according to land-use planning which refers that 95% of the communal territory is of forest use, permit families the pursuit of productive activities (such as annual and multiannual crops), collection of non-timber products (Brazilian nut, asai, and other fruits), livestock rearing and subsistence hunting which altogether provide material and economic means for their livelihoods. However, although 426.54 hectares of the community are fallows or secondary vegetation due to changes in coverage of land use, Peralta-Rivero, Torrico-Albino, Vos, Galindo-Mendoza, and Contreras-Servín (2015) and Pokorny et al. (2011) indicate that the conversion of primary forest is part of the family producers' strategies for the diversification of their productive activities; in this framework only 4.5% of the communal surface is deforested which is rather low in comparison to other communities in the region.
(b) The social capital is highly valued by people from Trinchera. In this regard, the community has generated important social resources around four aspects: communal resources (forest and natural resources); communal organization which functions from the trade-union and its internal rules; family relationships and cultural identity; and established collaborative relationships with external

actors. This set facilitates people carrying out collective activities within the community and a positive interaction outside the community. In this respect, Trinchera interacts with both public and private institutions, some of them contributing substantially to the strengthening of their livelihoods (Appendix 2). Even though the general secretary in his appointment of representing the community in relation to external public and private actors is very active, the community has a history of high relationship with external actors. The latter in addition to two factors, namely the short distance and connectivity of the community to the municipal and departmental capital, and the union life experience of various members who also have been served as departmental and national leaders in the principal campesinos organizations of the country.

Since the last 5 years, the community's social structure and the leadership of key personalities have allowed a good articulation level of the community with the government in its different levels by increasing access to productive programs and projects. Nevertheless, the relationship of the community with various NGOs which have implemented projects of conservation, production, and organizational and leadership capacities, which have facilitated territorial governance processes, dates from 15 years back. However, despite the progress, occasionally some producers establish nexus with programs and projects coming from public policies for strategic reasons, even accepting little viable proposals and, inclusively investing enormous efforts in these alliances with the expectation of receiving high direct and indirect benefits (Medina, Pokorny, & Campbell, 2009).

Community's rules and regulations govern conflict resolution disputes, both for natural resources and personal issues. Under this framework, the trade-union directive plays a very important role because it exercises functions of mediation, negotiation, and establishment of sanctions, amongst others, always in consultation with the social base.

Another aspect is the community's capability of negotiation with various programs and projects implemented in the community, even though these initiatives follow an official protocol which consists of the introduction, agreement, and execution from its operators; it is usual in Trinchera that, once the offers are introduced, discussion and negotiation are generated which allow adjustments of them to more real local conditions.

Moreover, it was found that the articulation and negotiation capability of the community outreaches even beyond national frontiers. For instance, in the case of asai pulp sale, there are commercial agreements with Brazilian supermarkets; and in the case of Brazilian nuts, there are commercial agreements with Italian companies. In this regard, Bebbington and Torres (2001) point out that this social capital facilitates access and negotiation with external actors which can contribute to higher benefits and achievements in local development.

(c) The human capital shows a medium level (Fig. 19.3). Despite this, we found that there is not only local capability to manage productive support with public and private financing, but also on other subjects such as that of education. With respect to the latter, years ago, and based on the implementation of a scholarly class with a female multi-grade teacher in the community, has solved

an educational problem so that currently children and teenagers are able to complete their primary studies in the same community. Also, arrangements were made, so that currently, local teenagers can attend to Santa Lourdes School, a neighboring community, in order to obtain their secondary school diploma. Additionally, in 2017 the community managed the arrival of a secondary school programs for adults at the Center of Alternative Education (Centro de Educación Alternativa) dependent of the Ministry of Education. As a result of this, eight adults graduated from school at the end of 2018, which elevated the level of communal schooling and the human capital.

(d) The physical capital shows also a medium level (Fig. 19.3). It is based particularly on productive equipment according to the Amazon productive vocation. This is the result of the efforts made by the community and the capability of negotiation of its leaders with various programs and projects of development. On the other hand, Trinchera has a Comprehensive Management Plan for Forest and Land (Plan de Gestión Integral de Bosque y Tierra), which is a technical and legal tool allowing the knowledge of the local natural resources' potential, and with this baseline, it is possible to plan the productive economic activities within a time frame of 10 years.

(e) Finally, the financial capital's level is low compared to the rest of the capitals (Fig. 19.3). In this regard, there seems to be a little margin for savings and availability of economic resources in cash for the undertaking of local activities. The access to bank loans on production and consumption matters is narrow (Appendix 3). Pokorny et al. (2011) indicate that the latter aspect is characteristic of the Bolivian Amazon region. Nevertheless, the annual family income obtained is higher than the national minimal wage, especially due to the collection of forest products like the Brazilian nut, asai, and other Amazon fruits; and in order to carry out their life strategies, it represents their main financial means. When analyzing its annual family income, the latter situation is reflected for all the northern Amazon region of Bolivia (Salazar & Jimenez, 2018).

From this set of capitals, life strategies carry out by Trinchera inhabitants allow gradually the design and achievement of a livelihood dependent on the forest; therefore, the community has a long-term life plan designed around their most important capital (the forest), but it also has a great strength in the accumulated social capital which can be a vehicle for creating and increasing other forms of capitals, mainly human and financial capitals (Coleman, 1988, cited by Bebbington & Torres, 2001).

19.6.2 Impact of the Agricultural and Forestry Programs on Sustainable Livelihoods in Trinchera

Given that the main weaknesses of family livelihood in Trinchera are positioned especially on the financial, physical, and human capitals, it is fundamental that governmental policies have a direct impact on these barriers in order to contribute to the improvement of the family life strategies.

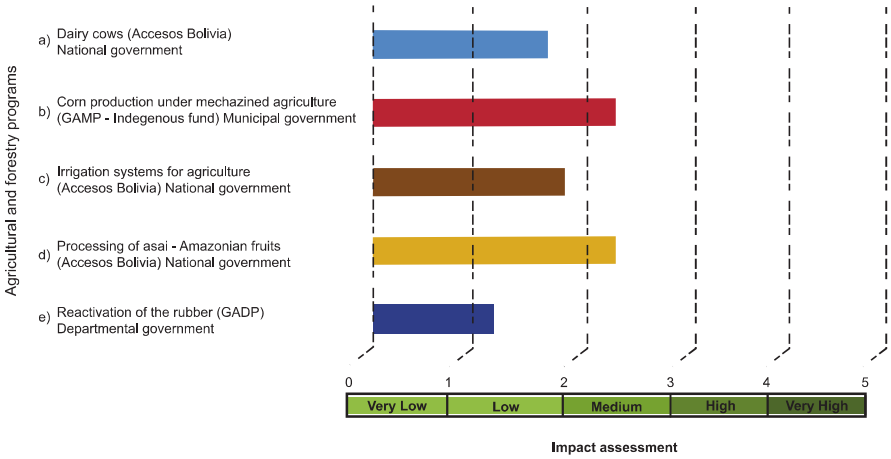

Fig. 19.4 Contribution of the productive development programs in Trinchera. (Source: Elaborated by the authors, based on a participatory workshop)

Of the five productive agricultural programs implemented in Trinchera since 2014, two of them contribute moderately to the strengthening of the community capitals: the processing of asai and the mechanized production of corn (Fig. 19.4). The reactivation of rubber, dairy cows, and irrigation systems for agriculture are of low contribution (e, a, and c from Fig. 19.4). Therefore, only two of five implemented governmental programs would articulate to productive processes which are a priority for the community.

If we analyze the coincidences between the prioritization and strengthening of the community capitals for Trinchera from the governmental programs, four of five programs (a, b, c, and d from Fig. 19.5) contribute to the natural capital at medium degree, and two of them (c and e) contribute to the social capital at medium degree. We argue that the former result becomes relevant because it responds to the expectations and priorities of the community families. In this regard, Ramos (2016) points out that, for the campesinos the productive base is their main means of production and an essential condition to maintain and pursue their life strategies.

If we analyze the programs complementarity upon the weakest capitals of the community, two programs (b and d from Fig. 19.5) strengthen the physical capital in a medium degree, but they have a low and a very low contributions for the remaining community capitals. According to Ramos (2016) and Gottret (2001), the programs' structures are within hierarchical bureaucratic structures composed by global and national institutions, in this case within the socio-environmental regime (sensu Parra-Vázquez et al. Chap. 1, this volume), which impose the rules of the public policy and its related programs. In this regard, the social organizations or "players" interested in accessing the productive programs must comply with those rules. In many cases, those rules will be the drivers of the programs' impacts on the agricultural and forestry sectors.

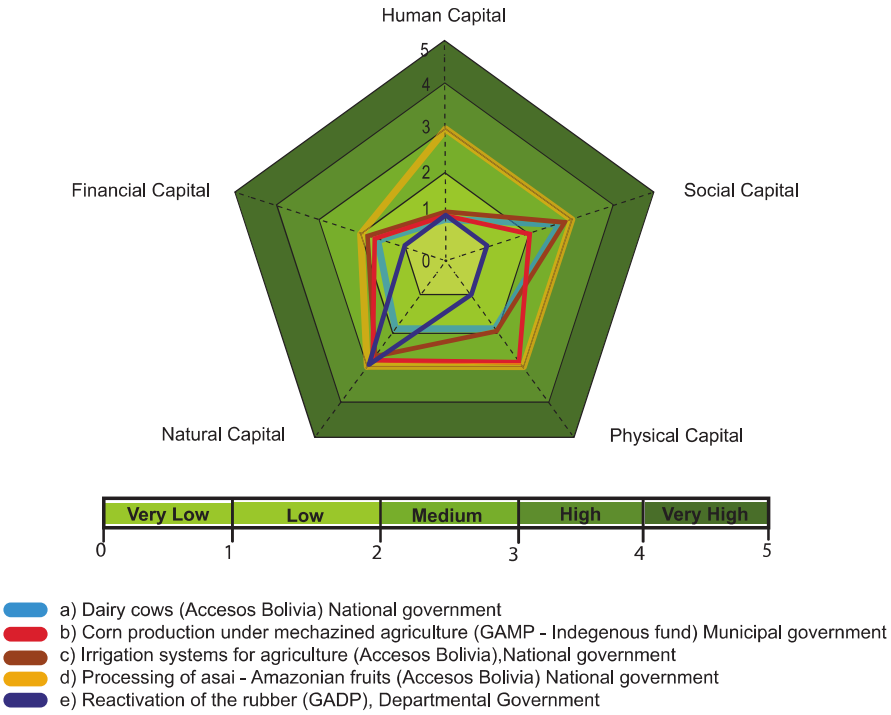

Fig. 19.5 Impact of agricultural development programs on families' livelihoods in Trinchera (Source: Own elaboration)

In this case study, the governmental program that impacted less upon the family capitals' enhancement was the production of the dairy cows (see (a) in Fig. 19.5). This project was initially implemented into the pasture ground of the communities, subtracting the pressure over the forest (natural capital); however, the lack of both, productive infrastructure (physical and financial capitals), and technical assistance for cattle management (human capital), as well as the little culture and organizational skills of the families (social capital) involved with this kind of undertaking led to the program's dissolution early. At the end of this project, a total of 31 remaining cows were allocated among the participant families.

The reactivation program for rubber exploitation (see (e) in Fig. 19.5) also had a low impact in the majority of capitals. Although the intention of the latter was to use both, the forest potential of the community (natural capital) and the knowledge of the producers about this resource (human capital), the program's actions were limited to the provision of tools, which were not used by families because of the lack of market and the low prices of the rubber. Although rubber was a traditional product and its exploitation was consonant with the regional productive vocation, the fall of the price lowered the commercial interest; therefore, it seems sensible that even producers having the knowledge and tools to exploit it, they could not make any profit of the resource because there was no market for it. In rural contexts, the

economic rationality of the campesinos is definitive to success or downfall of the productive projects (Landini, 2011). In general terms, our study found that this rationality works around pursuing small-scale family production as well as surviving and self-consumption and not around accumulation as the capitalist rationality does. The latter does not consider that campesinos' productive units never seek surplus because that is not its main objective. From interviews with participant families, it was evident that the main income source in Trinchera is the Brazilian nut extraction, followed by other activities like asai exploitation, and some annual and multiannual crops. In this sense, local people do not invest time and efforts in activities without any—in-kind or cash—remuneration for their invested labor.

The program on implementation of irrigation systems for the agriculture (see (c) in Fig. 19.5) was executed only with six beneficiary families using a total of six hectares within the community. Although irrigation is fundamental for the agricultural production during dry season (July to September), the main difficulties for its success were the lack of technical assistance (human capital) since the beginning of its implementation (Fig. 19.5). The corn production program under mechanized system (see (b) in Fig. 19.5) had a medium impact upon the physical and natural capitals. Seven beneficiary families with ten crop hectares are receiving a subsidy of machinery and inputs for production in pasture and secondary vegetation, which reduces the pressure against the primary forest. The program contribution for the producers' skills development is very low (human capital), as well as to the social organization (social capital), simply because it is limited to few families, it has a vertical design, and the program is implemented with low participation of beneficiary people.

In general terms, the mechanized production programs in the region have had very low impact. One of the experiences for this type of program with respect to mechanized of rice production took place during 2017 in the Municipality of Puerto Gonzalo Moreno, in the Bolivian Amazon. However, the results obtained were also the same and included a limitation in all knowledge, capabilities, and empowerment of the involved families (Peralta-Rivero, Cartagena-Ticona, & Flores-Huallpa, 2017). Likewise, in Trinchera the mechanized corn production was harvested in March 2019 but there were difficulties for its commercialization. In particular, although the program's design considered moving the corn production to silos located nearby the capital municipal, it was not possible to transport the corn production to that place because the community lacked capacity to do that.

With respect to the asai processing program (d in Fig. 19.5) provided better contributions to the families' livelihoods. In this case, there were ten families that profit from asai fruits in almost 3000 forest hectares under a management plan. Although this program had a medium impact, it is projected to include more families in Trinchera and other communities continuing the resource management under the communities PGIBT, which would generate additional income to the families (financial capital). With this kind of program, the local development of capabilities and knowledge is improving (human capital), and the access to credit now could be more feasible (financial capital) because the importance of asai. Should there exist

viability for this type of initiative, credits could be used to improve the conditions of the asai processing plant to improve the physical capital.

In general terms, our study found that there are two programs with less compatibility to the regional productivity potential: dairy cows' production and mechanized corn production. These results were corroborated by the interviewees. While both programs are oriented by the MDRyT to the achievement of food security, they also address the implementation of a new productive model for the Amazon. The latter has been announced by the government in the Agenda 2025 and promoted through diverse food security programs in low lands. Until now, it is initiated with the production of rice, corn, bean, among others. This model would promote using those mechanized areas for cultivating oleaginous plants and grains, as part of the industrial agribusiness model. In this regard, Rojas (2009), from the Paraguayan experience, points out that to make easy the expansion of the area sown by a mechanized way, it is necessary to obtain the standardization of the different ways of agricultural production, through monocultures, which allows the management of thousands of hectares with high degree of mechanization and low number of workers. The main interest of the agribusiness is increasing its profitability through monocultures, decreasing its costs and increasing its production, without any consideration about the social and environmental impacts produced.

Moreover, the two programs with greater compatibility to the productive potential of the region were asai processing and rubber reactivation. These programs generate great expectation in the community and therefore, people are motivated to carry on with their practices. In the former case, the productive process has been set because an identification of the productive potential of assai in the natural resource maps has been carried out; the rules for its sustainable management, infrastructure for collection, and processing, as well as national and international commercial agreements for the sale of both asai milk and pulp. However, the rubber was replaced by other products and its current demand is low; therefore, despite local producers do have interest in rubber production, currently there is no market for it, and there is no evidence that it would rebound again.

19.7 Future Perspectives: Visions of the Community

Because of their access to land and natural resources, the families of Trinchera had increased in an exponential way some of their livelihoods' capitals during the past 20 years. Moreover, the increment of their community organization level has allowed them the development of their current life strategies. Their future community's perspectives (to 20 years ahead) are focused in improving considerably the human capital (Fig. 19.6) taking into account that local young people can become professionals and once graduated could return to the community as a social retribution. In this sense, local life conditions would improve in different aspects including the management of more productive programs for the community using capitals and capabilities as well as the traditional knowledge of the producers.

The community visions emphasize the increment of the communal infrastructure in productive terms, as well as the industrialization of products. At the local level, people in the community consider as important the acquisition of equipment and machinery (physical capital) for the processing and transformation of produce, such as asai, Brazilian nut, copoazú, and many tropical fruits, as well as handicrafts and other products, which will also facilitate their productive activities. In this regard, interviewees commented that it would be good to create an integral association, which could be able to organize their production, in such a way as to allow them to generate economic income and at the same time ensuring the undertaking of friendly productive initiatives in the forest and with local natural resources.

The interviewed families stated that in the long term, their will is to look after the forest, which represents its main community natural capital, because it provides them with major livelihoods. Pokorny et al. (2011) report that forest could generate income in the Amazon, but it cannot serve as an exclusive base for family income to all the families and communities of the region because they have different realities; assuming that there are factors that limit their success, such us high cost of supplies, low prices for the products, and significant logistic challenges.

Although the commercialization of the Amazonian products continues being complex, some conditions changed in the last 5 years in the region because to date the connectivity was improved as currently there is a main paved road and better roads to the communities. Moreover, a great percentage of communities, especially those which are in the backbone road, have now access to mobile telephony and internet; the demand for forest products is increasing (alternative to wood) both at national and international levels. Also, the productive infrastructure has improved gradually since the conclusion of land-titling. The decision of the families to preserve the forest in the long term also has an economic rationale because the contribution of the forest to their economy is essential. According to a study about the family income in the North Amazonia, the annual income reaches to 34,404 Bolivianos (USD 4655.75) of which, more than 90% of it comes from productive activities, and half of it corresponds to the gathering activities (mainly Brazil nut and asai) (Salazar & Jimenez, 2018). In this sense, families of Trinchera expressed that their livelihood is mainly linked to the forest and that they regard agriculture and livestock as complementary activities (Fig. 19.6).

Within this framework and given that current programs operating in the community only contribute with a medium and lower levels to physical and financial capitals, respectively, it is necessary to seek ways to strengthen those two capitals. In this regard, Vos et al. (2010) and Pokorny et al. (2011) point out that credits adapt little to the characteristics of the producers in the Amazonia, which usually are less mechanized and whose activities include forest extractivism. Faced with the above scenario, the social and human capitals which recorded values were, respectively, high and medium in the community, are the ones which are strengthening the projects management that in turn help to improve the technology in the community. Pokorny et al. (2011) mention that the many producers of the Amazonia consider that the modernization of the family production is a prerequisite to make use of the market options and generate income. These authors propose that some changes are

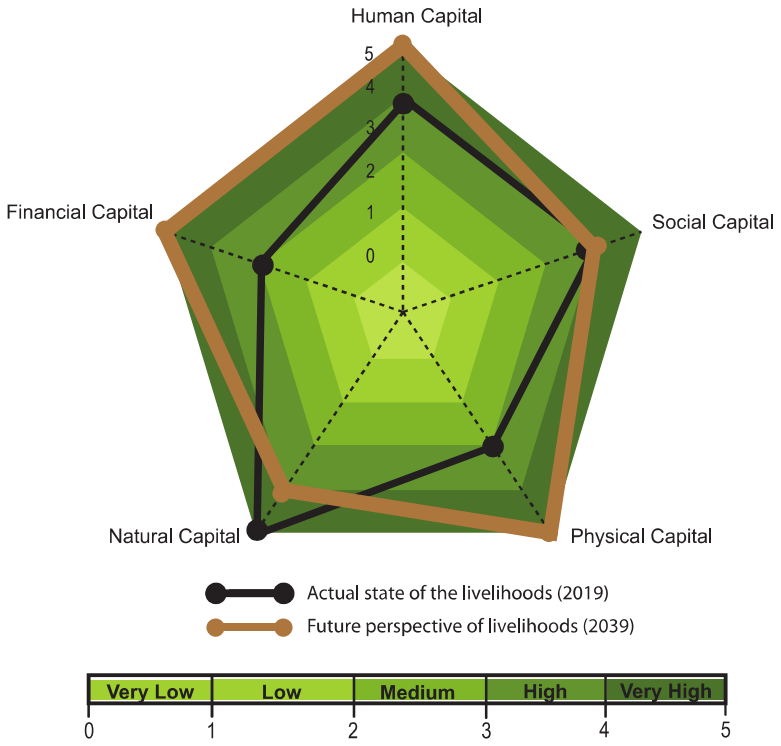

Fig. 19.6 The future community's perspectives on livelihoods' capitals. (Source: Own elaboration)

needed; for instance, in the management techniques and changes in the organization of work as well as in commercialization mechanisms. They also mention to include the value added for the processing of the produce; improving linkages with financially more attractive markets especially with non-local markets. These recommendations have been gradually happening in Trinchera nowadays, with the creation of two associations: the Society for Exports of Extractivist Families in the North of Bolivia (Sociedad de Exportación de Familias Extractivistas del Norte de Bolivia, SEFENBO) and Association of Gatherers and Forestry Transformers Producers (Asociación de Recolectores y Productores Transformadores Forestales, ARPTFAT), which are linked, respectively, to international market for the sale of Brazilian nut, and the by-product of asai and Amazonia fruits to the national market.

In this regard, Zenteno, Zuidema, de Jong, and Boot (2012) indicate that total income and income from forest resources, amongst rural inhabitants of the Amazonia are influenced not only by the access to the market, prices, but also by organizational, institutional, and social factors. These factors influence on the diversity of resources to which producers have access to and bring as a result, the producers' specializations in livelihood strategies. In this sense, the visions of the future in the community's livelihoods will be a process depending not only on internal factors

and decision-making within the community, but also on external factors influencing the way how communities develop. Therefore, if all the above factors were taken into consideration for the Trinchera community, the 20-year community perspective presented in the Fig. 19.6, could be configured in a different way.

19.8 Concluding Remarks

Our research used the Sustainable Livelihoods Approach to evaluate the productive public policies of the agricultural and forestry sectors in place at the campesino community Trinchera which affect the community life strategies and livelihoods.

Our main findings are that since 2014, there have been five agricultural and forestry programs implemented in Trinchera. These programs respond to global agreements which enter the Bolivia's national and regional arenas through National Development Plans and are specifically implemented by the Ministries of MDRyT and MDPyED. From the five analyzed programs, only two of them contribute moderately to the strengthening of the community capitals (the processing of asai and the mechanized production of corn) whereas the remaining three programs (the reactivation of rubber, dairy cows, and irrigation systems for agriculture) have a low contribution. Therefore, the current implemented programs in the community do not have a relevant impact in the rising up of their more deficient human and financial capitals. For this reason, the families of Trinchera, who participate in them, adapt themselves to reap the small direct and indirect benefits which these programs generate. In general terms, the implemented programs are not responding to the essential needs at the productive level of the community and tend only to reinforce lightly the families' food security.

Our results also reveal that Trinchera's families possess a very high and high potential in natural and social capitals, whereas the human, physical, and financial capitals are on a low and very low levels. Therefore, currently families have as a prioritized objective to reach very high levels of all, the financial, physical, and human capitals, while they want only to get a high level for their natural and social capitals, which are currently the most valued ones in the community. Interviewed families perceive that in order to reach their objective, they should focus in their most important barriers they have today which preclude them to have any progress.

With respect to the natural and social capitals, they consider that in the future, their natural capital (the forest) will suffer diverse pressures by the changes of the productive model, which is primarily oriented to the agroindustry business present in the Amazonia. However, they also consider that if backed up by their community organization, their forest conservation will be sustained. As the small-scale rural production in Bolivia is a complex process, the materialization of the community vision of the future will depend on both, internal and external factors to the community, while the forest resources will continue to be a fundamental resource for this accomplishment.

The results of our research show weakness and potentialities of the campesino producers and on the agricultural and forest programs implemented in Trinchera, a situation that, most likely replicates in other rural communities of the Bolivian Amazonia. Likewise, it provides possibilities for improvement which, if both, livelihoods and campesinos' rationality of the Bolivian Amazonia are taken into account, could be reached within the framework of governmental policies and programs, in its several levels.

Within this framework, it is necessary for the government to guarantee the design of adequate and differentiated policies that not only foster and magnify the contribution to food security but also enhance the other roles of family farming in social, cultural, and environmental aspects. Likewise, the diversity and complexity of the sector means that subnational governments, within the framework of their powers and competences, take charge of many of these specific policies. For this, the central government should be predisposed to decentralize public functions and resources. Also, at the local level there is greater sensitivity to solve the structural problems that the sector is experiencing and at this level there is a set of important stakeholders such as research entities, promotors of family farming, associations, and others, which would guarantee greater success of public policies.

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Appendix A

Table 19.4 Capitals, indicators, and formulae for the analysis of the sustainable livelihoods of families from the community Trinchera

	Campesino community Trinchera	
Capitals	Indicators	Formulae
Human capital	Level of knowledge in agricultural, forestry, and product transformation practices	Active population in agricultural, forestry, and transformation practices/total population of the community
	Level of education of people in the community	Years of training and/or empirical knowledge
	Capacity of the population to manage programs or projects for the benefit of the community	Number of programs or projects managed for the community last 5 years/optimal number for the total population of the community
	Population of working age, economically active	Economically active population/total community population
	Population with access to health services due to insurance affiliation	Level of access to health services for the population

(continued)

Table 19.4 (continued)

Capitals	Campesino community Trinchera	
	Indicators	Formulae
Social capital	Level of conflict between members of the community	Perception of the level of conflict/value of the optimal level
	Level of collective actions developed in the community	Perception of the level of collective actions/value of the optimum level
	Level of association for the development of economic initiatives	Perception of the level of association/ value of the optimal level
	Level of actions for collective decision-making in the community	Perception of the level of decision-making/value of the optimal level
	Level of articulation to other groups in the region	Perception of the level of regional articulation/value of the optimal level
	Level of connection to policies, programs, and projects	Perception of the level of linkage/value of the optimal level
Physical capital	Rate of access to basic services	% access to health, education, drinking water, electricity, sewerage, transportation, and solid waste management
	Presence of roads and highways	Number of roads and highways that connect to the community
	Rate of access to housing	Number of families with housing/number of families in the community
	Heavy equipment availability rate for agricultural and forestry production	Number of heavy equipment/number of families in the community
	Rate of availability of heavy machinery for agricultural and forestry production	Number of heavy machinery/number of families in the community
	Infrastructure for production	Number of productive infrastructure/ number of families in the community
	Rate of access to land	Hectares under a Plan de Gestión Integral de Bosques y Tierra (PGIBT)/100% of the territory
Natural capital	Rate of water availability for consumption and productive activities	Days with water for consumption/365 days
	Rate of availability of forest cover for the collection and use of timber and non-timber forest products	% of forest cover/100% of the territory
	Rate of availability of wild fauna used in the community	% of species with consumptive and economic value used/100% of species inventoried in the community
	Rate of availability of wild flora used in the community	% of species with consumptive and economic value used/100% of species inventoried in the community
	Rate of availability of fish harvested in the community	% of species with consumptive and economic value used/100% of species inventoried in the community
	Potential of land use	% land use ordered territorially according to its potential use
	Rate of use and rights to harvest natural resources	No. of families with the right to use and harvest of natural resources/total of families in the community
	Right owner of natural resources and land	% of land titled in favor of the community

(continued)

Table 19.4 (continued)

Capitals	Campesino community Trinchera	
	Indicators	Formulae
Financial capital	Level of availability of cash economic resources for community activities	Perception of the level of economic resources in cash/value of the optimum level
	Level of savings for community activities	Perception of the level of savings/value of the optimal level
	Annual family income level	Perception of the annual family income level/value of the optimal level
	Rate of access to productive and consumer bank credits	Number of families with access to credits/ number of families in the community

Source: Own elaboration

Appendix B

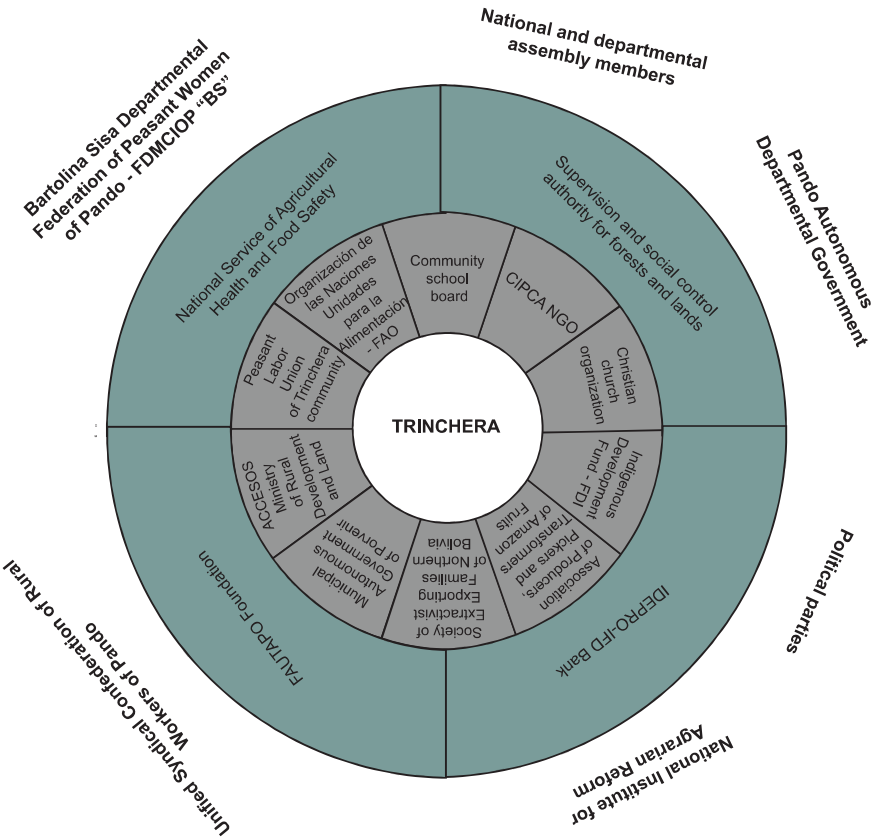
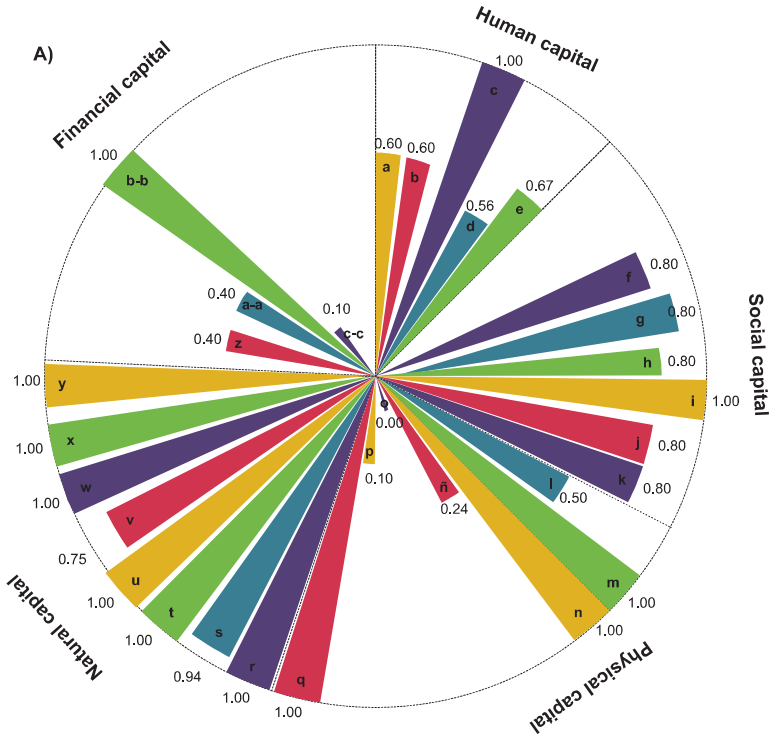


Fig. 19.7 Diagram of Venn in Trinchera. (Source: Elaborated by the authors, based on a participatory workshop)

Appendix C



B) Capitals	Names of indicators
Human capital	a Level of knowledge in agricultural, forestry, and product transformation practices
	b Level of education of people in the community
	c Capacity of the population to manage programs or projects for the benefit of the community
	d Population of working age, economically active
	e Population with access to health services due to insurance affiliation
Social capital	f Level of conflict between members of the community
	g Level of collective actions developed in the community
	h Level of association for the development of economic initiatives
	i Level of actions for collective decision-making in the community
	j Level of articulation to other groups in the region
	k Level of connection to policies, programs, and projects
Physical capital	l Rate of access to basic services
	m Presence of roads and highways
	n Rate of access to housing
	ñ Heavy equipment availability rate for agricultural and forestry production
	o Rate of availabity of heavy machinery for agricultural and forestry production
	p Infrastructure for production
	q Rate of access to land
Natural capital	r Rate of water availability for consumption and productive adctivities
	s Rate of availability of forest cover for the collection and use of timber and non-timber forest products
	t Rate of availability of wild fauna used in the community
	u Rate of availability of wild flora used in the community
	v Rate of availability of fish harvested in the community
	w Potential of land use
	x Rate of use and rights to harvest natural resources
	y Right owner of natural resources and land
Financial capital	z Level of availability of cash economic resources for community activities
	a-a Level of savings for community activities
	b-b Annual family income level
	c-c Rate of access to productive and consumer bank credits

Fig. 19.8 (**a**) Indicators of Capitals from Sustainable livelihoods in the Trinchera community. (**b**) Legend. (Source: Own elaboration based on a participatory workshop)

References

Bebbington, A., & Torres, V. (2001). *Capital social de los Andes* (p. 171). Editorial Abya Yala: Quito.

Cartagena, P. (2018). Economía y producción campesino indígena, en *Memoria IV Foro Internacional Andino Amazónico de Desarrollo Rural 2017* (p. 147). Centro de Investigación y Promoción del Campesinado, La Paz.

Chambers, R., & Conway, R. (1992). Sustainable rural livelihoods: Practical concepts for the 21st century. *IDS Discussion Paper, 296*, 127–130.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*, S95–S120.

Dávalos, A. (2013). *Políticas de seguridad alimentaria con soberanía en Bolivia* (p. 42). Fundación Tierra: La Paz.

DFID. (1999). *Hojas orientadas sobre medios de vida sostenibles* (p. 210). Department for International Development, United Kingdom Government.

DHV. (1996). *Plan de uso de suelo del departamento Pando (PLUS Pando). Proyecto de Zonificación Agro-ecológica y Establecimiento de una base de Datos y Red de Sistema de Información Geográfica en Bolivia* (p. 72). La Paz: DHV Consultores.

Gaceta Oficial de Bolivia. (2019). *Gaceta Oficial de Bolivia*. Retrieved January 30, 2019, from http://www.gacetaoficialdebolivia.gob.bo/.

Gottret, V. (2001). *Medios de vida sostenibles: Un marco para el análisis de línea base, planeación, seguimiento y evaluación de impacto en Memorias del II Curso Internacional*. La Promoción de la Agroempresa Rural para el Desarrollo Microregional Sostenible.

Harvey, D. (2006). Neo-liberalism as creative destruction. *Geografiska Annaler: Series B, Human Geography, 88*(2), 145–158.

Henkemans, A. (2003). *Tranquilidad y sufrimiento en el bosque, los medios de vida y percepciones de los cambas en el bosque de la Amazonía Boliviana. Serie Científica N° 7* (p. 97). Bolivia: Riberalta.

INE. (2015). *Censo agropecuario 2013 Bolivia* (p. 143). La Paz: Instituto Nacional de Estadística.

Landini, F. (2011). *Racionalidad económica campesina. Mundo Agrario*, volumen 12, segundo semestre 2011 (p. 27). Universidad Nacional de La Plata, Facultad de Humanidades y Ciencias de la Educación. La Plata, Argentina.

Marín, Y., Bedoya Patiño, C. G., & Cárdenas Grajales, G. I. (2015). Estrategias de adaptación y medios de vida de las familias integrantes de la fundación consejo veredal–fcv–, municipio de Calarcá, Quindío. *Revista Luna Azul, 41*, 201–239.

McKay, B. (2019). *Extractivismo agrario: dinámicas de poder, acumulación y exclusión en Bolivia, en Madre Tierra, la agenda abandonada* (p. 230). La Paz: Fundación Tierra.

Medina, G., Pokorny, B., & Campbell, B. (2009). Community forest management for timber extraction in the Amazon frontier. *International Forestry Review, 11*(3), 408–420.

Mesa, C. (2014). *Breve historia de las políticas públicas en Bolivia* (p. 193). La Paz: Editorial Gisbert.

Ormachea, E. (2018). *Políticas agrarias, campesinos y obreros agrícolas: balance y perspectivas*. La Paz, Bolivia: Unión Nacional de Instituciones para el Trabajo de Acción Social UNITAS.

Pasteur K. (2001). *Policy analysis: Tools for sustainable livelyhoods*. Institute of development studies. Retrieved February 10, 2019, from http://www.livelyhoods.org/Info/linksevents_PRP.html#5.

Peralta-Rivero, C., Cartagena-Ticona, P., & Flores-Huallpa, R. (2017). Efectos socio-económicos y ambientales por la producción de arroz (Oryza sativa) bajo agricultura mecanizada en el municipio Puerto Gonzalo Moreno, Norte Amazónico de Bolivia. *CienciAgro, 1*, 37–56.

Peralta-Rivero, C., Torrico-Albino, J. C., Vos, V. A., Galindo-Mendoza, M. G., & Contreras-Servín, C. (2015). Tasas de cambios de coberturas de suelo y deforestación (1986-2011) en el municipio de Riberalta, Amazonía boliviana. *Ecología en Bolivia, 50*(2), 91–114.

Pérez, M., & Cruz, J. (2018). *La concentración y centralización del capital en la agricultura latinoamericana. Implicaciones para el campesinado*. Cuba: Facultad de economía. Universidad de la Habana.

PGIBT, (2017). Plan de Gestión Integral de Bosques y Tierra de la comunidad Trinchera. Plan de Gestión Integral de Bosques y Tierra. Autoridad de Fiscalización y Control Social de Bosques y Tierra. Cobija, 28 p.

Pokorny, B., Godar, J., Hoch, L., Johnson, J., Koning, J. D., Medina, G., et al. (2011). *La producción familiar como alternativa de un desarrollo sostenible para la Amazonía; Lecciones aprendidas de iniciativas de uso forestal por productores familiares en la Amazonía boliviana, brasilera, ecuatoriana y peruana* (p. 174). Bogor, Indonesia: CIFOR.

Ramos, P. P. (2016). *Alternativas para el desarrollo rural sostenible en tres zonas cafetaleras indígenas de México* (p. 235). Doctoral Diss. Universidad Autónoma de San Luis Potosí, San Luis Potosí.

Rojas, L. (2009). *Actores del agro negocio en Paraguay. BASE IS/DIAKONIA* (p. 164). Asunción, Paraguay: Red de Bibliotecas Virtuales de CLACSO. Retrieved January 18, 2019, from http://biblioteca.clacso.edu.ar.

Salazar, C., & Jimenez, E. (2018). *Ingresos Familiares Anuales de campesinos e indígenas rurales en Bolivia (IFA)* (p. 212). La Paz: Centro de Investigación y Promoción del Campesinado. Cuaderno de Investigación N°86.

Salcedo, S., & Guzmán, L. (2014). *Agricultura familiar en América Latina y El Caribe: recomendaciones de política*. Santiago de Chile: FAO.

Vos, V., Llanque, O., & Zonta, A. (2010). *Medios de Vida y Manejo Forestal por Pequeños/as Productores en la Amazonía* (p. 280). Riberalta, Bolivia: UAB/ForLive.

Zenteno, M., Zuidema, P. A., de Jong, W., & Boot, R. G. (2012). Livelihood strategies and forest dependence: New insights from Bolivian forest communities. *Forest Policy and Economics, 26*, 12–21.