

**Productive Organizations and Development:
Jatropha curcas production in Chiapas, southern
Mexico
Master Thesis**

Martha Cristina Vanegas Cubillos – 840309852070

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Martha Cristina Vanegas Cubillos

Reg. No 840309852070

Email: martha.vanegascubillos@wur.nl

Thesis supervisors:

Antonio Castellanos Navarrete – Technology and Agrarian Development Group

Dr. Kees Jansen – Technology and Agrarian Development Group

Dr. Sailaja Nandigama – Forest and Nature Conservation Policy group

Wageningen University, The Netherlands

Abstract

This research analyses the influence that both a State development program and a local organization have on achieving rural development focusing on a case study in Chiapas State, Southern Mexico. The theory of social capital was used to analyze the case at two levels, micro and macro level. At micro level two concepts were used; integration and linkage. At macro level; integrity and synergy were the concepts used. The concept of knowledge interfaces was also used in the analysis to study the encounters between the local organization and the State institutions in charge of the developmental program. This research find out that at macro level the State institutions have been able to work together, but individually they lack in capacity/competence to help the local organization to achieve its developmental goals. And at micro level, the local organizations showed some weaknesses in its functioning. It is concluded that the State developmental program in the local organization would not be successful if the information, the technical assistance and the subsidies are not given by the State institutions. Moreover it is also necessary for the successful implementation of the programs that members of the local organizations strength their internal ties and share their external links.

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Acronyms

CBMM	Corredor Biológico Mesoamericano - México
CCC	Central Campesina Cardenista
CONABIO	Comisión Nacional para el Conocimiento y el Uso de la Biodiversidad (National Commission for the Knowledge and Use of the Biodiversity)
CONAFOR	Comisión Nacional Forestal (National Forestry Commission)
IRBIO	Instituto de Reconversion Productiva y Bioenergéticos (Institute of Productive Reconversion and Bioenergetics)
KI	Knowledge Interfaces
MXN	Mexican peso
RIBMA	Reserva Integral Biósfera Montes Azules (Integral Reserve Biosphere Montes Azules)
SPR	Sociedad de Producción Rural (Rural Production Society ¹)
TAD	Technology and Agrarian Development Group
UCBD	Unión Campesina Belisario Domínguez (Belisario Domínguez peasant union)

¹ One of the legal forms for rural economic cooperatives in Mexico.

1 Introduction

Global warming, the energy crisis and the rural crisis have pushed Mexico and other developing countries to venture into the production of biofuels (Valero et al. 2011). In this context Chiapas State (Southern Mexico) has been promoting different programs addressed to rural people in order to achieve rural development. The flagship program in Chiapas State is the *Jatropha* biodiesel program. This program aims to achieve rural development and has two main components. The productive component aims to achieve rural development and to use the biofuel in the public transport sector, managed by the Institute of Productive Reconversion and Bioenergetics (IRBIO, by its acronym in Spanish). The environmental component aims to achieve reforestation and forest conservation, managed by the National Forestry Commission (CONAFOR, by its acronym in Spanish). The *Jatropha* biodiesel program involves local organizations and has been well received by them. Some authors argue that the success of biofuel programs depends on local conditions and on the terms and operation of the program (McCarthy, 2010). To investigate this program one has to examine it both at State level and at local level.

This research argues that to achieve rural development it is needed that both the *Jatropha* biodiesel program (productive and environmental parts) and the local organization (beneficiary of the program) work properly.

This research was carried out within the framework of the PhD research project of Antonio Castellanos Navarrete – “Environmental against agrarian demands: capital, labour, knowledge tensions in the Mesoamerican biofuel expansion”, carried out in the Technology and Agrarian Development Group (TAD) of Wageningen University (WUR). The PhD study aims to understand when and how contradictions between agrarian and environmental interests arise, and to identify which processes undermine valid efforts to achieve a social and environmentally sustainable agriculture (Antonio Castellanos-Navarrete´ research proposal: 8). The Msc research fits in this Phd project as it examines the implications of a State program for agrarian and environmental interests at the local level.

1.1 Research problem

In the state of Chiapas, southern Mexico the government is implementing a *Jatropha* biodiesel program in order to achieve different goals (environmental, rural development, State development). One of the aims of this program is to support rural people in achieving rural development. Although the aim is “to help” smallholders, rural peasants can only access the program if they are part of a local (productive) organization. This pushes them to create organizations. It is known that many times before, the government has developed productive programs with the same goal (achieve rural development) but with little success (Valero, 2010). This little success is due to a lack in the development of appropriate technologies, deficiencies in the diffusion of technologies and an unjustified rapid implementation in order to accomplish goals within the period of an administration (Barkin, 1991). However due to the nature of the *Jatropha* crop and its final use (biodiesel), it appears to be different this time, because of its implementation via local organizations. It is said that local organizations act as a more trustful way to achieve development in rural areas (Uphoff, 1993). The question can be raised whether this is the case in situations where there are competing goals within local organizations (due to the nature of the origin of the organizations). Insight gained from this study will be useful for understanding why in some cases local organizations do not work as they are expected to by the State and within rural development programs.

Thus, this research aims to shed light on how a state program is managed at State level. Second, it aims to clarify the impacts of this State program on the performance of a local organization. This research followed a twofold strategy: to describe the *Jatropha* biodiesel program, taking the case of the Union Campesina Belisario Domínguez (UCBD by its acronym in Spanish) as an example of the program at local level; and to understand how a “beneficiary” organization of the *Jatropha* biodiesel program works and for what purposes.

The Chapter 2 describes the theories and concepts used in this research, as well as the methodology used to collect the relevant data for analysis. Chapter 3 illustrate the *Jatropha* biodiesel program and the relation between the State (program) and the Union Campesina

Belisario Domínguez (UCBD). Chapter 4 focuses on the local organization, its integration and its linkages. The final section draws the conclusions of this research.

1.2 Objectives

The first objective is to understand the management of the *Jatropha* biodiesel State program. The second objective of this study is to describe the functioning of a local productive organization (hereafter: the UCBD), working with the state program, and the implications of the program on the performance of this local productive organization (UCBD).

1.3 Research questions

1. How is the *Jatropha* biodiesel program in Chiapas functioning?

In order to answer this question a number of sub research questions were designed.

- What are the characteristics of *Jatropha curcas* and how do these characteristics make *Jatropha* suitable for biofuel production?
- Who are the main actors in the *Jatropha* biodiesel program dealing with the environmental component and the productive component?
- What are the responsibilities of the actors involved in the *Jatropha* biodiesel program?
- What are the aims of the *Jatropha* biodiesel program?
- What role does environmental conservation play in the program?
- Does the *Jatropha* biodiesel program differ from other productive programs implemented before?

2. What are the implications of a State program on the performance of the UCBD (local organization)?

In order to answer this research question I designed two sets of sub research questions: the first related to the local organization per se,

- How is the UCBD functioning and how does this influence the achievement of their objectives?
- What are the formal and informal purposes of the organization?
- Is there a marked difference in social position between the leadership and the social base of the Union?
- What are the barriers faced by the UCBD in order to achieve rural development?
- How are the social relations evolving within the organization?
- Does the UCBD have a network with extra community actors?

The second set of sub questions concerns the interaction between the local organization and the biofuel program,

- Why did the UCBD decide to participate in the Jatropha biodiesel program?
- How is the Jatropha biodiesel program going on in the UCBD up to now and what are the current problems for the UCBD members to benefit from the program?

1.4 Study site

In order to understand the environmental and social processes in Marqués de Comillas it is important to present a description of the study site in terms of geographic characteristics and *ejidos*, colonization, and a brief history of the organizations.

Marqués de Comillas is one of the 118 municipalities located in the State of Chiapas, in the southeast of Mexico (CENTROGEO, 2009). Marqués de Comillas is located in the sub region “*selva*” of Chiapas (Fig.1). It has a total area of 933 Km² (*ibid*). The municipality borders with Guatemala and with the Reserva Integral Biósfera Montes Azules (RIBMA) (Harvey, 1998). The whole area is classified as *ejidal*. By *ejido* is meant a communal land that is used and shared by the people of the community. The *ejido* has a dual character. Plots are in usufruct individually, while natural resources are communal and, every member of the *ejido* can access them as a result of internal regulation (Braña y Martínez, 2005). Until 1992 the peasants were the owners of the land and the *ejido* law

avoided the formation of large private properties. However, after the agrarian reform in 1992 the *ejidal* lands can be bought and/or sold.

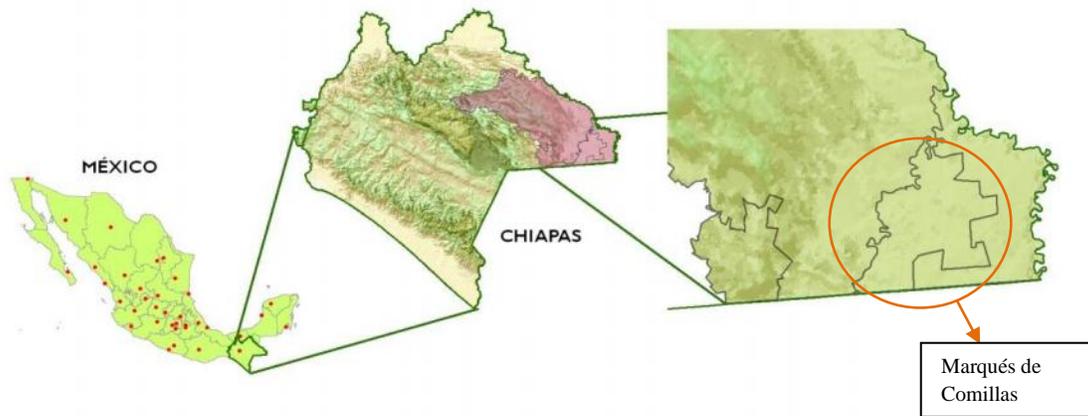


Figure 1. Study area. Marqués de Comillas – Mexico. Modified from CENTROGEO 2009: 2

Chiapas is considered the region with the richest biota of Central America (Ochoa-Gaona & Gonzáles-Espinosa, 2000). The climate is humid and sub-humid tropical with average temperatures between 20°C and 29°C and with a precipitation that varies from 1025 mm to 3000 mm (Vignau, 2009). In Marqués de Comillas 92% of the area has flat topography, while the few hills are located in the southwest of the municipality (Harvey, 1998). According to Lopez-Toledo & Martínez-Ramos (2011) 35% of Marqués de Comillas' area is old-growth rain forest, 16% secondary forest, 43% pasture and 7% is dedicated to other agricultural land use.

The inhabitants of the Marqués de Comillas are mainly indigenous from different ethnic groups and mestizos that have been resettled since 1976 (Harvey, 1998). They came through a State-led colonization process of the rainforest (CENTROGEO, 2009). Through this policy people were granted land tenure after deforestation. The *selva* was considered unused land. Guatemalan refugees arrived in the period of 1982-1984.

1.5 Brief history of the organizations

Although the colonization of the forest was driven by the government, the process lacked support for the development of infrastructure and public services (CENTROGEO, 2009). Organizations were created soon after people arrived in the region and started to demand their rights.

In Mexico the government is federal. It means that every State (region) is free, sovereign and autonomous in its internal administration. Thus, Chiapas is a State of Mexico. In the past, unlike other States, Chiapas was not reached by development programs. Instead it was seen as a region in need of more paternalistic projects (Vargas-Cetina, 2005). For example, the Union de Ejidos “Julio Sabines” did not achieve to become an organization for productive development due to the excessive paternalistic treatment given by the Chiapas State (CBMM, *nd*). Only more recently less paternalistic development programs started to reach Chiapas. They addressed cooperatives, organizations or *ejidos* rather than individual smallholders. These developmental programs had as aim to increase the growers’ income and to support the overall development of rural communities (Suvedi, 2000). In response to these new developmental programs, multiple organizations were created (Vargas-Cetina, 2005). Often, these organizations disappeared after the completion of the project that they were conformed for (CBMM, *nd*). This happened, for example, with the organizations that were created to benefit from the programs offered by “Alianza para el campo” (alliance for the countryside) (*ibid*). Another phenomenon was that organizations keep changing their purpose, orientation, membership or legal form (Vargas-Cetina, 2005) in order to fit in a new program or project, or a new political party.

2 Theory and Methodology

2.1 Theoretical framework

The following paragraphs present a brief description of the theories that were used as guidance for this research. They were chosen because they involve the relations and encounters between different stakeholders. Two theories are described: social capital and knowledge interfaces.

2.1.1 Social capital

Social capital refers to the norms, networks and social relations that facilitate collective action in order to bring shared benefits (Grootaert & Narayan, 2004). Bourdieu (1986) argued that in order to look at the social world it was essential to include social capital within the other forms of capital. The term has been widely used in social, political and economic studies (Woolcock, 1998). And thus, it has raised criticism and debate. For

instance Baron & Hannan (1994) said that forms of capital are just being invented for every behavior in social life, for example music capital, forgetting the economical roots of the term *capital*. Other criticisms are addressed to the use of the concept by the World Bank (Bebbington et al., 2004), and the different conceptualizations that social capital has depending on the field of study (Woolcock, 1998). In order to respond to the above criticisms it is suggested that social capital has several levels; micro level (community) and macro level (state-society) (*ibid*).

In this research I will take into account two dimensions of social capital: namely organizations (UCBD) and networks (UCBD-other actors). Since these two dimensions can play an important role in the achievement of objectives of local organizations.

2.1.2 Knowledge interface

Interfaces refer to the meeting points between different social systems and it is concerned with discrepancies in knowledge, power, values and interests (Long, 1989; Long & Villarreal, 1993). Knowledge emerges of a process of social, situational, cultural and institutional factors (Arce & Long, 1992), Thus understanding of knowledge production is based on the life-worlds of the individuals and groups involved (Long, 2001) in the “processes by which social actors interact, negotiate and accommodate to each other’s life worlds” (Arce & Long, 1993). It leads to a transformation or generation of new knowledge (*ibid*). However these processes can take place between individuals with different interests, resources and power. In his book, Long (2001) gives a nice example of how a new idea generates change. He claims that when a “technology is introduced into an existing farming system, the technology acquires new meanings and uses, often others than those intended by the planners or implementers” (190), in my interpretation of the example it does not mean that the meanings of the planner are irrelevant, but it means that the encounter of the different meanings can generate a new meaning or the dominance of one of the original meanings. I assume that the same processes of changes are generated when a new program is being introduced at the local level. This concept will help me to gain more insights in how the dynamic of the encounter within local organizations and between local organizations and state institutions with different interest, resources and power is.

2.1.3 Conceptual and analytical framework

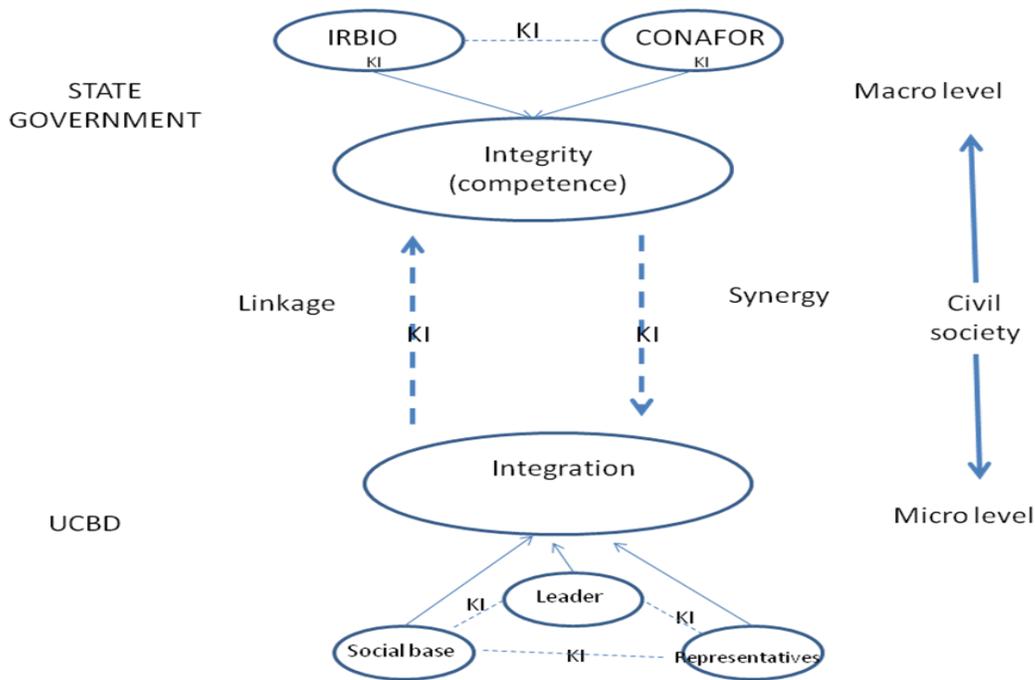


Figure 2. Conceptual and analytical framework (after Woolcock, 1998).

In order to understand the different levels (macro and micro) and the different dimensions (organization and network), I will use figure 2 as follows: First, at the macro level, I will refer to the capacity/competence of the state to generate an efficient and coherent rural development program (the Jatropha biodiesel program). As the Jatropha biodiesel program has two responsible state institutions (IRBIO and CONAFOR), the competence of each of these institutions is analyzed. Second, at the micro level, I will talk about integration like the intra-UCBD bonds; in other words, the analysis will include the relations between the members of the Union, communication channels, support through exchange experiences and accessibility to the leader. Third, in figure 2 “linkage” means networks with actors external to the community at micro level (Woolcock, 1998) I will analyze the relations between the UCBD and other external “actors” (excluding the state institutes). Fourth, “synergy” in figure 2 mean state-society relations at macro level (Woolcock, 1998; Woolcock, 2001) I will analyze the relations between the State and UCBD. Fifth, I will look at knowledge interfaces (KI) at both micro level and at macro level. It will refer to the encounter between actors with different interests, power and knowledge.

The line between top-down and bottom-up is blurred in this study. Since the Jatropha biodiesel program is established by the top and the UCBD is pushing the state to implement this program in the Marqués de Comillas, I make the division between micro and macro level in the social capital concept in order to have a better definition of them and to know in what part of the analysis I can take in consideration one or more of the concepts. However, I do not deny the vague character of this micro and macro distinction.

2.2 Methodology

For this research a qualitative case study was done. Qualitative research was chosen because it allowed to “explore issues in depth and from the perspectives of different participants” (Ritchie & Lewis, 2003). The “case study” seems to be the most appropriate research strategy because it focuses on contemporary events and it allows the researcher to take into account the real context of the study area (Yin, 2003).

2.2.1 Data collection

The period of data collection was from November 2011 to February 2012. During this period I used ethnographic methods such as participant observation, direct observation, semi-structured and unstructured interviews (Table 1). By unstructured interviews I refer to the daily and unplanned conversation with key actors that might have any “value” for the research. This was complemented by a final workshop with the leaders and representatives from the organization.

Table 1. Research questions, source of information and method of data collection

Research question	Source of information	method of data collection
How is the Jatropha biodiesel program in Chiapas functioning?	IRBIO, CONAFOR, UNION	Interviews (UCBD and IRBIO), e-mail communication (CONAFOR), literature and document research, observation, Jatropha fields visits

Sub research questions		
What are the characteristics of <i>Jatropha curcas</i> and how do these characteristics make <i>Jatropha</i> suitable for biofuel production?	IRBIO, CONAFOR	Interview (IRBIO), literature review, e-mail communication
Who are the main actors in the <i>Jatropha</i> biodiesel program dealing with the environmental component and the productive component?	IRBIO, CONAFOR, UNION	Inteivews (UCBD and IRBIO), e-mail communication CONAFOR, document research and observations
What are the responsibilities of the actors involved in the <i>Jatropha</i> biodiesel program?	IRBIO, CONAFOR, UNION	Interviews (UCBD and IRBIO), document research, workshop and observations
What are the aims of the <i>Jatropha</i> biodiesel program?	IRBIO, CONAFOR	Interviews (IRBIO), document research
What role does environmental conservation play in the program?	CONAFOR, UNION	Interviews (Union), documental research
Does the <i>Jatropha</i> biodiesel program differ from other productive programs implemented before?	UNION, IRBIO, CONAFOR	Interviews (Union, IRBIO), literature and document research
Research question		
What are the implications of a state program on the performance of the UCBD (local organization)?	IRBIO, UNION	interviews (IRBO, Union), workshop, observation, field visits, document and literature research

Sub research questions		
How is the UCBD functioning and how does this influence the achievement of their objectives?	UNION	Interviews (Union), workshop, observation
What are the formal and informal purposes of the organization?	UNION	Interviews (Union), observation, workshop, document research
Is there a marked difference in social position between the leadership and the social base of the Union?	UNION	Interviews (Union), observation, workshop
What are the barriers faced by the UCBD in order to achieve rural development?	UNION, IRBIO	Interviews (Union, IRBIO), observation, workshop
How are the social relations evolving within the organization?	UNION	Interviews (Union), observation
Does the UCBD have a network with extra community actors?	UNION	Interviews (Union), observation, document research
Why did the UCBD decide to participate in the Jatropha biodiesel program?	UNION	Interviews (Union), observation, workshop
How is the Jatropha biodiesel program going on in the UCBD up to now and what are the current problems for the UCBD members to benefit from the program?	UNION	Interviews (Union), field visits, observation, workshop

2.2.1.1 Participant observation

From the typology of research roles given by Gold (1958) (in Hammersley and Atkinson, 2007: 85) I used the *observer as a participant role*, through this I watched what happened, listened to what was being said and I asked questions when needed. The observations made helped me to confirm or reject what I found in the interviews. These observations were an important input for the interviews. I developed direct observation through my stay in the different *ejidos* recording daily life activities, and I visited the plots where the *Jatropha curcas* was planted or planned to be planted. Observations were also made during UCBD general meetings, meetings with small groups (*ejidos*) and a final joint workshop with community representatives.

2.2.1.2 Semi-structured in-depth interviews and unstructured interviews

Both semi-structured and unstructured interviews were done because it allowed a better understanding of behaviours that are not easy to identify through the structured interviews. Moreover as unstructured interviews can take form of informal daily conversations the interviewees are more open to discuss topics than during scheduled interviews. It also allowed me to identify the gaps between oral accounts and practice. For example, farmers can say that they are not using herbicides, but once in the plot I saw backpack sprayers and empty bottles of herbicides.

In-depth interviews were used for data collection. According to Green & Thorogood (2009) this kind of interview produces data in the form of language related to beliefs, behaviours, ways of classifying the world, etc. This was useful for gathering relevant information, for example, the perceptions of the smallholder producers group towards the *Jatropha* biodiesel program. As mentioned before the combination of interviews with participant observation can thwart the interviews' flaws.

Interviews were conducted with representatives, regular members and the leader of the UCBD and functionaries of the Institute of Productive Reconversion and Bioenergetics (IRBIO) (Table 2). Most interviews with the representatives and the social base were held in the plots destined to grow *Jatropha curcas*. The unstructured interviews with the leader were held mainly in his house. The interviews with the functionaries of IRBIO were held in their respective offices.

Table 2. Interviews done per location and per type. Total are also indicate.

Location	Peasant organization				State officials	Total
	Jatropha farmer	Jatropha beneficiary ^a	Other UCBD member ^b	UCBD leader or representative		
Barrio San José	21	1	1	2	0	22
América Libre	5	11	1	3	0	17
Rio Salinas	7	0	0	1	0	7
El Porvenir	1	0	0	0	0	1
Piru	4	3	0	1	0	7
San Isidro	2	0	0	1	0	2
Absalon	3	0	0	0	0	3
Castellanos						
Tuxtla	0	0	0	0	2	2
Gutierrez/ La chacona						
	43	15	2	8	2	61

^a These are organization members who have not yet received their *Jatropha* seedlings.

^b These were normally farmers participating in rubber programmes which entered into UCDB during fieldwork.

2.2.1.3 Workshop

The workshop was a powerful tool to get people to say what they did not say during the interviews. The workshop was divided in two activities. The first activity was developing a time line of a number of crucial events, and then putting them in chronological order and discussing them in plenary without recording who answered what. The second activity was making two silhouettes, one of a *Jatropha curcas* producer and the second of an African palm producer. This activity helped me to understand how members see the organization and the *Jatropha curcas* crop going in the future. Moreover, this activity also provided data on how the participating members perceived other people that are not part of the organization. During the entire workshop we also collected data on the group dynamic and the roles taken by the participants. The workshop took place in the *ejido* Zamora Pico de Oro and its duration was approximately 6 hours. The workshop counted with the participation of 12 members of the Union; together with the leader and 7 representatives.

2.2.1.4 Literature and document research

I collected different material as data for the research: (1) State programs (2) documents related to *Jatropha curcas*, (3) documents from the organization (pamphlet, document of the “history” of the organization), and (4) some related news from local newspapers.

2.2.2 Data analysis

Data analysis is very important in order to portray valid meaning from qualitative data (Miles and Huberman, 1984). It is a worthy task because it allows a substantial understanding of the phenomena under observation (*ibid*).

In this research coding started before going to the field, when I suggested a series of general words/labels related to the theoretical framework and the research questions. However, after a first contact with the UCBD the codes were refined, as well as the research questions and the theoretical framework. First coding was made by general codes, sometimes I took the textual words of the interviewees as codes (in vivo codes). After rethinking the codes I made some adjustments, by coding I try to summarize the data given in order to afterwards grouped and/or linked to generate explanations (Saldaña, 2009).

2.3 Key actors

I separate the key actors as main actors and secondary actors (Table 3). Under the label of main actors are the ones that have a central/ important role in the case study. Under the label secondary actors are the organizations that have a limited role.

Table 3. Key actors in the case study.

Main actors	type
Unión Campesina Belisario Domínguez	Local organization
IRBIO	state institute
CONAFOR	federal institute
Secondary actors	type
Central Campesina Cardinista	peasant organization
Corredor Biológico Mesoamericano	environmental organization
other productive organizations	local organizations

The next figure (Fig. 3) shows through the arrows the interaction with the UCBD and/or the members of it and other actors. The shortest arrows indicate a more frequent interaction than the longest arrows.

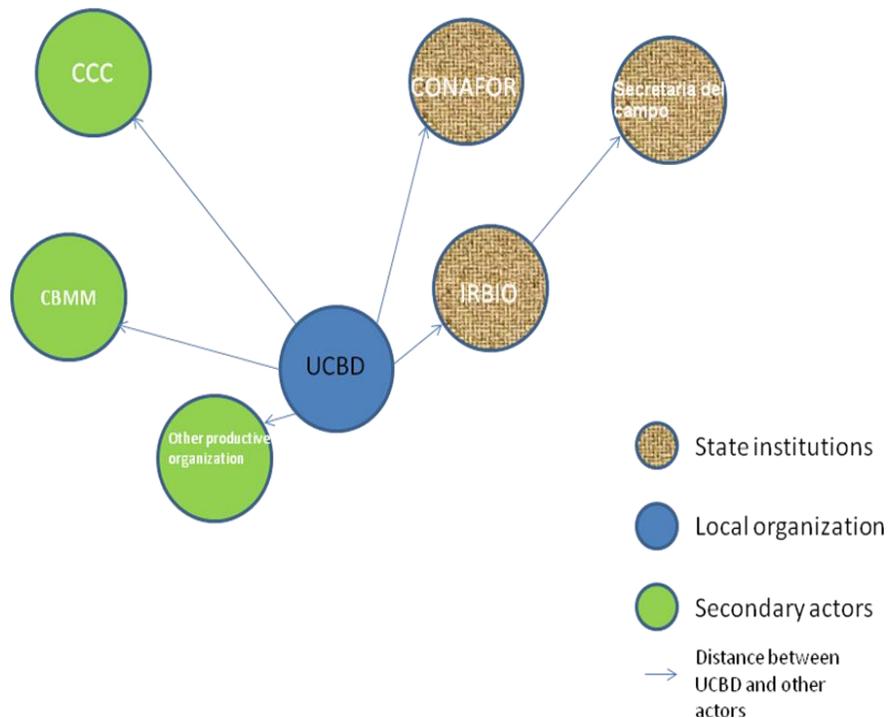


Figure 3. Key actors interacting with UCBD.

2.3.1 Main actors

Unión Campesina Belisario Domínguez: The UCBD is a local productive organization that is looking to achieve rural development through the implementation of a *Jatropha* biodiesel program promoted by the state of Chiapas. At least this is the position of the UCBD in order to gather people; however it is not only *Jatropha* based. Through flyers the organization describes itself as “a left-wing organization concerned with the fulfillment of the peasants’ constitutional rights”. The members of the UCBD are from different *ejidos* in the municipality Marqués de Comillas.

- **Jose:** Name that I will give to the legal leader of the Union. I consider him as a different actor on his own because of his different social position and because he has the relations with external actors. At the UCBD *Jose* is in charge of interacting with the State institutions and others outsiders in order to get support for his Union. Even if *Jose* is the leader of the UCBD he does not work the land, its farm is run by paid peasants (*jornaleros*). His background (University level) and his former jobs

(more related to the *ejido* administration than to agriculture) give him an important status comparing with the other members of the Union.

- **Representatives** are the members of the UCBD that have the responsibility to inform and engage the other members of the UCBD to keep on growing the *Jatropha curcas*. Generally there are one or two representatives per *ejido*. Almost all representatives share a characteristic in common; they are leaders from their *ejidos*, and they have followers.
- **Social base** is composed of UCBD members that do not have any leadership position within the organization. They live in the different *ejidos* in Marqués de Comillas.

IRBIO: Institute of Productive Reconversion and Bioenergetics. It is a Chiapas State institute that promotes the development of fruit growing, horticulture, floriculture and agro-industrial plantations, through the Integrated Productive Reconversion. It includes training, technical assistance and technology transfer, in order to provide quality and competitive products. And thus, improve the welfare of farmers and their families. This Institution is in charge of the productive chain of the *Jatropha* biodiesel program. They also choose the beneficiaries of the program and give them mainly technical assistance and free seedlings.

CONAFOR: National Forestry Commission. It is a federal institution with branches at State level. Its objective is to develop and to promote agricultural production, conservation and restoration activities. Another objective is to participate in the formulation of plans and programs and in implementing the policy of sustainable forest development. In Chiapas the institution is in charge of the environmental component of the *Jatropha* biodiesel program.

2.3.2 Secondary actors

Central Campesina Cardinista: It is a non-profit leftist national peasant organization that helps to manage programs addressed to the rural society. The CCC is new in Chiapas State. They are not consolidated in Chiapas yet. However, they have approached the Union.

Corredor Biológico Mesoamericano: It is an environmental program from the National Commission for the Knowledge and Use of the Biodiversity (CONABIO in its Spanish acronym). The initiative aims to identify important areas for conservation and

articulate them in order to create biological corridors. The program relies on a network of local technicians and community promoters group in Marqués de Comillas.

Secretaría del Campo: It is a federal institution with branches at State level. It is in charge of the agricultural and forestry development.

Other productive organizations: Local organizations in Marqués de Comillas that promote other crops including rubber, Persian lime and African palm. Some members of the UCBD also are members of these other local organizations.

3 Jatropha curcas in Marqués de Comillas

In this chapter the main topic will be the *Jatropha* biodiesel program. I will explain (i) the environmental part of the *Jatropha curcas* and why it has been chosen to produce biofuel; (ii) The actors involved in the program and its responsibilities; and (iii) the competence and the synergy of the State institutions. In order to understand the competence of the institutions in the implementation of the *Jatropha* biodiesel program, I will take as an example the case of the UCBD in the municipality of Marqués de Comillas.

3.1 Why Jatropha curcas is chosen for biofuel production?

Jatropha curcas is an *Euphorbiaceae* native from South America (Francis et al. 2005). It is a shrub, resistant to droughts and pests and to prevent erosion (*ibid*).

In terms of biofuel production, *Jatropha* is considered as a good feedstock alternative. It has a low production price and the climate conditions requirements are low (*ibid*). *Jatropha* is promoted as a sustainable option for biofuel production due to its multiple uses, the property to grow in marginal lands where no food crop can be grown (Kumar & Sharma, 2008) and the easy conversion to biofuel (Achten et al. 2007). It has been argued that this great interest for might lead to unsustainable practices (*ibid*).

Only a few of the positive characteristics that made *Jatropha curcas* a miracle plant have been scientifically proved (Ouwens et al, 2007; Skutsch et al, 2011). Some studies state that even if the *Jatropha curcas* grows in marginal lands it does not mean that the production is going to be good and profitable for the peasants (Jongschaap et al, 2007). In the case of the UCBD it is still too early to know if the soils where the *Jatropha* is being planted will be appropriate for a high yield. However, in *Frailasca* region of Chiapas where

the *Jatropha* has been planted around three years ago, the production is not as high as expected by the farmers (Felipe Gaitán, January 2012, personal communication). Another point discussed is that *Jatropha* is not a food crop and will not compete with food production (Hunsberger, 2010). However, an indirect impact may occur when peasants stop growing the traditional crops to replace them with *Jatropha* for economical profits (Jongschaap et al, 2007).

In the case of Chiapas the two original varieties are not toxic (Skutsch et al, 2011) and used for food consumption by locals, while other varieties are toxic. The *Jatropha* biofuel program is using a toxic variety, without providing any clarity about this choice. The interviewed State functionaries did not know why this decision was taken or what the differences between the varieties were. Moreover, the interview with the functionaries of IRBIO reveals that the local non toxic variety that has been planted in some municipalities, gives better results than the toxic variety.

3.2 Competence: *Jatropha* biofuel program

In Chiapas, the *Jatropha* biodiesel program is being led mainly by two State institutions: IRBIO and CONAFOR. These two institutions have coordinated efforts in order to manage the program. IRBIO is in charge of the productive chain, from the production of vegetative material to distribution and consumption (Fig. 4). CONAFOR is in charge of the reforestation component of the program, through its program ProArbol.

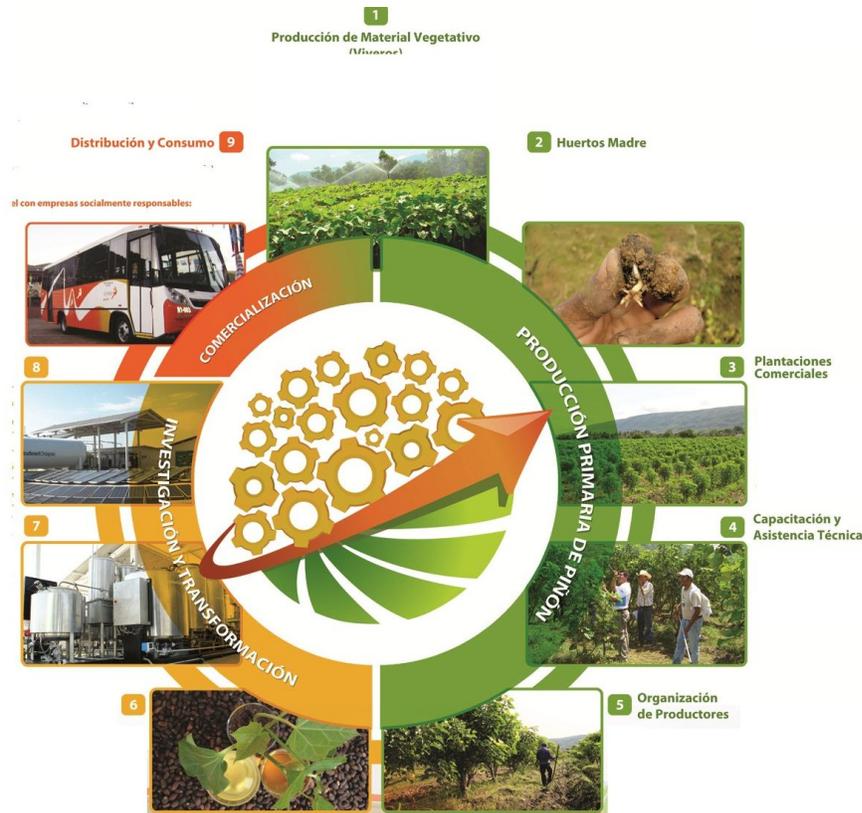


Figure 4. IRBIO productive chain for Jatropha biodiesel production; (1) production of vegetative material; (2) nurseries; (3) commercial plantations; (4) training and technical assistance; (5) organization of producers; (6) collection and oil extraction; (7) technology and processing; (8) research, and; (9) distribution and consumption. Source: <http://irbio.chiapas.gob.mx/energiasrenovables/index.php/cadena-de-produccion.html>

At the end of my field work IRBIO disappeared as an autonomous institute to become a subdivision of the Secretaría del Campo. However the functionaries state that this measure, instead of being an expression of a weakened IRBIO, is going to give it more strength, because the Secretaría prioritizes the production of biodiesel and has more functionaries working on it.

In the next subsections I describe the two main actors (IRBIO and CONAFOR) in the Jatropha biodiesel program, their responsibilities and their competence. I will also include the aim of the program.

3.2.1 IRBIO and its responsibilities in the program

As claimed by IRBIO the aim of *Jatropha* biodiesel program is to promote regional and rural development, creating opportunities for economic development and poverty reduction, in order to improve the living standards of rural people. According to Woolcock (1998) it is necessary that an institution has competence in order to achieve its objectives. However, the State institution in charge of innovation, technology and market of the *Jatropha* biodiesel program (IRBIO) has not shown a strong competence. It is important to clarify that for the scope of this research I define the competence of IRBIO as its capacity to generate an efficient and coherent *Jatropha* biodiesel program for Marqués de Comillas.

The *Jatropha* biodiesel program does not require that the beneficiary belongs to an organization. However, the functionaries of IRBIO give priority to organizations because of convenience: it is not practical to offer technical assistance if there is only one producer in an area. Another explanation given by IRBIO functionaries is that CONAFOR only works with organizations; since both institutions (IRBIO and CONAFOR) work “together”, it is easier for IRBIO to give priority to producer’s organizations. Furthermore, CONAFOR is the State institution that offers subsidies. This is an important point for the farmers to take the decision for growing *Jatropha curcas*. So IRBIO prefers to work with organizations that can be entitled to get the subsidies offered by CONAFOR and not with particular peasants that have less chance to get subsidies from CONAFOR (see point system ProArbol operation Rules).

IRBIO offers to the beneficiaries: free seedlings, nurseries in areas with high number of hectares to be planted, technical assistance, training and purchase of the production. IRBIO also decides the potential areas for growing *Jatropha curcas*. According to IRBIO functionaries, from 2012 the institution will offer, in addition, machetes to prune and fertilizer packages.

- Free seedlings:

In the literature, the recommendations about the selection of the seed are clear. The first choice is the local variety; if the seeds come from abroad they should be tested before using (Van et al. 2010). However, in the case of IRBIO, seeds promoted and given to the peasants are mainly from India. The functionaries claim that peasants of other regions in

Chiapas are using local seeds (not given by IRBIO) having better results than the Indian seeds. This contradiction can be caused by the absence of investigation in the different seeds. IRBIO functionaries comment that the better results are due to the higher quality and quantity of oil that the local seed produces.

The IRBIO delivery system shows some deficiencies. For example, in Marqués de Comillas the UCBD has received only a partial delivery of the vegetative material. From the 700 hectares of vegetative material approved to Marqués de Comillas by IRBIO, less than 200 hectares has been delivered. Moreover, in some cases, the seedlings have been damaged by the transport from the nurseries of IRBIO in Tuxtla Gutierrez to Marqués de Comillas (9 hours journey approximately). There have also been seedlings of small size that did not survive the planting operation. The section 4.4 explains how these deficiencies from IRBIO have consequences in the UCBD.

- Nurseries:

According to a *Jatropha* booklet produced by IRBIO (2012), Chiapas currently counts with seven nurseries located in 5 municipalities. These nurseries have the capacity to produce approximately 13.5 millions of plants in 27 hectares. The locations of the nurseries are related to the amount of hectares intended to grow *Jatropha curcas*. In other words, the municipalities with higher amount of land intended to *Jatropha* are the ones where the nurseries are located. According to the functionaries of IRBIO and the booklet (IRBIO, 2012) Marqués de Comillas does not have nurseries. However, during my field work I visited one nursery located in the *ejido* Zamora Pico de Oro, capital of Marqués de Comillas. This nursery was managed by a municipal functionary of IRBIO. This fact shows a lack of knowledge by the functionaries of IRBIO about what takes place at municipal scale.

From the last paragraph one can conclude that the competence of IRBIO in terms of communication and involvement with the municipality scale (municipality and State functionaries) is low.

- Technical assistance and training:

Having a lunch in the house of *Jose*, with other members of the Union, I thought it was a good opportunity to see what were the different ideas and perceptions related to the technical assistance given by IRBIO. After my question a silence followed. At the beginning I doubted if the meaning of technical assistance was the same for all of us. Or if maybe I was misunderstood. I waited a bit to see if one of the present people would break the silence. After a while, one of the youngest of the members spoke. He said that he was the technical assistant of IRBIO in Marqués de Comillas. He was not so proud about it. He said he did not feel part of the institution. He did not give the service because IRBIO was not good. IRBIO was delayed in paying the salaries of the workers at municipal scale. Then the other members started to talk. They said they need technical assistance and that IRBIO was in charge of that. However, no one of them seemed to see the young man as an IRBIO functionary.

Box 1. Awkward silence

IRBIO is in charge of providing continuous technical assistance, through its 47 specialized technicians. It is also responsible to train producers and to organize technological exchange “tours” (IRBIO, 2012). In the words of IRBIO’s functionaries:

“..we [IRBIO]do not want more technicians in the offices, we want them continually in the field [countryside] supporting [Jatropha] producers. Nowadays we only meet the technicians during the weekends to exchange information...” (060ENT31JAN12IRBIO)

However during a talk with members of the Union, a different view on what is happening in reality in the field occurred. In *Jose* words:

“...the technical assistance from IRBIO was that they would be with us checking the crops to see if there are pests, to see what the crop needs or what it does not need”.

“The problem is that IRBIO believes that the technicians are here, because they have a house near here, but the reality is that they do not come to check the crops because of internal problems with the institution” (002ENT29NOV11JMG)

As I could observe during my field work in Marqués de Comillas, there are technicians from IRBIO; however they do not visit the crops. The technicians argue that

even if they “work” for IRBIO, they do not feel any responsibility to fulfil their job. They do not have a sense of belonging towards the institution. The reason for it is simple, the technicians have not received their payment for four months, and the idea to continue working while waiting for their payment is not an option. This is not only the case in Marqués de Comillas, it is in all the nurseries in Chiapas (Siete de Chiapas, 2011). According to some local newspapers this delay in the payments is due to a fraud in the institution: 300 millions of MXN (about 17.5 million Euros) from IRBIO’s budget disappeared (el Orbe, 2011). After the fraud was known, IRBIO became a subdivision of the Secretaria del Campo.

Regarding training, the representatives and leader of the Union participated in a training session organized by IRBIO functionaries. The idea was to explain them how to plant and maintain the *Jatropha curcas*. Then the attendants could transmit their knowledge to other members of the UCBD. However when asked to the members of the UCBD what knowledge they had to plant and maintain the *Jatropha curcas* the answers were limited to spacing and pit size: The spacing has to be, 3 x 2 m, 3 m row to row and 2 m plant to plant, for a total of approximately 1600 plants per hectare. About the pits size, producers were instructed to dig depending on the size of the roots of the plant, so for each plant the hole would be different.

However, according to Arif & Ahmed (2009) 3 x 2 spacing is for irrigated areas, while the potential areas to grow *Jatropha curcas* in Marqués de Comillas are not. Furthermore, some argue that the digging of the pits depend on the quality of the soil and availability of water (Arif & Ahmed, 2009). The training did not mention the most appropriate period to plant. Some of the members of the UCBD planted in August and their plants did not sprout or got invaded with fungi. The reason to plant in August was that IRBIO sent the seedlings in this month.

The representatives that attended the training pointed out that they were advised to prune the plants every year in order to increase the production. They do not recall more advises about the planting and maintenance of the crop.

- Purchase and market of the production:

The Institution will buy the seeds produced by the organizations that are beneficiaries of the *Jatropha* biodiesel program (Including the UCBD). The price that will be paid is about 4 MXN (0.23 Euros) per kilo of the seed. However, this information is known only for *Jose* and few representatives.

There is no knowledge of how the transaction will take place, if the institution will come to pick up the seeds to a collection centre or if the UCBD would take the seeds to the experimentation centre of IRBIO in Tuxtla Gutierrez (9 hours from Marqués de Comillas). This last option will imply less profit for the producers.

The institution will buy the seeds in order to transform them in their oil processing. However, these processing did not work yet, and the one located in the experimental centre of IRBIO seems to process used vegetable oil and not the *Jatropha*'s seeds. This is also found in Kenya by Hunsberger (2010: 952) were "...the vagueries of a market that has not yet materialized create a situation where *Jatropha* can be grown widely but processed nowhere..."

As a functionary of IRBIO explained to me, the beneficiaries of the program will receive a card in order to control who sells the *Jatropha* seeds to IRBIO and give priority to them over other producers. Moreover IRBIO will start to have contracts with the producers in order to secure that the seeds are going to be sold to the institution and not to third parties. However, there are doubts about where the seeds are going to be transformed into biofuel if the processing is not working.

As the *Jatropha* biodiesel program is the flagship from the current Chiapas governor, IRBIO is interested in establishing good basis in the whole productive chain in order to secure the continuity of the program in the coming government.

- Marqués de Comillas as a potential area :

IRBIO is also in charge to decide where the potential areas to grow *Jatropha* in the state of Chiapas are (Fig. 5). At the beginning of the program Marqués de Comillas was not included as a potential area. However it was included after negotiation with *Jose*. The leader of the UCBD says that, at the beginning, the program focused on degraded lands.

Then there was a change towards a strong productive emphasis. This change allowed the inclusion of Marqués de Comillas as a potential area to grow *Jatropha curcas*. However, in Marqués de Comillas great part of the producers is planting *Jatropha* in degraded lands. Moreover, *Jose* mentioned a negotiation process in which IRBIO included Marqués de Comillas due to the available amount of land. Other reasons to select regions can be political affiliation, as in the case of Veracruz where some peasants affirm that the beneficiaries of the programs are being selected for political affiliation (el Universal, 2009).

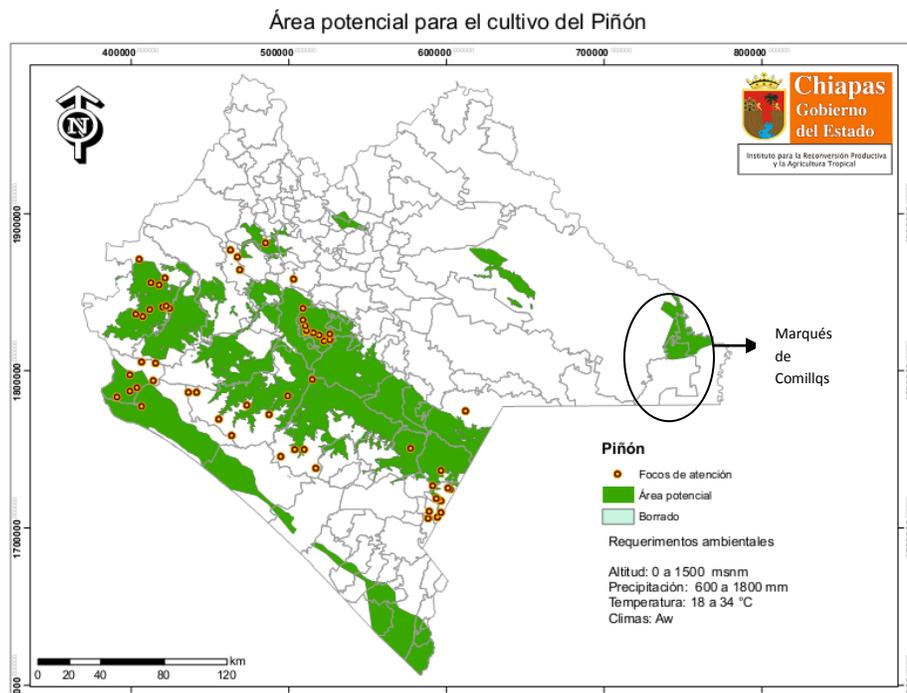


Figure 5. Potential areas to grow *Jatropha curcas* in Chiapas State. Source:

<http://irbio.chiapas.gob.mx/images/areapotencial/pinon.pdf>

3.2.2 Changes in the program and responsibilities of CONAFOR

Although the main target of the *Jatropha* biodiesel program is rural development and the production of biofuel, one of the State institutions that offer support to *Jatropha curcas* production is CONAFOR, through its program ProArbol. In the program *Jatropha* is included as a commercial forest plantation (Operation rules ProArbol) and as reforestation (Skutsch et al, 2011).

The smallholders were the focus of attention in 2007-2008 when the *Jatropha curcas* was included in ProArbol. In 2010 the focus shifted from smallholders to organized production (Skutsch, 2011). This shift in focus reveals the multiple discourses of development attached to *Jatropha* (Hunsberger, 2010) by the State. On one side they aim to rural development and poverty reduction (focus on smallholders), but on the other side the program also wants to achieve economic development (organized production). Although these objectives are not necessarily exclusionary, the institutions need a higher competence in the development and implementation of programs in order to avoid tensions for competing objectives.

To cut forest or old *acahuales* (secondary forest) for growing *Jatropha curcas* goes against the operation rules of ProArbol. In Marqués de Comillas the majority of the UCBD members are planting *Jatropha* in low productivity abandoned lands and in lands where they grow corn, but with low yields. However, there are some members that have cut forest and old *acahuales* in order to grow *Jatropha curcas*. This could have as a consequence the denial of subsidies offered by CONAFOR. Although the role of CONAFOR is to visit and verify the *Jatropha* plantations in order to control this kind of incidents, there is no presence of CONAFOR in the municipality. So the members of the UCBD have not received subsidies no cautions for the work done. Moreover when asking CONAFOR functionaries why the institution included *Jatropha curcas* as a “tree” the answer was vague:

*“...It is important to note that due to the strong climate changes for the discriminated (sic) use of fossil fuel and other polluting agents, the federal government is seeking for natural energy alternatives. The federal government invited all the institutions to include in its programs alternative crops to help reduce the use of fossil fuel. So CONAFOR in its operating rules of ProArbol includes *Jatropha curcas* from 2007, which is considered in its origin and in literature a forestall crop” (Mail communication on 17th Feb).*

The subsidies offered by CONAFOR are conditioned to the verifications visits. CONAFOR offers to its beneficiaries 7500 MXN (435 Euros) per hectare of *Jatropha curcas* for the first year. The subsidy is aimed to help peasants to start the crop and to have

some income until the crop starts to produce. In order to give the subsidy, it has been established by CONAFOR that 3 months after the *Jatropha* has been planted, they will realize the verification and inspection visit for the planting density and the survival rate. The subsidy is not granted if there is less than 70% of survival or if less than the 80% of the plants are healthy. Among the members of the Union, some planted more than 3 months ago. However, there was not any functionary of CONAFOR verifying their crops. Moreover, due to the low quality of seedlings given by IRBIO and the little knowledge of the farmers about the planting schedule of *Jatropha curcas*, most of the lands planted were not in so-called “healthy” conditions. According to CONAFOR’s methodology a “healthy tree” is without any visible damage.

3.3 State-UCBD relation

In the case of the *Jatropha* biodiesel program, the Chiapas State has changed the system of delivering subsidies. Before, it used to be first the subsidies and only then, after receiving the subsidies, the peasants would work. However, this system changed because of the low commitment of peasants to finish projects with subsidies. The *Jatropha* biodiesel program requires first that the peasants plant the *Jatropha curcas* and maintain it in good conditions. Then, there is a verification visit to prepare the decision if the peasant deserves the subsidy. The peasants of the UCBD are not pleased with this new system. They argue that they have planted the *Jatropha curcas*, but that the State has not made the verification visits. And as consequence, the subsidies have not been delivered.

The State of Chiapas is related with the UCBD through the functionaries of the two aforementioned institutions: IRBIO and CONAFOR. *Jose* is in charge to relate to the bureaucrats working in the institutions (state scale). Having more experience for dealing with state functionaries by working in the public administration, *Jose* facilitates the relation between the State (IRBIO and CONAFOR) and the Union. He is the one that travel to the offices of IRBIO in order to make them hear the needs, requirements and exigencies of the peasants of the Union. In general, the visits of *Jose* to the State functionaries are not planned in advance with the functionaries. In fact, *Jose* prefers to show up in the offices without previous notice. According to him this is the best way to ensure an efficient relation with the State; otherwise months can pass without any notice from the institutions.

The visits can be seen as a way of the UCBD to pressure the Government in order to get answers to their petitions. The negotiation processes between the State and the UCBD take place during these visits. During 3 months, 4 meetings were held between UCBD and Government institutions.

In theory, the relations between the technical assistant and the members of the UCBD should be through the visits for verification, training, delivery of plantings and technical assistance. However, during my field work the only activity that I could observe was the delivery of plantings. This delivery is done through a system of tickets. The tickets are given to the peasants that have the land ready to plant. With the ticket the peasants go to the nurseries where an IRBIO functionary will deliver the plantings. During this encounter the peasant is given general instructions of how to plant the *Jatropha curcas*.

Other “encounter” between the members of the UCBD and technical assistants is in the informal meetings. That occur when a peasant visits the house/office of *Jose* without previous appointment, the discussions are about the delay in the payment of IRBIO workers and the methods of pressure. In these meetings the local IRBIO functionaries are seen as neighbours more than as State functionaries, and the peasants show solidarity towards them.

From the last paragraphs the relations between the State institutions and the UCBD (called synergy by Woolcock, 1998; see scheme 1 in my theoretical framework) are characterized by: (1) pressure; (2) lack of trust, and; (3) lack of knowledge.

First, the UCBD exerts pressure on State institutions in order to make them accomplish what the institutions promised. There are two ways in which the UCBD exerts pressure. Initially, they go to visit the institutions, they wait until being attended. If they do not get good results after the visits some members of the UCBD will take more drastic measures. The members of the UCBD in response to the delay in the delivery of the vegetative material literally tied the person in charge of the nurseries in order to pressure IRBIO to give the plants. Even if *Jose* did not participate directly in this act, he used this event to show to the State and to the members of the UCBD his position by working as a mediator.

When I heard that the peasants literally tie state functionaries my first impression was that it was kidnapping. However, as the peasants told me that so honestly, and without any type of badness in their look, I decided to hear more about it before making any kind of judgement. It resulted to be a very common practice for the peasants on Marqués de Comillas. The peasants will not let the functionaries go until the state accomplishes or partially accomplishes its promises. I was told that before the municipality got electricity they had to tie some functionaries so the government really heard them. Moreover I was told that the people tied in the electricity case were in favour of the peasants.

Box 2. Tying state functionaries

Second, there is a lack of trust on both sides. The State institutions do not believe in the peasants because of past experiences. When there was a subsidy the peasants used to take it without finishing the “work” that the subsidy was addressed to. For this reason the state institutions changed their way of working. In the case of *Jatropha curcas* the peasants have to do first the job and then the subsidy will only be given after verification. On the other side, the peasants do not believe in State institutions. In the case of *Jatropha curcas*, the delay in the delivery of the seedlings and the absence of functionaries in the municipality (for technical assistance and verification) creates an atmosphere of mistrust.

Third, there is lack of knowledge, due to the absence of State institution functionaries in the municipality. There is little knowledge on the *Jatropha* biodiesel program in the Union. During the interview made to the functionaries of IRBIO they affirmed that due to the location of Marqués de Comillas (9 hours approximately from IRBIO offices) is one of the municipalities that they have most abandoned.

There is also a negotiation processes between *Jose* and IRBIO. The negotiation process is not a horizontal relationship, but a vertical relationship, whereby the IRBIO functionary is higher in the hierarchy than the leader of the Union. The leader of the UCBD had to visit frequently the offices of IRBIO and discuss with several functionaries the interest of the UCBD to receive the benefits of the *Jatropha* biodiesel program. This political environment in which negotiations process is done vertically can discourage the group activity and thus affect the achievement of organization-based development. However, in the case of the UCBD this type of negotiation did not discourage them and the process continued maybe

for the willingness of *Jose*. After the negotiation process it was agreed to include Marqués de Comillas as a programme beneficiary. The inclusion of the municipality was conditioned by IRBIO to have more than 500 hectares to grow plants. The reasons for this have to do with the goals – related to expansion plans and evaluations based on hectares planted - that IRBIO decided to include Marqués de Comillas.

I did not find evidence for a negotiation process with CONAFOR. The UCBD only has to apply for the subsidies and wait for the visit of the CONAFOR functionaries. However, as CONAFOR have not visited yet the plots with *Jatropha curcas* of the members of the Union, it could be possible that *Jose* will start a negotiation process with them.

The relations between the State institutions and the UCBD are crucial to development. Because through these relations is possible to have an effect on the design of development programs. For example, the inclusion of Marqués de Comillas as a potential area for *Jatropha curcas* was due to the negotiation process between the leader of the UCBD and the IRBIO functionaries. This UCBD success suggests that once a local organization pushes, the State will modify the implementation of the program. In this case the synergy between the State and the UCBD gave good results for both. The UCBD achieved to include Marqués de Comillas in the program. And the State achieved to increase the number of hectares planted. These relations could persuade the State to act in a developmental manner (Woolcock, 1998). However, if we look at the broad program, the current nature of the relations state institutions-UCBD can undermine the path to rural development, because of a disarticulation of the “interests, needs and resources of both parties” (Woolcock, 1998).

3.3.1 Knowledge interfaces

The negotiation process can be seen as a space for the encounter of different social systems (Long, 1989). On one side, there is IRBIO which hold the knowledge related to the *Jatropha curcas* crop and the power to decide who can be beneficiary of the *Jatropha* biodiesel program. On the other side, there is the UCBD whose members do not have knowledge about the crop but decide for growing or not growing *Jatropha curcas*. The main objective of implementing the *Jatropha* biodiesel program is to achieve rural development. For the leader of the UCBD it is a way to achieve its personal political

objective. Thus, the program acquires new meanings and uses, others than those intended (Long, 2001) by the State institutions in charge of the program.

The same applies to the encounters between members of the UCBD that hold different knowledge, power and interests. On one side, the leader of the UCBD sees the program as a way to achieve his political interests. While in the other side the other members of the UCBD (social base) see the same program as a way to stop migration to the USA and to improve their livelihoods through both subsidies and long term production.

The aforementioned shows the different meanings that the same program can have depending on the social actors involved in the encounter.

4 SPR Unión Campesina Belisario Domínguez (the UCBD)

This chapter will be dedicated to the implications of the State program on the performance of the Union Campesina Belisario Domínguez, its functioning, its integration and its linkages. The main topic of the first part is the UCBD *per se*; its hierarchical organization, its objectives and its character (subsections 4.1, 4.2 and 4.3). The second part of this chapter will take into account the implications of the State program in the integration of the UCBD and its linkages, including the decision of the UCBD to participate in the Jatropha biodiesel program and the advances (up to my field work) of the program in the Union.

4.1 The UCBD

As mentioned before, the focus of this research is the Unión Campesina Belisario Dominguez. In Marqués de Comillas (where the UCBD is located) almost 40% of the population belongs to an ethnic group (SEDEPAS, 2009): for instance, the UCBD leader is indigenous. However, the discourse managed by the Union is not of noble indigenous (or noble savage): meaning that peasants of the UCBD do not consider themselves as natural conservationists and guardians of forest and nature.

The UCBD can be divided in three levels; first, the leader *Jose* — who has a political background and is well known in the municipality for its past position as the *ejidal* commissioner's secretary. Second, the representative from the different groups — each *ejido* is conformed of one or more groups of individuals that are members of the Union. And

third, the smaller groups (Fig. 6). Formally there are other positions within the UCBD (as secretary, treasurer, etc.), however they are unimportant because they do not fulfill a specific/special task within the UCBD. In figure 6 the hierarchical position of the directives is made semi-transparent indicating that this position is unimportant in practice.

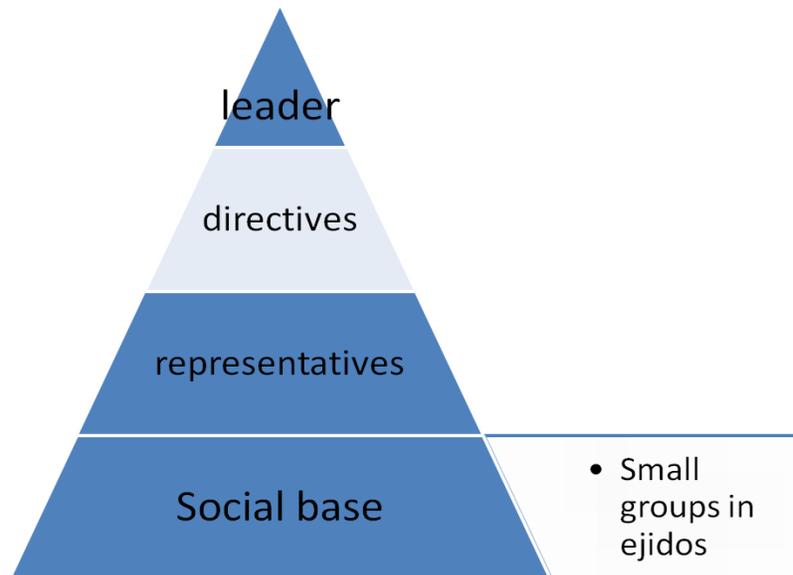


Figure 6. Hierarchical positions in the UCBD

The leader of the UCBD is in charge of organizing the meetings with the representatives of the organization; he is also in charge of the negotiation process with the State and is the one that “possesses” the networks (see the section 4.5 of this chapter). During the meetings he speaks most of the time and chooses the topics that are going to be addressed. During the workshop, I could see how the group changed with the presence of the leader. At the beginning of the workshop *Jose* was not present and the group was active, most of them participate and share their perceptions and their opinions about the UCBD and about the Jatropa’s biodiesel program. However, as soon as *Jose* came on the scene the dynamic of the group changed. The other participants waited for *Jose* to speak first and then few would speak. The role of *Jose* can be compared with the role of a patron who exercises power on the rest of the organization. He is also a mediator between the UCBD and the Government by controlling communication channels. Although the leader has its own aims he needs to accomplish the organization’s aim in order to accomplish his own

interest. This provides *Jose* the credibility among the members of the UCBD in order to “secure” their support to accomplish his personal objective.

The representatives are leaders from their *ejidos* and have followers. Generally they have been leaders in the colonization period of the *ejidos* or in the “fight” for public services. Their followers believe and respect them.

4.2 Multiple objectives

The Unión Campesina Belisario Domínguez was created in 2005 by *ejidatarios* from Marqués de Comillas. It is legally constituted as a rural production society (SPR by its spanish acronym). The objectives of this legal partnership arrangement should be directed to coordinate productive activities, mutual assistance and marketing (under the article 111 of the Agrarian Law). The formal goal of the UCBD is to improve the livelihoods and economy of its members through sustainable productive projects. However, different objectives exist among the members of the organization. These can, in some cases, undermine the achievement of the “original” objective of the SPR.

The organization has changed its purpose several times since its creation in 2005. These changes have had as consequences several goals from the leader and from the social base. For example, *Jose* uses the UCBD like a political organization, or at least as a way to catch people for political purposes. He wants to become a politician, and as the elections are coming soon he wants to catch the attention of people through the UCBD so he can get more votes. The *Jatropha* biodiesel program is seen by *Jose* as a good way to distribute resources to achieve political supporters.

Apart from the political objective of *Jose* and the UCBD ex leader, the social base has economical objectives joint with an environmental discourse:

“because this program came and Jose told us that it has subsidies and they [government] were going to help us...And how the land here [Marqués de Comillas] is less good [than before]...less forest...and the milpa does not produce high yields...so Jose told us to grow Jatropha and that in two years it will produce and like that we help our family [with subsidies] and the environment...”(004ENT30NOV11JCH)

4.2.1 Strategies from the UCBD members

In order to reach the political objective *Jose* addresses other activities under the name of the organization, such as the legalization and documentation of Guatemalans in the region. During the Guatemalan civil war, the Guatemalans illegally migrated to Mexico; some established themselves in the state of Chiapas due to its proximity to Guatemala's land. *Jose*, through the UCBD is trying to get legal documents for the Guatemalans that came to Mexico during the war and that have formed families in Marqués de Comillas. This legalization activity is ignored by most of the Union's members.

One of the strategies used by the leadership in order to achieve the economic - productive objectives of the organization was to get a member of the UCBD on a position inside a State institution (Chiapas Solidario) to "see" what he can obtain for the Union. However, this strategy had not yield profitable results so far. This was expressed in the words of the member of the UCBD working for the state institute:

"...being within the government is more difficult to manifest. My hands are tied and I cannot put the interests of the UCBD above the orders of my superiors..."
(028ENT19DEC12SV)

On the other hand, the social base has a different strategy to fulfill the economic-productive objective (getting access to subsidies) of the organization. The social base tells a poor peasant narrative when negotiating with the State. At the beginning of my field work, I was regarded a State functionary doing verification visits by some members of the UCBD (integration failure). For this reason during the interviews I often heard sentences as the following:

*"...If we see that there is support for growing *Jatropha* we will continue with it. Because [the money] from our own bag is not enough because we are poor and we have no money"* (004ENT30NOV11JCH)

However, after clarifying the purpose of my research these sentences disappeared.

The position taken by the social base is informed by worldwide spread shared discourses that are a powerful tool for making heard their claims (Moksnes, 2005). Most of

the social base of the UCBD follows a religion (Pentecostal and Presbyterian in their majority). Religions possess narratives that can offer political discourses to the rural people (*ibid*). Thus, the social base takes from religion the concept of suffering. Then the peasants translate the concept to their poverty and need of help from outsiders. Moreover, the peasants claim that the cause of their poverty is the absence of the State (*ibid*) plus the lack of study and/or work opportunities. Even if there are State programs in Marqués the Comillas, this is not seen as State presence due to the absence of State functionaries helping to implement the programs at municipality scale. With this strategy the peasants look for outsiders' support that could enable them to make political pressure (*ibid*) on the Chiapas government.

The multiplicity of objectives within the UCBD is a result of the character of the Union. The UCBD has changed its objectives several times and the members are not aware about it. They continue thinking that the past objective is the actual one. The character of the UCBD is going to be explained with more detail in the next subsection (4.3).

4.3 Changing organization

In a document of the history of the organization made by the leader, *Jose* states:

" [The UCBD]...literally changed its thinking and began to act as a figure of civil association. Later it [UCBD] became a managing social organization. Due to the needs of the ejidatarios more people started to join this social group..." (...)"[the UCBD] we are a left wing organization fighting against the abuses of our constitutional rights..." (History of the organization, Jose 2012)

This paragraph reflects the practice of changing objectives of local organizations in México (Vargas-Cetina, 2005). Even when the legal status does not change, the UCBD changes its objectives through the time. These changes can be in the orientation, purpose and/or size (*ibid*). Since the beginning of the *Jatropha* biodiesel program, the size of the UCBD has increased. The majority of the peasants interviewed affirm they became members of the UCBD because of the *Jatropha* biodiesel program. The UCBD passed from

having 178 members before the *Jatropha* biodiesel program to have approximately 495 members after it.

The people that recently have joined the UCBD (after *Jatropha* biodiesel program) hope to get subsidies from the Chiapas State (IRBIO, CONAFOR, Chiapas Solidario) and if possible from other institutes. In fact this is one of the most heard reasons to join the Union (see more in 4.6.1). However, when asking new members of the UCBD about the reasons to join this organization, the interviewees were surprised about the word “organization” and did not recognize themselves as part of one. Only after clarifying that I referred to the organization leading the *Jatropha curcas* plantations in the municipality, the new members recognized it and the majority stated that the main reason to join the organization was the subsidies offered by the State institutions.

The data from the interviews suggest that, the new members seem to have little knowledge about the UCBD and the *Jatropha* biodiesel program. First, the little knowledge about the UCBD can be explained in two ways: (1) the new members entered the UCBD only for the economic support, so they do not consider it necessary to know how the UCBD works as long as they receive what has been promised; (2) in the region it is common to have organizations that are only created in order to get access to development and/or productive programs (CBMM, *nd*). Thus rural people are used to be part of a considerable number of organizations having, at the same time, little interest in knowing all the organizations they are part of. As a matter of fact, some of the new members consider the UCBD as an organization focusing on a single crop (*Jatropha curcas*). For example, during the interviews some of the new members did not recognize the name of the Union, but they recognized it as “the people managing the *Jatropha* crop”.

Second, the little knowledge about the program can be explained by a lack of efficient communication channels within the UCBD members and the lack of network sharing (see subsection 4.4 and 4.5 of this section).

Some questions can be raised here; why peasants are still “betting” on the *Jatropha* biodiesel program as a way to achieve development, while they claim that past experiences with developmental programs implemented by the state have not been successful? What is missing for the UCBD in order to get into the path of rural development (in terms of integration and linkage)? The next sections deal with these issues.

4.4 Intra-UCBD bonds

A strong integration is characterized by good relations within the organization, good communication channels, support through exchange experiences, guidance through meetings and accessibility to the leader, trust and identity. As argued by Woolcock (1998) local organizations need a strong integration in order to get closer to the development path.

The members of the UCBD are faced with different aspects that influence their integration. First, in the past the members of the UCBD suffered scarcity of lands in one or other way. As a result of their situation, the government granted them lands through a rainforest colonization program finding the Marqués de Comillas municipality as the best alternative to establish. Some *ejidos* establishment was made in groups of people who joined forces, worked together and came from the same region. This has resulted in a shared relocation history and a history of collective action.

Second, during my field work, I could observe that most of the encounters between *Jose* and other members are not planned (informal meetings). In several occasions when I was in the house of *Jose*, other members of the organizations came to *Jose's* to discuss topics related to the organization, for example, the acceptance of new members. Another topic discussed during these meetings is the *Jatropha curcas* crop, for example, related to issues such as the dates for the delivery of the plants, the dates of the verification visits from CONAFOR, crop management or the subsidies that are offered by the State. The informal meetings that I could observe were mainly held between *Jose* and a representative of a small group.

These meetings also allowed me to understand a third aspect that influences the integration in the Union, the manner in which the information is passed within the organization. The communication as said by *Jose*, is one of the most important tools that the organization has. Through formal and informal meetings he gives the information to the representatives. The information given to the representatives is based on the meetings that *Jose* has with the functionaries of the State. However, as I could observe there was a different kind of information in each of the meetings. During the formal meetings *Jose* gave speeches about the importance of the *Jatropha curcas* for the environment and for the improvement of the quality of life of those who are growing the plant. While in the

informal meetings the information was more related to the organization and the *Jatropha* biodiesel program (subsidies, technical assistance, visits). This difference was because in the formal meetings *Jose* had the topics to be dealt with and the representatives did not actively participate. Different from the informal meetings were the representatives had a “list” of questions to be asked.

When asking to the representatives about their role, they answered that it was to attend the meetings organized by *Jose* and then to transmit the information to the small groups in the *ejidos*. When talking to the social base of the Union, I learned that few had knowledge related to the organization and to the *Jatropha* biodiesel program. During my field work I observed only one representative who was gathering his small group to share the information received. During the interviews with members of this small group I could reaffirm that this small group was more informed about the organization and about the progress of the *Jatropha* biodiesel program than members of other groups.

The fourth aspect is related to the different political interests of the members of the Union. It is supposed that per *ejido* there is only one representative. However, I could observe that in more than one *ejido*, there are more than two groups with different representatives. The answer to this situation is simple: the members of the small groups had different political view in who should be the president of the *ejido*. So in the small groups it was decided that the members will not “follow” someone with a different political party.

Another aspect of State institutions that can affect the performance of the UCBD is the lack of accomplishment. The State institutions (specifically IRBIO) promised *Jose* that the seedlings are going to be delivered on a specific date, whereby *Jose* would communicate this to the representatives. However, when seedlings are not delivered on the specified day it caused discouragement among the members of the UCBD, in particular among the social base. The members argue that they have prepared the plots to plant the *Jatropha curcas*, but as the seedlings have not arrived they have lost their work of preparing the land; they lost approximately 5 days of work per hectare prepared. Another consequence of the delay in delivering the vegetative material is the loss of confidence and trust, at least partially, in *Jose*. For the members of the UCBD, *Jose* is the one that makes the promises to them, so even if the delivery of the seedlings is not in his hands he is the

one that did not accomplish the promise. So, this lack of capacity/competence of IRBIO affects negatively the integration of the Union.

A similar situation happened with the dates of verification visits and technical assistance. During my field work I heard about three different dates when State functionaries would make the verification visits to the plots where the *Jatropha curcas* was planted. However, in all the three occasions the functionaries did not appear.

The aspects mentioned above and the interaction among members of the UCBD presents some pros and some contras to development. The pros are:

- 1) The bonds of “complicity” created through their resettlement history and the history of collective action “have an important bearing on the success of local organizations” (Scherr, et al. 1995). The members of the UCBD share a similar history of their arrival to the municipality. All of them were looking for better and for getting access to more land. Some came from the Chichonal area, a region that was affected by a volcano eruption in 1982; others came from the highlands of Chiapas State where they were working under debt-peonage; and others came from lands that were not enough to maintain a family. But all of them agree that even if the situation in Marqués de Comillas was not easy, it was better than in the original places they came from.
- 2) The availability and accessibility to discuss any topic related to *Jatropha* biodiesel program with *Jose*. However, these discussions are not held in the framework of a meeting; they are held in his house when some representative appears. This interaction among the members may be useful in devising strategies, disseminating information, and developing styles of behavior (Wilson, 1996) that are helpful for the Union. However there are some contras.

The contras are:

- 1) The weak communication channels between the members of the Union. The way in which the information is communicated to the members of the UCBD has three levels. In the first level *Jose* contacts the State institutions –IRBIO and CONAFOR– in order to know what the steps to follow are. Second, *Jose* arranges a meeting with the representatives of the UCBD where he shares the information (sometimes not

complete) given by the institutions. Third, each representative gives the information to his small group. However, during this process, part of the information is lost. It is because some representatives do not share the information with their small group, some representatives do not attend the meetings arranged by *Jose* and some members from the small groups do not attend the meetings with the representatives. For example, for *Jose* and the representatives it is clear that the *Jatropha*'s seeds are going to be sold to IRBIO for 5 MXN/kilo, but the social base does not have any knowledge about prices.

- 2) The lack of exchange experiences, during the meetings little is said by the attendants. The experiences with the *Jatropha curcas* crop and/or the methods that each member is using in order to control the pests of the crop are not discussed. Moreover within the smaller groups people do not care to know how their neighbor is doing with his crop. Only in one of the smaller group the representative looks after the exchange of experiences and encourages the members to check and share the difficulties and the way to overcome them with the rest of the group.
- 3) The frequency of the meetings is not scheduled; it can pass months or few days before the next meeting is held. The topics to be addressed during the meetings are decided by *Jose* and it is him who talks most of the times.
- 4) There are doubts about the leader's work, because they have not received the seedlings/subsidies that he promised. In other words, the level of trust that the members have toward *Jose* is low. According to Rothstein and Stolle (2003), to have a good quality relation is necessary in order to be an asset, so the low trust in the leader can be traduced as the opposite of an asset.
- 5) There are peasants with different political party within the UCBD that generate tension. As a response to this tension *Jose* decided to have several representatives for small groups. The communication between the small groups is low and there is competition for seedlings and visits. This differences and the competition makes it more difficult to get the members of the UCBD to share their experiences with the other members.
- 6) The social base is not included in the decision making process, in the UCBD the decisions are taken mainly by the leader (*Jose*).

Certain government policies and programs have contributed in a negative manner to the integration presented in the Union; as consequence to development. Chiapas State requires that applicants, to productive programs, have an organization (CBMM, *nd*). This leads to the creation of local organizations that will vanish after a while. Thus, the peasants are used to be members of several organizations at the same time, so they do not have time to attend to all the meetings and have little interest in making an organization that prevails over time.

The social relations between common members and the leader can be conceptualized as a patron-client relation. Two important characteristics of this type of relations, present within the UCBD, are a vertical relation of superiority and inferiority (Georgiev, 2009), and reciprocity, understood as the exchange of goods and/or services (Saller, 2002). In the case of the UCBD the patron at the moment (*Jose*) is using his knowledge to manage State programs and free *Jatropha curcas* seedlings. He is also giving promises of future subsidies and of a stable economy. In response, the clients (social base) offer work and lands to grow the crop. As mentioned before one of the objectives of the leader has a political character, so one of the exchanges that he is interested in is to receive from the social base loyalty and votes for a specific political party. However, not all the members of the social base seem to share the same political views; as stated by Georgiev (2009; pp 21) “modern patronages seem vulnerable in a new way. Clienteles still run after patrons but are well aware that they do not have to maintain their loyalties”. In the UCBD there are two reasons for this. First, when the leader does not accomplish his promises, the social base feels less pressure to continue being loyal to him, even if the fault is not directly from the leader but from the State institutions –IRBIO and CONAFOR. Or as Bourdieu (1986) says it: in social relations there is always the risk of ingratitude. The second reason is that the members of the UCBD are part of other organizations (other social bonds) that can be competing with the UCBD for the loyalty of the peasants (see the next subsection).

The reciprocity between the patron and the client (representatives) is slightly different if viewed from the client side. The response of them is “attracting” people in the *ejidos* to become members of the UCBD and in order to increase the number of hectares to be planted and the political support for the leader.

Despite the patron-client relationship that exists, members of the UCBD recognize *Jose* as a peasant. However, when asking during the interviews what it means for them to be a

peasant and then comparing with what I could observe of *Jose*, the “definition” did not match with *Jose*.

“...we are peasants because we are cultivating the land”, “I am peasant because I am poor”, “To be peasant is to work in the field, under the sun...where there are no opportunities to study or to work on other things” (001WKS20JAN2012)

4.5 The UCBD networks

Linkage is also needed for local organizations in order to get into the developmental path (Woolcock, 1998). In the case of the UCBD the social capital - extra UCBD network - is held by a single person (*Jose*). According to Bourdieu (1986) there is not any inconvenience on the fact that the network is managed by a single person. He argues that every group has a person that will represent them in external relations.

Jose had created the networks through different relationship strategies. For example, with IRBIO he used a negotiation strategy in which he compromised to have no less than 500 hectares available for planting *Jatropha curcas* in exchange for the inclusion of Marqués de Comillas into the potential areas to implement the *Jatropha* biodiesel program;

*“...the government of Chiapas starts to promote biofuels, and this is an opportunity for us [the Union]. I [Jose] was commissioned to investigate the opportunity on biofuels. As I did not know how to begin to search, I send a letter to the governor. From the governor I received as answer that I should ask in the social assistance. Then [social assistance] told me to talk to the Secretaria del Campo. When I got there [Secretaria del Campo] it is very big. It has a lot of departments and groups. In the Secretaria del Campo they say to me “you are going to IRBIO [one of the groups]”, “who is responsible?” I [Jose] asked and they say “the chief operating officer”. He [the chief operating officer] asked me “why *Jatropha*? If it does not growth in your region [Marqués de Comillas]”, “IRBIO will not include Marqués de Comillas”, so I told him that if they [IRBIO] do not support us [the Union] I will get the seeds from other ways...when he [the chief operating officer] saw that I was serious he changed and said that IRBIO will support me [Jose and its Union]. My first idea was to plant 250 hectares [with *Jatropha*], but they said that if I wanted support it could not be less than 500 hectares...” (004ENT19OCT11JG, interview made by Antonio Castellanos)*

The last fragment shows the way that *Jose* deals with the State institution IRBIO. Another strategy that I could observe is the use of a poor peasant speech by the social base of the Union, in which the peasants state that they have suffered from abuses by the State and that they need help from outsiders. This is the strategy that the peasants used in their relations with the Central Campesina Cardenista (CCC). The CCC is a non-profit, leftist organization that helps to manage programs addressed to the rural society. Although, *Jose* keeps insisting that they are in contact with the CCC, the functionary that was in charge of Marqués de Comillas in general and in charge of the UCBD specifically was not present in the region during my field work. Moreover after looking at the website of the CCC they do not have Chiapas as one of their working areas. It does not mean that the relation does not exist; it only means that at the moment this is not a “relation directly usable in the short time” (Bourdieu, 1986: 52) but it can become usable in the long term.

A short term usable relationship of the UCBD is the one held with the municipal president. The benefits for the UCBD received by this relation were of financial character: the payment of the transport of seedlings. However, some of the members of the UCBD do not seem to be aware of this relation: some of them still think about the municipal president as against the UCBD and the *Jatropha curcas* crop in the region because of the opposing political views held by him and *Jose*.

At individual level, the members of the UCBD are part of other associations/ unions, or have the opportunity to participate in a great variety of associations and unions (Woolcock, 1998). In Marqués de Comillas, the other associations/unions that I heard about were aiming at the production of different goods, for example African oil palm, rubber and Persian lime. There are also groups created by community environmental promoters (Corredor Biológico Mesoamericano), but members of the UCBD have no relations with this later type of association.

Although my research focuses at the UCBD level, it is important to understand the implications of social capital at individual level (in the form of linkage with other associations) in the integration of the Union. The freedom of members to join other associations undermines the intra bonds in the Union. Through the interviews and the observations, I noticed that the members of the UCBD do not have the time to invest in the UCBD (attendance to the meetings, maintenance of the crops) and have little commitment

due to the fact that they are also members of other productive associations/unions. Therefore, the intra bonds are affected.

4.6 The *Jatropha* biodiesel program in the Union

This subsection is dedicated to the reasons of the members of the UCBD and the UCBD in general to participate in the *Jatropha* biodiesel program. It also discusses the advances of the UCBD in relation with the program.

4.6.1 The decision to participate

Interviews with the different members of the UCBD show that they have had past experiences with State development programs. They often refer to these programs as a failure and a waste of time and resources. This raises the question why the peasants of the UCBD still participate in the *Jatropha* biodiesel program, which also is from the State? What makes *Jatropha* different from the other programs?

Members of the UCBD gave varied answers to the question why they entered to this program. The most important reason was the income generated from the sale of the seeds. However, this answer was always given together with reference to the subsidies (from States institutes) that are offered to the peasants that have *Jatropha curcas* plantations. Similar answers were also found in the work on Chiapas of Valero et al. (2011) and the work on Chiapas and Michoacan of Skutsch et al. (2011). Other answers were: because it is a plant that grows on degraded soils; because it needs little labour; because the seedlings are free; because is used to produce biofuel; and because is used to reforest and brings other ecological benefits.

Even though the two latest motivations are not named as the most important ones, they influence the more important reasons given by the peasants. First, since *Jatropha curcas* is used to produce biofuel it has been widely promoted across Chiapas State. The State media has been in charge of filling the Chiapas' roads up with boards alluding to biofuel production from *Jatropha curcas*. Moreover, nowadays with the relatively easy access to internet the worldwide interest on *Jatropha curcas* is known by the leader of the Union, and he uses this in his speeches addressed to the representatives in order to encourage them to keep on going with the crop. Also in the State media news about the

buses that work with biofuel instead of fossil fuels are shown and even news about a plane that flew with bioturbosine 100% chiapaneca. Although in the interviews with IRBIO it was mentioned that the seeds of *Jatropha* were sent to the United States to transform them in bioturbosine and then take the bioturbosine back to Mexico in order to fill the plane. Moreover, not all the seeds processed were from Chiapas. All this promotion made in pro of the *Jatropha curcas*´ biofuel production make the peasants confident in the “stability”, “profitability” and “long term” of this new State developmental program.

Second, the environmental benefits that is supposed to bring the crop of *Jatropha curcas* plays an important role in the decision to grow this crop. The area where the UCBD is located (border with RIBMA) is considered as an important ecosystem in Chiapas and is part of the Maya Forest in Central America (Primack, 1997). This location has brought the interest of environmental NGOs that have started a “fight” to conserve the territory. Since CONAFOR is one of the State institutions promoting and subsidizing the *Jatropha curcas* plantations, it does not contradict the environmental programs and environmental NGOs working in the area. So the peasants feel more self-assured of working with the program without entering in “dispute” with environmental ideas. Moreover the UCBD can use an image of environmentalists that can help for future relations and partnerships.

4.6.2 Advances in the program

Even if the UCBD is in a first stage of the *Jatropha* biodiesel program, the UCBD has been able to grow in size due to its participation in the program. Nowadays, there are around 750 hectares registered in IRBIO to have *Jatropha curcas* seedlings (Table 4).

Table 4. Hectares registered in IRBIO per *ejido*

Ejido	Hectareas registradas
Emiliano Zapata	46
Barrio San Jose	42
El Piru	96
San Lazaro	63
Nuevo San Isidro	19
Zamora Picpo de Oro	45

Boca de Chajul	10
El Porvenir	10
Reforma Agraria	4
La Corona	15
Rio Salinas	179,5
America Libre	44
Quiringuicharo	100,5
Absalon	73
Castellanos	
Total	747

However, until the last day of my field work less than half of the members of the UCBD had received the seedlings from IRBIO and started to plant the *Jatropha curcas*. Figure 7 shows the areas where the *Jatropha curcas* was planted until January 2012. A comparison with figure 5 (pp 31), shows that there is not coherence between the area planted and the area that IRBIO declared as potential to grow *Jatropha curcas* in Marqués de Comillas.

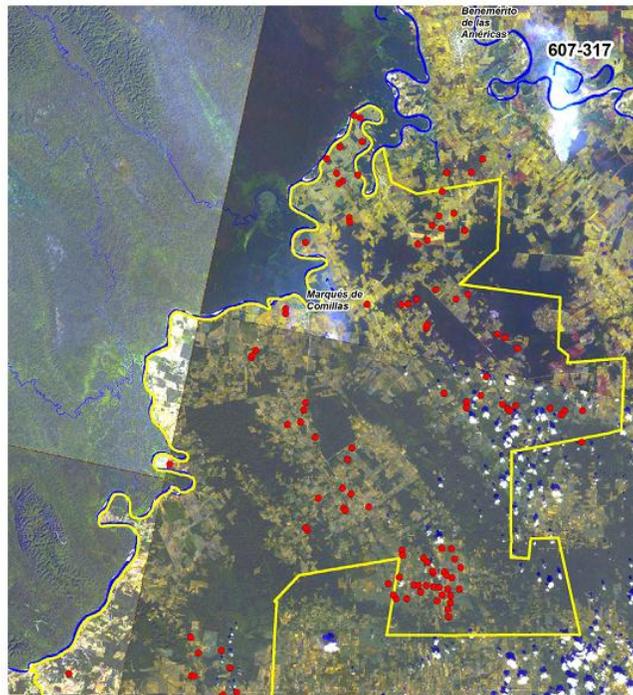


Figure 7. *Jatropha curcas* in Marqués de Comillas. Source: IRBIO, 2012

In 2011 there were two periods of *Jatropha curcas* planting. The first period was in August 2011, the second period was in October 2011. In August the members of the UCBD from the *ejidos* Rio Salinas y Barrio San Jose received the seedlings and started to plant them. The seedlings were given to these *ejidos* first because they had the fields ready to grow the *Jatropha curcas*. However, the crops are not growing and some of the plants are dead. The producers consider the cause the specific climatic conditions of August (the warmest period). The members that received the seedlings during October were from different *ejidos*. The allocation of seedlings was based on the same principle as in August. The members that own the crops of this second period are aware that their plants are developing better than those planted in the first period. However, all the members of the Union, that received the seedlings, expressed concern for the lack of technical assistance and their little knowledge about the *Jatropha curcas* crop. Moreover, the members that have not received seedlings expressed alarm for not knowing if the seedlings will be given to them or not.

The UCBD only started recently with the *Jatropha* biodiesel program and they have already found faults on the State institutions in charge of it. The faults are presented in the delivery of seedlings, the technical assistance, the verification visits and the allocation of subsidies.

4.7 Getting into the development path

In this chapter I have pointed out the low level of integration in the UCBD and the problems with linkages. However it does not mean that it will be impossible for the UCBD to achieve its development goals. In order to reach them the UCBD needs to take some actions.

In terms of integration it is necessary to strengthen the intra UCBD bonds. Establish mechanisms for participation in decision making, in order to overcome that the leader and the social base have little shared stakes in their common goals (Woolcock, 1998). The members of the UCBD should be able to choose the external relations that can be usable in the long or short term and thus invest time and resources in a wiser manner. This can be reached through organized meetings to discuss about the UCBD objectives and to exchange experiences and learn from each other. It is also important to improve the communication

channels within the Union; this can be achieved by organizing general meetings where all the members of the UCBD can hear a summary of the latest activities.

In terms of linkages: first, I think that even if it is necessary to have a delegate or a small group of delegates within a larger group (in this case the Union) it is also necessary to let the larger group know the different actors that the UCBD have relation with and what the long term and short term purposes of these relations are. The sharing of the networks could secure the continuity of the reciprocal relations with extra-community actors even if the leader leaves the organization. Second, although the network of the UCBD is usable in short or long term, it is essential that the UCBD expands its network to the private sector in case the State institutions would not accomplish in an effective way its labor. Third, at organization level- the case of the Union- it is important that the individuals have networks that can through reciprocity exchange goods or services that will help the UCBD to achieve its goals. Relations that will not be usable in the long or the short time can be seen as the opposite of an asset. Moreover, as the creation of networks is a task that needs investment in time and sometimes money (Bourdieu, 1986), it is important for rural people to be able to decide in an efficient way where to invest their effort.

5 Conclusions

The aim of this research was to give answer to the question how the Jatropha biodiesel program in Chiapas State is, and what the implications of this State program on the performance of the UCBD (local organization) are. In order to give answer to my questions I used a twofold strategy. First to describe the Jatropha biodiesel program, taking the case of the UCBD as an example of the program at local level. Second, to understand how is the functioning of a “beneficiary” organization of the Jatropha biodiesel program. As a result of this strategy I could observe the implications of the program on the local organization.

5.1.1 Conclusions at macro level

At macro level, the State institutions (IRBIO and CONAFOR) have been able to work together, but they lack in internal coherence. In other words, each institution knows its role within the Jatropha biodiesel program but individually they lack in capacity/competence

(integrity) to help the UCBD to achieve its developmental goals. This integrity problem has generated a weak State program. It also has caused internal problems to the Union, as lack of trust.

The relations between the State institutions (IRBIO and CONAFOR) and the UCBD are characterized by: (1) pressure, (2) lack of trust, and (3) lack of knowledge. Therefore, the relation lacks effectiveness to achieve rural development. The State institutions and the UCBD have to articulate their interests, needs and resources in order to make the relation more effective in terms of achieving goals.

It is concluded that the *Jatropha* biodiesel program in Marqués de Comillas would not be successful if the information, the technical assistance and the subsidies are not given to all the peasants that are part of the Union. Moreover it is also necessary for the successful implementation of the program in Marqués de Comillas that the members of the UCBD strength their internal ties and share their external links. This last part can be achieved with the help of the State if together with the *Jatropha* biodiesel program they have a capacity building program for the organizations that are beneficiaries of the *Jatropha* program.

In terms of knowledge interfaces, the program has acquired new meanings and uses, others than those intended by the State institutions in charge of the program. Thus, for *Jose* the program is a media to catch people for political support, for the social base is a way to stop migration to the USA, to improve their livelihoods and/or to catch subsidies. While for the State is a program aiming rural development.

5.1.2 Conclusions at micro level

At micro level, the UCBD shows some weaknesses in its functioning. This is due to the UCBD integration characteristics; (1) weak communication channels; (2) lack of exchange experiences; (3) low frequency of meetings; (4) low trust; (5) political differences; (6) lack of participation. Members of the Union have different goals representing a weak integration, which can result in difficulties to achieve their goals, especially the rural development goal. In order to get closer to the development path the UCBD needs to strengthen the internal bonds.

The UCBD has relation with outsiders (linkage) that can be used to help reach their short or long term objectives. These external relations are managed exclusively by *Jose*,

who uses different strategies in order to relate to external actors: negotiation strategy, poor peasant speech and building neighborhood ties. Although I agree with Bourdieu (1986) that is necessary to have one representative in the UCBD to relate to external actors, it is also necessary to share the network, the long term and short term purposes of these relations with all the members of the Union.

The different members of the UCBD have its own networks. The members of the UCBD are part of other local organizations. These other social bonds can be competing with the UCBD on time, commitment and loyalty from the peasants and affect the intra bonds. It is important for rural people to be able to decide in an efficient way which relations are going to be beneficial in a short or long term.

5.1.3 Theoretical reflection

I find the four concepts given by Woolcock to study social capital useful because they help to understand the word social capital at micro and macro levels. Hence, social capital at micro level can be understood as: (1) the relations between the members of local organizations, communication channels, support through exchange experiences, guidance and accessibility to the leader, and, (2) the relations between the local organizations and other actors (excluding the state). While at macro level social capital can be understood as: (1) the State capacity/competence to generate an efficient and coherent program for a specific context, and, (2) the relations of the state with local organizations. However, I think that there is a need for more research on the kind of networks that can be helpful to a specific situation, and on the size of the network that can be managed by a local group.

I also found the concept of knowledge interfaces useful because it allowed me to understand the encounters between different stakeholders and how the same program can acquire different meanings depending on each stakeholder. I think the two theories were useful in answering my research questions and they help each other because it is possible to see the knowledge interfaces within any of the four concepts of social capital that I used. Moreover, the inclusion of knowledge interfaces helped me to understand better the relations in each of the levels.

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