

**Color Green for Dollars:
Constraints and limitations for establishing
Chamaedorea palm firms in Veracruz, Mexico**

Nasim Musálem Castillejos

May 2014

**Color Green for Dollars: Constraints and limitations for establishing *Chamaedorea*
palm firms in Veracruz, Mexico**

Table of Contents

Abbreviations and Acronyms.....	vii
Chapter 1	1
Introducing <i>Chamaedorea</i>: 15 reflexions of a NTFP	1
1. My name is Camedor	1
2. I go green.....	2
3. I am fashionable.....	3
4. I travel frequently	3
5. I have many friends.....	4
6. I have an extraordinary life-history	6
7. I help protect forests.....	7
8. I benefit from subsidies and government support.....	8
9. I am part of a large family	8
10. I love tradition.....	9
11. I am difficult to reproduce.....	10
12. I serve the people of my country	10
13. I am difficult to understand	11
14. I am not the superstar.....	11
15. I play an important role in this thesis.....	11
16. Thesis outline.....	12
Chapter 2	15
Research problem, theoretical and methodological choices.....	15
1. Research Problem	15
2. Institutional context and forestry policy.....	17
3. Theoretical framework: opting for an actor-oriented approach.....	19
4. Methodology.....	23
5. Research Area	25
Chapter 3	35
Road to Success: La Flor de Catemaco	35
1. Introduction	35
2. My first visit to the company	36
3. Key actors and beginning of La Flor de Catemaco	37
4. Practices in the company's operations.....	41
5. Mexican Official Standards	48
6. Conclusions	49
Chapter 4	51
Small-scale Producers: Organization for production and commercialization.....	51
1. Introduction	51
2. Tropical environment and production diversity	52
3. Practices and strategies for production	53
4. Commercialization organization: broadening market opportunities.....	61
5. Conclusions	64
Chapter 5	67
Policy and Community Initiatives “in the Making”	67
1. Introduction	67
2. Constructing the Organization	69
3. Origin and expansion of the idea	69
4. Planning of Activities	72

5. Putting the CBNRM Initiative into Practice	74
6. Demise	75
7. Conclusion.....	77
Chapter 6	79
Intermediaries: Limitations and bottlenecks for market consolidation	79
1. Introduction	79
2. Intermediaries and their role in the value chain.....	80
3. The case study of Maldonado Produce.....	81
4. Conclusions	89
Chapter 7	91
Research and practice: Building and promoting a body of knowledge for <i>Chamaedorea</i> use and production.....	91
1. Introduction	91
2. Context and main actor.....	92
3. Articulation of projects with adjacent communities.....	97
4. Conclusions	103
Chapter 8	107
Conclusions and discussion	107
1. Main findings	107
2. Organization, entrepreneurship and policy outcomes	112
3. Usefulness of the actor-oriented approach for studying organizational processes	115
Glossary of scientific and common names.....	117
References.....	121
Appendix 1. Chronology of activities during field work	131
Appendix 2. NOM-006-RECNAT-1997	133
Appendix 3. <i>Chamaedorea</i> palm species considered in NOM-059-ECOL-2001	139
Summary	141

List of Tables

Table 1. <i>Chamaedorea</i> palm production: Planted area, harvested area and value of production in the State of Veracruz, 2004–2012.	7
Table 2. Main crops, planted area, volume and value of production in the municipality of Tezonapa, Veracruz (2009).	31
Table 3. <i>Chamaedorea</i> palm species considered in NOM-059-ECOL-2001	139

Lists of Figures

Figure 1. <i>Chamaedorea</i> fronds used in flower arrangements at a supermarket in Wageningen, The Netherlands.	5
Figure 2. <i>Chamaedorea</i> fronds used in a fruit stall in Mexico City.	5
Figure 3. Region of Los Tuxtlas, Veracruz, Mexico. Source: Bing Maps, 2011.	26
Figure 4. Region of Tezonapa, Veracruz, Mexico. Source: Bing Maps, 2011.	29
Figure 5. Different landscapes present in the region of Tezonapa, Veracruz: a) Companion planting of rubber and <i>Chamaedorea</i> palm; b) <i>Acahual</i> adjacent to agricultural land; c) Sugar cane plantation; d) Coffee plantation under the sun and remaining forest canopy.	32
Figure 6. A group of workers select and grade foliage inside La Flor de Catemaco’s facilities.	45
Figure 7. Aisles of long cold chambers for storing foliage classified and ready for shipping.	45
Figure 8. <i>Chamaedorea</i> palm foliage flow at La Flor de Catemaco, Veracruz.	47
Figure 9. Typical forested landscape in <i>Ejido</i> Limonestitla, Veracruz.	53
Figure 10. Plot with rubber trees in combination with <i>Chamaedorea</i> in the <i>ejido</i> Limonestitla, Veracruz.	55
Figure 11. Palm cutter inspecting a plot before cutting in Tezonapa.	60
Figure 12. <i>Chamaedorea</i> palm stems after harvesting.	60
Figure 13. Time-line of events and decisions at PROINTE.	69
Figure 14. Chronology of Maldonado Produce’s critical moments 1990-2010.	89
Figure 15. A recently established <i>Chamaedorea</i> plot in association with rubber trees in Veracruz, Mexico.	99
Figure 16. <i>Chamaedorea</i> demonstration plot at INIFAP’s experimental field in El Palmar, Veracruz.	100
Figure 17. Plot with multiple crops: coffee, banana, <i>Chamaedorea</i> and shade trees in El Paraíso, Veracruz.	101

List of Boxes

Box 1. Recipe for <i>Tepejilotes con huevo</i>	9
--	---

Abbreviations and Acronyms

A

A.C.	Asociación Civil
ASERCA	Apoyos y Servicios a la Comercialización Agropecuaria

B

BANCOMEXT	Banco Nacional de Comercio Exterior
-----------	-------------------------------------

C

CBNRM	Community Based Natural Resource Management
CEC	NAFTA's Commission for Environmental Cooperation
CEEM	Centro Estatal de Estudios Municipales de Veracruz
CENID	National Center for Disciplinary Investigation
CFG	Continental Floral Greens
Ch.	<i>Chamaedorea spp.</i>
CIFOR	Centre for International Forestry Research
CONACYT	Consejo Nacional de Ciencia y Tecnología
CONAFOR	Comisión Nacional Forestal
CONANP	Comisión Nacional de Áreas Naturales Protegidas
CONAPO	Comisión Nacional de Población
CONASUPO	Compañía Nacional de Subsistencias Populares
CP	Colegio de Postgraduados
C.V.	Capital Variable

D

DOF	Diario Oficial de la Federación
Dr.	Doctor

E

ERS	Economic Research Service
EU	European Union

F

FAO	Food and Agriculture Organizations of the United Nations
FIRCO	Fideicomiso de Riesgo Compartido
FONAES	Fondo Nacional de Apoyo para las Empresas en Solidaridad

I

IMECAFE	Instituto Mexicano del Café
IMCE	Instituto Mexicano de Comercio Exterior
INDEVER	Instituto Veracruzano de Desarrollo Rural
INE	Instituto Nacional de Ecología
INEGI	Instituto Nacional de Estadística, Geografía e Informática
INI	Instituto Nacional Indigenista
INIFAP	Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias
Ing.	Ingeniero

L

LFC	La Flor de Catemaco
LICONSA	Leche Industrializada Conasupo, S. A. de C. V

M

M.C.	Maestro en Ciencias
m.a.s.l.	Meters above sea level

N

NAFTA	North American Free Trade Agreement
NGOs	Non-Governmental Organizations
NOM	Norma Oficial Mexicana
NTFPs	Non Timber Forest Products

P

PAN	Partido Acción Nacional
PRD	Partido de la Revolución Democrática
PRI	Partido Revolucionario Institucional

PROAFT	Programa de Acción Forestal Tropical, A.C.
PROCAMPO	Programa de Apoyos Directos al Campo
PROCYMAF	Programa de Conservación y Manejo Forestal
PRODEFOR	Programa de Desarrollo Forestal
PRODEPLAN	Programa para el Desarrollo de Plantaciones Comerciales Forestales
PROFEPA	Procuraduría Federal de Protección al Medio Ambiente
PROINTE	Productores Integrados de Tezonapa, S.C. de R.L.
PRONARE	Programa Nacional de Reforestación
PSSM	Programa Sierra de Santa Marta
R	
REDMOCAF	Red Mexicana de Organizaciones Campesinas, Agropecuarias y Forestales
R.L.	Responsabilidad Limitada
S	
S.A.	Sociedad Anónima
SAGARPA	Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación
SARH	Secretaría de Agricultura y Recursos Hidráulicos
S.C.	Sociedad Civil
SE	Secretaría de Economía
SEDUE	Secretaría de Desarrollo Urbano y Ecología
SEFIPLAN	Secretaría de Finanzas y Planeación del Estado de Veracruz
SEGOB	Secretaría de Gobernación
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales
SHCP	Secretaría de Hacienda y Crédito Público
SIAP	Servicio de Información Agroalimentaria y Pesquera
S.P.R.	Sociedad de Producción Rural
S.S.S.	Sociedad de Solidaridad Social
U	
UACH	Universidad Autónoma Chapingo
UAM	Universidad Autónoma Metropolitana
UNAM	Universidad Nacional Autónoma de México
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	United States of America
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
cm	centimeter
ha	hectare
kg	kilogram
km ²	square kilometer
long	longitude
m	meter
m ²	square meter
m ³	cubic meter
sq ft	square feet
MXN	Mexican Peso (1 US\$ ~ 13,50 MXN as of June 2012; 1 EUR ~ 15,00 MXN as of June, 2012)

Chapter 1

Introducing *Chamaedorea*: 15 reflexions of a NTFP

This chapter presents a collection of accounts gathered over the course of the research. As a whole the accounts serve as an introductory chapter to the thesis and aim to portray different aspects of the international value chain of *Chamaedorea*. It also illustrates the different meanings that the object of study acquires along its route from its production areas in Mexico to the final consumers in international markets.

The chapter presents fifteen accounts from the perspective of the object of study itself. Through them we will learn about the various actors involved in its production, use and trade, and learn to understand the different representations and meanings these actors attribute to its use - in particular those who inspire the formulation of policies that recently have positioned *Chamaedorea* as an important global commodity- to develop alternatives for sustainable rural development in several tropical forest regions of Mexico. Finally, at the end of the chapter I present the outline of the thesis.

1. My name is Camedor

My scientific name is *Chamaedorea elegans* but in fact few people call me this way. In Mexico I am commonly known by the names *palma camedor* or *xate*, although I have more than a dozen common names. The name *palma camedor* is indistinctively used to refer to any species of the genus *Chamaedorea* including those used as ornamental indoor plants and those from which the fronds are used to complement flower arrangements. Carrillo-Trueba (2001) documented a list of common names used to designate me in different

regions of the country: *xate*, *tepejilote*, *palma xiát*, *palma camedor*, *xate hembra*, *xate macho*, *cambray*, *jade*, *cambray negrita*, *palma fina*, *tepejilote*, *pacaya* and *palmilla*... and this is just only in Mexico!

Overseas, I am designated with commercial names in order to differentiate and highlight physical characteristics between the members of my family. The commercial names more frequently used are: Premium Emerald, Regular Emerald, Econo-Emerald, Te-pee, Jade, Chiapas and Jumbo. These commercial names allude to my tropical origin and emphasize peculiarities that make me special, such as my deep green color and the size of my fronds. Abroad, I am known as parlor palm, a name that differentiates me when I am used as an ornamental plant for interiors. In the academic world I am known as *Chamaedorea*, the genus' scientific name that comprises more than 130 species naturally distributed along the tropics of the American continent.

In Mexico alone, over fifty species of *Chamaedorea* palm inhabit the understory¹ of tropical forests, of which fourteen are endemic to the country. This makes Mexico the country with the largest number of endemic species and species diversity of *Chamaedorea* palm in the world (CEC, 2002). In our natural habitat, we dominate the herbaceous layer of tropical forests; we require little light and have a high tolerance to humidity. Because of this quality we grow naturally under the protective shade of high trees. Recently, however, with the rise of my commercial demand, I have seen several attempts to reproduce me under intensive production forms.

2. I go green

My characteristically deep green color is one of my much-admired features. I am so famous for this color that several gatherers and producers in Mexico believe that the US dollar notes get their particular color thanks to a "secret and irreplaceable" pigment obtained from my leaves². According to other local beliefs, the pigment is not the only "ingredient" used for the manufacturing of the green notes. Maize husks produced in Mexico are believed to be transformed into a special kind of paper used to produce the American dollar notes (Long and Villareal, 1999). The American National Bank, responsible for the printing of the dollar notes, denies these facts (Bureau for Engraving and Printing, 2009).

Besides my color, I am also a "green product" because in contrast with other ornamental foliage I do not need pesticides to lead a healthy life and make my way in the harsh tropical environment where I grow. I am naturally resistant to pests and my foliage very well resists discoloration. I can thus retain a clean, fresh appearance for a long period of time, which facilitates a long shelf life of almost two weeks in a controlled atmosphere between temperatures of 5° C and 15° C.

This combination of physical characteristics contributes to consider myself as a good tool for conservation, since some of my advocates judge that my use and management does not imply a degradation of the forest in which I grow. Nevertheless, in some forums these ideas are still being debated in heated discussions. Mainly due to the increased market interest

¹ The forest understory is the inferior strata situated below the main canopy. It is composed mostly of young trees, shrubs and herbaceous vegetation.

² No definite explanation can be drawn for the original choice of the green color in dollar notes. However, with the introduction of small bank notes in 1929, the use of green was continued because pigment of that color was readily available in large quantities. The oil-based type ink of green color showed a relatively high resistance to chemical and physical changes, and green was psychologically identified with the strong and stable status of the US Government (Bureau for Engraving and Printing, 2009).

my advantages are doubted, because it presupposes overexploitation of my resources and, consequently, degradation of my natural habitats.

3. I am fashionable

International florists consider me “the” most representative foliage from the tropical environment. As Jan van den Berg, a Dutch florist, emphasizes: “Its deep green hue and its invariably tropical aspect makes the foliage extremely versatile and maximize every flower composition, providing a fresh and exotic appearance”. According to a report from Flora Holland (2011) my market success in the international horticultural arena has been backed up by the development of new tendencies in production with environmental awareness, together with a rapid increase of the share of developing countries in the global market.

Nevertheless, fashions come and go and therefore being a fashionable product carries risks. In Aalsmeer³, the largest and most important flower and plant auction in the world, I share the floor with other popular tropical fronds such as Leatherleaf (*Rumhora adiantiformis*), Tree Fern (*Asparagus mirgatus*), Ming Fern (*Asparagus myriocladus*), Sprengeri (*Asparagus sprengeri*), Alpinia (*Alpinia spp.*) and Aspidistra (*Aspidistra eliator*). But my physical characteristics, my fresh appearance, long shelf life and my relatively low price help me keep a place in this dynamic market, even though competition is always constant and fierce.

Besides being a fashionable commodity, I also serve as a promotion machine. I help diverse Mexican NGOs which whom I closely co-operate, such as Proyecto Sierra Santa Marta, Grupo Mesófilo and REDMOCAF to promote, among others, my capacity to help protect forest resources, to defend my land and culture, and to help mitigate the effects of climate change. On the international stage I have captured the attention of a wide audience through an appearance in National Geographic (Braun, 2009) and I have even made it into a couple of documentaries. “Xateros”, a documentary by anthropologists Axel Köhler and Tim Trench, portrays the life of a group of palm collectors in natural habitats of the Selva Lacandona (Köhler and Trench, 2004). Another interesting documentary, “Chiquibul Challenge”, captures a polemic aspect around my use. This documentary shows the problems which many groups of Guatemalan gatherers are facing after illegally stockpiling my fronds within the Chiquibul Natural Reserve in Belize (Foster and Foster, 2006).

4. I travel frequently

I have visited many of the fashion capitals of the world: Paris, Milan, Berlin, Tokyo, New York, Amsterdam, London, Sao Paulo and Seoul. I travel all year round, but my appearance in the market is accentuated at the peak of commercial seasons - when flowers become more popular. As main product of Continental Floral Greens – the United States’ largest greenery company - I currently reach markets in Japan, Europe and the United Kingdom.

I have visited Buckingham Palace, the White House, and the Los Pinos Presidential Residence in Mexico. I have personally met Queen Elizabeth of England, Queen Máxima of The Netherlands and I have been spotted in company of important figures, ambassadors, representatives of international agencies and Olympic athletes. In addition, I have adorned state banquets at the White House and Los Pinos as well as numerous churches,

³ Aalsmeer is known as “the flower capital of the world”. The Dutch city hosts the Verenigde Bloemenveilingen Aalsmeer (United Flower Auction of Aalsmeer), the largest flower and plant auction in the world. Proximity to Schiphol airport in The Netherlands and good transportation logistics and infrastructure allow convenient access ornamental markets worldwide.

expositions and exclusive receptions in luxury hotels. As an export commodity, I am considered a luxury article in Japan and South Korea, where even in my absence, I am replaced by versions of myself in plastic. Perhaps these facts do not mean much to some readers, or they might feel somewhat indifferent to them. But in fact this gives a true representation of the reach of the global value chain around me and my popularity as an ornamental frond.

Generally speaking, I travel on a direct flight from Mexico City to Amsterdam on a Boeing 747-400 Combi. At my arrival in Europe, I am promptly dispatched by the airline ground personnel to the main Dutch auction centers of Aalsmeer and Noordwijk. Once auctioned, I am shipped to the rest of Europe and the world. I travel stacked in pallets, sleeved in plastic bags inside cardboard boxes containing 25 to 30 bunches depending on my commercial sizes, at a controlled temperature of 5°C. For exports heading to the USA I travel by land from Mexico, usually in 40 sq ft refrigerated trucks, transporting around 1,000 boxes to main distribution centers in Dallas and Houston. Contrary to the shipments for Europe, my packaging consists only of large rolls of fronds protected with Kraft paper⁴.

I have been present abroad for a long time. Since the end of the 19th century, horticultural houses of Belgium, Britain and France have marketed seeds and potted plants of Mexican and Guatemalan origin (Carrillo-Trueba, 2004). However, I have become more important in global trade since about 50 years ago, when the Continental Floral Green's founder began operations and established large production areas. Luckily, I do not need visas to travel; I merely need to comply with rigorous sanitary conditions for export in Mexico to avoid a hassle at airports and sanitary posts. It is estimated that 70% of my production in Mexico is bound for the export market while the remainder is marketed locally.

As ornamental greenery I travel the world to embellish flower bouquets in very diverse ways, but I also dress churches and business premises. I am commonly used as green backdrop in butcheries, fish stalls, fruit stalls and supermarkets. As a potted plant, I am very popular because of my adaptability and tolerance to low light conditions. Figures 1 and 2 present two forms I'm used as ornamental frond.

5. I have many friends

I have a special bond with coffee (*Coffea arabica*), rubber trees⁵ (*Hevea brasiliensis*), tropical red cedar trees (*Cedrela odorata*), mahogany (*Swietenia macrophylla*), teak (*Tectona grandis*), allspice (*Pimenta dioica*) and several other crops of the tropical environment. We get along very well, especially when we form a community sharing the land. In the academic world, they have called this way of subsisting an agroforestry system, a love triangle between tall trees, bushy coffee plants and me. For this reason I am closely linked to diverse biodiversity projects all over Latin America, where the main objective is to work towards conservation by means of a sustainable use of agricultural and forestry products. My adaptability and participation in a sustainable system is considered one of my biggest strengths. On the one hand I help conserve the resources of the forests and, on the other, I contribute to the income of producers.

⁴ Sack Kraft Paper or just sack paper is a porous craft paper with high elasticity and high tear resistance, designed for packaging products with high demands for strength and durability.

⁵ There are several species in Mexico used for the production of rubber or latex: *Hevea brasiliensis*, *Manilkara zapota* and *Castilla elastica*. In Spanish, they are generally and indistinctively called *árbol del hule* (rubber tree), except *Manilkara zapota*, which is also known as *chicozapote* or *árbol del chicle* (chewing gum tree). These species belong to three different botanical families: *Euphorbiaceae*, *Sapotaceae* and *Moraceae* respectively.



Figure 1. *Chamaedorea* fronds used in flower arrangements at a supermarket in Wageningen, The Netherlands.



Figure 2. *Chamaedorea* fronds used in a fruit stall in Mexico City.

I am a good friend of *campesinos*, the small-scale producers and forest products gatherers in Mexico, in addition to middlemen, florists, scientists, academics and managers of large export companies. Together, we have worked closely to achieve significant new steps towards my positioning in the export market, attracting attention in academic arenas.

6. I have an extraordinary life-history

I live in the tropical forests of Mexico, mainly in the south and southeastern states of the country: Tamaulipas, San Luis Potosí, Hidalgo, Veracruz, Oaxaca, Tabasco, Campeche and Chiapas. Although no one can determine exactly when the interest in my fronds started, some records point out that it may have been pure coincidence. According to an anecdote by Continental Floral Greens, the first stems of *Chamaedorea* were introduced to the USA market by mistake in the mid-50s, when the leaves were used to substitute wax paper used by the Flores de México Company to protect their shipments the United States. W.F. Roger's interest as a buyer from Continental was immediately seduced by the palm fronds and requested more information about the leaves.

Sometime later, Roger visited Mexico to trace back my origins and establish relations with communities in the State of Veracruz to export fronds to the United States (Sociedades Productoras de Palma Camedor en Chiapas *et al.*, 1999). This gave birth to the Jewel Foliage Company, the company that registered the commercial names still used nowadays in international markets: Premium Emerald, Regular Emerald and Econo-emerald. Shortly after, Continental Floral Greens (founded in 1954) followed the same steps. Presently, it is the leading firm in the market for tropical greenery and has included my fronds in a wide choice of presentations in their catalogue (Continental Floral Greens, 2011).

In the FAO's (1995) report on the diversity of Non-Timber Forest Products (NTFPs) my potential for conservation is emphasized. From that moment on I have not stopped attracting attention in diverse forums worldwide. Ibarra-Manríquez *et al.* (1997) for example analyzed the commercial potential of more than 860 native plants from the tropical rainforest of Veracruz in Mexico; this resulted in my labeling as a "useful plant of the State of Veracruz". This was another incentive to further the interest surrounding my advantages as a NTFP and opened up new alternatives to my commercial life. As a result, I obtained government support to establish commercial plantations.

In 2000 a researcher from INIFAP published one of my first biographies: a *Chamaedorea* palm production manual under an agroforestry system (Hernández Pallares, 2000). Ever since, I have been included in the literature as an NTFP of high importance (Aguilar Sánchez *et al.*, 2001; Carrillo-Trueba, 2004; CEC, 2002; Current and Wilsey, 2001; Hernández Pallares, 2000; Hodel, 1992; Musálem Castillejos, 2005; Sol Sanchez, 2007).

Officially, for the State of Veracruz only my production is reported as more than one million ton/year, although in practice the actual figure may be far beyond the one given in government reports. This is due to the fact that many gatherers make use of me without permits, and intermittently. However, these statistics provide an estimation of the size of the market, the scale of production and my importance for the State of Veracruz. Table 1 provides official production statistics for the period 2004-2012 (SIAP, 2012). Before 2004, there are no official production statistics available.

Table 1. *Chamaedorea* palm production: Planted area, harvested area and value of production in the State of Veracruz, 2004–2012.

Year	Planted area (Ha)	Harvested area (Ha)	Production (Ton)	Yield (Ton/Ha)	PMR (MXN pesos/Ton)	Value of Production (MXN Thousand Pesos)
2004	80.00	80.00	186,000.00	2,325.00	25.00	4,650.00
2005	88.50	85.00	122,400.00	1,440.00	12.00	1,468.80
2006	105.00	105.00	163,500.00	1,557.14	13.60	2,223.75
2007	345.00	345.00	527,700.00	1,529.56	14.78	7,799.50
2008	345.00	345.00	540,400.00	1,566.38	14.00	7,565.60
2009	711.25	711.25	1,134,212.50	1,594.68	14.68	16,650.23
2010	711.25	711.25	1,066,995.00	1,500.17	15.06	16,068.94
2011	727.25	716.25	1,065,155.00	1,487.13	15.96	16,998.15
2012	739.25	716.25	1,160,630.00	1,620.43	16.25	18,875.84

Source: (SIAP, 2012)

As can be seen from the figures, the value of production has increased considerably over the last few years. This shows the increased interest and the expansion of planted areas under intensive commercial plantations.

7. I help protect forests

Much research endorses my performance in association with other crops; this has helped secure my place as a useful tool for both conservation and development. Those who advocate my strengths stress that my commercial value creates incentives for forest users to maintain the forest cover, since I rely on the shadow of standing trees for optimal growing conditions. However, the increase in my commercial interest carries the risk of over-exploitation of the natural population and raises problems originated from the organization of production and commercialization. For these reasons, government agencies, ecologists, and NGOs have encouraged research and debate over my use and commercialization, analyzing different existing experiences across the country.

I also feature in government's environmental agendas, at workshops, conferences and in technical discussions, particularly when the topic relates to linking small-scale producers with markets. I am on everyone's lips, mainly when sustainable options for forestry production and new alternative income are discussed. My popularity has stimulated a group of Mexican, American and Canadian researchers to carry out a study to identify the market structure that surrounds me (CEC, 2002). This document provided the basis for the development of several related documents and research (Carrillo-Trueba, 2004; Eccardi, 2003; Musálem Castillejos, 2005).

Due to the need to conserve the country's forestry resources, Mexico has declared several regions where I live as Protected Areas, such as the Biosphere Reserves of Los Tuxtlas, the Selva Lacandona and Montes Azules. This puts restrictions on my exploitation by communities located within the boundaries of these Protected Areas, even though they have traditionally benefited from my use. The regulations also take into account the conservation status of species, restricting the use of those listed as threatened or

endangered. Therefore, nowadays my market is regulated on different fronts: geographically, by conservation status⁶ and by type of use.

8. I benefit from subsidies and government support

In 2011 alone, and thanks to the many good causes I help promote, the Mexican Government directed more than MXN 20 million pesos (approx. 2 million US dollars) to encourage small-scale producers to establish commercial plantations through the ProÁrbol program. ProÁrbol is the federal government's main support program to help the forestry sector and promote the establishment of commercial firms. It also unifies under a single scheme all governmental support and subsidies directed to help protect, safeguard, restore and make sustainable use of the country's forest resources. Finally, it awards those initiatives that carry out actions directed toward the improvement of forests nation-wide.

I am granted support from foreign governments such as the Small Grants Program funded by the Global Environment Facility (GEF) and implemented by the United Nations Development Program (UNDP). The program has directed more than US 400 million dollars to the support of diverse projects around the world. In Mexico CAMPECOL - an NGO in the south of Chiapas - was granted around 30,000 US dollars to start conservation and sustainable use projects in ten forestry communities of the Sierra Madre de Chiapas. The funds were directed to sponsor the establishment of agroforestry systems in *acahuales*⁷ in association with tomato trees (*Cyphomandra betace*), *Chamaedorea* palm and organically grown coffee.

Further examples include my inclusion in the Sociedad para la Prosperidad (Society for Prosperity) initiative created under the mandate of presidents Bush and Fox to improve the economic conditions of rural Mexican families by encouraging the direct production and processing of agricultural and forestry products for the USA market. The initiative was an outcome of a joint cooperation between several Mexican and American institutions: Secretaría de Economía via FONAES, SAGARPA, USAID, USDA, Conservation International, as well as research and academic bodies in the United States and Mexico. Such initiatives have also drawn attention to the introduction of a certification framework for my commercialization in North American markets. This kind of certification frameworks would be based on promoting the purchase of sustainably produced palm and a fair trade price for producers (Wilsey and Hildebrand, 2011; Wilsey and Radachowsky, 2007).

9. I am part of a large family

I belong to the *Arecaceae* family, a large botanical family that groups 183 genus and more than 2,360 species of palms (Govaerts and Dransfield, 2005; Dransfield et al., 2008 in Gomez-Navarro et al., 2009). Within the *Chamaedorea* genus, palms with a rough appearance, long stems and short shelf life are not considered to have commercial potential. For example, *Chamaedorea oblongata* and *Chamaedorea tepejilote* struggle to access a place in the market. They generally do not travel as often and may only find

⁶ The Mexican Official Norm NOM-059-ECOL-2001 establishes and lists environmental protection for native Mexican flora and fauna species according to their risk categories. The list includes thirty-nine species of the genus *Chamaedorea*. Three of these are catalogued as endangered, one enjoys special protection, and thirty-six are seen as threatened.

⁷ The term *acahual* refers to fallowed areas with secondary forest vegetation that grows spontaneously. These are mostly areas that were in agricultural or livestock use in tropical areas, with less than twenty trees per hectare, and stem diameters greater than 25 cm or normal standing trees with diameters greater than 15 cm in an area less than 40 m per hectare (SEMARNAT, 2012)

themselves as greenery at local street markets or in cheap flower arrangements. In contrast *Chamaedorea elegans*, *Chamaedorea radicalis* and *Chamaedorea ernesti-augusti* stand out for their beautiful green fronds and are the most popular because of their ornamental and commercial characteristics. Some others are well known for particular reasons, like *Chamaedorea alternans* for its edible inflorescences or *Chamaedorea eliator* that is used to weave baskets and mats because of its flexible stems (Ibarra-Manríquez *et al.*, 1997). *Chamaedorea quetzalteca*, endemic of Guatemala and Belize, represents the main livelihood option for indigenous groups in the region of Petén where the gathering or collection of my fronds is their only source of cash income (Hurtado, 2010).

10. I love tradition

I am very attached to my land, my roots and culture. In my home country Mexico I closely interact with the majority of the population as they prepare to celebrate All Saints Day (31 October - 2 November). During the festivities I can be seen in altars in every home, honoring their deceased family members. On Palm Sunday I am popular in every church in the southern states of Mexico. I am present at most funerals in Mexico, adorning funeral crowns of flowers in many graveyards. I do not miss any of the customary festivities. Besides, I am most popular on Mother's Day and Valentine's Day, complementing flower bouquets and fetching high market prices.

I am considered a traditional product since I occupy a prominent place in Mexican folklore. I share a place amongst other traditional products such as *papel amate* (*Trema micrantha*), wood carvings (*Bursera aloexylon*) and *palma de mano* (*Sabal yapa*) used traditionally to elaborate various handicrafts (Kusters, 2001). I am also present in Mexican cuisine. In Veracruz dishes prepared with the inflorescences of *Chamaedorea tepejilote* and *Chamaedorea alternans* are considered a regional delicacy. "Tepejilotes" is the name of a tasty dish prepared with scrambled eggs, served with maize tortillas, black beans and a spicy Mexican sauce. In Box 1, Ana María, resident of the town of El Palmar in Veracruz, shares her traditional recipe to prepare *Tepejilotes con huevo*.

Box 1. Recipe for *Tepejilotes con huevo*

6 fresh eggs
2 small onions, chopped
1 handful of fresh *tepejilotes*, chopped
1 *jalapeño* pepper
2 tablespoons oil
Salt and oregano as seasoning

Heat the oil in a large frying pan at a medium-high temperature. Next add the onions and sauté them for a minute or two. Add the chopped *tepejilotes* and let them cook for a few minutes at a medium-high temperature until they are mushy and some of the moisture has evaporated. When the *tepejilotes* have turned slightly brown, add the oregano and chopped *jalapeño* pepper.

Subsequently, crack the eggs directly into the pan with the mixture. Add salt. Gently stir or "fold" all the ingredients together. Remove from heat when the eggs are cooked to the desired consistency. Serve with refried black beans and handmade *tortillas*. Serves 3 portions.

My inflorescences have traditionally been used as a food source and offer an alternative to vegetables (Mont *et al.*, 1994). A recent study indicates that the inflorescences of *Chamaedorea alternans* and *Chamaedorea tepejilote* are a good source of proteins and minerals, particularly iron and calcium (Centurión Hidalgo *et al.*, 2009). The petals are the only edible part of the flower; they have a slightly bitter taste comparable to asparagus or palm hearts and are mostly prepared with eggs or used fresh as ingredient in salads or cold dishes. In Guatemala and Belize, apart from being used as a fresh ingredient, they are also marketed as pickles or as canned food.

11. I am difficult to reproduce

I go through a long and complicated germination period. Under normal circumstances and depending on the variety of palm it can take up to four to five months for my seeds to germinate. To counteract this fact forestry engineers have developed a scarification technique⁸ that has enabled them to reduce the germination process. However, there are no details yet about the consequences of this kind of treatment for the development of the plants in the long run. Several researchers have explored alternatives to speed up the germination process, producing a wide arrange of literature on the topic (Alatorre Cobos and Rodríguez Trejo, 2009; Carpenter and Ostmark, 1994; Domínguez Cruz, 2000; Hernández Pallares, 2000; Mora A. *et al.*, 2003; Ramón Jiménez *et al.*, 2002; Rojas A. *et al.*, 2000).

In order to endure the germination process successfully, I require a special mix of light, temperature, humidity and air. Since I do not adapt well to greenhouses and artificial conditions many people have failed to establish intensive plantations. Without this precise combination of conditions I produce opaque, yellowish fronds without any ornamental value.

12. I serve the people of my country

In times of scarcity when prices for their main crops are low I help small-scale producers to complement their cash income. I am also seen as a money-box to cover emergency expenditures. In average a small-scale producer receives MXN 15.00 per *gruesa*⁹, whilst middlemen obtain a surplus of between MXN 5.00-10.00 per *gruesa* sold in regional markets.

Additionally, I provide employment for rural firms marketing me. Best example of this is La Flor de Catemaco, a company renowned in Mexico and abroad as the market leader in tropical foliage. In the same way I help small-scale producers create cooperatives such as Follajes Lacandonas in Chiapas, a cooperative financed with resources provided by diverse state and development agencies to promote the establishment of commercial plantations and the development of a market (Sociedades Productoras de Palma Camedor en Chiapas *et al.*, 1999). These kinds of experiences have served as example for many, similar collective projects across the towns and rural communities of Veracruz, Tabasco and Chiapas.

⁸ The objective of the scarification process is to reduce the time of germination through diverse physical or chemical methods to weaken the external layers of the seeds. The most commonly used methods are: application of hydrogen peroxide, manual removal of the seed pulp and immersion in boiling water.

⁹ *Gruesa* is a term used to count twelve dozens or 144 stems.

13. I am difficult to understand

Although I take part of an international value chain, the *campesinos* and forest users with whom I work closely together struggle to fully understand my behavior. For them, many aspects of my production for commercial purposes are not clear. Various details regarding the management of plantations are just beginning to be known and, in practice, my utilization is carried out in a very rustic manner.

My classification as NTFP (since I belong to this broad group of products) adds to the confusion. For example, a study by Belcher (2003) suggests that there are applicable solutions for the production of NTFPs in general, minimizing our differences. Thus I have been grouped with very dissimilar products like bamboo, fibers, essential oils, nuts and many others with great commercial importance worldwide, but which have little to do with the reality of my production. Additionally, a lack of detailed data regarding production and export figures thwarts my real market potential in Mexico and abroad. For example, for the states of Veracruz and Chiapas there are official estimates regarding volumes of production, while for the states of Campeche, Hidalgo and Tabasco only the number of permits issued for my exploitation is known. This is not only problematic because it hinders nationwide production estimates, but it also complicates the formulation of effective policies concerning my exploitation which goes together with the conservation of Mexico's forestry resources.

14. I am not the superstar

Roses, lilies, orchids, *Lysianthus* are the superstars in flower arrangements. I am just part of their entourage. Even though I provide an exotic and fresh look I will never perform central stage when it comes to flower arrangements. I complement bright-colored or bleached fragile flowers: Roses from Ecuador, bamboo lucky sticks from China, Dutch gerberas, and *Anthuriums*. The same applies in Mexico, where most people are unable to recognize me in a flower bouquet, although I am a very common ornamental product.

15. I play an important role in this thesis

I am sure you have seen me around, even if I have passed unnoticed. Perhaps at a wedding, a funeral, while traveling around the globe or embellishing your living room or office, but most likely adorning a flower bouquet in your local flower shop or grocery store. As illustrated by the accounts above my life is characterized by an entangled set of complex relationships. Through these relationships I acquire a multiplicity of roles - not only for local producers in the field or in forest communities, but also for those involved in my trade and export; for the artist who includes me in flower bouquets, for researchers around the world, and for everyone who shapes my life and shapes the market around me.

I am important to this thesis because I will help uncover the limitations in the creation of commercial firms and barriers for market access. Specifically, experiences during the process of consolidation will be analyzed, where different problems are deep-rooted in spite of existing resources and interest from several governments and institutions to encourage my use and marketing. In Mexico, numerous individuals and collective efforts have not been able to successfully establish their commercial ambition. Their goals have been blurred due to several bottlenecks and anxieties faced with the impossibility to consolidate their commercial endeavors.

16. Thesis outline

This thesis is made up by eight chapters, including this Introduction, which helps contextualize my research by pointing to a host of elements that play an important role in the promotion of commercial initiatives to market *Chamaedorea* palm in Mexico, including the international reach of *Chamaedorea's* value chain and the policies to promote its use and marketing in Mexico.

Chapter 2 presents the main problem statement as well as the theoretical and methodological considerations. I discuss my theoretical position and how this helps address the research questions. I elaborate on the usefulness of the actor-oriented approach and discuss the methodology I used. Also, in this Chapter I provide a description of the research area and discuss the institutional context of *Chamaedorea* production.

In Chapter 3 I present the organizing practices of the managers of La Flor de Catemaco company (LFC). The company is the market leader in the production and export of *Chamaedorea*. The aim of the chapter is to answer the question: What are the conditions that led to the successful consolidation of LFC, and which events in its trajectory were crucial to this? The case helps to juxtapose the bottlenecks and the factors that inhibit or limit the setting-up and consolidation process of other experiences that try to mimic LFC.

In contrast, Chapter 4 addresses the practices of small-scale producers. The aim is to answer the question: Which factors inhibit the establishment and consolidation of small-scale producer firms? To answer this question, in the first part of the chapter I describe the dynamics of production in the tropical ecosystem and the need to alternate attention between several crops. I illustrate this by closely following the practices of a small-scale producer from the rural community of Limonestitla in the Municipality of Tezonapa, Veracruz. In the second part, I present the efforts of a community leader who seeks to form of a group of producers to market *Chamaedorea*. Despite his work and desire to link the community to other a commercial projects outside the community, his actions fail to fully mature into a successful experience.

Chapter 5 takes as an example the experience of a cooperative. By following the trajectory of a cooperative from its inception to its demise, I here reveal the factors that inhibit the consolidation of a collective enterprise. The main goal of the chapter is to answer the question: What factors inhibit the formation of a collective commercial initiative for *Chamaedorea*? For this specific case these factors were closely related to political maneuverings by the cooperative's management – in disregard of demands by the newly created cooperative. As I argue, it is only through the analysis of actors' day-to-day *practices* that one can more fully grasp the complexities entailed in the establishment of a commercial firm.

Chapter 6 provides a detailed account of the practices of a middleman and his various efforts to consolidate his position as participant in the market for *Chamaedorea* palm. The question that drives this chapter is: What factors limit the consolidation and operation of an intermediary firm for *Chamaedorea* palm? The main obstacles relate to the need to sustain quality standards in compliance with legal procedures while at the same time upholding customer demands. These obstacles cause the middleman to diversify her product line so as to keep commercial operations afloat. As she maneuvers her way through the local and export markets, the case of the middleman demonstrates the importance of building solid social networks for long-term business relationships with new clients in Mexico and abroad.

Chapter 7 describes the efforts of a research practitioner from the National Institute for Investigation in Forestry, Agriculture and Animal Production (INIFAP) at the “El Palmar” Research Centre. I describe the researcher’s work of developing diverse production projects in which *Chamaedorea* is grown in association with various other crops in the region of Tezonapa, Veracruz. In this chapter I answer the question: How do forestry policies promote the interest of small-scale producers in the establishment of commercial plantations and the development of firms?

Finally, Chapter 8 summarizes the main findings of the thesis, including the factors that inhibit or limit the establishment and consolidation of commercial firms for *Chamaedorea* at various points of the value chain in Mexico. Among the main limitations stand out: 1. The heterogeneous and multiple character of *Chamaedorea* palm production in the tropical ecosystem; 2. The political context in which the commercial initiatives develop; 3. The difficulty to maintain quality standards while complying with regulations regarding transportation and, 4. The rigid character of operations within the export market which limits the development of solid relationships between buyers and sellers and thus help achieve stability in the market for *Chamaedorea*.

Also included in this last chapter is a discussion of current forestry policies in Mexico, which -apart from promoting the establishment of commercial firms - should also support the process of consolidation of the firms to help to effectively insert these initiatives in the market. I argue that policymakers should be empirically informed about the limitations and bottlenecks that arise in the starting phase of a commercial firm.

This thesis shows that an actor-oriented approach greatly contributes to the proper identification of the main factors that inhibit the establishment and consolidation process of firms. I extend this claim to encompass not only the case of *Chamaedorea* marketing, but also all non-timber forest products around the globe. The careful description of different commercial projects embodied in this thesis aspires to contribute to the design of policies that allow commercial initiatives for *Chamaedorea* palm to be successfully integrated into the market while contributing to safeguard the sustainable use of natural resources.

Chapter 2

Research problem, theoretical and methodological choices

In this chapter I elaborate the research problem, the perspective I adopted, and the methodological considerations of the thesis. The chapter is divided into four sections. In the first section the research problem and its relationship with existing literature are introduced and the central question of this thesis is formulated. The second part provides a summary of the institutional context and forestry policy in Mexico, which is the framework within which the activities of exploitation and commercialization of *Chamaedorea* develop. The third part discusses the theoretical approach adopted, elaborates on the concepts used, and presents the theoretical considerations for using an actor-oriented perspective. Finally, the methodology used for the development of the thesis and the locations of the research area are described in detail.

1. Research Problem

In the year 2002 I was part of the work team that developed a consultancy for the Commission for Environmental Cooperation (CEC) and had my first encounter with *Chamaedorea*. With this group of researchers we conducted a study in which the market for this product in Mexico was identified and this was how my interest in the topic began to develop. Up to that point, *Chamaedorea* palm was virtually unknown in the Mexican academic field and it was considered a minor product of the forest ecosystem.

As a result of this study, the principal agents of the value chain in Mexico were identified; knowledge about market dynamics was deepened, and I learned about countless marketing initiatives of individuals, *ejidatarios* and communities with an interest in commercializing

the palm and entering the market. One of the main recommendations derived from this study pointed towards the creation of policies and capacity building of small-scale forestry users for the sustainable exploitation of NTFPs, which would help prevent forest land from being destined to other economic uses or timber intensive exploitation (CEC, 2002).

Interest in *Chamaedorea* began moving center stage after the creation of CONAFOR¹⁰ in 2001 and the redefinition of forestry policies in Mexico. As a central theme in the agendas of international organizations and research center programs, *Chamaedorea* was the subject of various studies that analyzed its potential, with emphasis in developing and encouraging community conservation initiatives for tropical forest ecosystems based on its exploitation (Marshall, 2003; Marshall *et al.*, 2006; te Velde *et al.*, 2006; Wilsey and Hildebrand, 2011). These studies were based on the “far-reaching success” of the supply chain in international markets. *Chamaedorea* was utilized as a clear example of marketplace conquest and interest grew, permeating political, environmental and developing agent’s rhetoric. It was promoted as an alternative for obtaining financial resources from tropical forests, while also attempting to conserve them. In the same way other NTFPs went from being considered minor resources to having a lead role as a possibly effective option to solving the issues of deforestation worldwide.

While consulting literature about NTFPs that explored commercial topics (e.g. Jensen, 2009; Svarrer, 2005; te Velde *et al.*, 2006; Wilsey and Hildebrand, 2011), I found that it centered on understanding the flow of products from the local level to the final consumer. For example, in studies of global value chain the focus was on system innovations and global production networks commonly associated with commercial activities oriented to exports. However, they did not consider the difficulties with establishing the enterprises. Thus, the difficulties in establishing NTFP enterprises, which appear to be essential to their future success, are obscured. This thesis argues that overlooking the “black box” of the experiences in establishing an enterprise leads to an incorrect interpretation of the main limitations in accessing the market and, consequently, the development of policies that do not match reality.

At the same time, proponents of NTFP exploitation suggest that forest users can benefit significantly from the establishment of commercial enterprises that guarantee a direct relationship between producers and the market, the development of infrastructure, and the encouragement of sustainable projects at the local level. But they rarely examine the consequences of this kind of recommendations. Likewise, proposed policies center their focus on integrating local actors with global markets, reinforcing the development of an activity that is more market-oriented. But, again, they do so without recognizing the diverse struggles and bottlenecks local actors face to enter into these markets.

The initiatives directed at contributing to the sustainable exploitation of NTFPs and the promotion of trade appear not to have been successful in establishing the basis for the development of enterprises at the local level, since they originate from the premise that establishing a commercial initiative is simple - assuming that resource users are capable of organizing and establishing enterprises organically. Yet, in practice, I have observed how countless users of NTFPs collectively or individually struggle to get their commercial firm established and enter the market, without accomplishing their objective. To fill this gap in our understanding of the start of small-scale commercial enterprises serves as the main incentive to carry out this research and write this thesis.

¹⁰ The National Forestry Commission (CONAFOR), created by presidential decree on April 4, 2001, is a decentralized public organization whose objective it is to develop, favor and promote productive activities of forestry conservation and restoration, as well as to participate in planning, programs and the application of sustainable forestry development policies (CONAFOR, 2009).

I decided to examine the commercializing experiences from close by to be able to answer the question: **How are commercial initiatives around *Chamaedorea* palm built in Veracruz, and what are the main limitations for their consolidation and access to the market?** With this research question I aim to expose that current policies underestimate the difficulty and complexity of establishing a commercial firm and accessing the market, although I do recognize the benefit of current forestry policies. Following actors' practices and the trajectories of diverse initiatives, I attempt to open the "black box" of the process of establishing a firm and to demonstrate that the initiatives and policies to support the commercialization of *Chamaedorea* are based on the wrong assumption that there is a linear relation between the formulation of a policy, its actual practice, and the results obtained.

In the following section I review earlier experiences with, and the development of, forestry policies in Mexico as a context or framework within which current exploitation and commercialization activities of *Chamaedorea* occur. I consider NTFPs, including *Chamaedorea*, as major players in the development of value chains, market integration and the conservation of forest resources.

2. Institutional context and forestry policy

Market liberalization introduced a set of structural changes and new arrangements to Mexico's rural, agricultural and forestry policies in the mid-1980s. Changing market situations and increased environmental sensitivity led by the federal government's market liberalization plans made rural projects available to private investments, assuming a re-definition of the participation of small-scale producers by incorporating objectives of sustainable management and development of rural communities (Antinori and Rausser, 2007; Castilleja, 1993).

Together with the concern for conserving Mexico's natural resources, the government focused on restructuring the legal framework aiming to ensure sustainable use of resources in the forestry sector, including NTFPs. As a result, a new set-up was introduced to rural areas, where diverse stakeholders, including rural communities, were forced to play new economic roles (Ruiz-Pérez *et al.*, 2004). Since the 1980s, a wide range of institutions - both state and private - expected small-scale producers to respond to initiatives designed to enhance their capacity to establish commercially oriented firms. Government policy played an important role, for example, in the establishment of CONAFOR, SEMARNAT and INIFAP as agencies that were created to encourage the transition from traditional farming to modern practices inserted into a market economy.

In the forestry sector a "multiple-use forest management" approach proposed the use of both timber and non-timber forest products alike, in contrast to a timber-dominant approach. Believed to be a balanced strategy¹¹ to fulfill the needs of the multiple stakeholders, and also considered as a "benign" approach adding value to forests, this approach presently stands for the main paradigm of sustainable use of forests as promoted by CONAFOR. Together, market liberalization and "multiple-use forest management" pressed for major reforms both in terms of incentives and of legal frameworks aiming to contribute to economic opportunities through the development of sustainable forest management. The reasoning behind this is that the inhabitants of rural forestry regions

¹¹ According to some authors, its implementation has been lagging behind expectations. Multiple-use forest management remains a valid alternative under specifically favorable local conditions in the landscape, although its value declines when entering capitalist stages of specialized commodity production (García-Fernández *et al.*, 2008)

could improve their quality of life as consequence of a reorientation towards commercial plantations which, in combination with the exploitation of NTFPs, would result in a transformation of the industry by initiating small and medium-sized enterprises and triggering rural development (Barton Bray *et al.*, 2005).

Consequently, new legislation such as the General Forestry Development Law (CONAFOR, 2003) redefined tasks of new government structures, forest policy, and commercialization guidelines for a wide range of forestry products. Federal programs following this two-decade policy reorientation, such as PRODEFOR and PRODEPLAN, and their equivalent regional programs stressed the importance of NTFPs and acted as point of reference for the management of sustainable forestry resources. Together, their aim was to fulfill the need for technical capacity building within Mexico's community forestry sector. Another example, PROCYMAF, began an initiative designed to reorient and enhance professional forestry services in the community sector. It focused on providing technical and organizational capacity building according to specific needs, in ways that went from financing production projects, subsidizing materials for plantations to advice on the establishment of commercially oriented rural firms such as co-operatives and producer associations.

Currently, ProÁrbol unifies all available grants into one single scheme aimed at forest users and owners in order to protect, preserve, restore and make sustainable use of the country's forest resources. Through its Forest Production Supply Chains and Services subprogram, ProÁrbol has the main objective of "developing and promoting associative models that help raise the competitiveness and productivity of the forest sector, along with related sectors such as manufacturing, marketing and distribution of consumer products, which have as main inputs timber and non-timber materials and services" (CONAFOR, 2009).

From its inception, the effects of these policies and programs became apparent in various forestry regions across the country, and concentrated on a variety of distinctive NTFPs, such as *lechuguilla* fibers and *candelilla*¹² in arid regions, mushrooms and herbaceous medicinal plants in temperate regions, and bamboo and *Chamaedorea* palm in tropical regions (CONAFOR 2012). In the case of *Chamaedorea*, hundreds of forest communities committed to these policies and programs and decided to organize in various manners (small groups of producers, co-operatives, S.S.S¹³ and limited corporations), with a view to handle and benefit from the direct supports mentioned above¹⁴.

¹² *Lechuguilla* (*Agave lechuguilla*) is an agave species found only in the Chihuahua Desert, Mexico. The fibers obtained from the leaves (commonly called *Ixtle*) are used to make ropes and mats. Nowadays, the fibers are also being used in the industrial brush business, as it is resistant to most chemicals, alkaline and acidic solutions and heat. *Candelilla* (*Euphorbia antisyphilitica*) is a species native to southern New Mexico in the United States as well as Chihuahua, Coahuila, Hidalgo, and Querétaro in Mexico. It is mostly used to obtain a wax that mixed with other waxes allows them to harden them without raising their melting point. It also finds use in cosmetic industry, as a component of lip balms and lotion bars. One of its major uses was a binder for chewing gums (GRIN, 2014).

¹³ The S.S.S. or Social Solidarity Societies are organizations that are established with a collective patrimony, and whose members are individuals of Mexican nationality- specially *ejidatarios*, commune members, landless peasants, *parvifundistas* and people that have the right to work. They set aside a portion of their work's product to a social solidarity fund and are able to carry out trading activities. Members will freely agree on the modality of their activities to achieve the society's objectives. The social solidarity fund is to be used only for job creation sources, the practice of ecological conservation and restoration measurements, rational exploitation of natural resources, production, industrialization and commercialization of necessary goods and services, education on the practice of social solidarity for members and their families, national values affirmation, the defense of political, cultural and economic independence of the country, and actions that tend to improve quality of life for community members. (Procuraduría Agraria, 2012)

¹⁴ For example, up until 2007 ProÁrbol assigned resources to support 1,463 projects with initial payments of 87,03 million pesos to benefit non-timber forestry management programs.

In spite of the financial support for the consolidation of these groups, in practice it is commonly observed that these efforts fail to help them access the market or simply vanish after some time. Although these groups are fully committed, and in many cases enjoy the privilege of government support for the establishment of forest plantations and small commercialization enterprises, the market structure remains unchanged and participation from small-scale producers is still scarce. Those initiatives that have persisted are active as suppliers of a single exporting firm only, or of local middleman. Some examples of these failed experiences are the indigenous cooperatives of Chiapas, *ejidal* communities in the region of the Tuxtlas, Veracruz, and the diverse initiatives in Monte Tinta, Oaxaca. This picture is indicative of the difficulties that triggered my research question. In the following section I introduce the theoretical framework I used to study the topic and I justify its selection.

3. Theoretical framework: opting for an actor-oriented approach

As we learned from the previous section, the drive for the support of associative models to increase competitiveness and productivity in the forestry sector is a main concern of the country's policies. However, the drive is based on the assumption that the consolidation phase of a firm is simple and firms will be able to successfully face the demands of domestic and export markets if properly supported. The "need for organization" is a common recommendation that both policy formulators and academics frequently propose as a way to encourage the establishment of local firms. Nevertheless, the assumed outcome that these experiences will automatically lead into well-regulated, organized markets does not tally with practice. Not only are these assumptions insufficient but also for the specific case of *Chamaedorea* palm they do not necessarily represent the needs of communities and small-scale farmers.

To explain these failures, experts resort to a variety of theoretical frameworks that provide a biased understanding of the dynamics underlying such initiatives right from the start. The current literature on NTFPs, despite being wide-ranging and varied, adds to this impediment and rarely challenges these assumptions. Moreover, they seem to amplify the benefits, overlooking the difficulties of establishing firms and reaching international markets. The encouragement of small-scale enterprises as a means for rural development is considered important for sustained economic growth and for providing employment in developing economies. It seems that the small-scale enterprise has become the unit for development following the retreat of governments. However, as Verschoor (1997:247) stresses, "the question of how, empirically, small-scale entrepreneurs shape, and are shaped by their socio-technical environment is abandoned or, at best, relegated to a secondary level of analysis". What he proposes is another way of studying firms: one that considers not only their heterogeneity but also one that considers the many struggles and adjustments central to the operation and setup of a firm. As he notes:

"[What we need is an] idiom that does justice to the heterogeneity of firms. A language that gives priority to the way in which this heterogeneity is constructed, and which involves the manifold struggles, negotiations and accommodations over a broad range of issues that are crucial for the operation of firms. In short, a vocabulary of problem-solving that is willing to tackle head-on the challenge of understanding the organizing practices that arise from actors' wills to bring about desired changes in the running of their enterprises" (Verschoor, 1997:247).

What kind of framework can be useful to truly grasp what goes on during the first steps of the establishment of a firm or an ongoing process of organization? Following this concern, I

researched several themes regarding organization, organizing processes and practices. Particularly, I became interested in Law's and Callon's take on the subject (Callon, 1998; Callon and Law, 1989; Callon *et al.*, 1986; Law and Callon, 1992). As Law (1992a: 380) proposes:

"If we want to understand organization it is important not to start out assuming whatever we wish to explain. Instead, we should start with a clean slate. (...) [O]rganizing depends partly on ordering things -words, but also materials, desks, paperwork, computer systems- in an entrepreneurial manner, but vision or charisma are equally important, as is vocation and even administration. These various modes of ordering include, exclude, depend on, and combat one another. But not only the modes of ordering play an important part, but also the ways actors justify their actions"

For Law (1994) agents, decisions, machines, organizations, interactions between organizations and their environments, speech, actions, and texts perform a network of multiple-ordering relations because of the recursive inter-ordering or inter-discursive effects within them. For him, an organization is composed of a wide range of heterogeneous materials. He considers people, devices, texts, 'decisions', organizations, and inter-organizational relations. By this he assumes that the social world is materially heterogeneous.

In contrast, organizational economists have a different starting point to study organization. In *Principles of Economic Sociology*, Swedberg (2003) explains how this point of view is approached:

"As opposed to sociologists, organizational economists do not start from the premise that social relations are crucial to the economy and that you need to ground these empirically. Instead, they typically begin with individual self-interest and introduce social relations and institutions at a larger stage, perhaps to explain why it is efficient to use an institution or how interest can be realized through the creation of certain social relations. A logical argument is usually enough, and empirical data is often absent" (Swedberg, 2003: 79)

Furthermore, Swedberg explains the way in which firms are conceived in the mind of economists:

"The firm in a capitalist society is oriented toward profit-making, as opposed to household and consumption. The modern rational firms make use of capital accounting, which represents a way of establishing exactly how much profit has been made during a specific time period. It is headed by an entrepreneur and its employees typically include obedient and efficient bureaucrats as well as disciplined workers. The modern firm appropriates profit opportunities in a rational manner and can operate effectively only if it is backed by a rational state and a rational legal system, since it demands a large measure of predictability to operate efficiently" (Swedberg, 2003:90).

In accord with this conceptualization, when focusing on organizational emergence, the entrepreneurship literature emphasizes the traits and characteristics of the actors themselves, rather than their practices, and neglects the process that occurs before the establishment of a firm and its bottlenecks. Following this idea, Aldrich and Reuf (2006) suggest:

“Organizational scholars have done an excellent job in explaining how things work in organizations that have been for a while, but not how they come to be that way (...) the absolute miracle of their creation does not seem to interest most organization theorists”

In the same way, Aldrich and Reuf (2006) point out that “the reader should also be aware to the fact, that there is a rather complex process, which has been little studied, which takes place before a firm is founded”. Entrepreneurship, then, seems to be a fundamental part of the organization process, as organizational literature views it – yet there is a lack of attention to the early stages of the foundation of the firm.

Current literature on the commercialization of NTFPs is limited to encouraging the development of policies that promote development of local entrepreneurship; but in almost every case, it falls short in developing the ability to evaluate these policies and to highlight the difficulties faced in the process of consolidating partnerships or associative models. In order to overcome the shortcomings of the perspectives discussed above, I have opted to employ an actor-oriented approach, which is argued to be particularly helpful in examining how actors (whether individuals or social groups) develop strategies aimed at achieving specific objectives (Long, 2001a). In this sense, this approach will aid examining the ways in which different social actors continuously negotiate, redefine and challenge existing or perceived bottlenecks that hinder the attainment of their goals.

In the early 1970s “a number of general theoretical studies dealing with issues of structure, agency and the link between the so-called “micro” and “macro” phenomena have appeared” (Long and Long, 1992:4). These contributions motivated a more forceful approach to the understanding of social change emphasizing the central role played by human action and perception (Long, 2001a). In the view of Long, what was missing from the previous theories of development was an “attempt to analyze in depth the intricate and varied ways in which new and old forms of production, consumption, livelihoods and identity are intertwined and generate heterogeneous patterns of economic and cultural change” (Long, 2001a: 12).

Actor-oriented research is concerned with how different individuals and social groups interact and develop strategies to deal with social change. In this sense, the approach is extremely helpful when examining the way different social actors continuously negotiate, redefine and challenge existing social forms. Independent of predefined models of analysis the approach makes possible to focus the analysis on actors’ lived experiences. The focus on *social* actors is the main feature in this actor-oriented approach and this interest is based on the conviction that “although it may be true that certain important structural changes result from the impact of outside forces, it is theoretically unsatisfactory to base one’s analysis on the concept of external determination” (Long, 1992:20).

One main theoretical contribution of the actor-oriented approach to social development and specifically to rural development has to do with the introduction of the centrality of actors and the emphasis on the fact that structural circumstances or interventions are actively processed by heterogeneous social actors who have information and strategize in their dealings with various relationships (Long, 1992). Another major contribution is the re-conceptualization of processes of social construction and reconstruction. To that purpose, key concepts are introduced in rural development thinking, the most important of them being human agency, knowledge and power.

The notion of agency assigns to the individual actor the “capacity to process social experience and to devise ways of coping with life, even under the most extreme forms of coercion” (Long, 2001a:16). The actor-oriented approach states that the elements of human

agency must be translated culturally to be fully understood and that it is important to examine how “agency is differently constituted culturally and affect management of interpersonal relations and the kinds of control that actors can pursue *vis-a-vis* each other” (Long, 2001a:19).

Knowledge is a “fundamental property of human agency which allows actors to construct socially the field of rural development” (Arce *et al.*, 1994:16). Also, “[K]nowledge is constituted by the ways in which people categorize, process and impute meaning to their experiences and emerges out of a complex process involving social, situational, cultural and institutional factors” (Arce and Long, 1992). For this research, problem-solving capacities have a significant contribution to understand how commercial initiatives are being constructed and show the way in which actors are open to new learning experiences. According to Long and Long (1992) it appears that within the limits of information, uncertainty and the other constraints that exist (e.g. physical, normative or politico-economic), social actors are knowledgeable and capable. They attempt to solve problems, learn how to intervene in the flow of social events around them, and continuously monitor their own actions, observing how others react to their behavior and taking note of various contingent circumstances.

Power “is to be seen not as fixed property, or as a possession of any particular actor, but rather as a consequence of micro-social negotiations” (Arce *et al.*, 1994:170). The actor-oriented approach introduced the idea that “power configurations are depicted in terms of the idea of interlocking actors’ projects made up of heterogeneous sets of social relations imbued with values, meanings and notions of authority and control, domination and competition” (Long, 2001a: 242).

The theoretical basis of the case studies included in this thesis focuses on specific cornerstones of the actor-oriented approach as described by Long (2001a), beginning with the notion that social life is heterogeneous. According to this author, social life comprises a wide diversity of social forms and cultural repertoires, even under seemingly homogeneous circumstances. This points to the need of going beyond analyzing merely structural outcomes and instead deepening on how social processes are produced, reproduced and transformed.

Another relevant cornerstone of the approach that was of utmost relevance for the analysis of the cases studies, is the requirement of a theory of agency based upon the capacity of actors to process theirs and others’ experiences and to act upon them. Agency, as defined by (Long, 2001a), implies both a certain knowledgeability, whereby experiences and desires are reflexively interpreted and internalized (consciously or otherwise), and the capability to command relevant skills, access to material and non-material resources and engage in particular organizing practices.

In the same way, the understanding that social action is never an individual ego-centered pursuit, helped grasp the social relations and ties of actors studied. This network of ties is shaped by both routine and explorative organizing practices, and is bounded by certain social conventions, values and power relations. As also suggested by the actor-oriented approach, social action and interpretation are context-specific and contextually generated.

This thesis aims to investigate the bottlenecks that limit the establishment and consolidation of firms by sticking to these cornerstones. Particularly important is capturing the way in which “social actors engage in or are locked into struggles over the attribution of social meanings to particular events, actions and ideas” (Long, 2001a:17) by observing how actors produce, consolidate and transform social processes involved, not merely the structural

outcomes of it. Instead, my approach shows an interest to reveal processes that otherwise would remain hidden on (Law and Callon, 1992).

In order to do so, I present a collection of accounts of diverse producer firms at different levels of the *Chamaedorea* supply chain in Mexico. The portrayal of a diversity of commercial initiatives will picture “how things get done”. In so doing, I attempt to open up the “black box” of NTFPs organization and show that initiatives (whether individual or community based) to gather and sell *Chamaedorea* fronds do not endorse the widespread assumption that there is a linear relation between the formulation of an idea (e.g. a project or the consolidation of a firm), its implementation, and its intended outcomes (conservation of a given resource and improvement of the livelihoods of “community members”). Neither do they validate the normative wish that organization is an “organic” process that will arise automatically and efficiently if only the right “policy triggers” are put in place. Instead, what we will learn from the initiatives is that they obey the passionate, personal interests and political manoeuvres of specific individuals who are able to enroll others into their projects.

As Long (2004:31) argues:

“A fundamental principle of actor-oriented research is that it must be based on actor-defined issues or problematic situations, whether defined by policy makers, researchers, intervening private or public agents or local actors, and whatever the spatial, cultural, institutional and power arenas involved. Such issues or situations are often, of course, perceived, and their implications interpreted, very differently by the various parties or actors involved.”

The main challenge in this respect was determining which activities were of concern, since many decisions and practices are being performed specifically when setting up firms. This took time, and gaining trust from the different actors I collaborated with to capture the way things were done also took an extensive amount of time. My focus was on examining organizing practices and how they can help explain the emergence of NTFP commercial initiatives. This will become clear in the following chapters where the case-studies presented will help reveal the various interpretations of “organization” and the way actors make use of different strategies to mobilize their resources in order to access markets. Thus, the empirical chapters will show how actors are becoming active participants who process information and strategize in their dealing with various local actors as well as outside institutions.

In the following section I describe in detail the actor-oriented methodology used for gathering information which allowed me to identify the main bottlenecks in commercial projects to be studied. This is followed by an introduction to the area of study.

4. Methodology

A variety of methods were used to develop this research, including the collection of qualitative and quantitative data gathered from primary and secondary sources of information. Fieldwork took place over a period of 20 months between November 2006 and August 2008. A timeline of the activities that took place during the fieldwork phase is shown schematically in Appendix 1.

In the beginning of this research, it was necessary to build a network of relations that gave me the opportunity to get to know different actors related to the exploitation and commercialization of *Chamaedorea* in Mexico. In this first phase of fieldwork, I centered

my efforts in the region of Tezonapa, in the southern part of Veracruz. I took advantage of my stay in the region to visit many rural and semi-rural communities and to make contact with diverse *Chamaedorea* small-scale producers. My goal was to understand the way in which they gradually build commercial initiatives with the purpose of entering the market.

The interaction with producers gave me an excellent opportunity for the exchange of information and to get to know up-close their incentives to venture into production. In this manner and with an open approach, the same actors and situations led me to trace the interactions and links with other actors related to this activity. In this way, after a few months of being established in the region, besides discovering the production dynamics and unraveling the difficulties with some of the commercial initiatives for small-scale producers, I also got to know about the practices of intermediaries, harvesters and retailers.

In the second phase, I devoted my time researching the way in which policies permeate through the institutions in charge of promoting the exploitation of NTFPs in Mexico. For this reason, I involved myself directly with the work of technicians and engineers of the INIFAP's research center "El Palmar", also located in the region of Tezonapa. This gave me the opportunity to research the application of policies related with the exploitation and commercialization of NTFPs for the tropical region and the articulation of related projects in communities adjacent to the research center.

In this way, I actively participated in the daily activities of many actors, observing their practices, interviewing them, and documenting their activities. I made use of specific ethnographic methods such as participatory observation, in-depth interviews and life stories for gathering of information. Taking field notes, writing in my journal and making use of my handheld recorder, I gradually defined the case studies that make up the empirical chapters of this thesis.

As I made progress in understanding production and became familiar with the organizational practices of diverse actors in Tezonapa, the majority of actors with whom I kept in touch, mainly expressed their concerns about the impossibility of consolidating their commercial projects. As I accumulated knowledge on communities and their commercial initiatives, they similarly pointed towards the difficulties to consolidate their position in the market. I was also able to perceive that this concern was not exclusive to small-scale producers, but a concern shared by the different agents at various levels in the value chain. In my journal, after an interview with an intermediary I wrote:

"After visiting so many people in different communities and their projects (...) I am surprised to know that not only small-scale producers have issues carrying out their commercial ambitions. What is the problem? Why are these initiatives not successful? Is it lack of funds, ingenuity, or is it such a small market that it does not allow any more participants?" (Field Notes, September 2007)

Stimulated by these questions, I decided to expand the type of experiences to be studied even if they were not directly related to the small-scale production of *Chamaedorea*. To make this happen, in mid-2007 I relocated to the city of Catemaco, pivotal point of the export market¹⁵ and headquarters to the most important exporting enterprise of the branch. There, I established contact with the company La Flor de Catemaco and researched the

¹⁵ In this thesis I am mainly concerned with the production of cultivated *Chamaedorea* fronds, even though collection from wild populations stands as an important activity for rural economies too. It is estimated that around 40% of fronds marketed in the domestic markets are collected in open forest areas. In most cases the fronds collected are delivered to local intermediaries and then traded to a number of regional intermediaries. Once harvested, it is almost impossible to determine the source – natural or cultivated - of the fronds.

scope of the export market for this product. In the months following the year 2007, I divided my time compiling information and following the trajectory of several experiences of small-scale producers and frequent visits to Catemaco, where I closely followed the commercial aspects of the export firm.

In 2008, I strengthened important relationships with intermediaries. I witnessed their routinely (and not so routinely) activities and commercial operations, and had the opportunity to obtain a deeper insight in the way in which they intertwined relationships with actors inside and outside the value chain to reach their objectives. In this way, my fieldwork came to life with countless accounts and interweaved life stories surrounding a product in the middle of a market that is built and transformed every day.

The accounts presented in the case studies are multi-sited and define their object of study through various techniques. According to Marcus (1995) the technique of “following the object” implies tracing the circulation of a material object through different contexts, which provides a good portrait of the volatile situation of things like commodities and other resources. In this fashion, the research methodology consisted of a compilation of empirical data during an extended period of ethnographical research in different situations and places. It was based on a critical analysis of the empirical facts related to the production, organizational and commercialization practices and the way in which the actors – both individual and collective - shaped strategies, mobilized resources and made decisions to begin commercial projects.

Finally, during my stay in Wageningen I devoted the last part of data gathering to an enquiry about production registries, forestry legislation and applicable norms of exploitation and commercialization related to *Chamaedorea*. Taking advantage of my time in Holland, I also made contact with a few retailers and florists in the Dutch cities of Amsterdam, Utrecht, Wageningen and The Hague. Even though not very detailed, I managed to collect opinions on current tendencies in the commercialization of palm leaves through informal conversations that were useful to illustrate the introduction to this thesis.

5. Research Area

The collection of data for this thesis took me to numerous places, since the production and commercialization areas of *Chamaedorea* are dispersed along various regions of southeastern Mexico. However, I had a particular interest in two regions where I spent the majority of the time during my fieldwork. First, the region of Los Tuxtlas, specifically the city of Catemaco and its adjacent areas. Second, the region of Tezonapa, in the central part of the State of Veracruz. In the following sections, I introduce their characteristics and I describe the importance of the NTFPs for the economy of each of them.

a. Los Tuxtlas

The region of Los Tuxtlas is located in the southern part of the State of Veracruz, in eastern Mexico. It extends from Lake Alvarado to the Gulf of Mexico. Its borders are defined by the western tributaries of Lake Ostión, the northern tributaries of the Coatzacoalcos River continuing to the San Juan River until converging with the Papaloapan River that flows into the Gulf. Geographically, the volcanic mountain range located in the municipality of Catemaco that borders with the Gulf of Mexico coast is referred to as Sierra de Los Tuxtlas. It includes the volcanoes San Martín Tuxtla, Santa Marta and San Martín Pajapan at approximately 1,750 meters above sea level. It encompasses nine municipalities: Ángel R. Cabada, Santiago Tuxtla, San Andrés Tuxtla, Catemaco, San Pedro Sotepan, Tatahuicapan

i. Biodiversity

Los Tuxtlas has a vast diversity of vegetation, which only compares to very few regions in Mexico. In this region, nine types of vegetation can be identified: deciduous forest, oak forest, mangrove, savannah, high evergreen forest, low evergreen forest, semi-deciduous medium dry forest, pine grove and coastal vegetation (Guevara *et al.*, 2004). The forests possess a great variety of endemic species of tropical and boreal affinity. In the region different types of forests and rainforests converge, from the coast to the volcanic summits. The flora belongs to the Neotropical biogeographic kingdom and within this to the Caribbean region and to the province of the coast of the Gulf of Mexico. Just for this region, 2,695 species of vascular plants have been described, belonging to 42 sub-species and 10 varieties that represent 214 families and 6 plant classes. This is an indicator of the great wealth and variety of floral resources (Rzedowski 1986, Estrada and Coates-Estrada 1999 in Ibarra-Manríquez *et al.*, 1997; Márquez-Ramírez and Márquez-Ramírez, 2009).

Additionally, Los Tuxtlas is one of five regions with greater tree endemism in Mexico as close to 10% of the trees in the upper canopy are endemic to temperate zones in the country (Rzedowski, 1991; Wendt, 1993). According to de la Vega-Leinerta *et al.* (2011) the region is still considered as one of the five ecological hotspots in Mexico. The following species stand out: *Thelypteris rachyflexuosa*, *Solenophora tuxtensis*, *Inga sinacae*, *Begonia sousae*, *Pouteria rhynchocarpa*, *Mormodes tuxtensis*, *Ruellia tuxtensis*, *Tridimeris tuxtensis*, *Aristolochia veracruzana*, *Inga lacustris*, *Parathesis calzadae*, *Parathesis neei*, *Parathesis tuxtensis* and *Rondeletia tuxtensis* (Ibarra-Manríquez *et al.*, 1997; Ramírez, 1999). Other species considered endemic to the region of the Sierra de Santa Marta in the region of Los Tuxtlas are: *Aristolochia impudica*, *Dichapetalum mexicanum*, *Salvia tuxtensis*, *Parathesis pajapensis* and *Chamaedora hooperiana*.

However, many of these species are threatened due to the irrational use of natural resources, deforestation and the expansion of livestock farming. Some endemic species are considered endangered such as: *Chamaedorea tuerckheimii*, *Chamaedorea tenella*, *Aporocactus leptophis*, *Olmeca recta*, and *Olmeca reflexa* (Ramírez, 1999). Some records indicate that biodiversity has been lost mainly as a consequence of extensive livestock farming, which has in the past years profoundly altered the environment of the region. It is estimated that just between 1976 and 1986 the region suffered a reduction of approximately 56% of its forest areas, and by 1986 nearly 84% of the original rainforest had been lost (Dirzo and Garcia, 1992; Dirzo and Richard, 1997). In spite of this, there is currently an increased conservation effort to protect the remaining forests which cover more than 30,000 hectares and in which 15 different types of vegetation and more than 1,300 vascular plant species have been identified.

ii. Conservation efforts in the region of Los Tuxtlas

The first conservation efforts in the region began in 1964 with the creation of National Autonomous University of Mexico (UNAM) Los Tuxtlas Tropical Biology Station¹⁶, a center of academic research that has contributed a great quantity of scientific research related to the rainforest of southeast Mexico. Since its establishment, research was carried out and has produced diverse publications (Dirzo and Garcia, 1992; Durand Smith and Ruiz Cedillo, 2009; Ibarra-Manríquez and Sinaca, 1995; López-Sánchez and Musálem, 2007; Popma and Bongers, 1988). Besides the aforementioned publications, a few inventories of other areas of the region have been done such as La Palma by Toledo (1969), Lake Sontecomapan

¹⁶ The Biology Station also includes a well-preserved forested area representing different habitat types in the region, such as high and medium evergreen forests.

studied by Menéndez (1976), the San Martín Tuxtla volcano studied by Álvarez del Castillo (1976), and a study particularly devoted to the exploitation of *Chamaedorea* palm (Aguilar Sánchez *et al.*, 2001). These studies reflect the aim to promote agroecological alternatives and sustainable management of natural resources to endure the issues associated with environmental degradation and marginalization.

Early in the 1970-80's fundamental successes were achieved when the region of the Volcano San Martín was declared Protected Forest and Wildlife Refugee Zone, with a surface of approximately 5,000 ha. By 1982 the protected area was extended to cover 20,000 ha. and assigned as Special Biosphere Reserve. Another region of Los Tuxtlas, the Sierra de Santa Marta was declared in 1980 to be in the same category of wildlife protection, covering a surface of 20,000 ha., and was later classified as Special Biosphere Reserve. In spite of these accomplishments, the restriction on the exploitation of resources was often perceived negatively by the local population (Durand Smith and Ruiz Cedillo, 2009).

On November 23, 1998 through an inter-institutional effort led by the government of the State of Veracruz, the National Ecology Institute (INE), the Secretariat of the Environment, Natural Resources and Fisheries (SEMARNAP), the Reserve's management, the UNAM, the Ecology Institute A.C., the University of Veracruz and the Sierra de Santa Marta A.C. Program (PSSM) both protected areas were integrated into Los Tuxtlas Special Biosphere Reserve Decree. The administration and management of the reserve was put in the hands of the National Commission of Natural Protected Areas (CONANP), a government entity and decentralized body of SEMANARP. The reserve has an environmental management program in which physical, biological and ecological characteristics are specified, in addition to the characteristics of the archeological, historical and cultural heritage (SEMARNAP 1998, CONANP 2001).

In 2006 the region was declared Special Biosphere Reserve by UNESCO, a concept of protected areas that since the 1990's attempts to reconcile multiple uses of natural resources, conservation efforts and promotion of local participation. Currently, the total surface of Los Tuxtlas Special Biosphere Reserve is 155,122 ha and includes three core zones: Volcano Santa Martín Pajapan with 1,888 ha, Volcano Santa Marta with 18,081 ha and Volcano San Martín Tuxtla with 9,805 ha. The buffer zone covers 125,401 ha in which *Chamaedorea* extraction and production activities take place. Under the reserve's management, diverse reforestation, alternative technologies, and ecotourism projects are being initiated. This last initiative which is part of a broader productive diversification strategy, has provided options to several communities such as the *ejidos* López Mateos, Las Margaritas, Miguel Hidalgo, Ruíz Cortines and Benito Juárez, and managed to reduce practices such as illegal logging, extensive livestock farming, and the extraction of wild flora and fauna.

iii. *Chamaedorea* palm production in the region

The intensive production of *Chamaedorea* palm began in the 1970's following the experience of La Flor de Catemaco company, even though harvesting had traditionally been taking place in natural populations. Since then, the region of Los Tuxtlas has gradually turned into the main production center and its influences have expanded to neighboring communities, which are now devoted to its production.

This intensified production process began in the early 1990's through the initiative of diverse peasant groups supported by organizations such as the Sierra de Santa Marta Project (PSSM), the Regional Unit of Popular Cultures of Acayucan and the Tropical Forest Action

Its geographical location and the diversity of microclimates make this municipality very diverse in uses of natural resources. The municipality is characterized for being a territory of tropical forests that contrast with rubber plantations (*Hevea brasiliensis*) and large sugar cane plantation areas. Tezonapa has an area of more than 9,000 ha of tropical evergreen forest. It is cataloged as one of the municipalities in Veracruz with the highest biodiversity index in the state (Márquez-Ramírez and Márquez-Ramírez, 2009).

Halfway the 19th century, the region turned into one of the most important tobacco producing regions of New Spain. Originally, it was home to large tobacco farms located in territories that are known today as Asihuat, Acolco, Necayantla, Barranca Seca, La Laguna, and Atopetla where colonization started and what later would become the temperate zone of the municipality of Zongolica, known today as Tezonapa. Besides tobacco, according to municipality records (CEEM, 1988; SEGOB, 2012) the planting of *ramio*¹⁷ began in what is known as Motzorongo Ranch. Later, with the beginning of the railway construction from Córdoba to Tierra Blanca and the arrival of the railway to Motzorongo in 1895, the establishment of large sugar mills began in the region, turning it into a major sugar producing region.

In the beginning of the 20th century, the laborers' quarters of Tezonapa were built in an area with the same name, and which had in the past belonged to Motzorongo Ranch. With the start of the railway in 1906, the settlement surrounding it laid the foundation for a town that would grow rapidly along the new sugar producing ranches, in addition to starting with the rubber plantations. By then, three ranches dominated the region: The Motzorongo Company¹⁸, Las Josefinas, and the Palmar Rubber Estate Limited¹⁹. Towards the end of the 19th century and beginning of the 20th century, the Constancia Sugar Factory was founded in what was known as the Tezonapa Ranch, and a series of land disputes among sugar mill managers and the local population began. After the Revolution, on August 18th 1930, Tezonapa was officially founded by decree of Governor Adalberto Tejada and it was endowed as a town site and as a community of the municipality of Zongolica. In 1942, the Department of Agriculture installed a rubber experimentation and propagation camp in El Palmar, which marks the beginning of agricultural promotion and expansion focused on rubber production.

During the 1950's important investments took place to install more sugar mills in the region and to hire abundant manpower, which spurred the growth of the surrounding settlements. It is not until 1960 that the creation of the municipality of Tezonapa is made official and borders were defined as they are known today. The municipality's borders are located at the edge of the Sierra Zongolica and the coastal flatlands of the State of Veracruz, forming a relatively small municipality that occupies only 0.7% of the total state's surface. It includes 138 localities of semi-urban nature with a total population of 48,878 inhabitants in 2005 (INEGI, 2005; SEFIPLAN, 2011).

¹⁷ Ramio (*Boehmeria nivea*) is a species of the Urticaceae family of Asian origin. A textile fiber called *ramio* is obtained from its bark.

¹⁸ A Chicago based firm that operated coffee and sugar plantations in the region.

¹⁹ According to a report from the United Nations (UN, 1931) El Palmar Rubber Estates was a British-owned a property situated in the Canton of Zongolica, State of Veracruz. This estate was planted with *Hevea* and *Castilloa* for oil, *Arabica* and *Maragogipy* for coffee, and large numbers of plane trees, lemons and sugarcane. In addition to this cultivation there were enclosed poultry runs to the extent of 530 hectares. Cattle and horses were also kept on the estate. In 1910, when the revolutionary movement in Mexico first broke out, the profits of this estate began to diminish and, finally, the whole of the property became a total loss.

CONAPO (2005) catalogs the municipality with a high degree of marginalization and a considerable illiterate population (20.43% of the municipality). More than 10% of the population lives under conditions that are below acceptable levels. Statistics report deficient living conditions in the region: 60% of the population lack basic services such as potable water and drainage, a percentage that increases to 90% in communities with populations below 5,000 inhabitants. Additional figures indicate that 71.63% of the population received below two minimum salary wages²⁰ (INEGI, 2000a).

According to statistics from the Information and Statistics Service on Agriculture, Food and Fisheries of SAGARPA (2012) the main crops are coffee, sugar cane, corn and rubber. The statistics do not detail the forestry activities performed in the municipality; they only mention broadly the registration of 3,445 rural production units in the municipality, 542 of which are involved with timber and non-timber forest products. In Table 2, the main crops are summarized, as well as their production volume and value.

Table 2. Main crops, planted area, volume and value of production in the municipality of Tezonapa, Veracruz (2009).

Main Crops	Planted Area (Ha)	Volume (Ton)	Value (MXN Thousand pesos)
Coffee cherries	16,000	24,000	99,000
Sugar Cane	10,210	581,400	218,606
Corn kernel	5,600	11,200	23,200
Rubber	1,210	900	8,145
Beans	200	85	1,530

Source: Agriculture, Food and Fisheries Information and Statistics Services of SAGARPA (2009)

The main activity is agriculture and the sugar mills employ a large percentage of the population. There are six sugar factories or sugar mills²¹ in the municipality that are obviously driving forces in the rural economic activity. However, agricultural production also focuses on coffee production, rubber and other forest products. Due to its topographical diversity, local producers of the lowland plains are involved with sugar production, while the mountainous areas with prominent slopes (10 to 40%) combine irregular plots for food cropping with shade-grown coffee and rubber trees.

In the municipality's lowlands and plains, the conversion of large areas to sugar cane plantations has triggered tensions among the region's inhabitants, since they represent a threat to the conservation of tropical forests. However, sugar cane continues to be the main crop in the minds of local producers. In contrast, the mountainous terrains are devoted primarily to coffee production, which allows, to a certain extent, the conservation of the forest (Davidson, 2005; Moguel and Toledo, 1999). Currently, *Chamaedorea* palm, under an agroforestry production system²² also features as a relevant crop for the region. Figure 5 shows a series of different landscapes of the region.

²⁰ A minimum salary wage is equivalent to MXN\$ 54.80 per day.

²¹ San José de Abajo Sugar Mill, San José de Arriba Sugar Mill, La Providencia Sugar Mill, Presidio Sugar Mill, Motzorongo Sugar Mill, Tezonapa Sugar Mill.

²² A farming technique that allows intercropping between standing trees, which has been introduced lately to undermine the effects of mono-crop agriculture and to complement livelihood incomes when the sales of cash-crops fall short (Perfecto *et al.*, 1996).

In summary, two types of farming systems co-exist in the region of Tezonapa. The first type relies exclusively on labor contracted for the production of sugar cane and is located in areas of lowlands and plains (in units of 3 to 5 ha. approximately) and where mechanization is prevalent. These terrains are used intensively and provide the main income to the inhabitants of the municipality. The second type of is devoted essentially to the production of diverse crops such as coffee, rubber, *Chamaedorea* palm and a few other subsistence crops (corn, beans, fruit trees, etc.). This type of farming system is characterized by its heterogeneous cycles of production and low levels of mechanization. Commonly, plot owners are the ones that carry out the daily, necessary activities and do not require hiring additional labor.



Figure 5. Different landscapes present in the region of Tezonapa, Veracruz. From top to bottom: a) Companion planting of rubber and *Chamaedorea* palm; b) *Acahual* adjacent to agricultural land; c) Sugar cane plantation; d) Coffee plantation under the sun and remaining forest canopy.

For the commercialization of products, the flow of merchandise in the municipality is accomplished through local markets, small shops, intermittent trade or goes to the cities of Tezonapa, Omealca and Motzorongo, which are larger trade centers in the municipality, where the majority of the population satisfies its supplies needs through a public market and a flea market. The purchase of consumable goods and raw materials takes place in larger urban centers such as Córdoba and Orizaba.

i. *Chamaedorea* palm in the region of Tezonapa

Chamaedorea plantations were introduced to the region thanks to the extension and research work of INIFAP. As part of their collection of experimental field projects, the palm was introduced as a crop at the end of the 1990's when the engineer Hernández Pallares integrated it in the mixed agroforestry system of rubber and *Chamaedorea* palm, establishing the first demonstration plots. From his research comes the technique of companion planting with rubber and the task of promoting the palm in the surrounding areas. Establishing plantations gradually replaces collection in the region. Nevertheless, interest in the palm remained incipient, and its commercialization took place only irregularly by local intermediaries that supplied regional markets in Córdoba and Orizaba.

Gradually, *Chamaedorea* palm has been introduced in the production repertoire of communities near the research center, but it was not until the 2000's that commercial interest began to be substantial. In 2005, this interest led to an initiative that expected to carry out commercialization as well as to encourage the crop in various communities. This initiative and its development are studied in detail in Chapter 5. Currently, the exploitation of *Chamaedorea* palm serves to complement the income of local producers due to its compatibility with the management of primary crops. However, its adoption does not yet represent an important financial compensation for local producers. For example, in the El Palmar community, half of inhabitants say they do not grow *Chamaedorea* palm since they consider that the income they derive from it is not significant in comparison to other crops such as sugar cane and coffee. Also, 43% of them answered that the plantations that mainly determine their income are coffee and rubber (Musálem Castillejos, 2005).

Meanwhile, CONAFOR's policies aiming at conservation have created an incentive to produce and establish alternative crops through diverse promotion programs. One of the core concepts of these programs is the exploitation of non-timber forest products (NFTPs), and there appears to be an increasing interest in *Chamaedorea* as an alternative for the region studied.

Chapter 3

Road to Success: La Flor de Catemaco

1. Introduction

This chapter examines the case of La Flor de Catemaco (LFC), the leading enterprise in the production of ornamental foliage in Mexico and main exporter of *Chamaedorea* palm. As leader in the market and responsible for the majority of *Chamaedorea* exports to international markets, LFC holds a privileged position which has allowed it to become a model to follow for other commercial initiatives in the country. LFC's story of success is backed by several factors that have played an important role in the development of the company, as well as the results from a series of decisions and procedures led by the production and plantations managers, Leobardo and José, who play an essential role in operations.

Through several descriptions, this case study opens up the space to discover the complexities in the functioning of an exporting enterprise in Mexico. In this manner, the central focus of this chapter has as its objective to exhibit the enterprise's operations, while analyzing the conditions that have played a decisive role in the building of the firm, simultaneously attempting to answer the following question: Which are the conditions that led to the consolidation of LFC and which points in their trajectory were favorable for their successful entrance into the market? In this sense, the case study is particularly useful to highlight and compare factors that limit other commercial projects in their attempt to enter the market.

This chapter also presents a discussion on existing regulations relating to the use and commercialization of the palm. Thus I could discover the effect of observing these norms on the enterprise's operations, which creates important bottlenecks, not only in LFC but also in the consolidation of firms along the entire value chain in Mexico.

This chapter is divided into five sections. In the first section, I describe my first visit to the company. In the second section, I introduce the case study's main actors and a historical outline of the enterprise, introducing the trajectory and key moments for its establishment. In the third part, I follow LFC's managers' (Leobardo and José) activities up close. Through their practice and diverse explanations I reveal hidden aspects in the palm's production; the way in which they line up resources to maintain commercial operations and keep the company afloat. In the fourth section, I address one of the restrictions to access the market: Mexican Official Standards and their observance in Mexico. Finally, in the conclusion, I discuss the factors that had an influence on the successful consolidation of LFC in the market and I elaborate on the aspects related to regulations and current forestry policies.

2. My first visit to the company

The information presented in this chapter was collected during several visits to the company between the years 2006 and 2008. During this time, the name of La Flor de Catemaco appeared as a constant during my interviews with different actors in the region. In order to thoroughly investigate the exploitation and commercialization, I focused my efforts in contacting and researching their operations and reputation as a "model company". After some phone calls and email exchanges, I organized a visit to Catemaco. Antonio Ibars, an established biologist in the area who had a close relationship with the enterprise's manager, was able to set up a meeting. I remember his words in detail, moments before the first meeting, while we drank coffee near Catemaco's *zócalo*; he explained:

"You are very fortunate to be able to meet with them and that they have granted you an interview. They [the managers] are very discreet with whom and what type of information they give out. Very few people, except those who work there, have been inside and have had the chance to interview them [...]. Just like all successful enterprises, they want to keep their secrets well kept" (Antonio Ibars, personal communication, Catemaco, May 2006)

Ibars was right, because even though LFC is a renowned institution in Catemaco and an important source of employment for hundreds of people in the region, very few outsiders had had the opportunity to enter their production and selection complex. This secrecy is physically represented by a prominent tall fence at the periphery of their land. On the way to their facilities from the city of Catemaco, the only evidence of their existence are some signs warning passers-by of the restricted access to private property.

Upon getting closer to the facilities' entrance, the landscape begins to change. The increase in lush vegetation featured in a tropical environment contrasts with the pastures that are seen all along the winding road that goes around Lake Catemaco and that slowly leaves behind the downtown noise of the city. The vegetation offers protection from the intense sunrays and the smothering heat is replaced by a fresh breeze under the shade of tall and lush trees. Further down, the adjacent land allows for a brief glimpse inside. There, large shaded crop areas organized in symmetric plots can be seen. As one gets closer to the main entrance, the gardens with flowering bushes in combination with exuberant tropical plants mark the entrance next to a security hut with a simple sign that welcomes visitors: Welcome to La Flor de Catemaco!

3. Key actors and beginning of La Flor de Catemaco

The beginning of LFC dates back to the early 80's, when interest in the *Chamaedorea* palm's commercial potential was emerging, and when its trade was considered an itinerant activity, mainly carried out by vegetable and fruit dealers who gathered foliage to sell in local markets. In 1985, Larson Everett, owner of the Continental Floral Greens firm in San Antonio, Texas²³ approached several communities in the region of Los Tuxtlas looking to establish relationships to trade *Chamaedorea* palm in the American market. After negotiating with a group of small-scale producers in the region, the commercial project that later turned into La Flor de Catemaco was born. Even though the details on the agreement are not known, La Flor de Catemaco²⁴ was officially founded in 1989 with a group of 10 partners who joined forces to establish a commercialization firm with a view to accessing export markets.

Currently, most of the operations are in the hands of two key actors: Leobardo, Commercialization Manager, and José, Plantations Manager. Leobardo, founder and partner of the firm, has been closely involved in its operations even prior to its establishment. As he explains:

“During the first days of 1985 onwards, our production did not exceed more than 200 boxes. We started like everyone else, with a small production and making many mistakes. We stocked up with product from our own plots and once customers requested more we set out to buy foliage from outside suppliers, mainly in communities here in the region. The great majority of activities back then were directly related with obtaining the supply that Continental requested. We also followed the suggestion of establishing the firm on private property. This was an important step for us, since later we were able to expand onto the land where the selection areas are now located” (Leobardo, Catemaco, 2007)

From the start, the relationship of cooperation with Continental became stronger day-to-day. Eventually, LFC committed itself to becoming an exclusive supplier of stems to the firm. Leobardo explains operations dynamics during this emerging phase:

“Since the majority of the palms grew naturally in our plots, the work was easy. I would send a crew of cutters in the morning and in the afternoon we had already gathered the number of boxes requested. We allotted our time to gathering the product. We did not have plantations as we do now and we worked only with camedor palm” (idem)

The biggest challenge was when a request from buyers in the United States needed to be supplemented through providers outside the partnership. Leobardo organized harvesting in the partners' plots and in those days when orders exceeded supply, he traveled to different communities in search of more product in the vicinities of Catemaco:

“When they asked for more, I had to go to all the communities to buy palm. Sometimes it was difficult and tiring because you had to make sure to buy quality product: fresh and leaves in good shape. When I would send a cutting crew out, I supervised them to make sure they harvested correctly and that they handled the

²³ According to Draffan (2006) Continental Floral Greens has gross profits of around 5.5 million dollars annually.

²⁴ La Flor de Catemaco's official name is: La Flor de Catemaco, S. de P.R. de R.L. de C.V. (Rural production company of limited variable capital).

leafs properly [...]. There were also times that the product was so scarce, that I had to travel to other states such as Chiapas and Tabasco” (idem)

LFC’s operations continued with this scheme, until they established their own plantations²⁵. Today LFC, under its production scheme, owns more than 90 ha of land and has diversified the production of *Chamaedorea* palm to include other products, like assorted tropical foliage. As business grew, partners decided to invest in purchasing more land and the establishment of plantations was formalized when José (plantations manager) became part of the team.

José, native of the State of Puebla, received an invitation from partners to join the work team thanks to his experience in the production of vegetables. In Puebla, José worked for about five years with different vegetable-producing companies and had the opportunity to get to know several of the producing regions all over the country, including the region of the Tuxtla. He accepted the offer and traveled to Catemaco to begin working. During the starting phase, Leobardo trained José and introduced him to the rhythm that was required to accomplish the quality requirements.

José’s first approach to the palm was full of setbacks and the objectives he had set in view of domesticating the plant were full of predicaments and disappointments. The start of the plantations was complex, as he explains below:

“I did not have knowledge about the plants or the way in which they needed to be managed in plantations. My experience in Puebla’s high plateau was with vegetables, which was completely different to this. I produced zucchinis and tomatoes and everything has been said about those crops (...) the production is direct, seeds are sown, after germination comes a series of activities limited to good pest and disease management and then waiting time. Perhaps the only problem that one encounters in Mexico is transportation” (José, Catemaco, 2007)

José continues explaining the difficulties:

“When Leobardo and LFC’s founding group approached me to make a work offer, I gladly accepted, but to be honest, it was incredibly difficult at first because the plants do not react very well to plantations. I had many issues with density, especially when I attempted to establish them as a regular plantation. I had to experiment a lot [...] and to make matters worse, tropical climate is a serious issue, since it’s an excellent climate for pests and diseases” (idem)

José’s experience as a vegetable producer helped to cultivate a useful attitude towards his job. Nevertheless, without a lot of knowledge regarding the climate conditions in the tropics, he searched for help from a specialist. This is how he met Ernesto Ojeda, agronomist and researcher of the SARH (Secretariat for Agriculture and Hydraulic Resources known as SEMARNAT today). José tells about his encounter with Ernesto:

“I searched for help from an agronomist called Ernesto Ojeda to achieve the best crop results possible in warm climates, since my experience was on temperate climates completely. I learned many new things from him and it was always a pleasure receiving advice [...]. We talked about the possibilities of turning the camedor palm into an intensive crop and how to start the nurseries. In this way, little by little, I began to understand that I was going to have to walk a long experimentation road, in order to start seeing results” (idem)

²⁵ Plantations meaning the production of *Chamaedorea* under the forest canopy, as opposed to other ornamental foliage that is produced in nurseries with artificial shade.

Little by little, with Ernesto's help and experimenting with different production forms, José started acquiring experience on the specificities of the *Chamaedorea* palm and experimenting with different ways of obtaining greater yields. Due to the plants' low light tolerance, José experimented with different degrees of artificial shade, but the results were not good since under shade the plants aeration is not adequate, which encourages the emergence of fungi and infestations. This factor had great influence over the plant's development, as explained by José:

"The plants are very sensitive to light and not all trees are adequate for shade. For example, some arboreal families like *Lauraceae*, *Zapotaceae* and *Moraceae* should be avoided since their leaves are large and do not allow diffusion of light to the undergrowth. They also require a long time to decompose, therefore the palm plant does not receive enough light and its leaves become dull and get spots. For this reason, I proposed a new arrangement for the plots, in which we tried reproducing natural conditions, but with greater density [...] We also tried with artificial shade as it happens with Leatherleaf fern, but it never had better production [...]. The palm only likes the trees' shade" (idem)

The need to stay up to date with constant production has given LFC the advantage of being number one, translating with success the need of their clients and the market, adapting their activities to the needs of their product, and incorporating new domestication techniques for *Chamaedorea* palm.

At the same time, the rapid expansion in the American market forced José and Leobardo to mobilize their resources at hand to achieve greater production and profitability levels and to acquire new land for the expansion of their operations. Larson (from Continental) also visited Catemaco frequently, and Continental's participation was shaped as a tight cooperation in terms of financial resources and commercial consultancy, especially for the diversification of their product. As Leobardo explains;

"The harvest in our plots was not enough and it was almost impossible to fulfill the demand. The Board of Directors decided to open production to other parcels and begin diversifying to other products" (Leobardo, Catemaco, 2007)

The division of tasks also took on a clearer direction. Leobardo remained in charge of commercial activities and, as the main contact with clients; he took on the role of negotiating with clients abroad. As for José, he continued developing activities to improve production, and at the same time experimented with species' adaptation to intensify production with new methods.

In spite of its success in the international market, the recognition of the *Chamaedorea* palm's attributes as an export product remained below expectation. In the academic field it was still considered a product of minor importance with a seasonal profitability and its intensive exploitation was not valued. With respect to norms and regulations for its commercialization, product monitoring was limited to an export permit awarded by SEDUE²⁶. Leobardo remembers the time when regulations in Mexico were not as important:

²⁶ Secretariat of Urban Development and Ecology (SEDUE). In 1992 SEDUE and the Secretariat of Programming and Budget (SPP) - who managed the National Solidarity Program (PRONASOL) - merged to create the Secretariat of Social Development (SEDESOL) whose primary objective was to fight extreme poverty among farmworkers, indigenous population and *colonos* in marginalized urban zones. The new branch based its fight against extreme poverty on the Solidarity Program and sought to establish a new relationship between State and society (SEDESOL, 2012).

“Everything was simpler, we spent our time providing our product and requesting our permits from SEDUE. Do you understand? We devoted our time to work hard and to strengthen the company until regulations became ever more present [...]. In the early 90’s everyone involved in the production of camedor palm was affected with changes in forestry policy” (idem)

According to Leobardo, this change in forestry policy was detrimental for their operations. He refers in particular to the changes introduced by Julia Carabias (Secretary of the Environment from 1994 to 2000) who strongly pushed forestry exploitation regulation on a large number of plant species to counteract the high deforestation rates in Mexico. However, this meant a significant challenge for the firm since the mobility of production was immensely affected. Leobardo gives his reasoning on this matter:

“People have no clue about production process and forget it is an important income source for hundreds of families, not only for Catemaco’s population but also for other states in southeastern Mexico. Besides, our products are managed in plantations. We do not contribute to deforestation. Quite the opposite! If it was not for our plantations all these plots would be mere pastures!” (idem)

The restrictions set by the new forestry policies were not completely unfounded. For many years, in the region of Los Tuxtlas there had been many initiatives with the objective of halting deforestation that was caused mainly by an intensive process of colonization and increased livestock production between 1967 and 1990. It is estimated that during this 23 year period 63,100 ha of jungle and forest disappeared, equivalent to 77.2% of 81,770 ha of the vegetation that existed in 1967. The type of vegetation affected the most where high and mid-elevation perennial forests.

Changes in regulations coincided at a time when the company was supplied with wild grown palm. In this new regulation scheme, transportation and exploitation of *Chamaedorea* palm became regulated through a series of standards (Official Mexican Norms) and the granting of an exploitation permit only in cases where it was done sustainably. Since the chances of meeting orders were reduced, tension between Continental and LFC began to grow. Plantations were not yet capable of fulfilling the demand since they were just starting to become productive. Leobardo continues his explanation:

“Regulation left us with our hands tied to the point we almost had to close the company (...). The Minister was radical in her decision to regulate the commercialization of fronds without considering those of us who were already in the trade, therefore we were forced to operate in a different manner. Those were moments of great uncertainty, since under those terms, it was impossible for us to meet orders” (idem)

Faced with this setting the company began working together with communities adjacent to LFC to establish plantations and to obtain an exploitation permit. In spite of these efforts, this was not an easy road. José explains why:

“*Campesinos* have always known about the palm’s benefits but their opportunities are limited since decisions are made collectively [...]. So this leads to a long process of persuasion and help. In the case of *ejidos* decisions are made in the Council of the Assembly and you have to see if they come to an agreement [...]. That always limits us.” (idem)

These new challenges in the firm's operations also encouraged them to diversify. This widened the room of maneuver for their operations invested in other foliages that did not require this type of regulation. Today they have avoided difficulties by diversifying their production to more than 90 ha of *Chamaedorea* (*Chamaedorea elegans*) plantations, 40 ha of Leatherleaf fern (*Rumhora adiantiformis*), 5 ha of ornamental asparagus (*Asparagus virgatus*) and 4 ha of ornamental pineapple (*Ananas nanus*), with a constant production all year round, employing over 200 people from the vicinity.

In the following section, I discuss the company's production operations in detail, which in conjunction with the partnership with the American firm Continental were simplified, thus avoiding issues of accessing the market. The operations allowed them to expand the sowing area, diversify products and expand facilities and machinery, thus homogenizing *Chamaedorea* production.

4. Practices in the company's operations

It is 11:30 am and after I have been through an identification check at the security booth, I meet Leobardo in front of the selection storage. After an enthusiastic and kind greeting that contrasts with the feeling of security measures in the facilities, we proceed to begin a tour that will take us through the entire process of *Chamaedorea* palm exploitation - the basis of LFC's success.

I have accepted Leobardo's invitation to tour the facilities as an opportunity to observe the complete process of operations in detail. Before the tour, we talk for a while in his office. The place is simple, as are all the company's facilities and our conversation revolves around the intentions surrounding my visit and my interest in learning more about the history of LFC and its operating method. Leobardo sits behind his metal desk and frequently answers telephone calls while we chat.

Later, he asks me to watch a 15-minute video on his computer screen that emphasizes their conservation efforts and accomplishments in the field of the company's sustainable production. The video (Feduchy, 2004) portrays a solid institution, with great commitment to conservation.

From my seat I watch him as he makes calls, takes orders and gives instructions. Every so often, he takes notes in a large calendar where he tediously notes down pending shipping dates. Besides the phone calls, Leobardo receives messages and enquiries from those responsible for each area through a radio transmitter, which he always carries with him. After the video, he talks about the process that I am about to observe; at the same time he provides details on the products and species they work with. Even though I expressed a particular interest in collecting information about the *Chamaedorea* palm, Leobardo insists in highlighting the qualities of his other products as well. We walk over to the plantations.

a. The plantation: towards production homogenization

To begin the tour, Leobardo directs me to the Leatherleaf fern production area, the company's bestselling product. The plots are right next to the offices. The great plains are covered with black shade cloth and an army of workers moves in the intense tropical heat, carrying out tasks distinctive to the crops. In contrast with the organized rows under artificial shade that we just visited, we now head to a large forest area on a slope on the complex's upper zone. Tall tropical trees that shade the intense green *Chamaedorea* palm plants dominate this forest. This image, more than the traditional commercial plantation,

recalls remnants of a tropical forest: heterogeneous, spontaneous and cool. While I observe the beautiful plantation, José joins us on the tour.

“This is where our entire process begins” Leobardo states; “just to give you an example, this land is able to gather 200 or 300 top-quality bundles, which would not be possible in a normal plot” (Leobardo, Catemaco, 2007)

The company has been an innovator in palm plantation management with the introduction of new techniques. These have been the result of several years of practice and experimentation, mostly carried out by José, who has experimented in order to increase production, as well as the quality of the fronds yielded. José explains that the reasoning behind these practices is that “establishing a palm plantation has the main objective of yielding more and improved fronds per plant and as homogeneous as possible”.

As we tour the plantation, José and Leobardo describe the conventional practices that the crop requires to achieve the production and quality objectives. They give details on the sowing, weed management, pest and disease control, fertilization and harvesting. Once in a while, José pauses to give details that justify their current production methods:

“One time I got the idea of experimenting with fertilization; after several cycles and periodic fertilizer applications, I hoped for positive results to achieve improved growing, but in practice, we noticed that there were no tangible differences, for this reason we stopped applying fertilizers. Later, I went on with testing seeds and the germination process. In this way we acquired new methods to achieve germination in a shorter period” (idem)

To my question about density, José responds:

“Since I began, my task has been to produce more and improved foliage [...]. One of the options that worked was to increase the number of plants per hectare [...]. This provided significant results since we went from 30,000 - 40,000 plants per hectare to having more than 100,000 plants per hectare. We are the only ones working with those densities” (idem)

However, increasing the plant density is not an easy practice. José continues to explain:

“When plants are stocked in small spaces, they are much more sensitive to pests and diseases. Plants need space to breathe! For this reason, appropriate densities are important to maintain. In that way, the plantations are kept in optimal conditions, producing three or four fronds per cut” (idem)

After touring the plantation, we head to a germination seedling area. It occupies an area of approximately 100m² under the shade of an artificial plastic net. Along the nursery, the seedlings can be seen in different stages of development. José explains:

“With the objective of maintaining a population that is young, healthy and in the most homogenous conditions possible, I am constantly germinating seeds to replace the plants that drop in performance or are diseased. [...] That is how we maintain our plantations in optimal conditions, ready to be cut” (idem)

José continues to explain:

“Once I receive an order, I give instructions to a trimming crew and assign tools and plots to be trimmed. The plots are numbered and have names. The trimmers

perform a pre-selection on the field according to freshness, size, color and health in general. They already know which foliage to avoid" (idem)

In case supply is insufficient, we do all the necessary arrangements to acquire foliage from a third party:

"Even though we always prefer to use leaves from our own plantations, sometimes there is not enough to cover our clients' necessities. Therefore, we have to purchase from providers that we already have agreements with [...]. This has always been an issue, since the leaves from other places are of inferior quality in comparison to the foliage harvested on our own land, so we have to discard many, sometimes up to 30%" (idem)

A clear distinction has to be made to differentiate between "extracting or harvesting" foliage from natural populations and foliage produced in plantations and managed forests. Although imperceptible in harvested leaves, the distinction is necessary, since it is directly related to the way in which the foliage is produced and, consequently, subject to regulations. Extraction is an extremely critical activity due to the damage it causes to threatened forest area - for example, when this activity is executed in proximity to nature reserves or protected areas.

LFC strictly observes the compliance to the Mexican Official Norms that regulate the exploitation and commercialization of the *Chamaedorea* palm foliage. Therefore, José and Leobardo are always cautious when talking about production volume, since this could imply that the company purchases fronds from external providers, which have not necessarily been produced under sustainable conditions. In this respect, the use of intermediaries is also considered a sensitive topic, since in general paying low prices for the fronds is considered detrimental in the market. When asked about these matters, Leobardo answers:

"We only buy leaves from communities with which we have agreements, and have all the permits in order, even though we always run risks when purchasing from outsiders [...]. But we are also aware that many communities depend on us as a source of income" (Leobardo, Catemaco, 2007)

Once the required quantities of foliage have been gathered, be it from the LFC or purchased from third parties, quality control is resumed. This selection process is carried out at a selection center in the main building of LFC's premises.

b. Selection

As the foliage is transported to the selection center, they are checked in and immediately stored in a shaded area. The reason for this is to decrease temperature and the risk of leaf dehydration. Depending on the particular order, the foliage is rinsed with insecticide by submerging it in a water, insecticide, and chlorine solution as a means of eliminating any pests from the fields. After this process, the foliage is stored in a refrigeration chamber, where they will remain to undergo a selection process. LFC has one selection room staffed by 35 people who complete the selection of the entire amount of foliage received.

The selection room is not a very pleasant place. It consists of a series of refrigerated chambers, connected by gates and hallways designed to keep the cold air from dissipating. This labyrinth leads to the main chamber where dozens of workers select the foliage, placing them in groups on several tables. Under an altar devoted to the image of Our Lady

of Guadalupe, men and women –in fact a majority of women– work, with loud music attempting to distract them from the loud noise coming from the fans in the cooling system. From huge piles of leaves, the workers choose the foliage and group them in small bunches, depending on their commercial size. The fronds that do not meet the quality standards are discarded.

Every day thousands of foliages go through this place, and each one of them is classified and selected manually according to strict specifications. Some of the workers select up to 500 bundles per day. According to Leobardo's estimate, only 60% of the stems will pass the quality control. Ernesto (23), an employee at LFC for the last six months, readily answers my questions. With rapid manual movement and without losing concentration, he tells me he enjoys the work a lot. He explains:

“It gives me the opportunity to support my family and it all depends on the speed in which one works (...) One must have a good grasp for this type of activity, if the boss sees you are excessively slow, then you get sent to the plantation. Work in the plantations is harder since you have to work under the sun all day. Here, it is less intense, but you have to concentrate and do the work fast” (Ernesto, Catemaco, 2007)

When going to the adjacent selection table, I observe how eight people skillfully move the large mountains of foliage. Later, with the help of a measuring table, the workers' group selects the fronds in terms of size and color, forming bundles held by a rubber band. While observing the work being done up close, Irma (30), a worker at LFC for the last three years, is careful not to lose sight of her movements and kindly answers my questions. Rapidly, she discards damaged leaves whose color does not coincide with the color table placed on the base of the table:

“I have perfectly memorized the measurement and color the foliage should be. In the beginning it is very tiring, because you have to stand all day in the cold, but slowly with time, you start picking up an ability to recognize the measurements and everything comes almost automatically. When I am not tired, I am able to gather up to 400 bunches a day” (Irma, Catemaco, 2007).

She also explains why there are more women in this job:

“We are mostly women in this area because we are faster, we have better manual movements and we do not complain as much as men!”(idem)

In this way, Irma's working day and that of others continues for eight hours a day. Figure 6 shows a group of workers on a regular workday inside the selection chamber.

With this selection, qualities, brands and sizes of three varieties of palm are defined. *Chamaedorea elegans* comes in three commercial presentations: Large, Small and Standard; *Chamaedorea radicalis* in its commercial presentations: Premium Jumbo and D'oro and lastly, *Chamaedorea ernesti-augusti* in its commercial presentations: Jade and Emerald.

a. Packing, loading and shipping

After selection, a team of five persons is in charge of packing the foliage in rolls if they are going to the American market, or in boxes if they are for the European market. Generally, five bunches are inserted in a plastic sleeve and they are placed in cardboard boxes (60x45x12cm). The boxes are sealed and they are placed inside the cold chamber. Once

packaged and refrigerated, the foliage is ready to be loaded and shipped. Figure 7 shows several boxes and rolls of fronds stored at LFC ready to be shipped.



Figure 6. A group of workers select and grade foliage inside La Flor de Catemaco's facilities.



Figure 7. Aisles of long cold chambers for storing foliage classified and ready for shipping.

During this stretch Leobardo plays an essential role by directing the box and roll placement according to client's orders. These are assembled in sections along the aisles. Leobardo actively supervises to make sure boxes are properly placed and that shipping and date codes are clearly visible. Afterwards, workers are responsible for loading the boxes or rolls inside the refrigerated containers according to instructions. While Leobardo supervises his workers, he explains the process and purpose of refrigeration:

“From the time that fronds leave the fields and all along the selection process, refrigeration is essential to prolong their lifespan. The objective is to lower the heat to avoid dehydration, which guarantees a longer lifespan. Foliage is mobilized quickly. For example, if shipping is done on a Tuesday, on Thursday it has already arrived in Holland, it is auctioned and distributed the following day, so that on Friday it is already in flower shops as part of their floral arrangements” (Leobardo Catemaco, 2007)

Continuing on the tour inside the cold chamber, Leobardo keeps his eyes on his workers, who organize various boxes and rolls according to their destination with a forklift. Even though their responsibility formally ends once the orders are sent off to be shipped, he does not stop feeling responsible until the leaves are in the hands of the final consumer. In spite of foliage being shipped, problems frequently arise, and that requires Leobardo's attention. For example when paperwork is not complete or when there are delays during transportation. To illustrate this situation, he says the following:

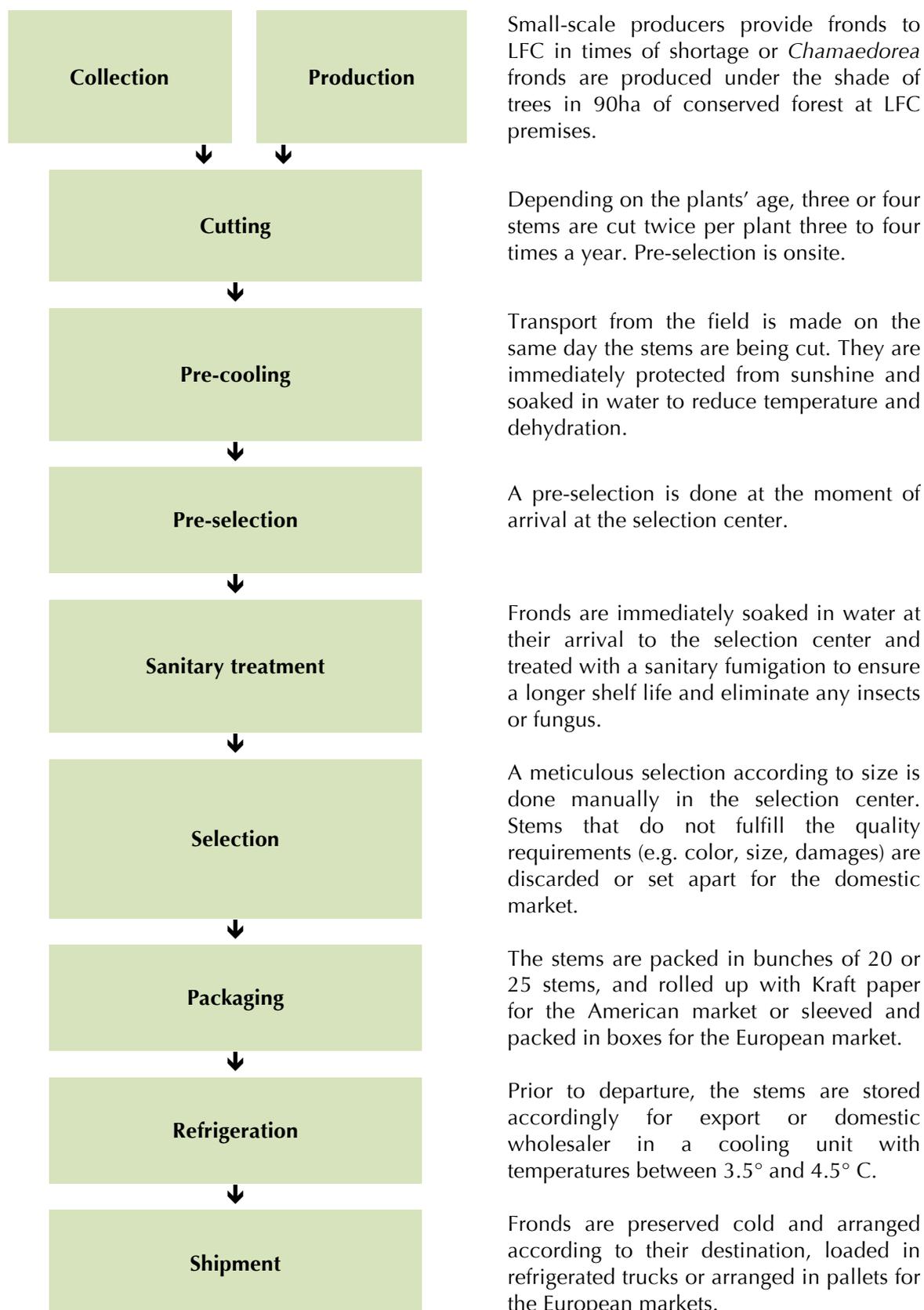
“In recent years custom controls have intensified due to the problems related with drug and human trafficking. Normally, we try to comply with all the paperwork that is required from us, but customs agents' interpretations always vary and they can considerably delay shipping time by extending the time allocated to paperwork. As opposed to other foliage exporters that do not own their own plantations, we have the advantage of being able to certify the origin of our production” (idem)

Once we have left the selection area, in the last hours left of the afternoon, the heat has dissipated and the irrigation system is now watering the Leatherleaf fern plantations. Worker crews start to go home and finally we enter the loading patio. In this area, trucks are loaded and prepared for their trip. The shipments headed to the U.S.A. are done in refrigerated trailers using ground transportation. Shipments to Europe go first on ground transportation to Mexico City or Cancun and later by air to their final destination.

The visit ends with a tour throughout the entire complex. In an electric cart, José and Leobardo accompany me to observe the panoramic view of Lake Catemaco, as well as the extent of the LFC's land. We bid farewell and they extend the offer for another visit.

In Figure 8 I present a schematized outline of the plantation management; from the moment the fronds enter LFC's production to the when they are shipped to their final destination. The diagram shows the *Chamaedorea* palm foliage flow organized from receipt to loading for shipment.

Figure 8. *Chamaedorea* palm foliage flow at La Flor de Catemaco, Veracruz.



As observed, crop practices and post harvesting management are standardized. All aspects related to sowing, nutrition, pest and disease control are of great importance in order to reach one objective: obtaining high quality products.

LFC has received recognition as a model organization through its constant work on plantation innovation, the substitution of the commercialization of foliage from wild populations and the introduction of sustainable production models. The recognition was first received in 2006 when it was awarded the National Forestry Award, confirming its strong position as a main actor in the *Chamaedorea* palm market in Mexico. This recognition has been used by the company to promote their conservation accomplishments and in turn strengthen its presence in the market. It has also significantly contributed to building new networks and commercial opportunities.

LFC's experience has inspired several groups and organizations to find similar initiatives directed especially to farmworkers and small-scale producers as an option to increase the income and quality of life for forest communities. Interestingly, advanced research and cooperation with external institutions have not been able to duplicate this LFC plantation management model, in spite of attempts and resources being directed specifically for this purpose.

The following section introduces the existing regulations (Official Mexican Standards) for the transport and exploitation of *Chamaedorea* palm. These determine, to a large extent, the company's operations.

5. Mexican Official Standards

All along this chapter I have made reference to the regulations regarding *Chamaedorea* exploitation. In this section I address the regulations that apply to the exploitation and transportation of foliage in Mexico. NOM-006-RECNAT-1997 and NOM-059-ECOL-2001 are norms that specifically regulate the exploitation of *Chamaedorea* fronds.

Regulation NOM-006-RECNAT-1997 applies throughout the country. Its objective is to establish the procedures, criteria, technical and administrative specifications for sustainable use, transportation and storing of palm fronds from natural populations. On this basis, it details the measures to observe in order to obtain an exploitation permit - the most relevant being a notice from the National Forestry Registrar that allows to carry out the extraction and exploitation. It also includes the legal requirements for the transportation of palm fronds, the foliage's place of origin, destination and the volume to be transported. The full text of the Standard is presented in Appendix 2.

Regulation NOM-059-ECOL-2001 lists species explicitly according to their state of exploitation (see Appendix 3). The objective of the regulation published by the federal government in 2001 is to protect various native Mexican plant and animal species that are classified according to their risk category. Species that figure here are subject to additional regulations and the observance of PROFEPA²⁷. This regulation applies to all shipments of *Chamaedorea* palm that require an exploitation permit issued by SEMARNAT. The

²⁷ The Federal General Office for the Protection of the Environment (PROFEPA) is an administrative authority decentralized from the Secretariat for the Environment and Natural Resources (SEMARNAT) with technical and operational autonomy PROFEPA has as a main task to increase the levels of observance of environmental regulations, with the objective to contribute to sustainable development and to enforce environmental laws (PROFEPA, 2013).

exploitation permit is given once the necessary procedure²⁸ has been accomplished and all the paperwork is completed, including a management plan made by a forestry service provider. This permit is valid for 5 years (SEMARNAT, 2013).

6. Conclusions

Throughout my observations I have been able to identify some points as decisive for LFC's success in acquiring and consolidating a strong position in the market. Among these, the following stand out: The controlled production process in plantations accompanied by quality control, complying with norms and existing regulations for the exploitation of the *Chamaedorea* palm, the commercial alliance with Continental Floral Greens in the USA and the recognition as a model organization.

It becomes clear from this chapter that production innovation and post-harvesting management have played a decisive role in the consolidation of the firm in the market. As a result of its actions, LFC has achieved to maintain a constant production of foliage, in compliance with high quality standards. In other words, they have been able to translate their clients' needs by adopting quality controls mainly in the production and selection process. By observing the firm's operations through José and Leobardo's daily performance in detail, I was able to see their capacity to put a production strategy to work that allowed LFC to successfully access the market by keeping up with quality demands.

LFC has also been capable of sorting out bottlenecks with regard to existing regulations, managing to adapt several times to changes in forestry policy. An obvious example of this adaptation was when they expanded their plantations and diversified their products to other foliage that did not require compliance with rules and regulations for their exploitation. Not only did this give them a significant push toward the market, but they were also able to stay afloat during this difficult time in their trajectory. The support from the Continental Floral Greens investment has significantly opened up doors to international markets and it has assisted in the development of foliage post-harvesting management, establishing distinctive features for the selection and production process. Even though the details of the conditions under which the firm operates are not fully known, LFC's association with Continental Floral Greens in terms of the availability of a long term purchasing scheme has been essential and has simplified its participation in the international market.

²⁸ According to SEMARNAT's online information, the process and required paperwork for the obtainment of an exploitation permit are the following:

1. Original or certified copy of property title or property possession or set of properties, registered in the corresponding public registry, as well as a copy for the purpose of reconciliation.
2. Original or certified copy of the document that verifies the right to carry out exploitation activities, which will also need to have a validity equal or greater than the one established by the simplified forestry management program.
3. In the case of *ejidos* and communities, assembly act original that verifies its consent to achieve exploitation, registered or in the process of registration to the National Agrarian Registry, as well as a copy for the purpose of reconciliation.
4. Stating under oath to saying the truth about the land and group of plots, and in this case, about conflicts related to the property of those same ones that await for the resolution.
5. Geo-referenced blueprint in which the exploitation areas and location of the program for simplified forestry management once it exists, are indicated.
6. Original and copy of the simplified forestry management program.
7. Original for reconciliation and simple copy of the documents that confirm the identity of the applicant (copy of the official identification for natural persons, which can be voters credentials, professional identification or passport, or articles of incorporation in the case of entities) dealing with applications presented by a third party, a copy of the document must be annexed by which its legal representation is verified.

The majority of LFC's decisions are made according to Continental Floral Greens demands. This relationship allows LFC to develop new commercial alternatives and participate in new initiatives related to conservation, which is a significant point in the academic and political discussion in Mexico regarding the exploitation of *Chamaedorea* palm.

This chapter illustrates that, in spite of the degree of complexity in the management of plantations, LFC managers have been able to maintain a solid position of the firm in the export market, which has inspired several initiatives along the tropical zone in Mexico. The company has thus been recognized and served as a model for other companies and commercial initiatives. Likewise, the LFC experience inspires the formulation of policies; government and institutional recognition places LFC at the center of the debate and its example creates expectations with regard to the operations of a rural firm.

However, the programs and proposals that encourage the establishment of initiatives to commercialize *Chamaedorea* palm underestimate the complexity of the process behind the operations of a company (intensive production process, quality control, product diversification, complying with regulations and commercial links) and assume that the aggregation of financial resources alone will provide the guidelines to trigger the establishment of a company and its successful insertion in the market.

The case study highlights the factors and characteristics for the operation of a company, which served as a point of comparison with initiatives that I present in subsequent Chapters. In the following chapters I will analyze some of the initiatives in different points *Chamaedorea's* value chain in Mexico in detail, and figure out the limitations or difficulties that they endure to stay afloat. These experiences attempt to emulate LFC's experience, but they battle a complex set of production conditions and regulations to fulfill quality requirements in order to access the market.

Chapter 4

Small-scale Producers: Organization for production and commercialization

1. Introduction

This chapter examines small-scale producers' practices regarding *Chamaedorea* production and commercialization. Among the wide range of activities that take place in order to align forestry and agricultural production with commercialization of products are diverse planning tasks as well as decision-making for individual and/or collective commercialization. It is essential to analyze individual activities because it helps to understand the relevance of the *Chamaedorea* palm for the local producers' livelihood, while collective activities help us discover the main conditions under which these commercial initiatives develop and their limitations to access the market.

I aim to answer the question: What are the conditions that promote the establishment of small-scale producer firms of *Chamaedorea* palm? To answer this question, I analyze actor's practices in terms of their production dynamics and the use of diverse resources available in a tropical ecosystem. Thus, this chapter's objective is to put into context the economic importance of the exploitation of *Chamaedorea* palm as a livelihood alternative for involved actors. I will focus on demonstrating the organization practices of small-scale producers as part of their strategic diversification.

This chapter is organized in four sections. The first section introduces the elements related to organization for production. Through several accounts, I will introduce the practices of small-scale producers in the community of Limonestitla, in the municipality of Tezonapa, Veracruz. Special attention will be given to the nature of crop-related practices and the way

in which small-scale producers construct links in the value chain at this level. In the second section, several accounts describe how small-scale producers assimilate the opportunity to start a commercial project in their communities with the objective of accessing the financial incentives available for that purpose. I pay special attention to the work that small-scale producers carry out with the purpose of forming a group to commercialize *Chamaedorea* palm. Particularly, I will capture the strong commitment to connect their community to commercial enterprises abroad, in spite of the initiative's limited room of maneuver. The third section aims to illustrate some of the issues that rose during the course of the organization for production process. Finally, I summarize the factors that encourage the start of *Chamaedorea* commercial projects from a small-scale producers' perspective.

2. Tropical environment and production diversity

The following accounts were collected at the Ejido Limonestitla, a small rural town of 728 residents, located in the municipality of Tezonapa. The exuberant vegetation of its surroundings and its abrupt elevations are some of the characteristics of this town. The *ejido* is located in the municipality's mountainous area where shade-grown coffee plantations and rubber trees are prominent.

Ejido Limonestitla is a difficult to access community. Even though it is located a short distance from the state's capital Jalapa, it is only accessible by a 3-hour bus ride from the city of Córdoba on a dirt road. In Limones, as the town is commonly called, none of the homes have potable water system nor do they have a proper sewer system. High levels of overcrowding characterize its homes and only half of them have solid or concrete floors. Limones rates as one of the towns with the highest levels of marginalization in the state.²⁹ In spite of this high marginalization level, agricultural activity – the driving economic force in Limones - provides its residents with food crops and permanent alternatives through the exploitation of a variety of crops such as coffee, sugar cane, rubber, timber products and *Chamaedorea* palm, among others. This range of crops is located in a relatively small town of only 300 hectares.

Limones' natural surroundings are representative of tropical forest regions: dense vegetation with steep slopes and a considerable biological diversity. The actual composition of agricultural plots is more diverse than it is indicated on the records of the municipal information system (SEFIPLAN, 2011). In the town, plantations with commercial forest species are found such as red cedar (*Cedrela odorata*), teak (*Tectona grandis*), tabebuaya (*Tabebuia spp.*) and rubber (*Hevea brasiliensis*); also diverse coffee production systems (*Coffea arabica*, *Coffea robusta*), *Chamaedorea* palm (*Chamaedorea elegans*), sugar cane (*Saccharum officinarum*), *Dracaena* (*Dracaena spp.*), and other crops for home consumption such as beans (*Phaseolus vulgaris*), corn (*Zea mays*), banana (*Musa spp.*), citrus, diverse vegetables, etc. Figure 9 shows a typical forested landscape in Ejido Limonestitla.

²⁹ According to statistics from CONAPO (2005) the marginalization index in the municipality of Tezonapa is of 0.43777, classified as high. The index was derived using principal components method, based on nine social exclusion indicators expressed as a percentage of: illiterate population 15 years-old or older; population without completed elementary education 15 years-old or older; private dwellings occupants without piped water system; private dwelling occupants without drainage or exclusive sanitary service; private dwellings occupants with dirt floors; private dwellings occupants without available electricity; private dwellings with some level of overcrowding; population in localities with less than five thousand and employed population with incomes of up two minimum salaries.



Figure 9. Typical forested landscape in *Ejido* Limonestitla, Veracruz.

This heterogeneity places producers in a variable position, in which they have to align and maneuver with different production methods to maximize output and secure financial benefits. Although crop diversification is a natural strategy in such a diverse environment, government support has been key in promoting it too. Through several social and income transfer programs (for example, PROCAMPO, Alianza para el Campo and ProÁrbol) subsidies and incentives are provided for new crop mechanization and adaptation, as is the case of *Chamaedorea*. These programs have resulted in a progressive transformation of the forested land through the exploitation of more species and crops associated with the forest: rubber, coffee, palm and commercial timber species. Biological and productive diversity in this area is reflected in the life of the inhabitants, whose activities alternate between crops, depending on the season and product demand.

To illustrate the above, in the following section I describe the daily activities of Oscar, an *ejidatario* from the *ejido* Limones. Through the description of his daily practices, the palm exploitation methods and its relative importance in its production strategies will be explained. To complete this section, we will hear the motivations of several producers to include *Chamaedorea* as another production option and the difficulties they face with its commercialization, as well as the implications of this choice when they attempt to integrate into a community commercial initiative.

3. Practices and strategies for production

Oscar (38) inherited land from his father along with his two brothers, Roberto and Mario. He is married to Reyna (36) and they have two children: Chano (13) and Beto (5). Like the majority of producers in Limones, Oscar owns 2,5 hectares spread out in three different locations of the *ejido*. His plots take care of his family's needs, mainly through the

exploitation of rubber and coffee. One of the plots is devoted to rubber production in conjunction with *Chamaedorea* palm, the second plot is an *acahual* with timber trees and coffee in the upper area of the *ejido*, and the third plot, inherited in part by Reyna, is devoted entirely to sugar cane production.

In Limones land tenure is organized in *ejidos* and as a result of changes to legislation³⁰. The possibility of purchasing land has changed the plots' configuration, with the lower zone specializing in establishing sugar cane plantations, while plots with steep slopes continue with a forestry focus and are devoted to coffee and rubber production. The plots near the town's populated area are devoted to backyard gardens with diverse fruit trees: citrus trees, bananas and mango for home consumption. Fruits are frequently exchanged between families, customary in small towns such as Limones, where services are scarce and the distance to shopping centers in the region is considerable.

Oscar began with *Chamaedorea* production in the year 2004, devoting one of his plots in the upper zone that was already producing rubber. To introduce the crop, he took advantage of the space under the tree's shade that before seemed useless. In the plot with rocky, well-drained soil and abundant organic material, few *Chamaedorea* palm plants grew naturally, but these had not been commercially exploited and for Oscar their relevance was minor. At that time, the palm's leaves were just collected by community members to decorate the town festivities. Alfredo, a small-scale producer in Limones, currently devoted to foliage production, recalls how he began selling *Chamaedorea* palm fronds approximately 10 years ago:

"In the past, I did not know what to do with them, we collected fronds from our *acahual* to decorate Day of the Dead altars or to decorate the church's entrance for the town's festivities, until we started getting requests from the *coyotes*.³¹ All of a sudden many *coyotes* came through town, asking for permission to cut fronds from those who had palm. Since the palm grew naturally on the plots it was just a matter of asking for permission and sometimes a few cents were exchanged. Until one day someone was clever and began formally charging and now look at all the business that is taking place." (Alfredo, Limonestitla, May, 2008)

One of the main reasons to be devoted to the production of *Chamaedorea* comes from diversification. Thus, the producers from Limones alternate crops typical to the region and of a tropical environment. Oscar made the decision to grow palms in his plot by advice of his brother-in-law, who told him about the income he would receive from the sale of the foliage besides being a crop requiring little maintenance.

A typical day in Oscar's life begins early, just before 5 am when he heads to his plot outside the town to care for his rubber trees. The earlier activities begin, the better the chances are of avoiding the hot temperatures of the tropics, which in the warmer months can reach up to 40° C. After a 20-minute walk from downtown Limones we arrive at Oscar's plot. On our way there, we greet several producers who are already at work. Among kind greetings, they give updates on the weather and recent town news. At the *ejido* we can differentiate four plot types: (a) secondary vegetation or *acahuales*, (b) rubber plantations, (c) mixed systems, which combines different proportions of rubber, coffee and

³⁰ For a review of item 27 of the 1992 Constitution, see (Krauze, 2010; Olivera Lozano, 2005)

³¹ *Coyote* is a term used to describe farming products' intermediaries. They carry out a traveling activity in various towns. They gather products that they later commercialize in regional points of sale such as grocery stores and regional markets. The term has a derogatory connotation, since it is believed that they take advantage of producers by paying low prices for their products.

Chamaedorea palm and (d) citrus and other fruit trees for self-consumption. Figure 10 shows a combined plot of rubber trees and *Chamaedorea* palm production system.

As the sun rises, the temperature increases rapidly and the humidity in the environment, along with clouds of mosquitos, makes working in the plot an arduous task. In spite of the intense heat, producers must wear long sleeve shirts and pants to avoid mosquito bites and must also wear rubber boots to protect themselves from snake and spider bites. They carry with them a sharpened machete and tools to tap rubber- a curved knife, plastic bowls and a metal wire- to collect sap from the trees.

Oscar's plot consists of about 80 rubber trees aligned in defined rows. The trees were planted in 1988 when the *acahual* was cleared and was replaced with an improved variety of rubber obtained through INIFAP's El Palmar research center. The majority of the plots in the *ejido* were planted around the same time. This one is a relatively flat plot, very clean with asymmetric borders with the surrounding plots that follow the natural slope of the land. Below the rows of rubber trees the palm plants can be observed, giving it an organized look. In the plots with steeper slopes, the crops are not grown in rows but rather dispersed on the field to reduce the risk of erosion.



Figure 10. Plot with rubber trees in combination with *Chamaedorea* in the *ejido* Limonestitla, Veracruz.

The practices linked to rubber production are closely related to the trees' growth stages. The trees' growing process extends to up to 15 years, beginning production 5 years after planting. During the growth stage, the main practices are similar to any forest plantation: weed clearing, mulching, protection against animals and wind, in addition to regular pruning to obtain straight trunks.

Oscar begins his activities with a quick inspection of his trees and then with precision begins to tap the trunks. With a curved knife, he removes the bark's exterior layer following the curve of the trunk. The rubber sap drips following a cut to a small metal wedge and then drips slowly into a plastic bowl. This action is repeated every day for each one of the

trees on the plot. He inherited this technique from his father, who learned how to manage a rubber plantation in the beginning of the 1980's when the crop reached its peak in the region. Rubber extraction takes time and in order not to damage the tree special attention must be given to the technique used. A deep "wound" in the tree's bark could make it susceptible to fungi and diseases that would diminish production.

As he continues his work on the rubber trees Oscar also examines the small *Chamaedorea* palm plants that stand in between the rows to make sure they are in good condition. His main concern is making sure the plants remain healthy and maintain an intense green color. Oscar explains:

"That is where we get the money. If the fronds have spots or are yellow, they do not work. For that reason, I have to be alert to any spots or pests, to be able to act with time." (Oscar, Limonestitla, 2007)

In the adjacent plot, Antonio (in his 60's) takes measurements to reduce moles, a common pest to the palm. When we get close, he explains how to make a trap in detail. The lecture lasts several minutes as he ties sticks and branches inside a hole on the ground that he digs without tools. When the trap is ready he explains:

"The moles eat the root of the youngest palms and they are very clever, we hardly see them. According to engineers, we should use a different control method, with tablets in the holes (...) but I don't like those type of things, first because they are expensive and because they don't work!" (Antonio, Limonestitla, 2007)

Usually work on the plots is done individually. Only on special occasions, for example, when a tree is being removed or during harvest season Oscar will ask for help from relatives or employ day laborers. It is during these moments that the rest of the town's residents that do not own land take part in the dynamics of production. They are the main work force at the sugar mills and the manpower on agricultural land, where they perform tasks such as clearing out plots, tree logging, trail blazing, among others. Activities on the plots take up the entire morning. Between tapping, weeding and caring for the palms, five hours have gone by since the beginning of the workday.

Sometime after 10:30am, we take a break and walk along the banks of a nearby river. There, we meet other producers to have a snack. After the usual comments about the weather and the river's color - that changes from a bright turquoise green to brown, depending on the rain - they begin to discuss current market value for sugar cane. None of the producers pays attention in their conversation to *Chamaedorea* palm. Oscar clarifies that the price for rubber fluctuates less and that sugar cane gives them most of their income. This discussion gives me the opportunity to discuss diversification. We begin talking about the incentives for establishing *Chamaedorea* palm, to which Tomás (56) answers:

"When we see that frond sales are a good deal for one of us, the next day we all want to produce it as well" (Tomás, Limonestitla, 2007)

His comment encourages others to give their opinion. Oscar adds:

"Ten years ago frond sales were unimaginable for anyone in town, especially prior to 1995, when there was no bridge. Don't you remember when during the rainy season, we were stuck for months until the river's water level dropped? Besides, who would have thought that a plant that grows everywhere would become so popular?" (Oscar, Limonestitla, 2007)

Julio offers another opinion; he explains that even though they adopt new crops, there are some to which they feel more attached, although they do not always represent income, as is the case with coffee:

“The majority of us is very attached to coffee [...]. It affects us when prices go down, but we never get rid of it.” (Julio, Limonestitla, 2007)

The main incentive to produce *Chamaedorea* palm did not come on its own, but due to its potential financial benefit. The crop's introduction was promoted by a specialist from INIFAP, who approached the community and insisted in the development of a project to produce foliage with the goal to increase natural populations and bring benefits to the community. Oscar explains how this initiative developed:

“This is how this crop first began in Limones [...]. Around 2003 we received an invitation from an engineer at INIFAP Jalapa. He came to propose an experimental plot here in town, but it did not work, because we were not able to agree among us on the care the nursery required. To be honest, I think the problem was we did not work on it enough [...] since it did not cost us anything!” (Oscar, Limonestitla, 2007)

Even though I wanted to continue to ask them about their reasons for diversification, it was necessary to return to the plot to resume working. Oscar and I returned to ensure that the sap from the trees was dripping correctly. Meanwhile, as the dripping process takes a few more hours, Oscar uses this time to leave the plot weed-free. I use this opportunity to continue asking more questions about his motives to choose the different crops. Oscar explains his reasoning:

“We are well-off with various crops. For example, we produce sugar cane because it pays well and requires less time and work. With sugar cane you don't have to wake up early or worry about people stealing it, as is the case with rubber. Besides, all work related to the harvesting is handled by the sugar mill. We only have keep an eye on the crop and make sure it grows well.” (idem)

Rubber extraction does not provide enough income to support one family. On average one hectare produces around 2,000 kg of fresh rubber per hectare annually. The median annual income of one hectare under production is 25,000 Mexican pesos. On the other hand, sugar cane production provides an annual income of around 60,000 pesos per hectare. This explains the decision and main reason to prefer sugar cane over rubber. The decline in coffee prices also has an influence on the decision being made. Oscar reflects on his decision to plant palms:

“The original idea came from the engineer from Jalapa, but we were the ones that actually introduced it in the *acahuales*. When coffee prices began falling, you know, we began to take advantage of government programs, to find a way to secure our income.” (idem)

In contrast, sugar cane production is totally different. The sugar cane crop has become very technically demanding and the sugar mills prefer working on flat areas that are accessible to farming equipment. This is another reason why the plots on slopes are being used for productive alternatives such as agroforestry systems. Oscar insists that income from sugar cane is strong and for this reason they continue with the crop, which serves as a main livelihood for the family.

Around 14:30 the heat is unbearable and we walk back to town. At home, Reyna takes care of the children, does housework and prepares a meal. During lunch we discuss the family's income. The income obtained through the sale of *Chamaedorea* palm serves as available savings in case of emergencies, or when it is necessary to make a large expense. They hope the product reaches a good price on the market so they can plan the harvest in order to maximize profits.

A few hours later, around 4:00pm when the heat has decreased, we return to the plot once again to collect the sap that has concentrated in the plastic containers that are attached to the lower part of the tree. Oscar gathers all of the sap from the containers in a large plastic barrel, where it accumulates until the moment of profitability, several days later. Oscar's workday ends and this work routine repeats in this way during the dry months.

The following morning, I head to Oscar's house as usual to begin our daily activities. When we meet, he explains we will not be heading to the plot today due to the excessive rain. Weather determines many of the producers' activities, for example, rubber trees are exploited preferably during the dry season, since rain drips into the containers and dissolves the rubber, making it useless.

During the rainy season – June through November - Oscar focuses on maintaining his other plots. The dry months, starting in November, are devoted to planning and harvesting sugar cane. In this way, Oscar is able to alternate his attention and management practices to his different crops and plots.

We use the day to chat for the first time about the necessary practices for establishing a palm plantation. Oscar explains that before being planted on the plot for the first time, the seedlings must be germinated from seeds in a nursery and later transplanted. The seeds are collected in natural populations of palm. There is even a market for the seeds in the region where they are negotiated for about 150 to 200 pesos per kilogram. It takes six to nine months for the seeds to germinate under natural conditions, depending on the species. This period can be shortened by a couple of months applying a scarification treatment. From a kilogram of seeds about 5,000 seedlings³² are obtained; after four months of growth they can be transplanted to a permanent place.

Once established the plants do not need much maintenance during the growth period, an additional reason why local producers opt to plant palms on their plots. Some of the essential activities are weeding, mulching and ensuring the shade is adequate. The incidence of pests and diseases is very low, but when they do happen, cutting the sick or damaged fronds is recommended. The presence of fungi is prevented with the pruning of shade trees to facilitate aeration on the plantation. These activities are not specific to the palm, but are performed for the maintenance of the main crops: coffee and rubber. After two to three years the fronds reach the required size for their commercialization. Under an intensive system, there can be three to four harvests per year. The useful life is estimated to be 8 to 10 years (Grupo Mesófilo, 2006) and special attention must be given to not cutting the totality of the fronds to avoid delays in the growth of new shoots. Once fronds have achieved good development they are ready to be cut.

A few weeks later I have the opportunity to observe the cutting process that takes place on a two-hectare plot on the *ejido's* upper zone. Oscar and I are going to observe the activities

³² Seed collection takes place in the months of July through December, a period in which the seeds have reached physiological maturity and are in adequate conditions to be used. Seed production per plant is variable since some produce one inflorescence and other seven and even eight, with the greater variety being between two and seven. It is estimated that one kilogram of seeds contains approximately between 6,000 and 6,500 dried seeds (Grupo Mesófilo, 2006).

that usually begin very early. Three or four people arrive at the plot and begin cutting fronds that have reached adequate size. The ideal size for cutting varies depending on the species; the *Chamaedorea elegans* fronds are ready when they have reached 25 cm. Upon our arrival, we notice that the trimming team is already busy inspecting the plantation (see Figure 11). Equipped with a knife and a wooden stick, they are ready to start cutting. One person alone can cut about 100 dozens of fronds per day. Before starting, the cutters receive instructions regarding the required length. As they make progress, they gather the fronds in dozens and place them on a side of the plot. Arturo, one of the cutters, gives me an explanation about which fronds are the ones to be cut:

“We make sure foliage is clean, with no marks and are complete. We immediately discard the yellow fronds or those that have insect bites.” (Arturo, Limonestitla, 2007)

Odilio, a plot owner, is also present:

“I come to make sure that the cutters are doing their job right and to count what has been harvested. If we are not present, sometimes they want to trick us saying they cut less *gruesas* [...]. Also, I want to be sure that the day laborers do not damage my rubber trees or the smaller plants” (Odilio, Limonestitla, 2007)

Special attention must be given to not harvest too many fronds from one plant or damaging the rest of the plant when being cut. If this happens, the chances that the plant perishes or becomes susceptible to pests are increased. In general, only two or three fronds are used, the rest remain on the stem to provide the plant with adequate growth. Two fronds must remain on the plant as a minimum. Once the process is finished, the fronds are loaded onto a truck and taken to a shaded shelter where they are classified.

In the presence of the cutters, the plot's owner and the intermediary perform a quick inspection and quick sorting depending on the damage to the fronds and their general appearance. Normally, the intermediaries strike deals with more plot owners until they gather the quantity needed to fill up a stake-bed truck; meanwhile, the palms remain stored in a shaded and cool place. The cutting can take place every three or four months; on average a *gruesa* is worth 20 pesos (approximately 2 USD) and its entirety is commercialized through *coyotes* or local intermediaries. From this price, the cutting and transportation costs are deducted, remaining at a final price of 15 Mexican pesos per *gruesa* (1.50 USD). The price per *gruesa* remains stable during the year with small changes during the months of greater demand. Nevertheless, other factors exist that are considered to determine the price: the plot's location, variety, the plantation's accessibility and the general health of the foliage, but these are for the *coyote's* consideration.

Seeds can also generate income, even though a formal market does not exist. In the region of Tezonapa, they are collected during the months of September through December. Depending on the variety, a single plant can produce around 200 grams of seeds that are sold per kilogram. The price of a kilogram of seeds varies between 150 to 200 Mexican pesos (\$15-20 USD). The seed buyers are usually other members from the community that are looking to increase the number of plants on their plots or intermediaries that commercialize seeds as well. The producers maintain a solid relationship with the intermediaries. Usually they do business with the same intermediary and it is difficult that they accept offers from others. The payment for the foliage is done in cash and is done so immediately. Producers appreciate this availability. The intermediaries also offer credit and loans to producers, which helps secure their commercial relationship.



Figure 11. Palm cutter inspecting a plot before cutting in Tezonapa.



Figure 12. *Chamaedorea* palm stems after harvesting.

In the following section the beginnings of a collective commercial initiative will be described. We will see how small-scale producers in Limones assimilate the opportunity for starting a new commercial project in their community, with the aim of accessing the economic stimulus available for this purpose.

4. Commercialization organization: broadening market opportunities

Small-scale producers played a central role contributing the majority of empirical evidence integrated in this chapter, not only for being the first link in the value chain, but also for their persistence to include themselves in the market. As we will see later, while I followed producers in their diverse production activities, their commercialization limitations became more obvious; especially when it came to getting organized to jointly commercialize their products. We will see how this process begins to take shape and decision-making issues arise when modifying the organization of their individual livelihoods.

In a tropical environment, the specific factors for agricultural production maintain a multiform and heterogeneous nature closely linked with the way in which natural resources are appropriated. As we have observed, small-scale producers have a close relationship with their surroundings and “their way of doing” is adapted to this setting. To these local conditions external factors derived from public policies are added that, besides the market encourage the use and exploitation of certain crops, as is the case of the *Chamaedorea* palm.

In this section, we follow some of the events and persuasion strategies that Juventino, a leader in the Limones community, uses to enroll members of the *ejido* to an emerging *Chamaedorea* palm commercial project. Juventino (47) has held the position of *ejidal* commissioner at various occasions and is closely connected by kinship with other families in nearby towns. He is devoted to coffee production and introduced *Chamaedorea* palm into his plots a few years ago. Like the majority of *ejidatarios* from Limones, he is not very familiar with the commercialization phases; making use of local intermediaries to sell their foliage. As opposed to other producers, his position as *ejidal* commissioner has awarded him many connections and he stays involved with different actors outside his town.

“My work as a community representative is for everyone’s benefit. [...] I have worked to connect our community with the highway, so that roads open up and to bring new actions, programs and ways so that people from here achieve a better life” (Juventino, Limonestitla, 2007)

Since our first encounter he was always willing to answer my questions. One afternoon, he offered a tour of the community to show me different plots and offer his vision regarding the productive potential of this community:

“The idea is to make the plots more profitable. It is the same situation our parents faced a long time ago when they put in rubber trees in the coffee plantations. Except now we have the possibility of receiving support from CONAFOR in order to put in palm. I think it is a great opportunity to improve our plots [...]. We have the advantage of having the INIFAP engineers close by who give us good advice to start working with them to establish an experimental plot so others can see how it’s meant to be grown” (idem)

When we resume our tour, we observe coffee and rubber plantations and finally we arrive at a plot with *Chamaedorea* palms. There he explains that his objective is to form a group at the *ejido* to commercialize palm. A few months ago Juventino found out about the recent

emergence of a *Chamaedorea* commercializing cooperative in the adjacent community of El Paraíso. He sees the possibility of his community joining that cooperative, but this should be done jointly. Juventino continues to explain:

“We are looking to be included in this emerging cooperative, if they do not invite us, then we will ask to be included [...]. That is what I have been proposing to people here, to get organized [to make the proposal] and, if enough people are interested, things will begin to grow” (idem)

This is not the only organizing method that Juventino visualizes for Limones. He also proposes adopting several interlinked projects like managing a high-yield coffee plantation introduced by the transnational company Nestlé and INIFAP³³. Our tour ends with a visit to the town’s small nursery, which is close to downtown. This nursery was the product of an undertaking accomplished by Juventino and researchers from INIFAP with the objective of reproducing *Chamaedorea* plants and increasing the plant population in the *ejido*.

Sunday morning after mass provides a good opportunity for Juventino, Limones’ representative, to summon a meeting through a broadcast on the community’s sound system at the *ejidal* hall the following Saturday at 10:00 am. Through their conversations I gather several producers’ thoughts about the meeting and the possibility of organizing:

“We want to be a part of this, but we have our doubts, since maybe they will want us to devote ourselves fully to the production of palm [...]. I have my rubber trees and my coffee and I am fine like that, but if we all come together, perhaps we can get better paid. I heard that with the cooperative they are going to get paid twice as much per *gruesa*” (Ramón, Limonestitla, 2007)

It is common for new proposals and suggestions to be discussed regularly in the general assembly, where participation in various projects related to the exploitation of natural resources is decided unanimously. Nevertheless, Oscar has mixed feeling regarding the meetings:

“The majority of meetings, rather than leading to something useful, are more of a bunch of people looking to see how they can take advantage of others [...]. Here in the community we know who works hard and who does not. But here [referring to the *ejido*] this is how decisions must be made” (Oscar, Limonestitla, 2007)

With this comment, Oscar wants to emphasize that individual interests predominates over collective ones. Although the town is formally established as an *ejido* and many of the land- related decisions are made in a general assembly, individual interests nowadays are predominant unless they have something to do with social programs, where participation as an *ejido* is a requisite. Oscar is not enthusiastic about the idea of starting collective projects. In the following statement he explains why:

“There are people in the community that only want our support to obtain financial resources that we don’t always receive [...]. This happens often, that is why I’d rather just keep my rubber trees and my coffee [...] and if we needed more money, Reyna and I have an agreement to cut the trees on the plot and grow sugar cane [...] after doing the math that it could be the right path for us” (idem)

³³ This initiative that has been adopted in several coffee growing regions un Puebla, Veracruz and Chiapas and has been strongly criticized under the argument that instead of creating shared aggregated value, Nestlé consolidated its market concentration and their control over the productive chain and benefits from government subsidies - thanks to client relationships to the world of politics - from which before Commerce cooperatives benefited (Husser, 2012)

On the other hand, Juan (40), a small-scale producer who is convinced of the benefits of the palm project in Limones shares his opinion:

“We always hear that it is good to get organized [...]. Besides, we have to be clever; if not, the *coyotes* are going to ruin our business. I am in! It is all for our benefit, right? Why complicate things unnecessarily?” (Juan, Limonestitla, 2007)

Juventino uses different persuasion methods and resorts to the potential of an increase in income, as a way to get attention. Some days later, at an informal meeting at the town's bar, the conversation revolves around the proposal. Juventino approaches Oscar to chat about the topic:

- “So what do think, pal? Should we go into the business?”

Without waiting for an answer to his question, he hurries to persuade Oscar:

“Look, the idea that the people from El Paraíso have is to start growing palm full time and that we get organized so that we join the cooperative as *ejido*, not just two or three guys, that is it! [...]. The sooner we start, the better and that way continue in the organization and slowly we won't have to sell to the *coyotes*. They [referring to the cooperative in El Paraíso] say that if we decide to go into business they will pay 20 Mexican pesos per gruesa [...]. Can you believe it? If they don't see the benefits, then they are all dumb!” (idem)

For the first time, Juventino seems to be losing patience given the possibility that they do not accept to join the cooperative and when I ask him what will happen if they decide not to participate, he answers:

“Well, if they don't want to, what can we do, they will be screwed by the *coyote*!”. He adds:

“I have more alternatives, anyway. Just take a look at my red cedar trees in my *acahual*, when they are ready in 15 more years... imagine that! It was the best investment I could do for my kids, I want them to have the opportunity to go to high school and even college, if that is what they want. With that money, I hope to be able to buy a house in Orizaba and they can go to school.” (idem)

Juventino continues explaining his position:

“I am committed to the project because I see its viability. It is an opportunity for our community to improve, but not everyone sees it that way. I am in a better position than others, because I have my truck. I can take my kids to school if they miss the bus or to the doctor in Tezonapa if they get sick, but many here don't have that capability.” (idem)

Some months later, after several persuasion attempts, Juventino's efforts begin to pay off. They agree at the General Assembly to form a group to join the cooperative in El Paraíso, agreeing to commercialize the foliage only through the channel that will open up through the cooperative. They also agree to collaborate with the INIFAP specialist, by attending plantation management and *Chamaedorea* palm nursery establishing workshops. In spite of their initial resistance, Oscar appears to be happy with the decision. He explains his point of view as follows:

"I already told you, Nasim. This is not the first time they try to convince us with new projects. They call us often about the INIFAP workshops [...] but with what the engineers and the people at El Paraíso are saying, this time around they meant it and it could be useful to us. It is the same as when our parents got started with the rubber plantations [...] and then came the Nestlé project that is also giving good results. If we get support, then things are different, don't you think?" (Oscar, Limonestitla, 2007)

The general perception is that local producers acting individually have very few options to be successful when entering broader markets. This is also confirmed by a series of workshops and visits from those involved in forming the cooperative. Their message is clear: only through organizing themselves will they achieve reaching larger markets. Enthusiastically, Juventino explains his persuasion strategy:

"I found a way so that people from the cooperative provide us seeds and seedlings to set up a nursery and begin to actually plant them in our plots. Due to the previous experience [in which the nursery did not succeed] not many of the community members showed interest at first, but either way I made the proposal at the Assembly and they agreed to give it one more chance" (Juventino, Limonestitla, 2007)

In general, members of the *ejido* respect decisions made at Assembly meetings; nevertheless, the path can be unexpected. Even in the planning stages as those previously described, formulating a common or collective objective is a complex process. As will be illustrated in the next chapter, complexity continues to be a part of the execution of this type of initiatives; even though the necessary resources have been aligned, the results sometimes are unexpected. My observations on the organization practices for a collective initiative's production and planning are summarized in the following conclusions.

5. Conclusions

Small-scale producers' practices for production and commercialization develop in a heterogeneous environment with a diversity of micro-climates, slopes, temperatures, soils, etc. which serve as a base to get agricultural and forestry production strategies going. Coffee production, sugar cane and *Chamaedorea* palm stand out within these strategies. These are crops that have been introduced to producers' production portfolios at different times and they all together complement their income. Their production and exploitation vary according to the production season and the related activities remain flexible throughout the year. Even though production activities are heterogeneous, these are well articulated and respond to changing market conditions. This is the case with *Chamaedorea* palm, as its sale covers emergency expenses or complements income from the main crops when their prices are low. Producers use the palm as another option for diversification, although their contact with the market is minimal and is done through intermediaries, as opposed to other crops. Sugar cane is commercialized directly with the sugar mills and coffee and rubber are destined to the community's own processing plants.

With the objective of avoiding intermediaries and providing new commercial alternatives, diverse initiatives aim for collective participation to promote and carry out commercial projects. Nevertheless, they do not deal with the heterogeneous and complex nature of production. Besides, the emergence of collective actions does not always arise from the producers' own inspiration, but is often strongly influenced by the political, economic and social context. Government support, community leaders' interest in linking their community to other projects, and the idealized intention of government organizations that

promote the idea that collective commercialization will be beneficial and successful, play a decisive role to encourage the creation of enterprises in the region.

As I have shown in this chapter, the producer's individual actions do not always coincide with the idealized objectives of institutions and NGOs who promote, through community leaders, the creation of collective actions that focus attention and production practices in a single product. In this way, enterprise activity evidence is not seen as a key element for the successful commercialization of NTFPs as suggested by Marshall *et al.* (2006). On the contrary, the emergence of these initiatives is strongly influenced by ecological, agronomic and institutional contexts. Thus government support, the persistence from NGOs and the constant recommendations from scholars drive producers to get involved in commercial projects where their capacity to exercise power in the market is limited and impossible to overrule the barriers to market access.

Under these conditions, commercial experiences are condemned to being unsuccessful, since they emerge from access to direct economic support rather than producers' personal interest, and the importance of *Chamaedorea* palm is overestimated in comparison to other productive activities, especially sugar cane, coffee, and rubber. Moreover, the complexities of human relationships within the community when it comes to decision-making, for instance when decisions have to be collectively approved, are not incorporated in the views held by government and NGOs. Ignoring these considerations have critical consequences for the success in establishing enterprises, as will become evident from the following chapters. I continue to examine in detail various commercial projects as case studies, and follow the actors that lead the struggle to consolidate the experiences in the market.

Chapter 5

Policy and Community Initiatives “in the Making”³⁴

1. Introduction

Community-based natural resource management (CBNRM) aims to realize both community development and sustainable environmental management. The general theory behind CBNRM claims that the best way to do this is for local people to use their knowledge, skills and technologies. However, this theory does not correspond to practice: most CBNRM initiatives fail.

How can these apparent failures be explained? Attempts to do so have given rise to a tug-of-war between those who claim that local people, for one reason or another, have not made best use of their knowledge, skills or technologies (the “blame the victim” argument underlying institutional and social capital approaches), and those who argue that local people have been hampered by the activation of causal mechanisms of power outside their control (the “blame the system” argument underlying political ecology and post-colonial approaches).

There are three problems underlying this state of affairs. The first, and most obvious one, relates to debates about how to evaluate success and failure. People involved in CBNRM may often be disappointed with a specific process, and initiators of such schemes (especially when these concern extra-community institutions) may call the outcome a fiasco. Yet, from the point of view of local actors, specific CBNRM initiatives are points in a

³⁴ This chapter is based on Musalem and Verschoor (2012).

series of projects that affect them. What looks like a failure from the point of view of the architects of a CBNRM scheme might be seen as a success from the perspective of those who are targeted, who may see the initiative as contributing to their overall livelihoods. It is all in the eye of the beholder.

The second problem is of a methodological nature and is more counter-intuitive. Often, if not always, successes and failures are explained by retrospective explanations – that is, through an appeal to factors that are only known at the end of a given initiative. If, for example, at the end of a process it becomes clear that a lack of organization can be blamed for the failure to achieve specific goals, the explanation that is given often invokes a lack of organizational capacity from the start. Likewise, if context can be shown to affect (often negatively) the content of a CBNRM program, those who evaluate it will tend to point to the context from the outset. As Akrich et al. (2002: 190) warn, we should not believe for a moment those edifying stories that retrospectively invoke a cause; that is, one should not mistake the explanans (that which explains) for the explanandum (that which should be explained). Doing so overlooks the fundamentally uncertain character of CBNRM initiatives: for the actors involved, success or failure is only known at the end.

The third problem relates to the question of who provides the theoretical interpretation of the success or failure of a given CBNRM initiative. They are usually scientific experts. But this calls into question the relationship between experts' and laypersons' explanations and, by extension, the role accorded to the critical capacity of the latter by the first. By and large, experts (especially those in the social sciences) adopt a condescending attitude when faced with the need to explain success or failure, believing that their account is better than that of the actors they study. The implicit justification for this is that social scientists have been trained to see and explain processes (or structures, or forces of power and domination, or the invisible hand of the market, and so on) that are not normally evident to laypersons. Here, the argument seems to be that laypersons are so busy with their daily affairs that they are at a disadvantage when trying to explain why they do what they do. Social scientists, by contrast, have the time (and the resources) to reflect on all that laypersons fail to mull over. The critical capacity of non-scientists is, as it were, ignored.

To avoid falling into these traps, in this chapter I try to present a CBNRM initiative “in the making” by sticking to three principles. First, in the account I refrain from making statements concerning the degree to which the initiative failed or was successful (though I do speak of the rise and demise of it). Second, since controversy tends to reveal processes that otherwise remain hidden (Law and Callon, 1992), I do not resort to elements that only became known at the end of the initiative. In doing so, I refrain from passing judgment on the different actors' standpoints and arguments at the time important decisions were made. Finally, I do not use the case to illustrate a specific (social) theory to account for what happened. Rather, take in earnest the explanations of our *dramatis personae*: we learn from the actors themselves how we should think and write about them, rather than telling them how they should think about themselves. In so doing, I emphasize the need to stay close to actors' experiences and explanations in order to learn from them how to make success or failure intelligible.

The setting of the case is El Paraíso, a rural community in the municipality of Tezonapa. There, tropical forests are the source of many NTFPs, which, when collected and sold, complement the incomes of community members. In the past decade, demand for *Chamaedorea*, a palm whose fronds are used to embellish flower arrangements in both Mexican and export markets, has risen – and so has its extraction. Since *Chamaedorea* is an endangered species, Mexican state institutions have devised strategies that combine biodiversity, conservation and poverty alleviation in forested rural areas to create “win–win” situations by supporting CBNRM initiatives that focus on this product. The

implementation of these strategies, however, assumes that community members have common interests and goals, and will therefore naturally form producer associations or cooperatives and develop the management skills necessary to operate dynamic or “green markets” – in spite of evidence to the contrary (Belcher, 2003; CEC, 2002; Marshall *et al.*, 2003; Trauernicht, 2005). It is against this background that I follow the trajectory of the life and demise of Productores Integrados de Tezonapa (PROINTE), a community-based organization established to market *Chamaedorea* palm leaves.

2. Constructing the Organization

The organizational process I describe spans a six-year period (2001–2007) and is set in the small rural community of El Paraíso (1,945 inhabitants), which forms part of the municipality of Tezonapa in the southern Mexican state of Veracruz. The community is located at the highly biodiverse point of convergence between the Sierra de Zongolica mountains and the coastal plains that border the Gulf of Mexico. The region’s main economic activities are related to agricultural production and the processing of coffee, latex, timber and sugar. El Paraíso is one of the many rural settings on the agricultural frontier where forests have been cleared for the extraction of natural latex since the late 1960s and, later, for the establishment of sugar-cane plantations (INEGI, 2000b). This situation has led to awareness about the importance of biodiversity and environmental conservation derived from the loss of tropical ecosystems in forested areas, which in turn has triggered locally-based, alternative, or “green” economic initiatives. One of these, revolved around the production and marketing of *Chamaedorea* fronds, which are potentially profitable as they command high prices in the US and Europe. In what follows, we provide a chronological description of the crucial events related to four stages in the life of PROINTE: the origin and expansion of an idea, the planning of activities, their implementation, and the demise of the organization, as well as the organizing practices and politics that went along with these. Figure 13 presents a time-line with these four stages and the main events and decisions taken during the life of PROINTE.

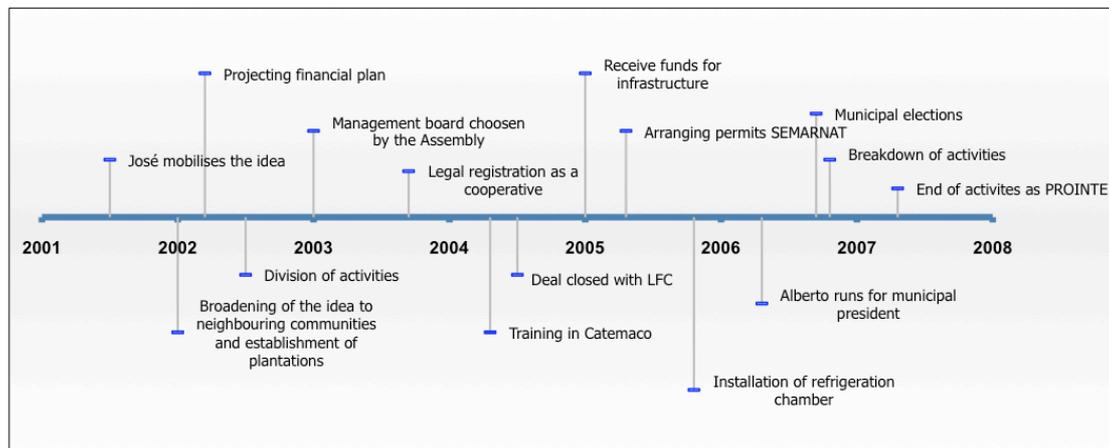


Figure 13. Time-line of events and decisions at PROINTE

3. Origin and expansion of the idea

Although a convoluted series of discussions preceded the formal proposal to form an organization, the initial steps can be traced back to the spring of 2001, when José, aged 56, a peasant and local fruit and wood trader from El Paraíso, set forth a plan to establish a cooperative for the commercialization of tropical palm fronds in his community. As the key

actor in the development of this construction, José attributes his ability to identify potential in starting businesses to what he calls an “entrepreneurial spirit”.

José recalls starting “doing business” early in his childhood, trading everything from buttons, threads and needles as a young boy, and later mangoes for the Mexican fruit mega-processor, Jumex. Although José dropped out of elementary school, his “vision” for market opportunities went uncontested locally and, as a result, he is greatly respected throughout the community. Besides working his land – coffee intercropped with latex and timber – José has been active in many representational positions in his community, serving as community treasurer, secretary and president of the local coffee producer cooperative between 2001 and 2006. During this time, he started mobilizing ideas to establish a formal market for *Chamaedorea* in the community. This opportunity arose due to the sudden appearance of coyotes from the nearby cities of Orizaba and Córdoba who wanted to commercialize *Chamaedorea* fronds found growing naturally on farmers’ lands. Instinctively, José concluded from these visits that there was an opportunity for him to market tropical fronds at nearby wholesale markets, and this triggered his curiosity about the costs and profit margins. The calculations represented a positive margin of 40–50% that could be obtained by selling directly to wholesalers.

Another reason for José’s actions lay in the general anxiety caused by the state’s gradual abandonment of rural areas since the late 1980s. Direct government intervention in agriculture had been the hall-mark of Mexico’s development policy since the mid-1930s, yet reform, restructuring and the closure of parastatal enterprises (e.g. CONASUPO) in the 1990s, as part of market “liberalization” processes, were met with deep concern by rural communities (Yunez-Naude, 2003). In Tezonapa (the municipality of this study), as in many of Mexico’s rural areas, the liberalization of agricultural markets affected the way in which peasants were organized to access markets and “pushed” them to organize themselves into new community or regional cooperatives to obtain greater bargaining power. In Tezonapa, most of the peasants linked themselves to sugar mills and coffee cooperatives (González-Jacome, 2004; Singelmann, 2003); so too the coffee cooperative of El Paraíso, which survived after the disappearance of the Mexican Coffee Institute (IMECAFE).

The *Chamaedorea* association slowly turned into a reality when José reached out to others in his community through regular visits to his closest friends and neighbors, with whom he often discussed his ideas and whom he tried to enroll in his projects. Because of José’s position at the coffee cooperative, this effort was relatively straightforward as he was in touch with most of the inhabitants of El Paraíso at the monthly coffee-bean delivery to the coffee cooperative. José made the most of these encounters to interest others in joining forces locally to collect and market *Chamaedorea* fronds. These casual meetings revolved around the possible economic benefits and the perceived need to seek new markets. These opportunities were seen to contribute to improving local living conditions; particularly as coffee prices were falling.

Enrolling those not related to the coffee cooperative was also easy. *Chamaedorea* grow profusely in the canopy forests that cover the mountains surrounding El Paraíso. The plants require relatively little maintenance and harvesting them would not compete with existing local agricultural production systems. Furthermore, José presented *Chamaedorea* as an economically viable, environmentally friendly development option, raising the interest of several conservation organizations, especially when associated with coffee in agroforestry systems (Baumer, 1990; CEC, 2002).

By the end of 2001, discussions about forming a *Chamaedorea* association crystallized with the drafting of an affidavit supported by 15 landowners close to José. The association’s

goals were gradually defined, and, by the end of 2002, José and the 15 landowners were determined to set up an organization that would guarantee a large supply base of *Chamaedorea* leaves, allowing them to seek better prices for their fronds than the ones paid by the *coyotes*. José's actions at this moment included studying prospective markets at the wholesale markets of nearby Córdoba and Orizaba. The real problem at this point was how to achieve this.

José's persistence had its roots in his awareness that the main comparative advantage of El Paraíso was its geographical location –at the foot of the Sierra de Zongolica mountains – with its nearly perfect ecological setting for *Chamaedorea* production (high elevation, good weather conditions). The fact that most landowners in El Paraíso knew that the amount of labor required to harvest the fronds would be very low supported José's assumption that the potential supply of the fronds would be very high. However, José and the other interested landowners were confronted by the fact that there were not enough *Chamaedorea* plants to guarantee sustainable production. The association therefore proposed establishing plantations to cultivate the fronds. Although environmental conditions were favorable and plant material was readily available, little was known about the cultural requirements of the species. Fortunately, such expertise was available at the National Institute for Forestry, Agricultural and Livestock Research (INIFAP) just 20 km away from El Paraíso. Staff at the research center were fascinated by the El Paraíso initiative and provided the necessary information and tools to propagate *Chamaedorea* palms to quickly establish plantations.

During the development of the idea to establish a *Chamaedorea* cooperative, José needed to link the group of interested landholders with someone with a visionary mind who could help solve problems and constraints as they arose. This is why he joined forces with Alberto (48), a charismatic entrepreneur and aspiring politician from the neighboring city of Tezonapa. Having known each other for years, Alberto and José formed a good team and were able to capitalize on their recognition and respect earned as leaders of the regional coffee cooperative. Together they visited representatives of the neighboring communities. The rationale behind this was that since the project started as a local idea, the solidification of a larger supply base for the fronds would give them regional recognition, granting them a stronger voice and negotiating power with banks and municipal and state governments. Their motivation, will-power and commitment to constant work would open doors, or so they reckoned, which too often remained closed to small, unknown groups. As the number of members started to increase, rumors and expectations surrounding the project also grew, making the project attractive to many as it was generally felt that it would provide a better income to the inhabitants of the region.

The rest of the members-to-be of the initiative immediately welcomed the notion of joining forces with a large number of small-scale producers. Due to the distinctive way in which the commercial chain for *Chamaedorea* is organized – handled by few regional buyers, who then mainly sell to a single company, with prices offered to producers set at very low levels – membership of the organization would offer prospects of obtaining better prices through collective marketing, rather than selling individually through local *coyotes*. This advantage for obtaining better prices gave José and Alberto a strong argument to convince small-scale producers that a communally sustained buying structure would be beneficial to all. In addition, the possibility of accessing credit and the wider benefits of municipal and state development programs, such as FONAES and INDEVER, to finance the establishment of small-scale enterprises were attractive reasons that encouraged many to join the project. These programs are aimed particularly at individuals and group initiatives with scarce resources in an attempt to support productive projects through social financing schemes (FONAES, 2009).

As the number of people interested in the project grew, so did the new responsibilities and tasks faced by the incipient organization. By 2002, most of the El Paraíso landowners – approximately 80 – were part of the project. In an attempt to define the boundaries of the organization, a division of tasks was agreed upon. During this phase, José and Alberto, who searched for “good management characteristics”, scrutinized the abilities of each of the members participating in the project. The definition of the desirable roles within the organization started to take shape and become clear: it was decided that José would lead and co-ordinate most of the activities; Alberto would be in charge of member endorsement and expansion of the project to neighboring communities; and the remaining 13 founding members would take on a number of different management tasks and set up nurseries to expand the potential for *Chamaedorea* cultivation. This was a crucial event, because it would later affect access to permits for sustainable use.

With this new division of tasks in place, Alberto and José’s first administrative targets were the municipal authorities, who would inform them about the financial opportunities available in programs for regional commercial development. At different stages, a series of tasks was required to comply with the rules of operation of the programs (e.g. formulation of a financial plan, providing a census of producers involved, identifying the infrastructural needs). Alberto was in charge of this “privilege” because his brother was the municipal president of Tezonapa. The state authorities were also approached to initiate the request for obtaining a sustainable use notice, which required regular visits to Jalapa (the state capital) to conduct meetings at the state government’s rural development offices.

4. Planning of Activities

To achieve solidity in the deployment of activities and start the actual work, money was required to cover the transport expenses and get things moving. However, financial resources available to José and Alberto were limited. Furthermore, they divided their efforts and time between taking care of their agricultural land and visiting neighboring communities to reach agreements to get more farmers interested. Additionally, the paper work was costly and reaching communities was very time-consuming. In view of this, during this time José sought someone to assist with the paper work and help with errands related to administrative matters. Margarita (30) was asked to join them in a non-remunerated position, but with the agreement that once the cooperative was on its feet she would occupy one of the main management positions. Margarita is a young and outspoken woman trained as a business manager. In close co-ordination with José and Alberto, she took on the task of writing and identifying the needs for the envisioned organization and developing a monitoring/control system for it. Margarita was also in charge of drafting a feasibility study, a financial forecast and an executive summary for potential funding institutions. Once finished, these documents (PROINTE 2003) became the organization’s “business card” and would be used in lobbying to obtain financial support from the municipal authorities of Tezonapa.

Apart from presenting boundaries and objectives (and to a certain extent, the organizational *room of maneuver*), the documents Margarita drafted also yielded an important projection: the required capital and costs of marketing. According to the documents, it would be necessary to obtain an initial capital of MXN 1 687 699 (approximately US\$ 135 000) to start activities. This ballpark figure was based on a rough estimate of supply by the members of 4,000 to 5,000 *gruesa* (bunches of 12 dozen stems each) per week, for an average price of MXN 20 (US\$ 1.50). For members, this meant an increase of MXN 5 per *gruesa* (US\$ 0.5) on the prices paid by the *coyotes* as well as a long-term buying contract with the organization. It was believed that this pricing strategy would cut off the supply of fronds to the *coyotes*.

From this point on, weekly management meetings were scheduled to track progress with activities related to the establishment of the organization. Late in August 2003, the first General Assembly as an “organized group” took place. The most relevant matters discussed focused on three issues: difficulties with obtaining starting capital; the form of supervision needed to reach and sustain the projected supply of fronds; and the importance of keeping an updated record of all the producers occupied in the establishment of plantations.

More than 20 communities were represented in the Assembly, and 20 more would follow within the next couple of months. This reflected the work of Alberto, who had been very successful in convincing and offering neighboring communities a place in the project. The first communities to be enrolled were the ones neighboring El Paraíso. The communities of Limonestitla and Caxapa – known to be highly organized – approached the project directly, requesting participation. The leader of the community of Limonestitla explains why:

“Before all this organization fuss started, INIFAP from Jalapa had already told us that the fronds were a good business! (...) but before the constitution of the cooperative, we wanted to wait until we could establish plantations in our communities and see how this little palm behaves. Only then would we join fully. They [José and his team] also told us that a large amount of money was going to be given to the cooperative to start operations, and that we would not need to put down any money from our own pockets yet.” (Juventino, Limonestitla, 2007)

For the management team, the success of the project depended on its capacity to obtain the initial capital needed to initiate operations and build the necessary infrastructure (mainly a selection and refrigeration area). Most of these initial efforts were centered on lobbying municipal and state government authorities, carried out during a six-month period in 2003, during which the anticipated marketing projections were presented. As expected, the request for the full amount for the infrastructure (selection and refrigeration area) was welcomed and supported by Tezonapa’s municipal government. As Alberto explains:

“We presented the idea of the organization with a very clear and understandable overview from plantation to commercialization, objectives, goals; they [the authorities] evaluated it and thought it viable. In the region, there are already some projects for coffee, sugarcane, citrus fruits – but none for fronds. Therefore, because it was an innovative idea, the authorities decided to support it. Our next step is the legal registration of the cooperative” (Alberto, Tezonapa, 2008)

Accordingly, the Registration Assembly took place during the first few days of September 2003. In a general vote it was agreed to form a cooperative, to expand its area of influence to all neighboring communities in the municipality of Tezonapa, and to establish a joint business with El Paraíso’s coffee cooperative (with which it would share basic infrastructure, such as office space and land to establish the refrigeration chamber). A Board of Directors was elected, with José as president, Alberto as vice-president, Samuel (aged 38) as treasurer, Margarita as manager, and five members who had been involved early on as board members or *vocales*.

On 7 September 2003, the cooperative was legally registered in Córdoba, Veracruz. The name chosen was Productores Integrados de Tezonapa, S.C. de R.L. (PROINTE), sharing the legal address with the coffee cooperative. It is important to mention that PROINTE was established as an independent cooperative, but was closely associated with the coffee cooperative of El Paraíso (an older structure derived from the government withdrawal of the coffee regulation programme in the late 1980s). While José continued to represent the coffee cooperative, he simultaneously worked and took decisions for both cooperatives.

5. Putting the CBNRM Initiative into Practice

Once PROINTE was legally registered, with José serving as president, and having obtained the necessary financial support, it was time to put their business plan into practice and start building the infrastructure. Although this looks like a late start, the “organizing work” took more time than they expected. For José, the installation of the refrigeration chamber was a step into an unknown world. There was considerable activity at this time. José invested several months in the ins and outs of the installation, which required the largest expense of financial resources and specialized skilled labor. This new challenge needed a different plan of action and was beyond José’s direct reach. The specification was unknown to José. It required technical knowledge of refrigerated warehouses, knowledge of the needs of the international markets and about how the fronds were classified in commercial sizes. Since practical knowledge about standards and grades was an unknown field for him, José contacted La Flor de Catemaco (LFC), the largest and most successful wholesaler of *Chamaedorea* palm fronds in Mexico, with an estimated export of two million fronds per year and over 30 years of experience in the field (La Flor de Catemaco, 2008).

The main concern for José at this point was how to get the attention of LFC. By the sheer number of producers it represented, PROINTE was potentially a substantial supplier of fronds and thus an interesting partner for LFC. For this reason, while recognizing that their room for negotiation was limited, as PROINTE was not yet producing fronds, a team headed by José scheduled a meeting in the summer of 2004 in Catemaco (the Mecca of tropical foliage and headquarters of LFC) to introduce themselves to the directors of the company. Although, according to José, they were very nervous, the meeting was productive. The willingness of the team to prove that they could do more than just get PROINTE off the ground impressed the managers of LFC. Both parties reached an agreement to set up a training programme for PROINTE’s key personnel, which included the handling and selection techniques and procedures for classifying the *Chamaedorea* fronds, and to hold a series of talks to increase awareness of the importance of quality for products to be marketed internationally.

In order to design the infrastructure needed at El Paraíso, José sought assistance from an independent technician specialized in refrigerated warehouses. This resulted in a blue-print for the selection and refrigeration chambers (340 m²) that fulfilled technical requirements, could store the expected supply of fronds for four days at minus 3° C, and had sufficient storage capacity to load one refrigerated trailer-truck a week with a capacity of 1,000 *gruesas*. In the blue-print, the premises would also be equipped with a 17° C climate controlled selection area that could accommodate around 15 employees for the selection, bundling, packaging and sorting of 5,000 fronds a week.

José and the rest of the management board were certain that PROINTE could not start working as planned without the refrigeration chamber. They would not be able to cut out the intermediaries and would not be in a position to solidify their agreements with LFC in terms of quality and volumes. Therefore, the installation of the huge metallic structure stands out as a major achievement, because it required the heaviest mobilization of actors, resources and economic investment, as well as planning that played, at that time, a crucial role in the decisions and strategies of PROINTE. In the summer of 2004, the refrigeration chamber was installed inside the premises of the coffee cooperative as stated in the registration of PROINTE. This location seemed obvious to José as he was president of this cooperative.

Being able to comply with the specifications for commercialization in the international markets is what had led LFC to be a successful enterprise in its field. It required a high level of quality awareness from all the staff involved in the production and handling of the

fronds. Therefore, six months after the visit to LFC, a group of 20 of PROINTE's employees travelled to Catemaco to receive training for a full week. The training programme incorporated the specifics about quality standards and personnel management. The employees were also taught how to handle the fronds. The broader experience of LFC in the business implied a strict quality control system as well as clear-cut definitions of specific species of *Chamaedorea* that complied with international market demand.

The next bottleneck for PROINTE was the establishment of standards to select fronds according to the commercial names, as well as a detailed route planning for the collection of fronds at farmers' fields. The latter aspect at first seemed to be simple, but turned out to be problematic because it entailed exclusion of those PROINTE members who lived in hard-to-reach, mountainous areas where no paved roads existed, or where roads were impassable during adverse weather conditions. This was very much against the spirit of PROINTE (which emphasized that all members had equal rights), caused irritation among members, and jeopardized the initial idea of expanding the organization. Indeed, during a meeting in Limonestitla in late 2004, members threatened to withdraw from the project should their community not be included in the collection route.

Following this dilemma, the newly established cooperative faced new challenges of an altogether different nature: implementing a totally new management model in the production process. Indeed, PROINTE needed to start working as a collective, taking into consideration the opinion of all members, and not just of specific individuals – as during the early stages of the project.

As mentioned earlier, since *Chamaedorea* is an endangered species, its use is a hotly debated issue in conservationist circles, and also plays an important role in the formulation of policies and regulatory frameworks pertaining to these products. Thus, as expected, its market in Mexico is heavily regulated, requiring producers to obtain notices and permits to market them in domestic and international markets. These are granted by the Ministry of Environmental and Natural Resources (SEMARNAT) and supervised by the Federal Environmental Protection Office (PROFEPA). Obtaining these permits is a complex matter, as all the aspects stated in them have to be taken into consideration for the legal management and marketing of the fronds. PROINTE managed to obtain legal permits for the extraction of *Chamaedorea* for all participating communities. These permits had to be requested at SEMARNAT's federal offices, which required regular trips to the state capital, Jalapa, and to Mexico City.

6. Demise

Everything seemed to go well for PROINTE until, unexpectedly, a group seeking control over the cooperative caused polarization within PROINTE's Assembly. This came up during the election campaign for the municipal government in Tezonapa – held every four years – in which Alberto was as candidate for the ruling party. The schism was a result of Alberto's decision to run for municipal president.

This decision seemed to be a tactical one in that, should Alberto be elected to office, it would open up new opportunities for PROINTE. Both José and Margarita gave up their personal time, and some of the time that would otherwise have been dedicated to PROINTE's establishment, to help Alberto in his political campaign. As his main campaign discourse, Alberto used the "achievements" in bringing together more than 400 producers in PROINTE and his knowledge and awareness of rural areas to secure the vote of the population. In the following weeks, after the start of the campaign, he dedicated his time purely to promoting his candidacy. During this time, José and Margarita multitasked and

combined work for the management board of PROINTE with the political campaigning of Alberto. This was done by using the same resources (e.g. the office was used to hold political meetings), people (chauffeurs were delivering pamphlets; Margarita was paid to do the accountancy for PROINTE while also managing funds for the campaign). Some members of the cooperative warned Alberto about combining these activities and the dangers involved in this – above all, the risk of confusing/mixing financial resources. However, Alberto continued on the same course and never separated his political campaign from his management tasks.

The support given to Alberto's campaign bore fruit as the local Partido Acción Nacional (PAN) Assembly chose Alberto as their official candidate. Subsequently, Alberto moved his operational center to the PAN office and continued campaigning in most of the communities in the municipality of Tezonapa and organizing political gatherings to promote his image. A crucial turning point in Alberto's campaign occurred when Martín, a member of PROINTE who was also in the race for the municipal presidency and Alberto's main political opponent, accused Alberto of "inheriting" the municipal presidency from his brother. Martín and his supporters broadcast this accusation by painting many of Tezonapa's walls around the main plaza with claims that "power should not be inherited".

The wall paintings referred not only to political inheritance, but also to the continuity of Alberto's brother's economic interests through Alberto's future administration, as they shared various projects (e.g. ownership of sugar-cane plantations, *Chamaedorea*, coffee, and representational positions in public-private projects with Nestlé and INIFAP, and in the regional farmers' committee). The episode was followed by an article published in the local newspaper that criticized Alberto's political campaign and insinuated that the resources – more than MXN 1.5 million – obtained for the establishment of PROINTE's infrastructure were also being used to finance Alberto's political campaign. This was a big set-back for Alberto's aspirations, but despite this adversity his team continued with the political campaign. José explains:

"There was this article claiming that we had gained more than a million pesos from the state government, and that hurt us a lot. Everyone in the region read that article and immediately attention focused on our activities; we were under a microscope. Everyone thought there were millions involved and thought we were using it for our personal benefit! But this was not the case! With the money we had to make several trips to Jalapa to visit communities to organize the people. You had to drive your car everywhere (...) So things are not what they seemed, right? Those funds were used entirely for building the infrastructure, but those are the things that people in general do not know" (José, El Paraíso, 2008)

The newspaper article triggered many reactions and a general feeling of unease among the members of the new cooperative because it fuelled gossip about the source of Alberto's campaign funding. Alberto (and also José) countered that the most important issue was that Alberto should win the municipal presidency. Through his presidency, so they argued, it would be relatively easy to access funding from a variety of the state's regional development programs and use this to solidify PROINTE's efforts. Winning the elections could be achieved only with the vote of the large number of PROINTE's members. From José's and Alberto's point of view, PROINTE's members were thus exchanging votes for financial support. However, members' worries were not appeased by this logic. From their perspective, Alberto (and, by extension, José) would indeed use the municipal presidency to access funding, but it was not at all guaranteed that the funds would find their way exclusively to PROINTE as Alberto, as explained earlier, was involved in other economic activities parallel to PROINTE. From the members' point of view, they were exchanging votes for the further expansion of Alberto's parallel businesses.

The members' point of view was, as it turned out, partially the outcome of active politicization by a group within PROINTE led by Martín. The group backed up the rumors about the misuse of funds obtained for the installation of the refrigeration chamber and the delays in starting operations. José challenged these criticisms and rumors by backing Alberto's candidacy, but his efforts proved unsuccessful as the Assembly was already divided on the issue, and his leadership had been strongly eroded. José did his utmost to reverse the situation by visiting all of the participating communities and present his take on the issue: the necessity to have cash flow (by means of "securing" the municipal presidency) to start commercial activities (buying the first batch of members' fronds, paying salaries to selection and transport personnel).

José's efforts to soothe members' anxieties (and especially those of his closest collaborators) took him the best part of six months. Obviously, José did not want to give up the dream that had taken him so much time and effort to build, especially as the commercialization of fronds seemed around the corner. His efforts notwithstanding, José sensed that the collective spirit had gone. Therefore, as a last resort, in late 2006, José and Alberto called for a general meeting of PROINTE during which they tried to regain faith in the project.

Much to their surprise, however, a common feeling of distrust and anger took over the room when members of Martín's faction accused Alberto and José of misusing the political campaign to further their personal interests. José and Alberto, for their part, tried to divert the accusations by presenting clear financial statements, a full description of expenses incurred so far (including those related to the installation of the selection and refrigeration areas), but the members did not seem to care. What seemed to be on their minds was to remove José and Alberto from their functions at PROINTE.

A couple of weeks later, by mid-2007, the Assembly chose a new management board. José, Alberto and the rest of their team were replaced by farmers belonging to Martín's faction. After their replacement, José and Alberto reacted by restricting entry to the refrigeration chamber, which was built on the coffee association's premises. In turn, this was seen by members as an illustration of the problems that could arise from Alberto's and José's mixing their parallel economic activities, as well as of the need to increase transparency by having a clear-cut division of enterprises.

The new board did not improve the situation and was not able to initiate commercial activities. This was due mainly (as in the previous board's administration) to a lack of cash flow, but also because the agreement with LFC had been a personal one between José and the company. Martín and his followers faced the same difficulties and uncertainties that José's group had to tackle before, but smoothed over their failure to start activities by stating that José and Alberto had left the organization's bank account empty. To act on the situation, Martín called for a meeting of the General Assembly to discuss the future direction PROINTE should take. Because a quorum could not be achieved, the meeting never materialized and so the project came to a halt.

José, Alberto, Samuel, Margarita and others continued with their other businesses. In all the communities involved, former members referred to the whole process as a "big loss" caused by a mixing of political and personal economic interests.

7. Conclusion

In this account, I have followed the actors and described "how things get done": how, in practice, so-called community initiatives are not collective in the traditional sense of the word, but turn out to be the result of entanglements between different entities with different

goals. What I have seen is that the trajectory of a “communal initiative” obeys the passionate, personal interests and political maneuverings of specific individuals who – for a while – are able to enroll others into their projects and act as collective spokespersons. But “speaking for others” is a political act, and ultimately political opposition to the project turned out to be stronger. This is not to say, however, that the PROINTE initiative was “successful” or “unsuccessful”. Rather, I have kept to the principle of impartiality regarding the veracity of actors’ arguments, and not ignoring the likelihood of there being a multiplicity of interpretations. Furthermore, I have been deliberately a-theoretical; that is, we have refrained from using a set of *a priori* concepts in order to frame or understand the struggles and negotiations that led to the rise and demise of PROINTE. I take the view that the value of cases is not limited to serving as a specific instance of a more general theoretical argument. In fact, I would argue that there are many more ways of marshalling specificities.

As Mol and Law (2002) claim, case-studies may do other kinds of work. For example, they might make the reader aware of events and situations elsewhere that have not been recognized so far. This case can serve to put readers’ knowledge of similar cases into relief; that is, it may help them to search for differences, repetitions, and commonalities. The case also invites to look further and ask, “So what happened afterwards?” In this case study, activities were eventually picked up once again and the initiative obtained a second chance (even though this was much later – sometime in 2009). The case may also serve to undermine cherished assumptions, such as the idea that policies to support conservation and development can automatically trigger the right responses. Or it may work allegorically (like a parable) and trigger all sorts of other associations. It may convey messages that are hard to express concretely, but from which one nevertheless learns.

Chapter 6

Intermediaries: Limitations and bottlenecks for market consolidation

1. Introduction

In this chapter I will concentrate on the work of intermediaries and the main bottlenecks they face to consolidate their commercial projects. Through examining the case of a family firm in Veracruz, I will learn about different market strategies and review the company's trajectory to analyze its multiple attempts to consolidate as an intermediary firm. Among the most recognizable strategies are establishing relationships with national and foreign clients to expand their room of maneuver. The case study also points to the limitations related to the legal aspects of commercialization, product availability and the need to comply with quality standards to access the export market. I attempt to answer the following research questions: What role do intermediaries play in the *Chamaedorea* value chain? What resources do they access to establish and consolidate their commercial project? And what are the main limitations for establishing their commercial projects?

This chapter is organized in three sections. In the first section I explain the intermediaries' role in the value chain and distinguish them according to their scale of operations. In the second section, I closely follow the trajectory of the Maldonado Produce company. The objective here is to identify the steps followed by the company to establish their commercial project; in doing so, I analyze the main bottlenecks in building commercial alliances with new clients in Mexico and abroad, and I identify the main limitations for the consolidation of NTFP commercial firms. The third section contains the Chapter's conclusions.

2. Intermediaries and their role in the value chain

Intermediaries are central actors in the commercialization of NTFPs. Nevertheless, their role in NTFP value chains has not been studied much and there are contradictory opinions regarding their role in the market (Edelman, 1980; Keys, 2005; King, 2007; Palmer-Rubin, 2010). Even less studies are known about the limitations they face when attempting to consolidate their commercial project (CEC, 2002; te Velde *et al.*, 2006).

As agents that actively participate in the market, intermediaries make connections between producers and consumers possible, and add value to products. They earn a profit thanks to the collection and sale of foliage at the local and regional level. Commonly called *coyotes* in Mexico, intermediaries carry out itinerant activities along purchasing routes far from important commercial centers. Intermediaries travel through towns and communities where they buy the foliage and transport it to urban centers for wholesale, which make them the first link in the commercial chain. Nevertheless, this role is criticized because of the effects their actions on the market have on producers. They are frequently accused of limiting the producers' operating field by having a scathing price strategy that inhibits the basis for the development of their own commercial projects.

In general, intermediaries do not have any connection to production; vice-versa, in some cases producers with their own transport means may take on the role of a local intermediary. I identify two types of intermediaries in the *Chamaedorea* market: local intermediaries and regional intermediaries. Local intermediaries operate in a few communities only, usually not more than one or two municipalities, and besides collecting the foliage they carry out all kinds of activities related to the sale and purchase of farming products. In general, when faced with an opportunity in the market, they react promptly and decide to commercialize foliage to make a quick profit. Their work is not limited to making commercial transactions; they also manage formalities with institutions and they do the administrative and banking paperwork for third parties (producers and others), obtaining financial compensation in exchange. Arturo González (47), an intermediary from the town of Omealca and supplier for the market in Córdoba, Veracruz, commented on how he carries out the collection and sale of foliage:

“On a regular work day, I visit several communities searching for foliage and people interested in selling. I chat with them and we negotiate the price and quality. Once we reach a deal, I send my cutters very early to collect the foliage. I park my truck close to the plot and the selectors, who are people at my service, put together the *gruesas* depending on size and quality. The number of *gruesas* is counted and the agreed-upon payment is made. In general, we pick up one to two loads daily from several communities and we put them in a temporary storage [an improvised shaded warehouse] or we take them directly to wholesale markets in the region” (Arturo González, personal communication, Fortín de las Flores, 2008)

The price that the intermediary pays to the producer fluctuates between 12 and 15 Mexican pesos per *gruesa* of *Chamaedorea tepejilote* or *Chamaedorea elegans* - the most common in the region. For other foliage, such as the *pata de vaca* or *Chamaedoera ernesti-augusti* the price can reach up to 20 Mexican pesos per *gruesa* (*gruesa*).

One of the risks faced by intermediaries in this business is when buyers do not make immediate payments. Therefore, the intermediary must have the liquidity to deal with payment delays. Another risk factor is that market demand estimates can be incorrect, which puts profits at risk for these agents, as Arturo explained:

“You have to be *colmilludo*³⁵ for this job, know the work and have honest clients, otherwise you can easily go broke. I have known many who wanted to join this business because they thought it was easy and, after a trip or two, they gave up [...]. It is difficult to be a *coyote*, but those that know how to do it manage to obtain good financial compensation.” (idem)

In times of greater demand, during the months of September, October and November, the profits of a local intermediary can reach up to 3,000 pesos daily (300 USD approximately). By these means, Arturo supports his four children; he paid for school and allowed them to open a small grocery store in town.

Next to the local intermediaries in the chain value are the regional intermediaries who mobilize larger quantities in a wider region. These agents transport foliage regularly to the main selection centers and operate in national and international markets. Transportation and selection are fundamental aspects for the added value of their activity and they have close relationships with export companies. Regional intermediaries base their purchases on quantity rather than quality and move the product regularly along established purchasing routes. Even though the majority of regional intermediaries in Mexico concentrate their commercial activities exclusively in the national arena, some venture to search for new clients to access the export market.

In this chapter I analyze the strategy of a regional intermediary, Maldonado Produce, a *Chamaedorea* commercialization firm that performs intermediation activities in the central region of Veracruz and the southern region of Tamaulipas. Being the company owners, I will follow the practices of Martha and Enrique. Various accounts about their life story will describe the different development phases in their commercial strategy.

3. The case study of Maldonado Produce

Maldonado Produce is a small family company devoted to the commercialization of *Chamaedorea* foliage and other agricultural products. Martha (52) and Enrique (64) got started in the business at the end of the 1970s commercializing several agricultural crops. Currently, Martha heads the company while her husband Enrique, besides being in charge of commercial operations, also holds a political representation position in the city of Fortín de las Flores, Veracruz, where the basis for their operations is located. On average, the company commercializes close to 30,000 stems of *Chamaedorea* annually. The trade in *Chamaedorea* is strongly linked to market demand and covers up to 70% of their total commercial activities. Their main purchasing zones are distributed in diverse towns and *ejidos* in the northern central area of Veracruz and southern part of Tamaulipas. Close to 60 families from various *ejidos* provide foliage to the company. The leaves come from different sources, either grown in small plantations or harvested from natural populations.

Martha is a qualified woman that has traveled internationally on several occasions. She speaks English fluently and the experience she has acquired through the years by heading the family business has provided her with the tools needed to comfortably navigate the commercial environment. She is in charge of commercial negotiations and sales planning, constantly searching for new clients. Enrique is her main teammate in business. He studied agricultural engineering, and his connections in the municipality and detailed knowledge of the production methods of several crops are among his strengths. Enrique is in charge of the administration of business with communities and *ejidos*, as well as carrying out purchases in the field. Their daughter also participates in the company's activities,

³⁵ Popular expression used to describe people who are clever or experienced at identifying opportunities.

accompanying them on business travels and directing product selection. Together, they have kept the company afloat through various difficulties and setbacks.

Since 1991, they have been established as Maldonado Produce, an S.P.R.³⁶ As regional intermediaries the couple has been able to secure a constant supply of *Chamaedorea* foliage to wholesale markets in the northeastern part of the country (Ciudad Victoria, Tulancingo, Tuxpan and Poza Rica) where they own a selection facility, and a place where they can conserve foliage in a cooling chamber. The facility has the capacity to conserve and maintain a continuous foliage supply to wholesale markets where foliage can remain for up to 10 days. Their strategic location outside La Flor de Catemaco's sphere of influence has allowed them to dominate the regional markets without direct competition from other palm intermediaries.

As a result, their work as regional intermediaries has provided them with a secure purchasing opportunity with the communities they work with. Nevertheless, this situation has not been constant since their commercial operations have been limited on several occasions, as they tried to establish themselves in new markets. At their peak, Maldonado Produce managed to mobilize an average of two tons of palm fronds per month, with monthly profits of approximately 25,000 USD in the national market, and they even entered the export market.

Below, I will present various narratives that illustrate Martha and Enrique's commercial practice and their passion about it. I will also discuss some of the critical events in the company's trajectory of becoming established, as well as the main bottlenecks for its consolidation and entrance into the market.

a. The company's beginnings

Martha and Enrique started commercial operations back in 1976 with the collection of palm foliage to supply the Fortín de las Flores market. During the first years they also commercialized tobacco, cotton and alfalfa (*Medicago sativa*), but their activity slowly became focused on the commercialization of *Chamaedorea*, thanks to the increased interest in its foliage. Enrique and Martha used to travel through the *ejidos* adjacent to Fortín, seeking to purchase ornamental foliage. Gradually, two drivers replaced them in this activity upon their orders to pick up the product. The activity was quite simple and foliage that did not meet the optimal characteristics were discarded or commercialized as a lower quality product.

Since at the time there was no formal foliage production, commercial contact was limited to negotiating with harvesters through verbal agreements. The activity was intermittent and they centered their work in supplying the Fortín market in times of greater demand. The harvesters collected the foliage from natural populations and stored them until they were purchased. Back in those days, the differentiation between species and sizes did not play a decisive role in the pricing or the purchasing decision, which allowed the possibility of buying large quantities. Martha explains the purchasing methods in the 1980s:

³⁶ S.P.R. or Rural Production Societies are special associations established to develop rural activities. SPRs have the objective of coordinating productive activities of mutual assistance, commercialization and other legal activities in order to satisfy individual or collective needs. They are established by a minimum of two partners that can be individuals or companies: two or more rural producers, *ejidos* or *ejidatarios*, *colonos*, *comuneros* or small proprietors. The partners can opt for any responsibility regime: limited, unlimited or supplemented. Among the benefits given to SPRs are the partial income tax exemption or ISR (Diario Oficial de la Federación, 1994)

“We used to buy *tepejilote* or *elegans* without caring much about how the fronds looked. The price was set at 2 pesos per *gruesa*. We would go through the towns and they would have the foliage ready to load to the truck and we continued in this way through more communities. We tried to begin the rounds very early in order to arrive at the market by the afternoon and deliver to our clients” (Martha Maldonado, Fortín de las Flores, 2008)

In the beginning, regulations were not an impediment for the transportation of foliage as Enrique explains below:

“At the time we began to commercialize, palm fronds were considered a product of minor importance and the commercialization frequency was limited to determined periods throughout the year, mainly during the celebrations in the months of October and November. It was then when there was more foliage demand [...]. Everything was easier before, it was just a matter on agreeing on the day we would come by to pick up the palm fronds, make a payment, load the truck and go on our way. As simple as that!” (Enrique Maldonado, Fortín de las Flores, 2008)

This purchasing pattern continued for several years until the interest in foliage increased in the early 1990s and more intermediaries began to appear. In order to obtain better profits, the couple gradually took more collection trips and began marking the calendar for cutting and collecting in order to provide foliage for specific celebrations (e.g. religious celebrations, weddings, etc.). As demand for foliage increased it was necessary to expand their collection routes, even into the neighboring state of Tamaulipas. Thanks to this decision, the business grew significantly since they were the first intermediaries in the region. Without direct competition in Tamaulipas from other intermediaries, relationships with towns were secured, and they could gather a larger amount of foliage, as Martha explains:

“Our clients slowly became more interested in the palm and began demanding more foliage. Suddenly they began asking for one or two additional *gruesas* per week and then we had to bring almost twice as much. That is how our sales gradually increased. In the beginning, we commercialized *tepejilote* only, which is used to make funeral crowns and to decorate fruit and vegetable stands. We sold our entire product to our clients and it was sporadically that we went to other places. Later we entered the region of La Huasteca in Tamaulipas. There was a lot of good quality palm there and no one to exploit it.” (idem)

Since competition among intermediaries in the Fortín region was very strong and based on price competition, going into the Tamaulipas region was the only alternative to widen their supply base, and this appeared to be the right decision. Martha explains:

“In the early 1990s we had to increase our number of suppliers. Suddenly, many other intermediaries started buying fronds in several communities, making deals and in competition with us. This became difficult as more communities around Fortín started to select, not only increasing prices but also bringing in more our competitors to the market [...]. This increased the price of foliage drastically. When we started operating in the region [Fortín - Orizaba] the average price paid to producers was 1.50 pesos per *gruesa*. After a few years the price went up to 6.00 pesos and now the price is 15.00 pesos per *gruesa*” (Martha Maldonado, Fortín de las Flores, 2008)

Martha adds:

“In this business it is not easy to gain people’s loyalty. It is not simple since each person tries to invest a minimum effort to reach things [...]. This is something I see frequently with producers, when we need more foliage, even though we have an agreement with them, they go with whoever pays best.” (idem)

This means maintaining close relationships with clients, as well as with the communities in the regions where they get their supplies. Having a good relationship with their providers is crucial to ensure that their activities are carried out as they have planned and that costs do not increase. Martha and Enrique agree that building trustful relationships is fundamental in their work, since it allows them to establish a supply channel that is continuous and reliable, especially during times of greater demand of the product.

Thus with the expansion of their collection route their business was able to operate steadily, alternating the commercialization of various agricultural products (mainly tobacco and cotton) with *Chamaedorea*. In 1991 they had the opportunity to expand their business through a program sponsored by IMCE (Mexican Institute for Foreign Trade, known today as Bancomext) that set out to open up export opportunities for farming companies. The IMCE program had as an objective to establish contact among potential Mexican exporters in the United States and thus encourage the commercial capacities of the farming sector in Mexico. To take advantage of this opportunity it was necessary to legally register the company; Martha talks about this moment as a turning point in her career:

“That opportunity changed our business vision, we went from being local distributors to exporters.” (idem)

Excited about the possibility of entering the export market, they prepared all the requirements and presented their proposal to IMCE. Enrique’s local representative position in the municipality of Fortín facilitated this process. As a result, Maldonado Produce was accepted into the program. This offered them assistance in export matters and the opportunity to travel to the United States on a study tour visiting the main fruit and vegetable distribution centers in San Antonio, Texas and getting to know the operations of the export market. Martha traveled with a group of Mexican traders in vegetables and fruits with whom she followed an agenda prepared by IMCE and the commercial representation of the Mexican Embassy in the United States. The visit included tours of wholesale produce markets and meetings with potential clients. This experience provided them with the tools needed in the future to understand the final steps in the commercialization chain, as well as to learn about the paperwork and requirements for exporting.

Upon their return to Mexico and with the motivation derived from the trip, Martha approached Green Leaf, a potential client in the United States, to whom she proposed to export *Chamaedorea*. The company expressed interest and accepted to test their luck with a trailer of *Chamaedorea elegans* under commission. In Mexico, the couple set out to gather the foliage and do the selection, but the lack of coordination and planning caused delays and the shipment did not arrive in time. The couple had also promised to send superior quality palm fronds, which they did not accomplish. As expected, Green Leaf did not respond well and took off large discounts for the delay. They also considered the foliage of inferior quality, which considerably decreased profits for Maldonado Produce. This did not allow for the commercial relationship to continue. In Martha’s own words, “the lack of experience and ingenuity” were the main reasons why the shipment was not handled properly, since it was not taken into account that the quality of the palm fronds would be thoroughly examined. In spite of the difficulties, they took this experience as a

lesson for the future and Martha set out to continue her search for clients to enter the export market.

Their next attempt was with the Mabrode Company (import company in USA), with whom they managed to consolidate a commercial relationship. They were their only client until 1996 and they had a pleasant working relationship while operations increased steadily. The relationship began to decline due to financial difficulties in the import company. On several occasions, Maldonado Produce had to wait several weeks and even months to receive payment for shipments. In other cases, the checks received as payment could only be cashed in Mexico City banks (more than 300 km away). This had an impact on Maldonado's check account and caused them difficulties to maintain liquidity. As these problems grew, the regulations for the transportation of palm fronds began to be enforced and added pressure to the situation. On two occasions, two palm shipments were confiscated due to the absence of the required documents. Now, apart from the bottlenecks related to commercial logistics, Maldonado Produce also had to face the regulations.

b. Regulation and effects on commercial operations

Before the Mexican Official Standard's publication in 2001, commercialization was done in a simple manner. Once regulations were in place and with the publication of a list of species restricted for commerce, regulation became one of the main bottlenecks for the company. The majority of communities and *ejidos* that supplied Maldonado relied on natural populations without having the corresponding permit. Nevertheless, the couple carried on with their activities. Enrique explains his motivations:

“Sometimes we had to toss a coin and just take it [without permits]. Especially when we had a large order and communities we did not usually work with were supplying us. We wanted to stay on good terms with our clients and our priority was fulfilling orders.” (Enrique Maldonado, Fortín de las Flores, 2008)

Enrique continues, explaining his opinion about the limitations due to regulation:

“In practice, very few of the communities we worked with possessed exploitation permits, because only a couple of them had plantations [...]. To us this was a great liability because we transported from communities to the markets and we were the ones that had to pay the fine when there was an inspection. Besides, communities have little interest in obtaining permits since it implies costs and time” (idem)

With the Mexican Standard entering into force in 2001, Enrique studied the possibility of obtaining permits for the communities he worked with. But upon inquiring about the requirements, he calculated costs and time and realized it was a large expenditure for his company. Therefore he decided to only advise the producers to obtain the permit, without occupying a central position in the handling of the paperwork. But the procedure for SEMARNAT meant such complex paperwork that the producers decided to continue with the collection of foliage without permits. This situation severely impacted the firm as commercial operations led to higher debts and a decrease of activities.

To make the situation worse, Mabrode continued losing its position in the American market and was replaced by La Flor de Catemaco and Continental Floral Greens, who had a stronger position as they could offer foliage derived from their own plantations. Finally in 2002, Mabrode declared its bankruptcy and stopped operating, which implied a big blow for Maldonado Produce who lost their main commercial ally and a monthly sale of approximately 1,200 boxes. In response to what happened, Martha analyzed all the

possible strategies to keep the company afloat. Among the various options considered, she discarded the idea of staying as a regional intermediary and set out to enter the export market. She told the following about her motivation in regard to that situation:

“There is a lot of competition in the national market and the profit margin is minimal. That is without counting competition with foliage with a wider acceptance such as ferns. In Mexico, the ornamental market does not pay for the product we offer [...]. That is why we want to enter the export market” (Martha Maldonado, Fortín de las Flores, 2008)

c. The search for clients

To reach their objective, Martha contacted potential foreign buyers through the Internet. She made a list of likely clients and sent them cover letters offering her services and proposing a work relationship based on high quality foliage at competitive prices. One of the attempts that prospered was through Mr. Larson, owner of Continental, with whom she negotiated a plan to supply foliage directly to the company in Santa Antonio, Texas. With this strategic move, not only did Maldonado Produce manage to get out of the rut they were going through, but also to gain support from the commercial relationship which facilitated the application for a line of credit of 100,000 USD with the Foreign Trade National Bank (Bancomext). The credit helped paying debts and investing in transportation infrastructure that simplified the collection of foliage.

Commercial relationships with Continental lasted two and a half years and were the most productive of her career. During this period the company managed to stabilize operations and strengthen its activities. The couple also managed to smoothen the logistical aspects of progressive compliance with the new regulation and securing a name in the market. During this time, Martha led the company paying special attention to ensuring payment of transportation costs, insurances, tax duties as well as keeping the paperwork up to date, in collaboration with their commercial ally. Continental, having experience in the logistics of export emphasized the need to comply with all necessary paperwork and regulations to have a smooth operation with Maldonado. This experience in particular gave her the confidence to continue to search for new clients and take on even bigger challenges. She hoped for a direct commercial link with importers not only in the American market but also on the European market. In her own words, she explains why:

“The American market is saturated and there are few options to grow, mainly because of competition from other foliage and the large leatherleaf fern nurseries in Florida. Foliage has become cheaper and there are many companies in the same business [...]. That is why I looked towards Europe. I had heard it was very well paid over there and that people there are very honest when it comes to business” (idem)

Besides providing relief to their financial situation, the Bancomext credit also opened doors to finding counseling in terms of information on accessing export markets with recommended, potential clients. Through Bancomext, Martha contacted several importers and planned a business trip to The Netherlands. In November 2008, advised by Bancomext, she made a visit to HortiFair International³⁷, a worldwide horticultural

³⁷ HortiFair is the biggest international trade fair for Technology, Innovation and Inspiration in Horticulture held in Amsterdam every year. HortiFair has 600 exhibitors from 32 countries, seminars, the International Horti Congress, network gatherings and high profile events. HortiFair is the horticultural trade show with the most innovations in the fields of plant breeding, greenhouse technique and cultivation techniques. All

exhibition that takes place annually in Amsterdam, and she also visited Aalsmeer, the largest flowers and plants auction in Europe.

In HortiFair she made contact with several companies interested in importing *Chamaedorea* foliage from Mexico and one of the encounters succeeded, namely with Hilco Jensen, buyer for the Chico Nederland Company. She scheduled a meeting with him in the company's Aalsmeer office to talk in detail about their firm's operations. In view of possible negotiations, Martha had prepared a company presentation giving details of volume production and a possible export schedule. She also offered sending samples at no cost, upon her return to Mexico. Among the selling points she used, she highlighted the fact of being a family business with several years of market experience and emphasized her work with Continental in order to convince him. Additionally she argued that the quality of her products and availability qualified her to enter the export market. Convinced of the company's capacity and its desire for growth, Hilco agreed to a work relationship with Maldonado Produce.

Weeks later, once Hilco had agreed on the quality, they plan for their first export, and Martha shipped samples to Holland. As expected, the opportunity excited Martha who concentrated all her efforts in doing the shipment in the best way possible. However, once again during the process, a problem emerged related to accomplishing the high quality volume promised. In response to this situation, the firm began a massive foliage collection, accompanied by a further selection of the best palm fronds. To everyone's relief, the shipment was sent out in time, but it left Maldonado in a fragile position due to the large expenditure for the operation.

After the second shipment was sent, issues began to emerge when Martha requested immediate payment for the first batch in order to be able to continue collecting palm fronds. She tried explaining the negative effect on the company's liquidity by the delay in payment, since she had to cover expenses for her suppliers and staff, as well as international shipping costs. Hilco responded negatively to her request and explained that payment required several weeks to be disbursed. Although unsatisfied by Hilco's response, Martha agreed to continue with a third shipment without having received payment for any of the prior loads. Days later, when payment finally was received, it included steep discounts due to lack of quality. Hilco claimed Maldonado did not provide foliage of the quality they had promised. Martha disagreed. In spite of Martha and Enrique's attempt to smoothen relationships, the commercial relationship ended with a negative impact on the company's finances and affecting Martha's expansion plans:

"Our name as an export company in Europe is still damaged by the experience with Chico Nederland and when potential clients request references, they receive a negative impression" (idem)

In spite of the setbacks, Enrique encouraged Martha to persist in her efforts and continue to attempt entering the export market. Martha was grateful for Enrique's support and took advantage of any opportunity to get involved with those that could facilitate this process. She made contact once again with several of the companies she met while visiting The Netherlands, such as Klein Aalsmeer, Green Delft and other distributors. But despite their initial interest they did not reach a commercial agreement. Trusting that she could get beyond the past Martha persisted, and months later made contact with Uniflora. This experience did not have a good ending either; Uniflora agreed on shipments on commission, under very attractive price conditions. Enrique explains where difficulties emerged:

of this makes HortiFair the main event for the professional international producer of fresh vegetables, flowers and plants (Hortifair, 2013).

“Sometimes we could accomplish the order with no problems, but on other occasions we owed them part of the shipment or send lower quality foliage. In general, orders to be shipped internationally must be placed at least one month in advance, but Uniflora would place orders with just a couple of weeks’ notice when they noticed a good price on the market” (Enrique Maldonado, Fortín de las Flores, 2008)

Martha adds:

“They were so close-minded! They never understood the changing nature of palm production and that palm fronds are not available on a plantation or nursery. When not in season, it is almost impossible to complete orders at that speed. Out on the fields, plants also need time to recover and produce more palm fronds [...]. For example, Uniflora would order 100 boxes of high quality product at a moment when it was impossible to do more than 40 [...]. But the price they paid was very good, between 21-23 EUR per box” (Martha Maldonado, Fortín de las Flores, 2008)

Besides their inability to deliver the quantities requested, the quality issue was also a limitation to the company’s operation. Martha gives her opinion:

“It is normal for some foliage to arrive in a bad shape or burnt, but the people at Uniflora would tell us that they had all arrived in terrible shape. I think it was just to discourage us and to give us an excuse to abandon the agreement” (idem)

Slowly, Uniflora began decreasing their demand and ended the commercial relationship towards the end of 2009. When reflecting upon this experience, Martha and Enrique admit that their room of maneuver was limited by the availability of foliage with homogeneous quality. They blame this weakness to the irregular nature of the production of *Chamaedorea*, which limits the intermediary’s selling capacity, who depend on (wild) collection if they do not own a plantation. As Enrique explains:

“Quality has always been an issue for us and the only way we can resolve this is by increasing our supply base. We can fix this by expanding our routes to more communities, sometimes without exploitation permits, in addition to the disbursement of a lot of cash [...], and as more people are involved, more issues will come” (Enrique Maldonado, Fortín de las Flores, 2008)

In Martha’s opinion, the failure of this experience was due to the lack of trust from her clients, since she never had direct contact with the companies’ owners. With tears in her eyes, Martha adds:

“The experience with that company was a disaster! They complained about everything, mainly about the palm fronds’ quality, saying they were dry and discolored. The point is, we do not have anyone who can confirm what they said. They can tell us the product arrived in bad shape and we do not have any way to verify whether this is true. Then come the discounts, and in the end the price is lowered so much that we end up losing money” (Martha Maldonado, Fortín de las Flores, 2008)

Martha and Enrique have come a long way in their careers and they have especially battled for the possibility of establishing contacts in the export market without having managed to maintain a long-term commercial relationship. Nonetheless, they have persevered in the search for new commercial opportunities. Figure 14 summarizes the company’s critical moments chronologically during the period 1990-2010.

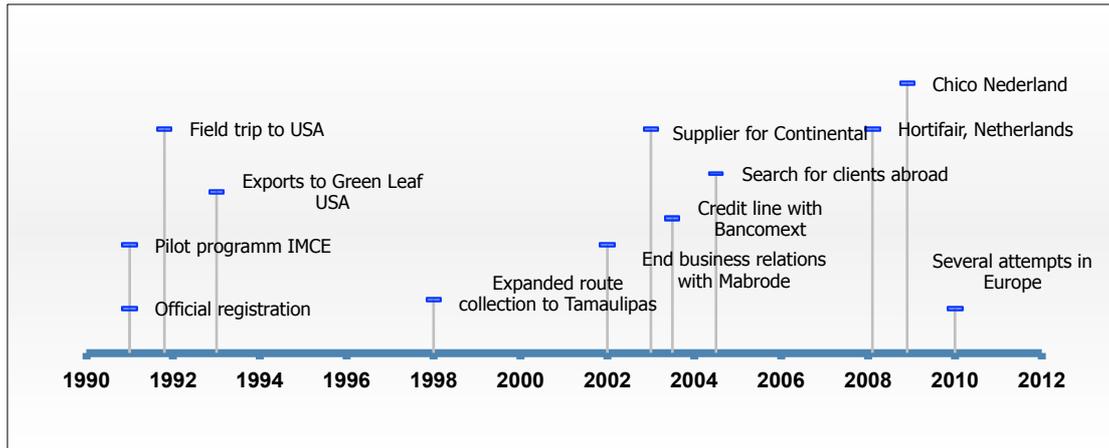


Figure 14. Chronology of Maldonado Produce's critical moments 1990-2010.

Since 2008 Maldonado Produce has moved its operational centers to Ciudad Victoria en Tamaulipas with the objective of maintaining close contacts with the *Chamaedorea* producers in communities and *ejidos* in the region. Without having completely left the commercialization of *Chamaedorea* they have incorporated alternative foliage into their strategy, such as leatherleaf fern, Ming fern and *Sabal Mexicana*³⁸ fronds, and they have continued their efforts to consolidate their position as exporters to the European market.

4. Conclusions

In this chapter I followed the intermediaries' practices and the role they played as actors in the *Chamaedorea* value chain in Mexico. From their experience I learned about the main obstacles in their endeavor and their limitations to successfully consolidate their commercial projects.

Local intermediaries' practices are centered in building relationships with producers and collectors, based on trust and a price strategy. Deals are carried out through verbal agreements. Maintaining a close relationship with the communities and *ejidos* in which the local intermediaries work is a key aspect in guaranteeing a constant supply base. Among the main limitations are the price competition and aspects related to regulation, in particular when they work with communities or *ejidos* that do not possess exploitation permits.

On the other hand, the field of action of regional intermediaries is much wider. Besides being directly connected to collectors and producers, they also interact with a different type of agents in the value chain. As opposed to local intermediaries, regional intermediaries set out for markets with greater needs, demanding a larger volume and better quality homogeneity. They also possess tools and capacities to negotiate with foreign clients, as well as the capacity to finance purchases and maintain liquidity to cover logistics expenses. My case study shows that regional intermediaries battle to consolidate their position in the export market although they tried hard several times in the trajectory of their firm. It is through these attempts that limitations in their commercial capacity are exhibited in terms

³⁸ *Sabal mexicana* Mart, is a species of the palm family and is native to North America. Among its common names are *palmito mexicano*, *Texas Palmetto*, *Texas Sabal Palm*, *Rio Grande Palmetto*, and *palma de Micharos*. Highly abundant in Mexico, it grows in coastal areas where the soil is fertile. This palm tree has infinite uses in Central America: its fronds are used to make roofs as well as mats, hats, baskets, etc. The petiole is used to make fences and the apical buds (*cogollo* or *palmito*) are a food (The University of Texas, 2014).

of the difficulty to control the quality of their product, the absence of legal exploitation permits, and the lack of sufficient financial buffers.

Opposite to the successful commercial experience of La Flor de Catemaco (presented in Chapter 3), one of the biggest limitations for intermediaries appears to be the capacity to establish long term relations with foreign importers and, particularly, to be able to translate their requirements into commercial practices regarding quality, volume, seasonal nature, and punctuality of delivery and to adapt to the dynamics of the export market. All these conditions together were more complex than the intermediaries had expected. In this sense, the ornamental sector is highly specialized and increases the economy of scale, which is difficult to accomplish under the current *Chamaedorea* exploitation production schemes in Mexico. As a result, planning, production process control, commercial selection and logistics are essential skills and decisive for the consolidation process and the capability to enter the export market.

In spite of the limitations and bottlenecks they face, intermediaries have managed to keep and increase an interest in expanding the limits of the *Chamaedorea* market in communities, institutions and commercial actors at different levels of the value chain. The intermediaries' challenge within the value chain is that of efficiently translating market needs or otherwise generating new commercialization alternatives and strategies that can adapt to existing production characteristics. In the next chapter, I describe how, in addition to the market, the incentives coming from government institutions and academia play an important role in creating interest in the exploitation and creation of commercial projects related to *Chamaedorea* in Mexico.

Chapter 7

Research and practice: Building and promoting a body of knowledge for *Chamaedorea* use and production

1. Introduction

Previous case studies in the thesis have focused on analyzing various commercial experiences in order to understand the complex processes of establishment and consolidation for *Chamaedorea*-oriented commercial projects and the difficulties encountered for successful market insertion. Through the case studies presented it has been shown how small-scale producers, intermediaries, exporters and collective efforts mobilize resources and utilize different commercial strategies for market insertion and consolidation of their commercial projects, demonstrating the main bottlenecks. In contrast, in this chapter I leave aside the analysis of the actors that directly participate in *Chamaedorea* production and commercialization, to research how forestry policies are enforced that encourage exploitation and, more specifically, promote the development of *Chamaedorea* commercial projects in Mexico. For this purpose I focus my attention on the work of a forestry researcher who has the responsibility of carrying out projects that involve *Chamaedorea* exploitation under a sustainable forestry management scheme in Tezonapa, Veracruz, creating interest in establishing commercial projects in various communities.

Through my observation of his work, I will learn how the researcher builds a body of knowledge and promotes *Chamaedorea* exploitation in communities adjacent to his place of work. These activities are backed up by the policy objectives of private and government institutions that consider NTFP exploitation as a viable option for forestry resources conservation in the country. The activities he carries out are a way of accumulating

knowledge, on the one hand, and of creating interest in the use of forestry resources, on the other.

This chapter is organized in four sections. In the first section, I introduce the main actor in the case study and the context in which his activities develop. In the second section, I describe activities and practices related to his *Chamaedorea* research and promotion, highlighting the gathering of information and the connections he creates with communities. In the third section, I discuss some of the obstacles in his work with the aim of understanding the application of policies. Finally, in the fourth section I present my conclusions.

2. Context and main actor

In February 2007 I traveled for the first time to the region of Tezonapa, Veracruz with the objective of following the steps of collective actions directed at *Chamaedorea* commercialization in the region. During a four-month period I made regular visits to the experimental field “El Palmar” which I used as a basis for my activities. During my stay I had the opportunity of closely following projects being developed, as well as being in close contact with the various production communities or those in the process of establishing palm plantations. As a participatory observant I became involved in the work of the research staff, becoming particularly interested in the management of various project proposals for *Chamaedorea* under a sustainable production system in combination with other crops.

The experimental field “El Palmar” is located right in the heart of the region of Tezonapa, defined by the mountainous area of the Sierra Madre Oriental and the coastal plains of the Gulf of Mexico watershed, bordered by the states of Puebla, Veracruz and Oaxaca, 300 km from Mexico City, at approximately 5-hour driving distance. It is located at a vegetation convergence spot with contrasting climates, characterized by mountainous terrain that abruptly opens up to great plains with sugar cane and rubber plantations.

In spite of the research center’s proximity to Mexico City and the port of Veracruz, access is difficult due to bad road conditions. The roads away from the federal highway are progressively worse, at one point the road to the experimental field turns into a narrow track with very few signs and endless bumps and potholes, which makes it almost impassable during the rainy season. The closest urban center to El Palmar is the city of Tezonapa, which is 15 km away, but it can take one hour to travel there from “El Palmar”, due to the slow traffic. Along this road, the sugar cane plantations are replaced by *acahuales* and organized forest plots that slowly replace intense sun rays for an inviting shade and varied exuberant vegetation.

The National Institute of Forestry, Agriculture and Livestock Research (INIFAP) is a decentralized institution with a research and intervention history in Mexico. Since its inception in 1985 it has obtained a central role in project formulation and technology transfer through its 38 research centers around the country. The institute is devoted to developing forestry projects directed at the tropical environment with a main objective of proposing and generating scientific and technological innovations in agriculture and forestry, in response to the demands and needs of agro-industrial chains and of various types of producers with the aim of contributing to sustainable development (INIFAP 2011).

The research staff in El Palmar consists of five researchers with different specializations (soil, forestry nurseries, commercial forestry plantations, and productive chains) who devote their time to developing productive alternatives for tropical ecosystems. Rubber, coffee and

crop diversification under agro-forestry production schemes have been the research center's focus since the end of the 1970's. One of the researchers, Elías, is responsible for making recommendations for commercial forestry plantations, in combination with *Chamaedorea*. Elías (who is in his 40s) has much experience in forestry research. For the past 15 years he has gathered data concerning *Chamaedorea* as part of his activities at the center. He coordinates various projects for *Chamaedorea* exploitation and his technical recommendations have been translated into production manuals and reports on the management of these plantations. At regional level he has contributed to the establishment of the majority of the *Chamaedorea* plantations in communities adjacent to the center. He has also actively contributed his knowledge as a consultant for organized groups to commercialize *Chamaedorea* collectively.

During our first meeting Elías took the opportunity to show me the diversity of his *Chamaedorea* work and we took advantage of the meeting to visit one of his main accomplishments: a nursery located a few meters away from the main building which holds a botanic collection of more than 40 species of *Chamaedorea*, in a space of about 300 m² under artificial shade. Inside the nursery the plants are divided into various groups of mature plants and another area has germination beds. While Elías guides me through the nursery, he explains the importance of this place in his work:

“For years I have collected different species of *Chamaedorea*. My objective is to have the most complete *Chamaedorea* live botanic collection in Latin America, not only because of its economic importance but also because it is endemic to the region. Here I germinate and document distinctive features of each one of the species and I can observe the potential of their adaptability capacities to other crops. It also serves as a germplasm bank for reproducing specimens.” (Elías Ortíz, El Palmar, 2007)

At first sight, the plants seem very similar. It is not until Elías begins to highlight the botanic characteristics of each one of them that I begin to perceive their differences. Inside the nursery Elías makes use of his knowledge and experience to highlight these characteristics:

“Among these two specimens of *Chamaedorea elegans*, this one in particular [pointing to a small plant of approximately 30 cm with deep green leaves] is native to the region of Tezonapa. It is a variety highly valued by intermediaries because of its deep green color and a longer use life. The difference lies in its color and leaf texture. It is a less domesticated variety which is reflected in the rigidity of its foliage” (idem)

Upon continuing on the tour, the nursery turns into a dark labyrinth of lavish green leaves under artificial shade panels³⁹, which simulate shade from trees. Elías continues with his explanation on the importance of the nursery:

“From the work we perform in this nursery we generate recommendations for producers that want to incorporate *Chamaedorea* into their plots and we encourage the recuperation of species' populations that are overexploited. Our work's main objective in El Palmar is to generate new technologies and to introduce sustainable exploitation methods to forest users through different economic alternatives” (idem)

Elías continues explaining about the motivations for his work:

³⁹ Due to *Chamaedorea*'s low light tolerance, some type of artificial shade must protect it. In the case of nurseries for germination purposes the use of artificial shade has been well adapted.

“In my latest project I have as an objective to continue expanding the specimen collection, as I simultaneously search for different treatments to reduce germination time. I want to make available to producers as much information as possible so they can have high yields and establish plantations to benefit from market prices, which are currently very good. Otherwise they will devote their time to extracting foliage from natural populations, which is not only harmful for the environment but also provides foliage of inferior quality.” (*idem*)

As we move through the rows of plants, Elías continues sharing details about the particularities of each species and commenting on the region’s commercial activity:

“In Tezonapa the entire *Chamaedorea* production is sold to local buyers or *coyotes* that later ship it to bigger collectors in Catemaco. Producers should cooperate among themselves and agree to obtain a better position in the market. The majority of them does not consider the different uses that some of the native species of the region have, such as *Chamaedorea tepejilote*, that could provide different market opportunities due to the fact that leaves are edible and the sale of fronds has greater potential in the national market, but it is rarely found in plantations” (*idem*)

Due to these reasons, Elías considers it essential to consider the distinctive features of each species for improved production and commercial potential. Species differentiation is a form of facilitating diversification possibilities and broadening market opportunities. Below, Elías lists the main characteristics of the varieties we encountered in the nursery:

“*Chamaedorea radicalis* has great variability. Some have smooth leaves, while others display broad fronds. This species is an ornamental plant and is seen in the national market in floral arrangements and bouquets. *Chamaedorea eliator* is used in art crafts since the stem grows as a vine; long and flexible. It has a lot of potential for gardening even though it can be aggressive and if not taken care of it can grow abundantly; for this reason few people are interested in its commercial aspect. *Chamaedorea ernesti-augusti* commonly known as *cola de pescado* (fish tail) has the perfect foliage for ‘frond cuts’ in their adult stage, because it is a very fancy frond and very beautiful color. It is a difficult variety to propagate. Lately it has had high market demands in spite of being a protected species listed under the Mexican Official Standard. *Chamaedorea hooperiana* is a very aggressive species that sprouts or produces various stems from its base. Its foliage is very versatile, ideal for floral centerpieces and funeral crowns. It is an important species in the export market. It is found in the region of Ayoazintepec and it is easily mistaken for *Chamaedorea uailoqueana*.” (*idem*)

Slowly, we head to the second row of plants, where he focuses on another group of lush palms. Elías explains the importance of identification as well as recognizing botanical aspects such as variability and sex of the plant. Identification within the *Chamaedorea* genus is very complex, detailed and laborious, he explains.

“This is *Chamaedorea satorii*, exploited only in Oaxaca. It is characterized for its solitary, slender and erect stems. It can reach up to three meters in height. The stem is densely ringed with long internodes. It has pinnate, obliquely open and longitudinally green striate-nerved leaves, the petiole is 17-45 cm long, slightly grooved, rounded and lanceolate” (*idem*)

Elías emphasizes on the size of the leaves, color, arrangement on the stem, height and various other botanic characteristics, not only because of their relevance for identification, but also because they provide an indication of the foliage’s commercial potential. For

example, the popular *Chamaedorea tepejilote* is only possible to be identified with certainty in its adult stages. Each way we look provides us with an opportunity to highlight characteristics of the different species:

“These plants [pointing to a group of short plants with wide and robust fronds] are *Chamaedorea metallica*. There is substantial variability in this species, which means that physical characteristics can vary among specimens of the same species. This type of variability is also present in the *Chamaedorea alterana*, *quetzalteca* and *graminifolia* species” (idem)

Chamaedorea specimen variability is a measurement of a population’s individual genotype tendency to vary one from the other. It is different from genetic diversity, which is the amount of variation observed in a population. Differentiating between different shades of green depending on the exposure to the sun or the length or texture of the leaves, makes his work a time consuming activity:

“This is an arduous job that largely depends on correct species identification, especially in the field. I travel to various parts of the country to collect a particular species, but in the past, it has happened that upon arriving at the place, I am collecting a species and I find a different species than the one I was expecting” (idem)

Besides variability, plant sexuality is a botanic feature essential for correct identification and palm propagation. To accomplish successful reproduction, female and male specimens are needed; this involves twice the effort in the identification process. Elías explains why:

“*Chamaedorea* is a dioecious palm, therefore I collect male and female specimens of each species. Identification strongly depends on the plants’ phenological state; in order to make sure I obtain a male and female specimen I collect them during the flowering stage; it is the only way to be certain of the plant’s sex” (idem)

Identification of botanic specimens in the field must be carried out according to a protocol for taking samples; for this reason Elías chooses to personally collect them:

“I prefer to attend all collections because I know the procedure that must be performed and I pay attention to details that others who accompany me sometimes do not notice. When I cannot go, collections go wrong or field data is missing for identification” (idem)

In the months following my first meeting with Elías, I had the opportunity to observe in detail how he carried out these activities as I accompanied him on a tour to collect new specimens. Our meeting time was 4:30 am at El Palmar’s facilities. While we waited for the driver, Elías finished packing the necessary equipment: a wooden plant press, identification guides, pruners, newspaper, GPS and a camera.

During our trip of approximately three hours, I see stunning forested landscapes and gulches and groups of day laborers on their way to their plots. As the morning progresses we also encounter a group of children and youth that are on their way to school in the remote rural landscape. After two hours when the asphalt road ends, we take a last turn towards a mountainous region with abundant vegetation. In the middle of this forested area, suddenly we find a small school with a rural store. We make a stop to wait for our guide.

In a matter of minutes, as if someone had announced our arrival, Edgar, the *ejido* commissioner, shows up spontaneously. Elías explains that our day's objective is to find some "palmilla" (*Chamaedorea tenella*) specimens in the *ejido*'s upper zone. After inquiring about the reason for our visit and the amount of time it would take to make the collection, Edgar grants us authorization and points to the shortest route to get to the location where he believes the palms Elías are looking for are. Before saying goodbye, he warns us that the path is very steep and to be careful with snakes. We take note of his recommendations, put on our backpacks and we head towards the *acahuales*.

The community of Santiago is a typical town of that region; a small village arranged around the *ejido* meeting room, the school and a soccer field. There is also a small coffee shop and a couple of stores with a selection of a few basic products. In the only street that crosses through the town, there are many backyard animals (pigs, birds, chickens) that wander freely. In the adjacent areas are the majority of gardens or coffee plantations that gradually turn into *acahuales* and then into forested vegetation.

With confidence, Elías leads us through various paths towards the lower area of the *ejido*. At a distance we can hear the water current and once we reach the banks of the stream, we cross it and we make our way uphill. After several meters, the trail begins to blend in with the vegetation and Elías pulls out his *machete* to clear the path. As we move forward through the forested land, he does not stop observing all the plants surrounding us, and he gives special attention to the palms we encounter. After about forty minutes of hiking we arrive at a rocky hillside with a very steep slope:

"These are the plants I was looking for!" he says without hesitation, "They all are *Chamaedorea tenella*. It is not common to find them in their natural state with so many adult specimens" (Elías Ortiz, Santiago, 2008)

Once we have settled in this place, I see Elías getting close to the plants and carefully examine them. First, he takes several pictures from different angles and then proceeds to measure the plants and take notes on their height, the number of leaves and the presence of inflorescences or fruits. He also gathers seeds, if available, and examines the root system. He repeats this procedure on more than twenty plants while being clearly careful at recording the greatest amount of information with the help of the botanical identification guides. Finally, he takes note of the location on his handheld GPS before we move onto the next place. He explains the reason why he has great interest in this variety:

"It is important to record the phenological stages of each species, especially the ones which are endangered or threatened, in order to propagate them. In the long run, establishing plantations for commercialization could be considered so we could ensure resource protection" (idem)

After examining the plants in this particular place, we move unto two more places where Elías systematically repeats the identification process of a dozen plants. Before heading back to town, he takes four specimens – two male and two female - that he will add to his collection in the nursery. Elías cannot hide his satisfaction with the collection:

"Today we had the opportunity of finding these plants and also that Edgar – the community's representative' - gave us permission. In the field one encounters many issues, from people's stubbornness to allow me to take samples to issues with people from PROFEPA that give me a hard time even when I have the necessary permits. They do not understand that with the collections I make, I am helping to protect our resources" (idem)

Continuing his explanation, he comments on how he overcomes these situations, particularly when he deals with community and *ejido* representatives:

“Sometimes people are opposed to me taking samples, because they do not trust anyone nor the reasons for visiting their communities. For that reason I have learned to also introduce myself to the town’s representatives to request authorization, so they can see that I am only making a botanical collection. Sometimes they ask to see permits and others have even asked for money for collecting some samples in the field” (idem)

In spite of these obstacles, Elías has been able to constantly work toward his objective and he has built one of the most complete *Chamaedorea* collections in Mexico. As a result of his work, he has managed to group and systematically record more than forty species including *Chamaedorea tenella* and *Chamaedorea ernesti-augusti*, both considered threatened. He has also managed to propagate them in his nursery. This collection, besides being a tool to study the species, has also helped him connect to similar projects and with other researchers interested in *Chamaedorea*. As he explains:

“Anyone can visit El Palmar’s nursery to further research the genus. In the nursery they can observe their phenological states and they can also obtain seeds from most species. We have received visits from various researchers and institutions interested in the palm: people from Chapingo [Chapingo Autonomous University], from Universidad Veracruzana and UNAM. This has not only facilitated information exchange but has also increased interest in the palm” (idem)

This link to other researchers and institutions broadens INIFAP’s *Chamaedorea* project’s reach with academia, and focuses attention on this species as a means for conservation of forest resources. In the following section I show how Elías’ practices also have significance at the local level, since they are strongly linked with communities where he manages to obtain results from his research. While doing so the main limitations for organization and market access will become evident.

3. Articulation of projects with adjacent communities

A good portion of Elías’ efforts are directed to the *Chamaedorea* project articulation in communities adjacent to the center, where he promotes the use and establishment of commercial plantations among groups of interested producers. For this purpose, he organizes a meeting where he presents alternative possibilities for palm production and commercialization, highlighting the benefits of establishing communities’ own plantations. Among other arguments, Elías brings government support (e.g. ProÁrbol) to their attention as an incentive to convince them. Once communities have decided to embark on a *Chamaedorea* project, his work turns into organizing training workshops and providing technical assistance, while he encourages the desire of getting organized for commercialization. In the following comment, he expresses his opinion on the need for producers to achieve organization:

“The exporter in Catemaco decides everything, he establishes the foliage type that is to be used, as well as the volume, leaving producers without much say. Besides, all foliage that comes out of Tezonapa is going there. Local producers are weakly linked with the market and their sale decisions are marginally articulated with links to the commercialization chain” (Elías Ortiz, El Palmar, 2008)

Elías justifies the project arguing that plantation establishment is profitable and opens up new economic opportunities for producers. He argues that commercial plantations provide high productivity that simultaneously invigorates commerce and the building of groups for commercialization in the region. He uses the PROINTE case (see Chapter 5, this thesis) to illustrate the advantages of organization and to create interest among producers of adjacent communities:

“Look at what is happening with PROINTE; good opportunities are going to open up for everyone, we have to work hard and get organized to achieve it” (idem)

These comments demonstrate Elías’ interest in promoting plantation establishment in order to connect production with commercialization by encouraging community organization for commercialization. From his point of view, achieving a successful insertion into the export market requires aligning producers with market requirements in terms of production or guaranteeing a constant supply of foliage with homogenous qualities in considerable quantities. Nevertheless, as we will see below there are limitations that restrict this process, such as the incompatibility of technical recommendations with reference to *Chamaedorea* appropriation methods and issues related to the lack of coordination for organization within communities, aside from the plant’s own nature.

a. Technical recommendations versus traditional production methods

In this section I analyze how Elías’ technical recommendations, as part of his work with communities, produce conflicting opinions about their application. Concretely, I discuss situations where technical recommendations on the establishment and management of plantations given to producers and community and *ejidos* representatives, are not always welcome. This difference in perception could be explained in part because of Elías’ technical ideal, which focuses mainly on the productive and economic efficiency of the plantations. On the other hand, producers are not always receptive since they possess a different view on forest resource appropriation, which is more focused on grouping different products as a diversification strategy. I had the opportunity to notice this sort of contention when I accompanied Elías to supervise the establishment of plantation of palm in combination with coffee, and witnessed a discussion regarding plant density per hectare.

The discussion took place at the edge of a plot in a community only 20 minutes away from El Palmar. Mario, the plot owner, showed some recently transplanted palm seedlings (see Figure 15). Elías examined them and began asking questions about the number of plants on the plot:

- “How many seedling were transplanted, Don Mario?”
- “I only did three thousand”.
- “What happened with the rest? How come you did not plant them as we had agreed? The yields are going to be low like this”. “No, I am not going to put more in here, the plot looks pretty like this. Right now it looks empty because they are small. Besides, I have to leave plenty of space for the coffee”, Mario responds confidently.

Clearly unsatisfied, Elías tours the plot and tells me the following:

“This is a subject I have extensively discussed with various researchers and sometimes it is not clear to producers. If they do not know how many plants there

are in a plot, it is difficult to calculate yields and profits. I have researched this during several years, and my calculations indicate that the ideal density is approximately 25,000 to 30,000 plants per hectare [...]. CONAFOR actually recommends at least 20,000 for commercial plantations” (Elías Ortiz, EL Paraíso, 2008)



Figure 15. A recently established *Chamaedorea* plot in association with rubber trees in Veracruz, Mexico.

Elías insists that the plant density is very low and that it must be modified by the producers as well as by CONAFOR. Moments later, he explains his persistence about the subject:

“I have had very intense discussion with CONAFOR about their recommended plantation density. As a matter of fact I have strongly promoted the exploration of *Chamaedorea* for projects in the region. I have always insisted that the density they recommend is too low. The *elegans* does not grow additional or complimentary shoots, it remains in a single stem; this allows for more plants per hectare in order to obtain better yields” (idem)

Elías’ persistence resides in keeping the foliage’s productive and economic efficiency to provide producers with a good reason to continue with palm production instead of looking for alternatives that could end up being more harmful for the forest environment. Nevertheless, he also comments about some important guidelines to consider:

“It is essential to take advantage of the space to the fullest and to try to grow as many plants as possible, but it is also important not to overload the plantation to avoid the development of pests and fungi” (idem)

The interest in developing a technological package for plantations is not always fully implemented in practice. Elías’ recommendation of including the application of foliar fertilizers and herbicides to control weeds is an example, as well as his idea for a low cost but rigorous management procedure for each stage after planting:

“*Chamaedorea* production costs are not very high if we consider that there is access to foliar fertilizer for approximately 500 MXN pesos per liter, which is enough for four or five applications on one hectare” (idem)

Producers resist accepting these recommendations since they contradict the way they understand palm production. Unsatisfied by Elías’ recommendations Mario makes the following comment:

“This palm grows naturally in the wild, it always grows leaves and every year produces seeds. So what is the point of applying foliar fertilizer? It is not like I have bags full of money”, he says laughing (Mario López, El Paraíso, 2008).

Elías stands firm in his suggestions regarding the management and application of fertilizer to increase frond yields by more than a third and in order to improve foliage appearance and quality. In the same way he defends his plant density recommendation. As a final comment he talks about his perception regarding the producers’ attitude and lack of interest:

“I want to bring producers’ efforts together to improve their situation. It is not about waiting to receive everything from the government. There are many people who are used to having their problems solved and receiving everything from others... and even then, they still complain that things are not going well!” (Elías Ortiz, El Palmar, 2008)

Figure 16 shows a plantation according to INIFAP’s recommendation. Figure 17 shows a plantation at a nearby community. A clear distinction of resource use can be perceived.



Figure 16. *Chamaedorea* demonstration plot at INIFAP’s experimental field in El Palmar, Veracruz.



Figure 17. Plot with multiple crops: coffee, banana, *Chamaedorea* and shade trees in El Paraíso, Veracruz.

Besides the difference in the technical recommendations that emerged from the research and the producers' willingness to adopt them, a disparity is evident between the idealized recommendation of the producers' organization process in order to facilitate commercialization, and the implementation of this recommendation. This results in a significant bottleneck, frequently overestimated by actors external to the community.

b. Commercial aspect and organization for commercialization

Another relevant aspect that requires attention in Elías' work is to encourage the organization of producer groups to commercialize palm. Elías is convinced that only

through organization will a united front against the low prices paid by intermediaries be achieved and facilitate market access, as he explains in the following comment:

“If work in this community prospers, in a few years we will be able to count on plantations and adequate guidance for the sustainable management of at least five of the main *Chamaedorea* species with market potential. This could represent a financial advantage for the producers and could give them the opportunity of advancing organization in order to improve market conditions and stop being at the mercy of *coyotes*” (Elías Ortiz, El Palmar, 2008)

Elías highlights intermediarism as one of the factors that limits commercialization and labels it as a ‘necessary evil’ since without these agents participation in the market and demand for this product would be nonexistent. On several occasions, he uses this same argument to convince more producers about the financial benefit that palm commercialization could bring:

“Imagine if they organized to commercialize as a group. The palm has very good prices in other countries, so what they have to do is to secure a basis for a stable production and reach an agreement” (idem)

Although, he also recognizes that organization problems exist within the communities that seem to restrict the organization process since decision-making leads to controversies and internal disputes:

“Agreements must be reached in an Assembly, which are closed sessions among *ejido* or community members, where sometimes the results of their agreements do not coincide with the idea that I introduced. It all depends on the communities and how they are organized. There are communities which are well organized, but there are others where the decision making process is delayed and restricted; it is not possible to work well with those communities” (idem)

Elías continues:

“Often, it is easier to work with communities that are already organized and request our support. When we try organizing them, things do not always turn out as we would like” (idem)

Elías shows interest in promoting associative models that translate INIFAP’s mission to increase communities’ competition and productivity in collaboration with the transformation, commercialization and consumer goods distribution sectors, with the participation of timber and non-timber resources. However, attempting to involve producers in processes outside their action field does not necessarily produce positive results. The development of associative models to increase competition and productivity in the forestry sector continues being the least successful aspect of the process. In his opinion communities or organized groups should be able to commit to sustainable production. In this regard, Elías adds:

“Convincing people is easy and obtaining funds is currently relatively simple; however, getting started and having people’s commitment is the difficult part!” (idem)

In addition to financial and production considerations, Elías sees in *Chamaedorea* a way to put a halt to the advance of the agricultural frontier. From his point of view, the *Chamaedorea* crop, in combination with rubber and coffee, offers an alternative more in

line with the tropical forest landscape in terms of biodiversity conservation and delivery of environmental services (e.g. river flow regulation, carbon capture, erosion reduction). He also observes that these productive systems are well adapted to the region's environment and the resource appropriation methods used by its inhabitants.

All the aforementioned arguments are strengthened by the possibility of obtaining subsidies for the establishment and management of timber and non-timber forest plantations. In government support Elías sees an opportunity to create interest among producers, highlighting the need for organization:

“There is support available from ProÁrbol as well as the possibility of obtaining other resources from the government of the State of Veracruz, but this can only be achieved if you have people's commitment. [...] Producers must understand that it is in their best interest. This model will help them to have fairer opportunities; all they have to do is understand that they must put all their efforts into organization” (idem)

Following the availability of these resources and based on the aforementioned justifications commercial initiatives arose, some still in an emerging phase, as a result of Elías' work in conjunction with producers in the Tezonapa region. Some had unexpected results (see Chapter 5, this thesis). Antonio Morales, a representative from one of these communities, shares the experience in his community:

“We began planting *Chamaedorea* following the advice from INIFAP specialists, even though we had been using the palm for many years, but only collecting it from the *acahual* [...]. They told us it had a good market and that it was also possible to access government subsidies and so we moved into production. For now, the plants are small, but we hope to be able to harvest them in a year. What is encouraging is that we can produce it in combination with our coffee as well as other crops. If we continue like this, we can fully embark on commercializing it and earn a few more pesos.” (Antonio Morales, El Palmar, 2008)

Thus, from a scientific perspective, Elías seeks to bring together the research along with production and commercialization; in this process he has to deal with limitations outside and inside his own institution. For example, even though he has the support that ensures his research position, he has to make additional efforts to access resources that allow him to maintain operation costs for his own projects. This forces him to be creative and utilize all resources at his reach in order to achieve his objectives.

4. Conclusions

In addition to the previous chapters where the difficulties of actors directly linked to the *Chamaedorea* commercialization chain were addressed, as well as their struggles in establishing commercial projects, this chapter focused on analyzing the practices of a forestry researcher devoted to developing and getting projects related to *Chamaedorea* plantations underway. The objective of this analysis was to identify how policies and projects are translated from theory into practice. Throughout the chapter, the researcher's practices focused on three activities: gathering a body of knowledge regarding *Chamaedorea*, creating strategies for technology transfer and actively promoting organizational processes for commercialization within communities. This combination of roles is in line with INIFAP's guidelines which consider that the researchers' work must

tend to the needs of scientific research as well as to the needs of forest users emphasizing the social aspect of projects.

This case study is particularly useful to explain how the daily work of a research specialist does not only expand the *Chamaedorea* knowledge through diverse negotiation and interaction methods, but also shapes the actions of local producers. In this sense, the researcher's work plays a decisive role in increasing the interest in *Chamaedorea* as a crop since, on one hand, it favors the creation of a body of knowledge essential in legitimizing their work and, on the other hand, it functions as a catalyst of actions that favor the creation of organized groups. The forestry researcher's actions encourage producers who are excited by the benefits of diversification and the possibility of becoming part of government support programs, and get started with production without being warned against the difficulties for accessing the market.

I also observed through the researcher's interaction with producers how the guidelines for an exploitation production model of non-timber forest products are modified and translated. As Long (2001b:170) explains, "knowledge is generated and transformed not in the abstract but in relation to the everyday contingencies and struggles that constitute social life. It is not given by simple institutional commitments or assumed sources of power and authority, but rather it is an outcome of the interactions, negotiations, interfaces and accommodations that take place between different actors and their life-worlds". Finally, the case study shows how knowledge applied to palm production was generated as a result of Elías' scientific contributions through his species collections, both for research and practice purposes and how it was contested and transformed by the producers' perceptions about proper crop production methods.

The approach I followed here deals with the researcher's vision in his role as 'intervener', who rarely examines himself when analyzing his work in practice. As Villareal (1992: 264) suggests,

"the activities and practice of interveners are often only conceptualized in normative terms, [which] detail the procedures that should be followed, the attitudes to be assumed, and the targets to be tackled. The 'outsider' is hardly ever studied as an actor struggling to project particular images, to set boundaries that are constantly being challenged by the 'beneficiary population' or by colleagues and employers, or playing games to acquire leverage. [...]. Changes of plans, apparent weaknesses by the implementer, or what might appear to be losing grip, are in fact signs of the complexity of the dynamics taking place in local arenas. It goes without saying that these situations influence the actual outcomes of intervention practice".

In this way, Elías' efforts to lay down rules for production were contested at different moments as a reflection of the complexities of the social activity rather than his own weaknesses.

The analysis of practices reveals the struggle between the institutional and technical ideals promoted by Elías' work as well as the production and appropriation ideas of the producers. Actors like Elías are the link between theory and practice; in other words, they are the pragmatic translation of current forestry policies. In his role as development intervener he increases interest in the palm at the local level as well as in the scientific world to promote *Chamaedorea* exploitation as an efficient option to solve the serious problems of deforestation and rural development. His work has production activity as the central concept without dealing with the needs for development of commercial skills among producers, thus confirming the bottleneck in the process of establishing a sound basis for commercial initiatives.

Finally, I have presented the actor-oriented approach as a useful tool to help clarify the application of policies and theory in practice and how this application infiltrates in various action fields. Even though it would seem disproportionate to think that the specialists in charge of promoting NTFP exploitation are the only force in the application of policies, this perspective helps us obtain a closer vision of their key role in the field, by highlighting their active commitment to attract interest in the palm and to mobilize the necessary resources to achieve their objective. The lessons learned as a result from this actor-oriented approach can be advantageous to formulate effective policies, particularly when these are directed at linking production processes with the development of commercial initiatives at the basis in the forestry sector in Mexico.

Chapter 8

Conclusions and discussion

1. Main findings

This thesis focused on studying the experience of various actors involved in the exploitation and commercialization of *Chamaedorea*, in order to research the limitations that surround the establishment and consolidation of commercial initiatives and the obstacles to access the market. This study addresses the need of analyzing such bottlenecks and limitations in the establishment of commercial firms and *Chamaedorea* market access in Mexico from an actor-oriented approach, as opposed to the existing literature that focuses on analyzing value chains from an institutional approach to commercial initiatives. Closely studying the practices of involved actors shed light on the reality of the situation and the efforts the process of commercial organization and operation entail. Furthermore, actors' practices make a relevant contribution to current Non-Timber Forest Products (NTFP) policy making which promotes the development of commercial initiatives without considering the arduous organizational process and existing limitations to access the market.

My research question, as formulated in Chapter 2, was: **How are Chamaedorea palm commercial initiatives built in the State of Veracruz, Mexico, and what are the main limitations for their consolidation and access to the markets?** With this research question I aimed to expose that current policies underestimate the difficulty and complexity of establishing a commercial firm and accessing the market. Following actors' practices in a number of different cases and the trajectories of these initiatives, I attempted to open the "black box" of the process of establishing a firm and to demonstrate that the initiatives and policies for the commercialization of *Chamaedorea* do not support the assumption of a

linear relation between the formulation of an idea, its actual practice, and the results obtained.

The conclusions answering the research question follow the selected cases, and will be summarized below according to the various actors and their different positions along the *Chamaedorea* value chain, as presented in the previous chapters: exporters, local producers, collective initiatives, intermediaries, and forestry researchers.

- **Exporters**

The case study on exporters of *Chamaedorea* foliage (Chapter 3) highlighted the factors and characteristics in the operation of a commercial firm, and serves as a point of reference for the initiatives that were studied in the other chapters. The case study of La Flor de Catemaco (LFC) showed the complexity behind the management of a commercial firm that has achieved market consolidation. My analysis of these complexities serves to identify challenges faced by rural initiatives following in the footsteps of this export firm. As we learned from actors' practices, sustaining a *Chamaedorea* commercialization firm is not simple and structured management and monitoring is required. In this case study, the management capacity to control the entire process stands out, recognizing the ability of successfully handling and integrating market demands with their own activities, with the objective of providing constant quality supply of palm leaves.

In spite of the degree of complexity in the management of the plantations, LFC managers have accomplished maintaining a solid commercial firm in the export market, which has inspired several initiatives in Mexico. The firm has been recognized and used as a model to follow for other companies and commercial initiatives. In this same way, the experience has inspired the formulation of policies, while governmental and institutional recognition has placed LFC at the center of the debate as an example to replicate, creating expectations in regards to the potential operation of rural commercial firms.

In that sense, programs and proponents that encourage the establishment of initiatives of *Chamaedorea* commercialization underestimate the complexities of the processes behind the operation of a commercial firm, particularly the intensive production process, quality controls, product diversification, norms compliance and commercial relationships, assuming that merely the provision of financial resources would lead to successful market insertion. Such oversimplification may result in unsuccessful results as seen in PROINTE's experience (Chapter 5). The exporters' experience allows me to invite NTFP promoters to consider these challenges when formulating policies and, more specifically, to consider that not all commercial firms have similar trajectories or develop under the same circumstances.

- **Local Producers**

Small-scale producers' production and commercialization practices develop in a heterogeneous environment, which serves as a basis to carry out diverse agricultural and forestry production strategies (Chapter 4). Within these strategies, the production of coffee, sugar cane, rubber and, recently, *Chamaedorea* stand out. These main crops have been introduced into their small-scale production portfolio at different times when they were seen as useful for complementing household income. Their production and exploitation vary according to production seasons and therefore related activities remain flexible throughout the year. Even though production activities are heterogeneous, they are linked to each other and respond to fluctuating local market conditions. *Chamaedorea* sales cover

emergency expenses or complement incomes from the main crops when these are low. Producers employ natural stands of *Chamaedorea* palm as another diversification option, although their access to the market is minimal and is done through intermediaries, as opposed to their marketing of other crops.

NTFP exploitation advocates seek to promote collective participation of local producers as a way of eliminating intermediaries and providing new economic alternatives. However, they do not always deal with the heterogeneous and complex nature of production. Moreover, the emergence of collective actions does not always arise from the producers' own inspiration, but is heavily influenced by the political, economic and social context. Government support, community leaders' interest in connecting the community to other projects, and the idealized intentions of organizations that promote the idea that collective commercialization will be beneficial and successful, play a decisive role in encouraging the development of small-scale commercial firms.

As I learned from the accounts of local producers, their individual actions and visions do not always coincide with the idealized purposes of government institutions and NGOs, which promote the creation of collective actions that focus the attention for production and commercialization practices on a single crop or commodity. Therefore, the emergence of these initiatives is strongly influenced by the institutional context, rather than the producers' own needs based on a multiple cropping practice. Moreover, *Chamaedorea's* role is overestimated within local producers' activity portfolio, because it does not take into account the complexity of human relationships inside the community when it comes to making decisions that require collective endorsement. The production of NTFPs is in practice one more component of a multi-business livelihood, including other agricultural and forestry activities where diverse production systems can co-exist.

Heterogeneity in NTFP production, mainly in *Chamaedorea*, usually adds complexity to the idealized production intention for market access. Generally, recommendations emerge from policies that seek to adjust the production scale to deal with demand needs. These recommendations emerge from the idea that producers will be capable of efficiently aligning resources and that they will organize their activities around the production of *Chamaedorea* as the main activity within their production portfolio. However, as we observed in Chapter 4, small-scale producers resort to heterogeneous production alternatives and give priority to the production of other crops rather than to *Chamaedorea* production.

Hebinck and van der Ploeg (1997) refer to these specificities as essential to understanding the morphology of the small-scale agricultural sector and its intrinsic heterogeneity. According to these authors

“Specific of agriculture is its multiform and heterogeneous character, closely associated with the fact that it is practiced by actors who embody different interests, are part of diverse networks and share particular cultural repertoires. Furthermore, land forms the basis of production. Hence, the encounter with nature is also specific of agriculture” (Hebinck and van der Ploeg, 1997:204).

This heterogeneity also corresponds to ecological heterogeneities where actors develop their activities, relying on different crops in multiple agroecosystems and aligning resources in various social networks. In the case of *Chamaedorea* palm, the encounter with nature can be taken literally since the palm fronds are often collected from wild palms, with their own ecological conditions and production rhythm adding to the complexities of small-scale agricultural production.

Obtaining financial support does not necessarily represent the main bottleneck as anticipated by promoters and current forestry policies. Instead, maintaining a solid network with members of their own community is one of the key factors in directly linking to the commercial setting. Institutional context and government support offers tend to be the trigger to making the decision to organize, beyond the interest of building strategies around forest resources to reduce vulnerability to price fluctuations or aims at building commercial projects.

- **Collective Initiatives**

In the case study on collective initiatives (Chapter 5) I followed the actors and described how things were getting done in the example of the PROINTE initiative. How do collective initiatives emerge and take shape in practice when so-called community initiatives are not 'collective' in the traditional sense of the word, but turn out to be the result of entanglements between different entities with different goals? What I have seen is that the trajectory of a 'communal initiative' obeys the passionate, personal interests and political maneuverings of specific individuals who – for a while – are able to enroll others into their projects and act as collective spokespersons. But 'speaking for others' is a political act, and ultimately political opposition to the project turned out to be stronger. It is not my task, however, to conclude whether the PROINTE initiative was successful or unsuccessful. Rather, I have kept to the academic principle of impartiality regarding the veracity of actors' arguments, acknowledging the likelihood of there being a multiplicity of interpretations.

As Mol and Law (2002) claim, case studies may do other kinds of work. For example, they might make the reader aware of events and situations elsewhere that have not been recognized so far. The PROINTE case can serve to put knowledge of similar cases into perspective. That is, it may help scientists as well as practitioners to search for differences, repetitions, and commonalities. The case may also serve to undermine cherished assumptions, such as the idea that policies supporting conservation and development automatically trigger the right responses.

- **Intermediaries**

In Chapter 6 I addressed the main bottlenecks faced by intermediaries, as well as their limitations to successfully consolidate commercial projects. To that purpose I followed their practices and the role they carry out as actors in the value chain. At the lower part of the value chain, where business deals are done through verbal agreements, their practices are focused on building trustworthy relationships with producers and collectors based on price strategy. For these local intermediaries, maintaining close relationships with communities and *ejidos* is key to securing a constant supply base. Some of the main limitations are price competition and aspects related to quality regulations, in particular, during transportation when communities and *ejidos* lack exploitation permits.

On the other hand, the field of action of regional intermediaries is broader since, in addition to being directly in contact with collectors and producers, they also have relationships with other agents in the value chain. As opposed to local intermediaries, regional intermediaries aim for a market with greater volume demands and homogeneous quality, and they need to possess tools and negotiation capacities with foreign clients as well as the ability to finance purchases and maintain liquidity to cover logistics expenses.

One of the biggest limitations for regional intermediaries is not only the capacity to connect to foreign importers, but being able to translate the requirements to their commercial

practices in terms of quality, volume, seasonality and punctuality of delivery, and to adapt to the export market dynamics. The ornamental export sector thus becomes highly specialized and elevates the economies of scale, which is difficult to accomplish under the current *Chamaedorea* exploitation production schemes. As a result, planning, production process control, commercial selection and logistics are essential and decisive skills for the process of consolidation and market integration of intermediaries in the *Chamaedorea* value chain.

Despite limitations and bottlenecks in their work, intermediaries have managed to maintain and increase an interest in extending the limits of the *Chamaedorea* market to communities, institutions and commercial actors at different levels of the value chain. The challenge intermediaries face in this endeavor is to efficiently translate market needs or at least generate new alternatives and commercialization strategies that allow them to adapt to the existing production particularities of palm leaves.

- **Forestry Research Practitioners**

Even though he is not part of the *Chamaedorea* production or commercialization process, my interest in understanding the practices of a forestry research practitioner devoted to developing and implementing projects related to commercial *Chamaedorea* plantation, focused on understanding how policies are translated from theory to practice (Chapter 7). The forestry researcher's practices focused on three main objectives: gathering a body of knowledge in relation to *Chamaedorea*, creating strategies for technology transfer, and actively promoting organizational processes for commercialization inside communities. This combination of objectives and researcher's roles goes hand in hand with government agencies' institutional leadership, which considers that the work of the researcher should tend to the needs of scientific research as well as the needs of forest users, emphasizing the social aspect of projects.

The case study is particularly useful in explaining how through diverse interactions the daily work of a forestry specialist not only expands the knowledge of *Chamaedorea*, but also molds the actions of local producers. In this sense, their work plays a decisive role not only in increasing interest in *Chamaedorea* as a commercial crop, but also in favoring the creation of a body of knowledge that the forestry researcher needs to legitimize his work. Meanwhile, his interest serves as a trigger for actions that favor the development of organized groups. The researcher's actions encourage producers to engage with palm fronds production, as they are motivated by the benefits of diversification and the possibility of becoming a part of government support programs, but without realizing the difficulties in accessing the market.

Through the researcher's interaction with producers I learned that the guidelines of the production model for non-timber forest products' exploitation are modified and translated. As Long (2001a:170) explains,

“Knowledge is generated and transformed not in the abstract but in relation to the everyday contingencies and struggles that constitute social life. It is not given by simple institutional commitments or assumed sources of power and authority, but rather it is an outcome of the interactions, negotiations, interfaces and accommodations that take place between different actors and their life-worlds”.

This case study likewise demonstrates how applied knowledge in *Chamaedorea* production was produced based on the researchers' scientific contribution and was transformed and adapted by the producers' vision.

In this previous chapter I dealt with the researcher's vision in his role as intervener in actual practice, an approach rarely used when their work is explored. As Villareal (1992: 264) suggests,

"The activities and practices of interveners are often only conceptualized in normative terms, [which] detail the procedures that should be followed, the attitudes to be assumed, and the targets to be tackled. The 'outsider' is hardly ever studied as an actor struggling to project particular images, to set boundaries that are constantly being challenged by the 'beneficiary population' or by colleagues and employers, or playing games to acquire leverage.[...]. Changes of plans, apparent weaknesses by the implementer, or what might appear to be losing grip, are in fact signs of the complexity of the dynamics taking place in local arenas. It goes without saying that these situations influence the actual outcomes of intervention practice".

In this way, Elias' efforts in establishing norms in productive activity were challenged at different times, which reflects the complexities in the social activity rather than his own weaknesses.

The analysis of the forest research practitioners' practices reveals the struggle between the institutional and technical ideal promoted by governmental development agents and the production and exploitation ideals of producers at the local level. My case studies of the practices of the different actors show the link between theory and practice, which is key to a pragmatic translation of current forestry policies. My focus on the different actors and their roles in the *Chamaedorea* value chain proves the increased interest in palm leaves at the different action levels of production and commercialization, as well as the scientific interest in *Chamaedorea* as a tool for rural development and exploitation of forest resources.

Below, I will discuss two main points that emerge from this thesis. The first deals with organization and entrepreneurship as a central concept in NTFP policies and the non-linear relationship between the formulation of a policy idea and its outcome. The second discusses the usefulness of the actor-oriented approach in advancing the study of organization and commercialization processes in NTFP production.

2. Organization, entrepreneurship and policy outcomes

Organization stands out as one of the main concepts in policies oriented to disseminating the exploitation of NTFPs as a conservation method for forest resources around the world, but it does not deal with the complexity and depth NTFP exploitation deserves. Policy makers transmit the idea that 'organization' is a necessary condition to promote exploitation, encouraging actors to embark on actions that will not necessarily bring positive results, while the associated risk of an unfavorable outcome is not foreseen. Since its conception, 'organization' has commonly been given a primary role in models that support NTFP exploitation, but its content remains cloudy and rarely goes into depth on how to accomplish it. In spite of being based on social considerations derived from 'top to bottom' policies whose main objective is to 'empower the poor', these policies turn out to be insufficient in providing the necessary attention to problems and obstacles that are caused by organizational processes. While it is necessary to recognize that policies are essential in developing projects' capability of small-scale producers, this study suggests that organizational constraints and limitations and their impact on commercial initiatives or

projects-under-construction should be considered in greater depth to avoid generating expectations that cannot always be fulfilled.

In the literature of NTFPs (Marshall *et al.*, 2003; Marshall *et al.*, 2006; Neumann and Hirsch, 2000; te Velde *et al.*, 2006) on which these policies are based, two fundamental aspects stand out: 1. The prescription of organization as a condition to support NTFP exploitation and commercialization and, 2. The assumption of the existence of key entrepreneurs who are responsible for articulating strategies at the lower end of the value chain. However, the case studies presented in this thesis do not confirm that these two conditions necessarily accomplish successful consolidation of a commercial firm, since the decision to organize does not emerge from the actors' own inspiration but is strongly influenced by the political and institutional context. On the other hand, even though the actors that lead these projects translate the desire for firm commercialization, the limitations inside communities and the particularities of *Chamaedorea* production limit the expected results. Based on the outcomes of my study I recommend researching or embracing the organizational process and understanding the reasons why these attempts do not result in consolidation of the firms. I also emphasize the importance of deepening the understanding about the different production systems of each of the NTFPs in order to understand how their exploitation can be a limitation for their insertion into the market.

While the prescription of organizing is not necessarily incorrect - since it is well documented that collective participation can achieve economies of scale - it results in an oversimplification of everything the organization and the process of resource alignment requires. Successful cases like the one of the export company La Flor de Catemaco (Chapter 3) are used as example to support and motivate the idea of 'organization' as a process that will naturally (or almost automatically) lead to company consolidation and successful integration into the market. In contrast, PROINTE's case study (Chapter 5) illustrated how, in spite of having all the factors in place, the commercial project did not reach consolidation successfully. In practice, prescribing 'organization' looks for ways of consolidating products and services for the members of a group with the objective of replacing intermediaries, but usually the costs associated with these activities - for example finding new buyers, completing all the necessary market transactions and covering transportation costs - end up being considerable.

The need to organize in order to promote the establishment of commercial firms in rural Mexico emerges in a context where economic liberalization attempts to open markets and the commercial opportunities for various NTFPs develop at the same time as government decentralization urges rural communities to have greater participation in the practice of managing their own resources. In theory, these policies support a development strategy that provides new economic opportunities through the sustainable exploitation of resources. To reach this objective, development agencies, donors and government institutions have turned to generate initiatives that provide forest users and communities with incentives to conserve and protect their forest resources in exchange for economic benefits through the development of commercial firms for timber and non-timber forest products.

In practice, however, I found that this pathway does not necessarily lead to the consolidation of the aforementioned efforts in the market. My research underscores Verschoor's (1997) consideration that:

"This position [bringing together theory and practice] is splendidly exemplified in the case of the role that is attributed by policy makers and scholars alike to small firms in development. Thus, on the 'practical' side, policy makers invariably break their heads as to the appropriate measures to be taken in order to enhance (or diminish) small firms' share

in the development process. But these measures (whatever their form) inevitably reflect moral, ethical, and ideological judgments. Likewise, on the theoretical side, the academic community is often busy devising new explanations as to the way small firms should be understood, and prescriptions as to how they should be helped or hindered (a very practical activity indeed!). In turn, the explanations and prescriptions become stepping stones for policy formulation, and so on – ad infinitum” (Verschoor, 1997:245)

Many NTFPs similar to *Chamaedorea* palm have been examined around the world from a commercialization perspective (Edwards, 1996; Nahuelhual *et al.*, 2008; Rodríguez-Buritica, 2005; Viet Quang and Nam Anh, 2006). These studies have adopted value chain analysis as the main tool, confirming the need for organization and supporting public policies to continue strengthening the actors’ entrepreneurial vision as the driving force for development, and entrepreneurial spirit as a vehicle to successful organization. Nevertheless, in this thesis I defend that this type of approach does not solve a commercial firm’s capacity to successfully adapt to the market.

Even though there have been advances in studying organization and the entrepreneurial spirit in various disciplines such as economy, business administration and sociology, it has not been possible yet to understand how to absolve the so-called ‘valley of death’ – as the initial organization phase for commercial firms is known - since actors’ limitations and struggles during this process have rarely been studied. Ton (2008) for example, summarizes the difficulties faced by producers’ organizations to access the market. Regarding the limiting factors he mentions the following:

“The business strategy of vertical integration, by-passing intermediary traders and processors, is being questioned: the complexity of trade, the risks involved, the working capital required and the need for flexibility to adapt the product portfolio to market demand are the main reasons for the failure of many producer organizations to become successful in marketing, especially perishable products.” (Ton, 2008:3).

The ‘need to organize’ is based on a logic that actors in the upstream linkage of the value chain are at a disadvantage by enduring high levels of exploitation by intermediaries and agents in downstream linkages and generally sustains from the international markets’ reach of certain products with high commercial value (Wilsey and Radachowsky, 2007).

In summary, ‘organization’ and ‘entrepreneurial spirit’ are concepts frequently used by NTFP advocates in support of the formulation of policies and have been placed at the center of government institutions and NGOs agendas. However, the inherent limitations and bottlenecks that these processes entail are not taken into account. This leads to my recommendation for an actor-oriented approach as the main analytical tool in this study because when I applied this methodology to understand actors’ practices, the complexities of organization and entrepreneurship as processes rather than concepts became evident. Some authors who have studied the difficulties of NTFP commercialization in depth (Neumann and Hirsch, 2000) suggest that some qualitative approaches seem more adequate than the neoclassical quantitative estimates to address topics in regard to commercial initiatives. This thesis expands on this notion, and recommends examining not only the experiences that have accomplished successful consolidation and insertion in the market, but also including analysis of those experiences that have fallen by the wayside as a fundamental part of our goal to improve the understanding of successful NTFP commercialization.

Moreover, actors' practices analysis gave us the opportunity to understand the complexities in which commercial projects develop, as well as the possibility of discussing the simplified linear notion of cause-and-effect explanations in favor of a constructive social analysis method. Many of the situations and issues found would have not been visible or perceived as relevant if they had been studied as a mere flow of products from the production areas to the final points of sale; neither would the obstacles during the development process have surfaced. Even though this argument may seem obvious, government policies and exploitation advocacy in favor of the development of collective efforts for the commercialization of NTFPs frequently emerge from the idea that collective efforts will naturally lead to successful consolidation.

It is evident from the case studies presented in this thesis that actors are immersed in struggles to consolidate and open space to access the market without following a linear trajectory. Depending on the obstacles faced, they adapt their action strategies and remain flexible in the presence of the various scenarios in which they are involved, pulling results from it that are unlike the outcomes professed by economic development policies. Normally it is perceived that organizational processes follow a path or unidirectional process led by the entrepreneurial spirit of key actors. In contrast, Long (2001a) states that there exists;

“a separation of ‘policy’, ‘implementation’ and ‘outcomes’ that is a gross oversimplification of a much more complicated set of processes which involve the reinterpretation or transformation of policy during the implementation process, such that there is no straight line from policy to outcomes” (Long, 2001a:25).

This statement is supported by the case of the small-scale producers (Chapter 4) and the collective experience for commercialization (Chapter 5), where efforts to establish commercial firms did not produce consolidation even though they were in line with policy recommendations and conceived with that main objective in mind.

3. Usefulness of the actor-oriented approach for studying organizational processes

Methodologically, the actor-oriented approach and the use of in-depth case study methods have shown to be instrumental in providing me with necessary tools to go deep into the different areas of social life from the actors' own perspectives, and allowing me to appreciate the complexity and heterogeneity in different circumstances and from different standpoints. The actor-oriented approach thus facilitates clarifying the application of politics and theory in practice and how they infiltrate in various action fields. I fully endorse Long's view, that

“social actors must not be depicted as simply disembodied social categories (based on class or some other classificatory criteria) or passive recipients of intervention, but as active participants who process information and strategize in their dealings with various local actors as well as with outside institutions and personnel” (Long, 2001a:13).

By initiating research with this approach, it became possible to capture relevant aspects, bottlenecks and struggles as well as actors' experience, knowledge, and interpretation regarding *Chamaedorea* exploitation and commercialization, which is unlikely to be obtained by other types of approaches.

The theoretical-methodological choice of an actor-oriented approach for the study of NTFPs serves to reinforce the need to escape from 'short-sighted' studies when faced with the difficulties that surround production organization, the organization of collective experiences, and actors' struggles at various points of the global value chain in order to consolidate their commercial projects and successfully position themselves in the market. This study further points to the usefulness of a method of a qualitative nature (for example, an ethnographic nature) to get a hold of information that is closer to reality (in the sense of reality as processes of social construction and reconstruction). It has clearly enabled me to conceptualize how small-scale interaction settings and local actors interlock with wider frameworks and networks of relations to move beyond dichotomies like 'micro-macro' (Long, 2001a) in the *Chamaedorea* value chain.

I suggest that the lessons learned from this actor-oriented perspective may prove to be beneficial to reach the formulation of effective policies, particularly when they are directed at linking productive processes with the development of commercial initiatives in Mexico's forestry sector. Understanding how commercial initiatives develop and what limitations firms face in the process of commercializing NTFPs, allows the broadening of the knowledge base for policy formulation and improved decision-making. I have identified serious gaps in the NTFP literature, particularly when studying firms as 'organizations under construction' and provided useful data to inform an improve policy formulation that seriously tries to take the limitations that emerge from these processes into account. The real challenge is to channel the tools needed to encourage their commercial development and open up new possibilities for their consolidation, since, as is evident from this thesis, the normative expectation that markets will organically function as expected proves insufficient.

The empirical evidence of this thesis suggests that *Chamaedorea* commercialization in Mexico cannot be solely understood through the study of commodity or product flow in the value chain. Rarely does successful market access depend on a structure that determines the behavior of actors involved in different stages, where all it takes is to add the necessary factors in order to achieve favorable results. Actors define their action field, build social relationships and organize their practices according to their circumstances and make use of resources according to incentives of a social and economic nature. Each one of the considerations previously discussed serve to bring attention to the development of policies that consider actors at various levels and stages of *Chamaedorea* production more closely, without being carried away by the commercial nature that emerges from value chain analyses. I recommend opening new ways for understanding the exploitation of forest resources, as one more step to better address the issues of NTFP commercialization in Mexico and to set out alternatives for producers and communities by broadening their room of maneuver for the development of their activities.

As a final consideration, I should mention that it could be that some of the experiences presented in this thesis are merely the reflection of a longer commercialization process-under-construction, without a final outcome yet. This does not inevitably limit the analysis presented here, since delving into the practices and trajectories of commercial projects in itself already serves the purpose of understanding limitations and setbacks that would have not otherwise been considered relevant by broader categorizations, or if these processes had consolidated successfully. The commercial and organizational processes are characterized by having to deal with endless setbacks and ups and downs; nevertheless, these often go unnoticed and are rarely documented in their successful trajectory, which can give the false impression that replicating triumphant experiences is simple and follows a path without great obstacles that has already been traced out.

Glossary of scientific and common names

Scientific name	Common name (in Spanish)	Use
A		
<i>Agave lechuguilla</i>	Lechuguilla	Fibers
<i>Alpinia spp.</i>	Alpinia	Ornamental foliage
<i>Ananas nanus</i>	Piña ornamental	Ornamental
<i>Aporocactus leptophis</i>	Cactus colgante	Ornamental
<i>Asparagus mirgatus</i>	Tree Fern	Ornamental foliage
<i>Asparagus myriocladus</i>	Ming Fern	Ornamental foliage
<i>Asparagus sprengeri</i>	Sprengeri	Ornamental foliage
<i>Aspidistra eliator</i>	Aspidistra	Ornamental foliage
<i>Aristolochia impudica</i>	Guaco, saúco de montaña	Medicinal
<i>Aristolochia veracruzana</i>	Guaco	Medicinal
B		
<i>Beaucarnea inervis</i>	Palma soyate	Fibers
<i>Begonia sousae</i>	Begonia	No use known
<i>Boehmeria nivea</i>	Ramio	Fibers
<i>Brahea dulcis</i>	Palma sombrero	Fibers
<i>Bursera aloexylon</i>	Linaloe	Wood carvings, essential oils
C		
<i>Cedrela odorata</i>	Cedro rojo	Timber wood
<i>Coffea arabica</i>	Café	Drink
<i>Coffea robusta</i>	Café	Drink
<i>Cyphomandra betace</i>	Árbol de tomate, tamarillo	Fruit tree
<i>Chamaedorea alternans</i>	Camedor tepejilote	Ornamental foliage, edible flowers
<i>Chamaedorea arenbergiana</i>	-	No use known
<i>Chamaedorea atrovirens</i>	Palma camedor	No use known
<i>Chamaedorea carchensis</i>	Tepejilote chiapaneco	No use known
<i>Chamaedorea cataractarum</i>	Guayita de arroyo	Ornamental potted plant
<i>Chamaedorea elatior</i>	Junco de bejuco	Fibers
<i>Chamaedorea elegans</i>	Palma camedor, xate	Ornamental foliage, ornamental potted plant
<i>Chamaedorea ernesti-augusti</i>	Camedor chapana	Ornamental foliage
<i>Chamaedorea ferruginea</i>	Tepejilote tedza	No use known
<i>Chamaedorea foveata</i>	Tepejilote de monte	No use known
<i>Chamaedorea fractiflexa</i>	Tepejilote torcido	No use known
<i>Chamaedorea geonomiformis</i>	-	No use known
<i>Chamaedorea glaucifolia</i>	Camedor despeinado	Ornamental potted plant
<i>Chamaedorea graminifolia</i>	Palma fina	Ornamental potted plant
<i>Chamaedorea hooperiana</i>	Tepejilote lancetilla, mayán	Ornamental foliage, potted plant
<i>Chamaedorea klotzschiana</i>	Tepejilote ancho	No use known

<i>Chamaedorea liebmannii</i>	-	No use known
<i>Chamaedorea metallica</i>	Camedor metálico	Ornamental foliage
<i>Chamaedorea microspadix</i>	Tepejilote coralillo	No use known
<i>Chamaedorea nubium</i>	Camedor junco	No use known
<i>Chamaedorea oreophila</i>	Rabo de bobo	No use known
<i>Chamaedorea paradoxa</i>	Tepejilote jade	No use known
<i>Chamaedorea parvisecta</i>	Tepejilote chaté	No use known
<i>Chamaedorea pinnatifrons</i>	Tepejilote cimarrón	No use known
<i>Chamaedorea pochutlensis</i>	Tepejilote canelillo	No use known
<i>Chamaedorea queroana</i>	Tepejilote pacayita	No use known
<i>Chamaedorea quezalteca</i>	Camedor chicuilote	Ornamental foliage
<i>Chamaedorea radicalis</i>	Camedor negrita	Ornamental foliage
<i>Chamaedorea rhizomatosa</i>	Tepejilotillo delgado	No use known
<i>Chamaedorea rigida</i>	Camedor rígido	No use known
<i>Chamaedorea rojasiana</i>	Camedor molinillo	No use known
<i>Chamaedorea sartorii</i>	Tepejilote chapanillo	Ornamental foliage
<i>Chamaedorea schiedeana</i>	Tepejilote cuiliote	No use known
<i>Chamaedorea simplex</i>	Camedor caña verde	No use known
<i>Chamaedorea stolonifera</i>	Camedor chibh	No use known
<i>Chamaedorea stricta</i>	Camedor kum	No use known
<i>Chamaedorea tenella</i>	Camedor guayita	Ornamental foliage
<i>Chamaedorea tepejilote</i>	Tepe, tepejilote	Ornamental foliage, edible flowers
<i>Chamaedorea tuerckheimii</i>	Camedor guonay	No use known
<i>Chamaedorea vulgata</i>	Cepejilote kip	No use known
<i>Chamaedorea whitelockiana</i>	Camedor pesmilla	No use known
<i>Chamaedorea woodsoniana</i>	Tepejilote pacaya grande	Edible flowers
<i>Chrisophylla spp.</i>	Palma guano	No use known
D		
<i>Dichapetalum mexicanum</i>	-	Poisonous
<i>Dracaena spp</i>	Dracaena	Ornamental foliage
E		
<i>Euphorbia antisyphilitica</i>	Candelilla	Wax
H		
<i>Hevea brasiliensis</i>	Hule	Timber wood, latex
I		
<i>Inga lacustris</i>	Inga	No use known
<i>Inga sinacae</i>	Inga	No use known
M		
<i>Manilkara zapota</i>	chicozapote, chicle	Fruit tree, latex
<i>Medicago sativa</i>	alfalfa	Forage crop
<i>Mormodes tuxtlensis</i>	Orquídea	Ornamental
<i>Musa spp.</i>	Plátano, banano	Fruit tree, leaves
O		
<i>Olmeca recta</i>	Jimba	Fibers, construction

<i>Olmeca reflexa</i>	Jimba	Fibers
<i>Orbignya guacuyule</i>	Palma palapa	Fibers, construction
P		
<i>Parathesis pajapensis</i>	Capulín silvestre	No use known
<i>Phaseolus vulgaris</i>	Frijol	Staple crop
<i>Phoenix dactylifera</i>	Palma datilera	Fibers, edible fruit
<i>Pimenta dioica</i>	pimienta gorda	Spice
R		
<i>Ruellia tuxtensis</i>	Té negro de los Tuxtlas	Medicinal
<i>Rumhora adiantiformis</i>	helecho cuero	Ornamental foliage
S		
<i>Sabal yapa</i>	Palma sabal	Fibers, artisanal
<i>Sabal mexicana</i>	Palma sabal	Construction, fibers
<i>Saccharum officinarum</i>	Caña de azúcar	Sugar
<i>Solenophora tuxtensis</i>	-	No use known
<i>Swietenia macrophylla</i>	caoba	Timber wood
T		
<i>Tabebuia spp.</i>	primavera	Timber wood
<i>Tectona grandis</i>	teca	Timber Wood
<i>Thelypteris rachyflexuosa</i>	-	No use known
<i>Trema micrantha</i>	Papel amate	Tree bark, artisanal
<i>Tridimeris tuxtensis</i>	-	No use known
Z		
<i>Zea mays</i>	Maíz	Staple crop

Source: Field notes, (Martínez, 1979; Romahn de la Vega, 1992; SEMARNAT, 2009)

References

- Aguilar Sánchez, A., Rosas, A. and Fausto Leyva, J.M. (2001). El Cultivo de la Palma Camedor (*Chamaedorea elegans*): Alternativa Económica para el Manejo de Acahuales en la Región de Pajapan, Veracruz. In: S. Del Amo Rodríguez (Ed.), Lecciones del Programa de Acción Forestal Tropical Plaza y Valdes, S.A. de C.V., México pp. 175-189.
- Akrich, M., Callon, M. and Latour, B. (2002). The Key to Success in Innovation Part I: The Art of Interestement. *International Journal of Innovation Management* 6: 187-206.
- Alatorre Cobos, J. and Rodríguez Trejo, D.A. (2009). Concentración de carbohidratos y peso fresco durante la germinación de *Chamaedorea elegans* Mart. y factores que la afectan *Revista Chapingo. Serie ciencias forestales y del ambiente* 15: 73-79.
- Aldrich, E.H. and Reuf, M. (2006). *Organizations Evolving*. SAGE Publications. London, UK.
- Álvarez del Castillo, G. C. (1976). Estudio ecológico y florístico del volcán San Martín Tuxtla, Veracruz, México, Tesis Facultad de Ciencias, UNAM, México, D.F.
- Antinori, C. and Rausser, G. (2007). Collective Choice and Community Forestry Management in Mexico: An empirical analysis. *Journal of Development Studies* 43: 512-536.
- Arce, A., Villareal, M. and de Vries, P. (1994). The social construction of rural development: discourses, practices and power. In: D. Booth (Ed.), *Rethinking Social Development: Theory, Research and Practice*. Longman, London, UK, pp. 156-171.
- Barton Bray, D., Antinori, C. and Torres-Rojo, J.M. (2005). The Mexican Model of Community Forest Management: The role of Agrarian Policy, Forest Policy and Entrepreneurial Organization. *Forest Policy and Economics*: 470-484.
- Baumer, M. (1990). The Potential Role of Agroforestry in Combating Desertification and Environmental Degradation Technical Centre for Agricultural and Rural Cooperation, CTA. Wageningen, The Netherlands 250 pp.
- Belcher, B.M. (2003). What isn't a NTFP? *International Forestry Review* 5: 161-168.
- Bing Maps (2011). Mexico and the State of Veracruz <http://www.bing.com/maps/>. February, 2011
- Braun, D. (2009). Do Palm Sunday burden the environment? Available at: http://newswatch.nationalgeographic.com/2009/04/05/palm_sunday_crosses/. May, 2011
- Bureau for Engraving and Printing (2009). *Money Facts: The Green in Greenbacks*, The United States Treasury. Bureau for Engraving and Printing. Washington, D.C.
- Callon, M. (1998). *The Laws of the Markets*. Sociological Review Monographs., Blackwell. Oxford, UK 278 pp.
- Callon, M. and Law, J. (1989). On the Construction of Sociotechnical Networks: Content and Context Revisited, *Knowledge and Society Studies in the Sociology of Science Past and Present*. JAI Press Inc., pp. 57:83.

- Callon, M., Law, J. and Rip, A. (1986). Mapping the Dynamics of Science and Technology: Sociology of Science in the Real World Macmillan. Houndmills.
- Carpenter, W.J. and Ostmark, E.R. (1994). Temperature and dessication affect the germination of *Chamaedorea* palm seed. Proc. Florida State Horticulture Society: 183-186.
- Carrillo-Trueba, C. (2001). La Palma Camedora en México, Comission for Environmental Cooperation CEC. México, D.F.
- Carrillo-Trueba, C. (2004). Camedora palm: ornamental plant, decorative leaves. In: C. Lopez, P. Shanley and A. Celso Fantini (Eds.), Riches of the forest: fruits, remedies and handicrafts in Latin America. CIFOR Center for International Forestry Research, Desa Putra, Indonesia, pp. 33-36.
- Castilleja, G. (1993). Changing trends in forest policy in Latin America: Chile, Nicaragua and Mexico FAO. Unasylya 43(4): 29-35.
- CEC (2002). In search of a sustainable palm market in North America, Commission for Environmental Cooperation. Montreal, Canada. pp. 67.
- CEEM (1988). Los municipios de Veracruz. Enciclopedia de los Municipios de México Talleres Gráficos de la Nación. México, D.F.
- Centurión Hidalgo, D., Alor Chávez, M.J., Espinosa Moreno, J., Gómez García, E., Solano, M.L. and Poot Matu, J.E. (2009). Contenido Nutricional de las Inflorescencias de Palmas en la Sierra del Estado de Tabasco. Universidad y Ciencia 25: 193-199.
- CONAFOR (2003). Ley General de Desarrollo Forestal Sustentable. Comisión Nacional Forestal, Última reforma publicada DOF 04-06-2012, pp. 74.
- CONAFOR (2009). Comisión Nacional Forestal. Available at: <http://www.conafor.gob.mx>. September, 2011
- CONAPO (2005). Índice de Marginación por Localidad. Comisión Nacional de Poblacion y Vivienda. Available at: http://www.conapo.gob.mx/es/CONAPO/Indices_de_marginacion_2005. Jun, 2013
- Continental Floral Greens (2011). Website Continental Floral Greens. Available at: <http://www.cfgfloral.com>. March, 2011
- Current, D. and Wilsey, D. (2001). The market for the *Chamaedorea* palms in North America and Europe: Opportunities for sustainable management and green marketing of the resource with improved benefits for local communities, Commission for Environmental Cooperation. Montreal, Canada. pp. 65.
- Davidson, S. (2005). Shade coffee agro-ecosystems in Mexico. Sustainable Forestry 21: 81-95.
- de la Vega-Leinerta, A.C., Leinb, J. and Brennerc, L. (2011). Reconciling conservation and local sustainable development: A case study on ecotourism alternatives from Los Tuxtlas Biosphere Reserve, Veracruz, Mexico, Conference on International Research on Food Security, Natural Resource Management and Rural Development, Tropentag 2011 University of Bonn, Germany.
- Diario Oficial de la Federación (1994). Ley General de Sociedades Cooperativas. Diario Oficial de la Federación, <http://www.diputados.gob.mx/LeyesBiblio/pdf/143.pdf>.

- Dirzo, R. and Garcia, M.C. (1992). Rates of Deforestation in Los Tuxtlas, a Neotropical Area in Southeast Mexico. *Conservation Biology* 6: 84-90.
- Dirzo, R. and Richard, R.C. (1997). *Historia Natural de Los Tuxtlas*. Universidad Autónoma de México. México, D.F. 647 pp.
- Domínguez Cruz, A. (2000). Estudio de germinación en semillas de Palma Camedor: *C. graminifolia*, H.A. Wendl, Universidad de Ciencias y Artes de Chiapas, Tuxtla Gutiérrez, Chiapas, 87 pp.
- Draffan, G. (2006). Report on the Floral Greens Industry, The Evergreen State College Labor Center. pp. 66.
- Durand Smith, M.L. and Ruiz Cedillo, J. (2009). Estaciones biológicas y participación social: la experiencia de la Universidad Nacional Autónoma de México en Los Tuxtlas, Veracruz, México. *Ambiente y Sociedad* 12: 325-340.
- Eccardi, F. (2003). La Palma Camedora. *BioDiversitas* 8: 1-7.
- Edelman, M. (1980). Agricultural Modernization in Smallholding Areas of Mexico: a Case Study in the Sierra Norte de Puebla. *Latin American Perspectives* October: 29-49.
- Edwards, D.M. (1996). The Trade in Non-Timber Forest Products from Nepal. *Mountain Research and Development* 16: 383-394.
- FAO (1995). Report of the International Expert Consultation on Non-Wood Forest Products Yogyakarta, Indonesia.
- Feduchy, F. (2004). *Bosques y Selvas para Siempre*. Universidad Veracruzana. Serie de Casos Exitosos de Desarrollo Sostenible del Trópico: La Flor de Catemaco. Mexico.
- FloraHolland (2011). About Flora Holland. Available at: <http://www.floraholland.com/en/aboutfloraholland/Pages/default.aspx>. February 2011
- Fondo Nacional de Apoyos para Empresas en Solidaridad (FONAES) (2009). ¿Qué es FONAES? Available at: <http://www.fonaes.gob.mx/index.php/fonaes/que-es-fonaes.html>.
- Foster, R. and Foster, C. (2006). Chiquibul Challenge. Protected Areas Conservation Trust Fund Belize. Belize. 30 min.
- Garcia-Fernandez, C., Ruiz-Perez, M. and Wunder, S. (2008). Is multiple-use forest management widely implementable in the tropics? *Forest Ecology and Management* 256: 1468-1476.
- Gomez-Navarro, C., Jaramillo, C., Herrera, F., Wing, S.L. and Callejas, R. (2009). Palms (Arecaceae) from a Paleocene Rainforest of Northern Colombia *American Journal of Botany* 96: 1300-1312.
- González-Jacome, A. (2004). Dealing with Risk: Small-Scale Coffee Production Systems in Mexico. *Perspectivas Latinoamericanas* 1.
- GRIN (2014). Germplasm Resources Information Network. Available at: <http://www.ars-grin.gov/npgs/aboutgrin.html>. March, 2014

- Grupo Mesófilo, A.C. (2006). Manual para el manejo y cultivo de palma camedor. Oaxaca, Oaxaca. pp. 16.
- Guevara, S., Laborde, J. and Sánchez-Ríos, G. (2004). Los Tuxtlas: El paisaje de la sierra. Instituto de Ecología, A.C. Unión Europea. Xalapa, Mexico.
- Hebinck, P. and van der Ploeg, J.D. (1997). Dynamics of agricultural production and analysis of micro-macro linkages. In: H. de Haan and N. Long (Eds.), *Images and Realities of Rural Life: Wageningen Perspectives on Rural Transformations*. Van Gurcum, Assen, The Netherlands, pp. 202-225.
- Hernández Pallares, L. (2000). Manual para la Producción de Palma Camedor, INIFAP. Campo Experimental El Palmar, Veracruz, México.
- Hodel, D.R. (1992). *Chamaedorea Palms: The species and their cultivation*. The International Palm Society, Allen Press. Lawrence, Kansas, U.S.A. 338 pp.
- Hortifair (2013). Hortifair. Available at: [http:// www.hortifair.com](http://www.hortifair.com). July, 2013
- Hurtado, M. (2010). Petén: La última frontera?: La construcción social de una región, *Rural Development Sociology*, Wageningen University, Wageningen, The Netherlands, 303 pp.
- Husser, A. (2012). El lado oscuro del plan Nescafé: Nestlé y el café mexicano. Zurich, Suiza. pp. 12.
- Ibarra-Manríquez, G., Ricker, M., Angeles, G., Sanaca Colín, S. and Sinaca Colín, M.A. (1997). Useful plants of the Los Tuxtlas rain forest (Veracruz, Mexico): Considerations of their market potential. *Economic Botany* 51: 362-376.
- Ibarra-Manríquez, G. and Sinaca, S. (1995). Lista florística de la estación de Biología Tropical Los Tuxtlas, Veracruz. México. *Revista Biología Tropical* 43: 75-115.
- INEGI (2000a). XII Censo General de Población y Vivienda. Instituto Nacional de Estadística y Geografía (INEGI). Available at: <http://www.inegi.gob.mx>. April, 2010
- INEGI (2000b). XII Censo General de Población y Vivienda Aguascalientes, México.
- INEGI (2005). II Conteo de Poblacion y Vivienda. Instituto Nacional de Estadística y Geografía (INEGI). Available at: <http://www.inegi.gob.mx>. April, 2010
- Jensen, A. (2009). Valuation of non-timber forest products value chains. *Forest Policy and Economics* 11: 34-41.
- Keys, E. (2005). Exploring Market-Based Development: Market intermediaries and farmers in Calakmul, Mexico. *Geographical Review* 95: 24-46.
- King, A. (2007). Trade and Totomoxtle: Livelihood strategies in the Totonacan region of Veracruz, Mexico. *Agriculture and Human Values* 24: 29-40.
- Köhler, A. and Trench, T. (2004). Xateros. Proyecto Videoastas Indigenas de la Frontera Sur. Mexico. 43 min.

- Krauze, E. (2010). México Contemporáneo (1988-2008). In: G. von Wobeser (Ed.), *La Historia de México*. Fondo de Cultura Económica, Academia Mexicana de Historia, México D.F., pp. 261-277.
- Kusters, K. (2001). The potential contribution of non-timber forest product extraction to tropical forest conservation and development: Lessons from a case study of bamboo utilization in a Sierra Madre community, the Philippines. *Journal of bamboo and rattan* 1: 77.
- La Flor de Catemaco (2008). La Flor de Catemaco Website. Available at: <http://www.laflordecatemaco.com/productos.html>. May, 2009
- Law, J. (1994). *Organizing Modernity*. Blackwell. Oxford, UK 196 pp.
- Law, J. and Callon, M. (1992). The Life and Death of an Aircraft: A Network Analysis of Technical Change. In: E. Wiebe and J. Law (Eds.), *Shaping technology/building society: studies in Massachusetts Institute of Technology*, Massachusetts, USA, pp. 21-52.
- Long, N. (2001a). *Development Sociology: Actor Perspectives* Routledge. London, UK.
- Long, N. (2001b). *Knowledge, Networks and Power, Development Sociology: Actor perspectives* Routledge, London, UK.
- Long, N. (2004). Actors, interfaces and development interventions In: T. Kontinen (Ed.), *Development Intervention. Actor and Activity Perspectives*. University of Helsinki, Helsinki, pp. 14-36.
- Long, N. and Long, A. (1992). *Battlefields of Knowledge: the Interlocking of Theory and Practice in Social Research and Development*. Routledge. London [etc.].
- Long, N. and Villareal, M. (1999). Small Product, big Issues: Value Contestations and Cultural Identities in Cross-Border Commodity Networks. In: B. Meyer and P. Geschiere (Eds.), *Globalization and Identity: Dialectics of Flow and Closure*. Blackwell Publishers, Oxford, UK, pp. 125-149.
- López-Sánchez, E. and Musálem, M.A. (2007). Sistemas agroforestales con Cedro rojo, Cedro nogal y Primavera, una alternativa para el desarrollo de plantaciones forestales comerciales en Los Tuxtlas, Veracruz, México. *Revista Chapingo* XIII: 59-66.
- Márquez-Ramírez, W. and Márquez-Ramírez, J. (2009). Municipios con Mayor Biodiversidad en Veracruz. *Foresta Veracruzana* 11: 43-50.
- Marshall, E. (2003). Commercialisation of Non-Timber Forest Products: First steps in analysing the factors influencing success. *The International Forestry Review* 5: 128.
- Marshall, E., Newton, A.C. and Schreckenberg, K. (2003). Commercialisation of non-timber forest products: First steps in analysing the factors influencing success. *The International Forestry Review* 5: 128.
- Marshall, E., Schreckenberg, K. and Newton, A.C. (2006). *Commercialization of Non-Timber Forest Products: Factors Influencing Success. Lessons learned from Mexico and Bolivia and Policy implications for decision-makers*. Cambridge, UK.

- Martínez, M. (1979). Catálogo de Nombres Vulgares y Científicos de Plantas Mexicanas Fondo de Cultura Económica. México, D.F. 1220 pp.
- Menéndez, L.F. (1976). Los manglares de la Laguna de Sontecomapan, Los Tuxtlas, Veracruz: estudio florístico-ecológico. , Facultad de Ciencias, UNAM, México, D.F. México.
- Moguel, P. and Toledo, V.M. (1999). Biodiversity Conservation in Traditional Coffee Systems of Mexico. *Conservation Biology* 13: 11-21.
- Mol, A. and Law, J. (2002). Complexities: An Introduction. In: J. Law and A. Mol (Eds.), *Complexities. Social Studies of Knowledge Practices*. Duke University Press, Durham and London, pp. 1-22.
- Mont, J.J.C., Gallardo, N.R. and Johnson, D.V. (1994). The Pacaya Palm (*Chamaedorea tepejilote*; *Arecaceae*) and Its Food Use in Guatemala. *Economic Botany* 48: 68-75.
- Mora A., R., Rodríguez P., J.E., Peña L., A. and Ramírez L., V. (2003). Respuesta de *Chamaedorea elegans* Mart. a tratamientos pregerminativos. *Revista Chapingo Serie Horticultura* 9: 135-141.
- Musálem Castillejos, N. (2005). A Structure-Conduct-Performance Analysis for the Tropical Foliages Supply Chain: In Search of New Market Alternatives. MSc Thesis Thesis, Development Economics, Wageningen University, Wageningen.
- Musalem, N. and Verschoor, G. (2012). Learning from the actors: the rise and demise of a CBNRM initiative in Mexico. In: B. Arts, S. Bommel, M. Ros-Tonen and G. Verschoor (Eds.), *Forest-people interfaces*. Wageningen Academic Publishers, pp. 149-164.
- Nahuelhual, L., Palma, J., Gonzalez, M.E. and Ortiz, K. (2008). Potential for greenery from degraded temperate forests to increase income of indigenous women in Chile. *Agroforestry Syst* 74: 97-109.
- Neumann, R.P. and Hirsch, E. (2000). *Commercialisation of Non-Timber Forest Products: Review and Analysis of Research*, Center for International Forestry Research, CIFOR. Bogor, Indonesia. pp. 187.
- Olivera Lozano, G. (2005). La Reforma al Artículo 27 Constitucional y la Incorporación de las Tierras Ejidales al Mercado Legal de Suelo Urbano en México. *Scripta Nova. Revista Electrónica de Geografía y Ciencias Sociales*. Universidad de Barcelona IX: <http://www.ub.edu/geocrit/sn/sn-194-133.htm>.
- Palmer-Rubin, B. (2010). *Small Producer Access to Decentralized Agricultural Subsidies in Mexico: Alianza para el Campo*, Woodrow Wilson International Center for Scholars. Washington, D.C. pp. 47.
- Perfecto, I., Rice, R.A., Greenberg, R. and Van der Voort, M.E. (1996). Shade coffee: A Disappearing Refuge for Biodiversity. *BioScience* 46: 598-608.
- Popma, J. and Bongers, F. (1988). The effect of canopy gaps on growth and morphology of seedlings of rain forest species. *Oecologia* (Berlin): 625-632.
- Procuraduría Agraria (2012). *Sociedad de Solidaridad Social*. Available at: <http://www.pa.gob.mx/publica/pa07dg.htm>. November, 2012

- Productores Integrados de Tezonapa (PROINTE) (2003). Proyecto de Comercialización de Palma Camedor Tezonapa, Veracruz.
- PROFEPA (2013). ¿Qué es la PROFEPA. Available at: http://www.profepa.gob.mx/innovaportal/v/1167/1/mx/que_es_la_profepa_.html. February, 20
- Ramírez, R.F. (1999). Flora y vegetación de la Sierra de Santa Marta, Veracruz, Facultad de Ciencias, UNAM, México, D.F., 409 pp.
- Ramón Jiménez, V., Velázquez Martínez, A., Jasso Mata, J. and Musálem, M.A. (2002). Efecto de tratamientos en la germinación de semillas de palma camedor (*Chamaedorea elegans* MART.) Revista Ciencia Forestal en México 27: 95-103.
- Rodríguez-Buritica, S. (2005). Demography and life history of *Geonoma orbignyana*: An understory palm used as foliage in Colombia. *Forest Ecology and Management* 211: 329.
- Rojas A., M., Jurado, E., Sánchez R., G., Trejo H., L. and Leal R., F. (2000). Rapid viability loss in seeds of palmilla (*Chamaedorea radicalis* Mart.) from El Cielo Biosphere Reserve. *The Southwestern Naturalist* 45: 373-375.
- Romahn de la Vega, C.F. (1992). Principales Productos Forestales No Maderables de México. Universidad Autónoma Chapingo. Universidad Autónoma Chapingo. Chapingo, México 376 pp.
- Ruiz-Pérez, M., Belcher, B., Achdiawan, R., Alexiades, M., Aubertin, C., Caballero, J., Campbell, B., Clement, C., Cunningham, T., Fantini, A., de Foresta, H., Fernández, C.G., Gautam, K.H., Martínez, P.H., de Jong, W., Kusters, K., Kutty, M.G., López, C., Fu, M., Alfaro, M.A.M., Nair, T.K.R., Ndoye, O., Ocampo, R., Rai, N., Ricker, M., Schreckenber, K., Shackleton, S., Shanley, P., Sunderland, T. and Youn, Y.C. (2004). Markets drive the specialization strategies of forest peoples. *Ecology and Society* 9: 4. [online] URL: <http://www.ecologyandsociety.org/vol9/iss2/art4/>.
- Rzedowski, J. (1991). Diversidad y orígenes de la flora fanerogámica de México. *Acta Botánica Mexicana* 14: 3-21.
- SEDESOL (2012). Qué es SEDESOL? Available at: <http://www.sedesol.gob.mx>. August, 2012
- SEFIPLAN (2011). Cuadernillos Municipales: Tezonapa. pp. 12.
- SEGOB (2012). Enciclopedia de los Municipios de México. Available at: <http://e-local.gob.mx/work/templates/enciclo/veracruz/municipios/30173a.htm>. October, 2012
- SEMARNAT (2009). Normas Oficiales Mexicanas Vigentes. Available at: <http://www.semarnat.gob.mx/leyesyformas/Pages/normasoficialesmexicanasvigentes.aspx>. October, 2009
- SEMARNAT (2012). Definiciones. Available at: <http://www.semarnat.gob.mx>. August, 2012
- SEMARNAT (2013). SEMARNAT 03-052 Autorización para el Aprovechamiento de Recursos Forestales no Maderables. Subsecretaría de Gestión para la Protección Ambiental, México D.F., pp. 1-4.

- SIAP (2012). Anuario Agropecuario 1980-2012. Servicio de Información Agroalimentaria y Pesquera, SAGARPA. Available at: <http://www.siap.gob.mx/agricultura-produccion-anual/>. 21 April, 2014
- Singelmann, P. (2003). La Transformación política de México y los gremios caneros del PRI, *Revista Mexicana de Sociología* Instituto de Investigaciones Sociales, México, D.F., pp. 117-152.
- Sociedades Productoras de Palma Camedor en Chiapas, Solidaridad Campesina Magisterial, A.C. and Palmeiras Productores, S.P.R.d.R.L. (1999). Producción y Aprovechamiento de la Palma Camedor en el Estado de Chiapas Solidaridad Campesina Magisterial, A.C., Chiapas, Mexico. pp. 33.
- Sol Sanchez, A. (2007). Ecological and economic factors affecting the sustainable production of camedor palm (*Chamaedorea elegans* Mart) in Peten, Guatemala and Veracruz, Mexico, CATIE, Turrialba, Costa Rica, 157 pp.
- Svarrer, K. (2005). The economic value on non-timber forest products - A case study from Malaysia. *Journal of sustainable forestry* 20: 17.
- Swedberg, R. (2003). *Principles of Economic Sociology* Princeton University Press. Princeton, New Jersey.
- te Velde, D.W., Rushton, J., Schreckenberg, K., Marshall, E., Edouard, F., Newton, A. and Arancibia, E. (2006). Entrepreneurship in Value Chains of Non-Timber Forest Products. *Journal of Forest Policy and Economics* 8: 725-741.
- The University of Texas (2014). Sabal mexicana. Available at: https://www.wildflower.org/plants/result.php?id_plant=same8. November, 2013
- Toledo, V.M. (1969). Diversidad de especies en las selvas altas de la planicie costera del Golfo de México., Facultad de Ciencias, UNAM, México, D.F.
- Ton, G. (2008). Challenges for smallholder market access: a review of literature on institutional arrangements in collective marketing. *Stewart Postharvest Review* 5.
- Trauernicht, C. (2005). The effects of non-timber forest product cultivation on the plant community structure and composition of a humid tropical forest in southern Mexico. *Forest Ecology and Management* 219: 269.
- UN (1931). *The El Palmar Rubber Estates (Ltd.) (In Liquidation) (Great Britain) v. United Mexican States*, United Nations.
- Verschoor, G. (1997). Entrepreneurs, Projects and Actor-Networks In: H. de Haan and N. Long (Eds.), *Images and realities of rural life: Wageningen perspectives on rural transformations*. Van Gorcum, Assen, The Netherlands, pp. 245-266.
- Viet Quang, D. and Nam Anh, T. (2006). Commercial collection of NTFPs and households living in or near the forests: Case study in Que, Con Cuong and Ma, Tuong Duong, Nghe An, Vietnam. *Ecological Economics* 60: 65-74.
- Villareal, M. (1992). The Poverty of Practice: Power, Gender and Intervention from an Actor-Oriented Perspective. In: N. Long and A. Long (Eds.), *Battlefields of Knowledge: the Interlocking of Theory and Practice in Social Research and Development*. Routledge, London, UK, pp. 247-267.

- Wendt, T. (1993). Composition, floristic affinities, and origins of the canopy tree flora of the Mexican Atlantic slope rain forest. In: T.P. Ramamoorthy, R. Bye, A. Lot and J. Fa (Eds.), *Biological diversity of Mexico: origins and distribution*. Oxford University Press, New York, U.S.A., pp. 595-680.
- Wilsey, D. and Hildebrand, P. (2011). *Chamaedorea* palm frond commercialization and certification considered from a smallholder livelihood system perspective. *Small-Scale Forestry* 10: 67-81.
- Wilsey, D.S. and Radachowsky, J. (2007). Keeping NTFPs in the Forest: Can certification provide an alternative to intensive cultivation? *Ethnobotany Research & Applications* 5: 45-58.
- Yunez-Naude, A. (2003). The dismantling of CONASUPO, a Mexican State trader in agriculture. *The World Economy* 26: 97.

Appendix 1. Chronology of activities during field work

Activity	Location	Year (quarter)												
		2006		2007			2008			2009-Later				
Definition of key stakeholders	Veracruz, MX	x	x	x										
In depth-case study with local producers	Tezonapa, MX		x			x								
Data collection and in depth case at INIFAP	Tezonapa, MX		x	x			x							
In-depth case study with exporters	Los Tuxtlas, MX				x									
Data collection with intermediaries	Córdoba, MX							x	x					
Filling gaps in research	Veracruz, MX									x				
Consultation secondary sources of information	Wageningen, NL												x	x

Appendix 2. NOM-006-RECNAT-1997

NORMA Oficial Mexicana NOM-006-RECNAT-1997, que establece los procedimientos, criterios y especificaciones para realizar el aprovechamiento, transporte y almacenamiento de hojas de palma.

0. INTRODUCCION

0.1. Que de acuerdo con lo establecido en el artículo 11 de la Ley Forestal, el aprovechamiento, transporte y almacenamiento de recursos forestales no maderables, se sujetará a las normas oficiales mexicanas que expida la Secretaría;

0.2. Que dichas normas tienen la finalidad de conservar, proteger y restaurar los recursos forestales no maderables y la biodiversidad de los ecosistemas, prevenir la erosión de los suelos y lograr un manejo sostenible de esos recursos;

0.3. Que las hojas de palma son un recurso forestal no maderable, que se encuentra en los tres ecosistemas forestales: bosques, selvas y zonas áridas;

0.4. Que el aprovechamiento con fines comerciales de estos recursos, se destina para diversos usos, como el ornamental, artesanal y en la construcción de viviendas rurales, principalmente;

0.5. Que es muy amplio el número de especies aprovechables, siendo actualmente las más importantes, en las selvas tropicales, la palma camedor (*Chamaedorea spp.*), la palma sombrero (*Brahea dulcis*), la palma soyate (*Beaucarnea inervis*), la palma palapa (*Orbignya guacuyule*), la palma real o micharo (*Sabal mexicana*), la palma guano (*Chrisophylla spp.*), y para las zonas áridas la palma datilera (*Phoenix dactylifera*) y la palma washingtonia (*Washingtonia robusta*), entre otras;

0.6. Que el aprovechamiento de este tipo de recursos, como la mayoría de los recursos forestales no maderables, genera beneficios de carácter precario, es decir, que los ingresos derivados del mismo apenas si proporcionan un complemento temporal para el sustento de los dueños y poseedores y pobladores que participan en el aprovechamiento; y

0.7. Que el aprovechamiento irracional de las hojas de palma puede ocasionar severos daños al recurso y recursos asociados.

1. OBJETIVO Y CAMPO DE APLICACION

1.1. La presente Norma es de observancia general en todo el territorio nacional y tiene por objeto establecer los procedimientos, criterios y especificaciones técnicas y administrativas para realizar el aprovechamiento sostenible, transporte y almacenamiento de hojas de palma en poblaciones naturales.

2. REFERENCIAS

2.1. Norma Oficial Mexicana NOM-O59-ECOL-1994, que determina las especies y subespecies de flora y fauna silvestres terrestres y acuáticas en peligro de extinción, amenazadas, raras y las sujetas a protección especial, y que establece especificaciones para su protección, publicada en el Diario Oficial de la Federación el 16 de mayo de 1994.

2.2. Manual de procedimientos para Importación y Exportación de Especies de Flora y Fauna Silvestre y Acuática, sus Productos y Subproductos, así como para la Importación de Productos Forestales, Sujetos a la Regulación por parte de la Secretaría de Medio Ambiente, Recursos Naturales y Pesca, publicado en el Diario Oficial de la Federación el 31 de julio de 1996.

3. DEFINICIONES

Para los efectos de esta Norma, se entiende por:

3.1. Centro de almacenamiento: lugar con ubicación permanente y definida, donde se depositan temporalmente materias primas forestales, para su posterior traslado o transformación;

3.2. Centro de transformación: instalación industrial o artesanal, fija o móvil, donde por procesos físico-mecánicos o químicos se elaboran productos derivados de materias primas forestales;

3.3. Hojas: parte de las palmas cuya función principal es la realización de la fotosíntesis, comúnmente se le conoce como follaje;

3.4. Especies con estatus: se refiere a las especies y subespecies de flora y fauna silvestres, catalogadas como en peligro de extinción, amenazadas, raras y sujetas a protección especial, en la Norma Oficial Mexicana NOM-O59-ECOL-1994;

3.5. Madurez de cosecha: es el conjunto de características específicas de cada planta que determina el momento adecuado para realizar su aprovechamiento en forma sostenible, y se identifica por su etapa de desarrollo y dimensiones;

3.6. Madurez reproductiva: etapa en que la planta alcanza las condiciones óptimas para su reproducción sexual;

3.7. Materia prima forestal no maderable: producto que se obtiene del aprovechamiento de cualquier recurso forestal no maderable; así como los productos resultantes de la transformación artesanal, anterior a su movilización comercial;

3.8. Poblaciones naturales: aquellas que no requieren de la intervención directa del hombre para desarrollarse, situadas en terrenos forestales o de aptitud preferentemente forestal;

3.9. Recurso forestal no maderable: la vegetación y los hongos de poblaciones naturales, así como sus partes, sustancias y residuos que no están constituidos principalmente por materiales leñosos, y los suelos de los terrenos forestales o de aptitud preferentemente forestal;

3.10. Responsable técnico: profesional encargado de proporcionar la asistencia técnica para el aprovechamiento, fomento y protección de los recursos forestales; y

3.11. Secretaría: Secretaría de Medio Ambiente, Recursos Naturales y Pesca.

4. PROCEDIMIENTOS, CRITERIOS Y ESPECIFICACIONES PARA REALIZAR EL APROVECHAMIENTO, TRANSPORTE Y ALMACENAMIENTO DE HOJAS DE PALMA DE VEGETACION FORESTAL

4.1. Del aprovechamiento.

4.1.1. Para realizar el aprovechamiento de hojas de palma, el dueño o poseedor del predio correspondiente, deberá presentar una notificación por escrito ante la Delegación Federal de la Secretaría en la entidad federativa que corresponda, que podrá ser anual o por un periodo máximo de 5 años.

4.1.2. La notificación deberá contener la siguiente información:

- I. Nombre y domicilio del dueño o poseedor del predio;
- II. Título que acredite el derecho legal de propiedad o posesión respecto del terreno o terrenos objeto de la notificación o, en su caso, el documento que acredite el derecho para realizar actividades de aprovechamiento;
- III. Nombre y número de inscripción del responsable técnico en el Registro Forestal Nacional;
- IV. Nombre y ubicación del predio, incluyendo un plano o croquis de localización;
- V. Superficie, especies y cantidad estimada en toneladas por aprovechar anualmente, incluyendo sus nombres comunes y científicos;
- VI. Descripción de los criterios para la determinación de la madurez de cosecha y reproductiva, así como las técnicas de aprovechamiento de cada especie, dentro del marco de los criterios y especificaciones que se establecen en la presente Norma;
- VII. La definición y justificación del periodo de recuperación al que quedarán sujetas las áreas intervenidas, de acuerdo a las características de reproducción y desarrollo de las especies bajo aprovechamiento;
- VIII. Medidas de protección a las especies de fauna silvestre;
- IX. Medidas de protección a las especies de flora y fauna silvestres con estatus;
- X. Medidas para prevenir y controlar incendios, plagas, enfermedades forestales y otros agentes de contingencia; y
- XI. Medidas de prevención y mitigación de impactos ambientales negativos que pudiera ocasionar el aprovechamiento, durante sus distintas etapas de ejecución, así como en caso de suspensión o terminación anticipada.

4.1.3. La elaboración de la notificación y el control técnico del aprovechamiento, será responsabilidad del dueño o poseedor del predio así como del responsable técnico que al efecto contrate, quien deberá estar inscrito en el Registro Forestal Nacional.

4.1.4. Las Delegaciones Federales de la Secretaría podrán proporcionar, de considerarlo necesario y con la debida justificación, la asesoría técnica para la elaboración de la notificación, cuando los ejidatarios, comuneros y demás propietarios o poseedores de terrenos forestales o de aptitud preferentemente forestal, por carencia de recursos económicos o por no estar a su alcance medios alternativos de financiamiento, no puedan contratar dichos servicios.

Para estos casos, las Delegaciones Federales de la Secretaría también podrán contratar con personas físicas o morales inscritas en el Registro Forestal Nacional, la prestación de los servicios de asesoría técnica, mediante un proceso de licitación, de conformidad con la normatividad aplicable y en orden a la disponibilidad de los recursos correspondientes. En los supuestos a que se refiere este apartado, la ejecución de la notificación para el aprovechamiento será responsabilidad directa de los ejidatarios, comuneros o demás propietarios o poseedores de los terrenos de que se trate.

4.1.5. El dueño o poseedor del predio deberá presentar en la Delegación Federal de la Secretaría un informe trimestral, dentro de los primeros 10 días hábiles de los meses de

abril, julio, octubre y enero de cada año, y uno al final del aprovechamiento, avalado por el responsable técnico, respecto del cumplimiento de lo especificado en la notificación, indicando a su vez, las cantidades aprovechadas en toneladas.

4.1.6. El aprovechamiento de hojas de palma quedará sujeto a los siguientes criterios y especificaciones técnicas:

I. Sólo se podrán aprovechar plantas en la etapa de madurez de cosecha, identificándolas por el tamaño y las características vegetativas de cada especie;

II. Para el caso de palma camedor (*Chamaedorea spp*) la madurez de cosecha adecuada se identificará cuando las hojas tengan las siguientes características:

a. Coloración verde oscura;

b. No presentar daños significativos (marchitamiento, manchado, rajaduras, picaduras); y

c. Estén libres de plagas y enfermedades.

El follaje de mayor tamaño y mejores características, por lo general, alcanza mejores precios.

III. Deberá dejarse distribuido uniformemente en el área de aprovechamiento sin intervenir, por lo menos el 20% de las plantas en etapa de madurez de cosecha, para que lleguen a su madurez reproductiva y propiciar la regeneración por semilla;

IV. Durante el aprovechamiento, se deberá utilizar la herramienta adecuada, a efecto de no dañar la zona de crecimiento terminal;

V. De cada hoja cortada deberá dejarse una parte del pecíolo, de 3 a 5 cm, a fin de no dañar el tallo principal de la planta;

VI. La intensidad de corta en cada planta deberá ser como máximo del 75% del total de las hojas existentes, incluyendo en este porcentaje la eliminación de las hojas secas; y

VII. Se deberán dejar de 3 a 4 hojas en la parte cercana a la zona de crecimiento terminal.

4.1.7. La Secretaría, por conducto de sus Delegaciones Federales, con base en estudios técnicos y científicos, determinará las áreas de los predios en las que deberá suspenderse temporalmente el aprovechamiento para permitir la recuperación del recurso. Al respecto, la Delegación Federal de la Secretaría notificará por escrito a los interesados, a fin de que en un plazo de 20 días hábiles, contado a partir de la fecha en que reciba la notificación, manifiesten lo que a su derecho convenga.

4.1.8. Las especies con estatus podrán incorporarse al aprovechamiento previa autorización que al efecto emita el Instituto Nacional de Ecología, de conformidad con lo establecido en la Ley General del Equilibrio Ecológico y la Protección al Ambiente, y demás ordenamientos legales aplicables. Dicha autorización deberá solicitarla el interesado y, una vez obtenida, entregarla anexa a la notificación de aprovechamiento.

4.1.9. En terrenos comprendidos en zonas declaradas como áreas naturales protegidas, el aprovechamiento de hojas de palma podrá realizarse previa autorización que expida el Instituto Nacional de Ecología, de conformidad con lo establecido en la Ley General del Equilibrio Ecológico y la Protección al Ambiente, y demás ordenamientos legales aplicables. Dicha autorización deberá solicitarla el interesado y entregarla anexa a la notificación de aprovechamiento.

4.1.10. Cuando se suspenda el aprovechamiento antes del término de la notificación, el dueño o poseedor del predio deberá informar a la Delegación Federal de la Secretaría, debiendo en este caso cumplir con las medidas de mitigación de impactos ambientales negativos previstos en la notificación, de acuerdo con la superficie aprovechada.

Para reiniciar el aprovechamiento, el interesado deberá presentar una nueva notificación.

4.2. Del almacenamiento.

Los responsables de los centros de almacenamiento de hojas de palma, incluyendo aquellos que estén ubicados en las instalaciones de los centros de transformación, deberán:

I. Solicitar la inscripción de los mismos en el Registro Forestal Nacional, acreditando su personalidad y debiendo proporcionar los siguientes datos del establecimiento:

- a. Nombre, denominación o razón social;
- b. Domicilio fiscal;
- c. Copia de la cédula de identificación fiscal o del Registro Federal de Contribuyentes;
- d. Ubicación;
- e. En su caso, el giro o giros a que se dedique el centro de transformación en cuestión; y
- f. Capacidad de almacenamiento y, en su caso, de transformación instalada, en toneladas.

II. Informar trimestralmente dentro de los primeros 10 días hábiles de los meses de abril, julio, octubre y enero de cada año, a la Delegación Federal de la Secretaría en la entidad federativa correspondiente, sobre las entradas y salidas del producto del trimestre inmediato anterior, utilizando los formatos que se anexan como apéndices 1 y 2 de la presente Norma.

4.3. Del transporte.

4.3.1. El transporte de hojas de palma, desde el predio a los centros de almacenamiento o de transformación, se realizará al amparo de remisión o factura comercial, expedida por el dueño o poseedor del recurso o el responsable del centro de almacenamiento, siempre y cuando dicho producto se transporte por cualquier vehículo automotor.

4.3.2. La factura o remisión comercial deberá contener además de los requisitos establecidos por la Secretaría de Hacienda y Crédito Público, lo siguiente:

- I. Número de folio asignado por la Delegación Federal de la Secretaría, al acusar recibo de la notificación de aprovechamiento correspondiente;
- II. Ubicación y número de inscripción del centro de almacenamiento en el Registro Forestal Nacional;
- III. En su caso, nombre y ubicación del predio del que proviene el producto; y
- IV. Domicilio al que se envía el producto y el peso que se remite.

(...)

7. OBSERVANCIA DE ESTA NORMA

7.1. Esta Norma es de observancia obligatoria para quienes se dediquen al aprovechamiento, transporte y almacenamiento de hojas de palma, en poblaciones naturales.

7.2. Se considera incumplimiento a la presente Norma, cuando:

- I. Se realicen aprovechamientos sin presentar la notificación correspondiente;
- II. Se proporcione información falsa en la notificación de aprovechamiento;
- III. No se presente la información adicional a la notificación cuando así lo requiera la Secretaría;
- IV. No se soliciten las inscripciones registrales previstas en la presente Norma;
- V. Se ejecuten aprovechamientos forestales, transporten o almacenen hojas de palma en contravención a las disposiciones contenidas en la presente Norma y lo especificado en la notificación correspondiente;
- VI. No se presenten los informes previstos en la presente Norma;
- VII. Se falsifique o altere la documentación para amparar el transporte de hojas de palma;
- VIII. Se transporten hojas de palma, sin la documentación respectiva; y
- IX. Se ejecuten actos u omisiones que contravengan las disposiciones de la presente Norma.

7.3. La Secretaría, por conducto de la Procuraduría Federal de Protección al Ambiente, realizará las visitas de inspección y auditorías técnicas que se requieran para vigilar el cumplimiento de las disposiciones contenidas en esta Norma.

El incumplimiento de la presente Norma, así como las violaciones e infracciones cometidas respecto de sus disposiciones, se sancionarán en los términos de la Ley Forestal, de la Ley General del Equilibrio Ecológico y la Protección al Ambiente, y demás ordenamientos legales aplicables.

TRANSITORIOS

PRIMERO. La presente Norma entrará en vigor al día siguiente de su publicación en el Diario Oficial de la Federación.

SEGUNDO. Los permisos de aprovechamiento de hojas de palma, expedidos con anterioridad a la fecha de entrada en vigor de la presente Norma, continuarán teniendo validez, sin perjuicio de que su titular cumpla con las demás disposiciones establecidas en la misma.

TERCERO. Los centros de almacenamiento, a partir de la entrada en vigor de la presente Norma, tendrán un plazo que no podrá exceder de tres meses para solicitar su inscripción al Registro Forestal Nacional.

CUARTO. Las notificaciones presentadas con anterioridad a la entrada en vigor de la presente Norma, continuarán vigentes, debiendo ajustarse a lo estipulado en el punto 4.1.2. de la presente Norma en un plazo de 60 días naturales, contado a partir de su entrada en vigor.

México, D.F., a 26 de febrero de 1997.- La Secretaria de Medio Ambiente, Recursos Naturales y Pesca, Julia Carabias Lillo.- Rúbrica.

Appendix 3. *Chamaedorea* palm species considered in NOM-059-ECOL-2001

The following abbreviations are utilized to identify endangered species (P), as well as those threatened (A) and ones subject to special protection (Pr).

Table 3. *Chamaedorea* palm species considered in NOM-059-ECOL-2001

Genre	Specie	Common Name	Category	Distribution
<i>Chamaedorea</i>	<i>alternans</i>	camedor tepejilote	A	non-endemic
<i>Chamaedorea</i>	<i>arenbergiana</i>	-	A	non-endemic
<i>Chamaedorea</i>	<i>atrovirens</i>	palma camedor	A	non-endemic
<i>Chamaedorea</i>	<i>carchensis</i>	tepejilote chiapaneco	A	non-endemic
<i>Chamaedorea</i>	<i>cataractarum</i>	guayita de arroyo	A	endemic
<i>Chamaedorea</i>	<i>elatior</i>	junco de bejuco	A	non-endemic
<i>Chamaedorea</i>	<i>ernesti-augusti</i>	camedor chapana	A	non-endemic
<i>Chamaedorea</i>	<i>ferruginea</i>	tepejilote tedza	A	non-endemic
<i>Chamaedorea</i>	<i>foveata</i>	tepejilote de monte	A	non-endemic
<i>Chamaedorea</i>	<i>fractiflexa</i>	tepejilote torcido	A	non-endemic
<i>Chamaedorea</i>	<i>geonomiformis</i>	-	A	non-endemic
<i>Chamaedorea</i>	<i>glaucifolia</i>	camedor despeinado	P	endemic
<i>Chamaedorea</i>	<i>graminifolia</i>	palma fina	A	non-endemic
<i>Chamaedorea</i>	<i>hooperiana</i>	tepejilote lancetilla	A	non-endemic
<i>Chamaedorea</i>	<i>klotzschiana</i>	tepejilote ancho	Pr	endemic
<i>Chamaedorea</i>	<i>liebmannii</i>	-	A	non-endemic
<i>Chamaedorea</i>	<i>metallica</i>	camedor metálico	P	endemic
<i>Chamaedorea</i>	<i>microspadix</i>	tepejilote coralillo	A	endemic
<i>Chamaedorea</i>	<i>nubium</i>	camedor junco	A	non-endemic
<i>Chamaedorea</i>	<i>oreophila</i>	rabo de bobo	A	endemic
<i>Chamaedorea</i>	<i>paradoxa</i>	tepejilote jade	A	non-endemic
<i>Chamaedorea</i>	<i>parvisecta</i>	tepejilote chaté	A	non-endemic
<i>Chamaedorea</i>	<i>pinnatifrons</i>	tepejilote cimarrón	A	non-endemic
<i>Chamaedorea</i>	<i>pochutlensis</i>	tepejilote canelillo	A	endemic
<i>Chamaedorea</i>	<i>queroana</i>	tepejilote pacayita	A	endemic
<i>Chamaedorea</i>	<i>quezalteca</i>	camedor chicuilote	A	non-endemic
<i>Chamaedorea</i>	<i>rhizomatosa</i>	tepejilotillo delgado	A	non-endemic
<i>Chamaedorea</i>	<i>rigida</i>	camedor rígido	A	non-endemic
<i>Chamaedorea</i>	<i>rojasiana</i>	camedor molinillo	A	non-endemic
<i>Chamaedorea</i>	<i>sartorii</i>	tepejilote chapanillo	A	non-endemic
<i>Chamaedorea</i>	<i>schiedeana</i>	tepejilote cuiliote	A	endemic
<i>Chamaedorea</i>	<i>simplex</i>	camedor caña verde	A	non-endemic
<i>Chamaedorea</i>	<i>stolonifera</i>	camedor chibh	A	endemic
<i>Chamaedorea</i>	<i>stricta</i>	camedor kum	A	non-endemic
<i>Chamaedorea</i>	<i>tenella</i>	camedor guayita	P	endemic
<i>Chamaedorea</i>	<i>tuerckheimii</i>	camedor guonay	P	non-endemic
<i>Chamaedorea</i>	<i>vulgata</i>	cepejilote kip	A	non-endemic
<i>Chamaedorea</i>	<i>whitlockiana</i>	camedor pesmilla	A	non-endemic
<i>Chamaedorea</i>	<i>woodsoniana</i>	tepejilote pacaya grande	A	non-endemic

Source: (SEMARNAT, 2009)

Summary

Interest in Non-Timber Forest Products (NTFPs) has grown with increasing awareness of tropical forest deforestation and amplified recognition for the need to add value to forest resources. However, NTFPs continue to be regarded by many as marginal goods incapable of competing with timber as a viable economic alternative use of tropical and subtropical forests. In Mexico, several NTFPs are exploited in various ecosystems helping conserve forested areas, providing “the poor” access to cash in moments of uncertainty and relieving pressure on timber resources. Nonetheless, the benefit for conservation is highly debated and remains undecided as yet. NTFP proponents suggest that the development of commercial enterprises can be of significant benefit for forest users by providing a direct link between producers and markets, organizing markets as well as the development of infrastructure.

Current policy, developed by government institutions in Mexico, led by the work of the National Forestry Commission and SEMARNAT back up these ideas. They propose the development of rural firms as means to organize regional markets. The General Sustainable Forestry Law is the best example of government policy in reorganizing Mexican forestry activity by amplifying the scope of timber and non-timber forest products and setting guidelines for the development of rural firms, and encouraging entrepreneurship as the main turning point to expand the sector. Despite great amounts of energy and resources spent on generating accurate policy, these have not proved to be entirely successful regarding the insertion of rural firms in regional and international markets.

The main inquiry of current academic and policy debates concerning NTFPs commercialization focuses on how to successfully integrate local actors into global markets. Consequently, sustainable development programs shift towards an increased interest of market-oriented activities overlooking the struggles and bottlenecks of local actors in accessing markets. So far unsuccessful, the premise that organization is simple is challenged by countless struggles and obstacles, when NTFP users – acting collectively or individually – attempt to establish firms.

A shortcoming in the NTFP literature adds to this impasse when exploring marketing issues (e.g. global value chain, innovation system approach, global production networks). Although it has proved to be helpful in understanding the flow of products from the local level to the final consumer, commonly associated with export-oriented trade, this literature fails in noticing the difficulties in establishing firms. Thus, actors’ struggles to establish NTFP firms are obscured. I suggest that this “black boxing” contributes to a misconception of the main constraints to access markets and consequently of a correct development of policies. Paradoxically, at first sight this statement might seem pointless, as hundreds of NTFPs seem to be traded everyday worldwide.

Supplying a new insight into this problem, this thesis explores actors’ practices to understand the different forms of organization, processes of interaction and negotiation between actors involved in the use and commercialization of NTFPs. The analysis of these practices seen through observation and accounts of the actors’ life-histories, everyday practices, the arrangement of individual actions within different production and commercial activities, serve to elucidate the multiple facets/aspects of different actors in the market for NTFPs in diverse commercial, social, economic and political arenas. By doing so, this thesis captures the experiences of actors in the *Chamaedorea* market; an important NTFP product marketed worldwide. These experiences are fundamental in answering the main research question: **How are Chamaedorea palm commercial initiatives built in**

Veracruz, Mexico, and what are the main limitations for their consolidation and access to the markets?

Focusing primarily on the analysis of key actors in the Mexican market, from production up until the export market, this thesis offers a detailed account of how diverse efforts to access markets are constructed and **argues that it is important to focus on organizing practices and problem-solving capabilities of actors, needed to circumvent bottle-necks in the design and development of NTFP firms, a point often ignored or taken for granted in the literature on NTFPs.** Taking on an actor-oriented perspective, detailed ethnographies and actor's life-stories introduce actors' struggles and various arrangements/strategies in establishing firms, yielding an interesting insight that would be unnoticeable if these processes developed smoothly. The contribution of this thesis to the debate on how NTFPs firms are constructed and maintained, proposes a reconsideration of NTFPs policy initiatives in developing markets and enhancing benefits to forest users, a major nuisance of current NTFPs policies worldwide.

This thesis is structured in eight chapters. **Chapter 1** starts the book by presenting the entanglements of the international market for *Chamaedorea*, offering a bird's-eye view of the diverse aspects of the world of the global trade of *Chamaedorea*. I highlight the multiple uses of *Chamaedorea* as I trace the life of the frond itself along its route from the production areas to the final destination, the consumers in national and international markets. I emphasize the heterogeneity of the actors involved in the market for *Chamaedorea* worldwide. Specifically, I am interested in presenting the set-up of the international value chain and making visible the multiple interactions of actors involved in its commercialization.

Chapter 2 gives the general overview of the research problem, research area, discusses the theoretical approach and presents the basic concepts used in this study. It also discusses the advantage of a multi-sited approach that led me to conduct the present research in diverse locations in the southeastern part of the State of Veracruz, Mexico. This chapter also presents a discussion of the main debates surrounding the marketing of NTFPs and the importance of the global trade in *Chamaedorea*. In particular, I focus on the debate regarding the inefficiencies of policy intervention in supporting the consolidation of local NTFPs firms. Conservation projects aimed at maintaining natural ecosystems and diminishing pressure on forested areas rarely consider constraints in developing viable firms. In these cases, sustainability is hard to achieve when efforts at the local level remain weak, having difficulties in accessing markets locked in by arduous regulation.

Chapter 3 presents a case study of La Flor de Catemaco, the main exporter and initiator of *Chamaedorea* production in Mexico. With over 30 years of experience, this company has become "the" most successful of its kind exporting fronds to the United States, Canada and Europe. This firm is established on 120 ha of land on which they produce several tropical fronds and employ more than 200 people from the surrounding areas of Catemaco, Veracruz. In 2003 they were awarded with the National Forestry Prize, presented to organizations that have made a significant contribution to sustainable resource management and the improvement of the socio-economic situation of rural communities. Half of the palm traded by this company is grown on its plantations; while the rest is supplied by various producing areas from the southeast of Mexico.

This case study shows how intricate the work is of maintaining a robust management within a firm that is able to position itself as a role model of rural organization. The robustness of this firm resides in its partnership with its American counterpart Continental Floral Greens, a company that sets strong guidelines in regard to production, quality control and rigid buying schemes. Although La Flor de Catemaco is regarded as "a model" for rural

organization, this thesis argues that experiences –partly those of local private entrepreneurs backed up by foreign capital– do not represent the majority of cases in rural Mexico.

Operationally, managing a robust rural firm entails more complicated sets of practices directed by the market, such as selection processes, marketing strategies and alliances with buyers abroad. I discuss the processes and practices that transformed the firm (direct external investment, complete private ownership of land, and mono-crop/plantation) and developed favorable conditions to establish La Flor de Catemaco as the most successful in its field.

In contrast in **Chapter 4** the strategies and organizing practices of local producers are presented. I describe the dynamics of production and marketing from the point of view of local producers. In this sense, local producers make use of a diverse set of available resources in the tropical ecosystem by producing various crops – namely coffee, rubber and sugar-cane – for their main source of income, complemented with the production of *Chamaedorea* fronds. I present how local producers link up with institutions – private and government agencies– to achieve financial support in order to develop community projects regarding sustainable resource management. Through various narratives, one learns how local producers internalize past and present experiences in everyday practices and are motivated to weave social ties to consolidate networks to achieve common goals.

Specifically, we follow the organizing practices of Juventino, a local producer and community representative of Limonestitla - a community in the municipality of Tezonapa, Veracruz. The multiple ways in which Juventino links up with different community members to participate in the production of *Chamaedorea* fronds presents the problem-solving capacity of local producers and their mobilization of resources in order to link their community goal with diverse intervening – public and private – institutions. Even though limited in resources, a strong commitment to learning and working towards a “better community” reflects the ambition to link Limonestitla to outside commercial ventures. These accounts serve to elucidate the multiple/heterogeneous nature of the arrangements of individual and collective actions within NTFP production and marketing.

Chapter 5 follows the life and demise of Productores Integrados de Tezonapa (PROINTE) a cooperative formed in the community of El Paraíso, municipality of Tezonapa, Veracruz, in 2007. At the time of its foundation, 15 local producers came together with the objective to market fronds for the local and regional markets. Within a few months’ time, the project expanded its area of influence to over 51 communities and 400 small-scale producers of the region, but it failed and stopped functioning soon after its foundation.

This chapter offers a comprehensive record of the project and illustrates the complexity in the formation of a small-scale NTFPs producer organization in rural Mexico. It analyses the main struggles/bottle-necks that followed the demise of the cooperative. Specifically, it shows how resources were mobilized and coordinated by José – founder and mastermind of the cooperative – and the way in which he incorporated others in the attempt to consolidate the cooperative. The main struggles relate primarily to the practices of the cooperative’s Board in its attempt to reach representational positions in the regional political arena, rather than prioritizing the demands involved with the consolidation of the newly born organization.

Analyzing these forms of organization as processes of interaction and negotiation between representatives of different social orders shows that these firms not only serve one motive but, for instance in this case, are used as springboards to achieve goals other than market access. The focus on actors’ practices to understand this complexity and the room for

manoeuvre in establishing firms make apparent processes and struggles that would not have been visible if processes would run smoothly.

Chapter 6 provides a detailed account of the practices of a middleman and his various efforts to consolidate his position as participant in the market for *Chamaedorea* palm. The case-study elucidates a central component of intermediaries' organizing practices involved in the marketing of NTFPs by relying upon a multi-tasking environment and the persistent mobilization of resources across spheres with no clear-cut boundaries. The main bottlenecks and difficulties of intermediaries reside in the struggle to keep up with quality, overcoming legal procedures for transportation, and keeping to the demands of clients in the export markets. Manoeuvring her way through the local and export markets demonstrates clearly how Martha constructs social networks that evolve through time in her aim to establish long-term business relationships with new clients abroad.

Chapter 7 describes the efforts of a research practitioner in establishing diverse projects and diffusion of knowledge in *Chamaedorea's* main production areas in southeast Mexico. It illustrates the work of association and the unfolding of events entrenched in developing knowledge of *Chamaedorea*. The key actor of this account is Elías, a researcher from the National Institute for Investigation in Forestry, Agriculture and Animal Production (INIFAP) at "El Palmar" research center in Veracruz. Even though his activities are not directly related to the commercial field, they are strongly related to local producers' practices and the problem-solving capacities of actors in the market for *Chamaedorea* – for example, decisions regarding the choice of production models, harvest times and the establishment of plantations.

Throughout the chapter, I narrate Elías's efforts in establishing diverse *Chamaedorea* production projects in association with various crops such as coffee, rubber or timber. Over the course of the chapter, I present extracts of interviews that make clearly visible how Elías gathers information by engaging in visits to producers, making field trips, collecting botanical material, lobbying with potential funding institutions, and linking himself with other specialists in his field. Elías's struggles reside in gathering and translating information into workshops and technical assistance accessible to producers.

In this chapter, I focus on the interface situation generated by the work of Elías and the establishment of *Chamaedorea* plantations at the local level. The case shows how Elías works, how he constitutes a set of heterogeneous activities that are influenced by policy, his perception of producers and other actors in the market of *Chamaedorea*.

Chapter 8 presents the conclusions of the thesis. Drawing conclusions from the case studies, I criticize the current approach in formulating policy initiatives that take for granted/obscure the struggles of establishing NTFP firms, as they pose an incomplete picture of the real life of firms. I argue that policy developers should be informed empirically about the struggles/bottlenecks that arise in establishing NTFP firms and how actors' practices shape the *Chamaedorea* market as the outcome of policy and government intervention.

Throughout this thesis, I demonstrate that policies regarding the establishment of NTFP firms have not been successful in reaching their aim, as they leave out the heterogeneous and multiple characteristics of NTFP production and marketing. I draw attention to the complexity of building and maintaining a NTFP firm and argue that focusing on organizing practices help highlight a key factor in the understanding of NTFP enterprise operations – namely, the room for manoeuvre – needed to deploy and establish a firm.

Understanding organization as a process of arranging social networks provides a useful counterpoint to explain how markets are constructed and maintained. This thesis aims to address policy-makers and make them understand that firm development is a complex and socially constructed process across multiple scales. By acknowledging actors' struggles involved in the production and marketing of NTFPs, one recognizes that firms – and certainly rural NTFP firms – are built with considerable effort. Furthermore, actors involved in the use of NTFPs are based on a mixture of market-based and subsistence economies, and one of their main strategies for survival and risk is diversification.