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RESISTANCE IN ACTION: MOBILIZATION OF MAYAN BEEKEEPERS AGAINST GM SOY: THE CASE OF THE "COLECTIVO MA OGM"

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María del Refugio Boa Alvarado

Dedication

I dedicate my research to the people that are dreaming and building other worlds, especially the ones I had the opportunity to meet during my research in Mexico. Thank you for sharing a life experience and for lighting my heart in the search of justice and an a dignified life for everybody.

I also dedicate my work to my parents, Homero Boa and Gloria Alvarado. Without their support and motivation I would not have reached the goals I have achieved in my life so far. ¡Gracias por darme alas y enseñarme a volar!

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ABSTRACT

This research explores how the opposition to genetically modified organisms (GMO's) in the Yucatan Peninsula. By using the notions of *assemblage* and *territorialisation* to account for collective action growth, this thesis attempts to contribute to the debate on social movements. Empirical research based on participatory observation and composed of semi-structured interviews and secondary data analysis was carried out over the span 8 weeks. The thesis recounts the resistance to GMO's in three episodes: I) The authorization of GM soybean and its affects; II) the MA OGM (Mayan for 'no to GMO') movement: The processes of *becoming*; and III) the Mayan indigenous consultation process. The focus was on the multiple and fluctuating practices that underlie the territorialisation of the anti-GMO assemblage. These practices cross-cut legal and political arenas, and have produced spaces for contestation, collaboration and reflection to resist a model of industrial production in which GMOs are key. These spaces of *becoming* involve heterogeneous actors who, through collective actions, generate alternative discourses and produce knowledges otherwise. This thesis attempts to give voice to the actors who create these new discourses and forms of knowledge.

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ACRONYMS

ANT	Actor-Network Theory
CIBIOGEM	Comisión Intersecretarial de Bioseguridad de los Organismos Genéticamente Modificados
CDI	Comisión Nacional para el Desarrollo de los Pueblos Indígenas
CECCAM	Centro de Estudios para el Cambio del Campo Mexicano
CONABIO	Comisión Nacional para el Conocimiento y el uso de la Biodiversidad
CONANP	Comisión Nacional de Áreas Naturales Protegidas
ECOSUR	El Colegio de la Frontera Sur
EDUCE AC	Educación, Cultura y Ecología, A.C.
ERA	Estudios Rurales y Asesoría
GEA	Grupo de Estudios Ambientales
GM	Genetically Modified
GMO	Genetically Modified Organism
INDIGNACION	Indignación, Promoción y Defensa De Los Derechos Humanos, A.C.
INECC	Instituto Nacional de Ecología y Cambio Climático
LITIGA	Organización de Litigio Estratégico de Derechos Humanos
NAFTA	North American Free Trade Agreement
NGO	Non-Governmental Organizations
NSM	New Social Movement Theory
NSCJ	National Supreme Court of Justice
OGM	Organismo Genéticamente Modificado
ONA	Organización Nacional de Apicultores
RMT	Resource Mobilization Theory
RR	Roundup Ready®
SAGARPA	Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación
SEDUMA	Secretaría de Desarrollo Urbano y Medio Ambiente
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales
SENASICA	Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria
UNORCA	Unión Nacional de Organizaciones Regionales Campesinas Autónomas
USA	United States of America
YP	Yucatán Peninsula

CHAPTER 1. Introduction

This Chapter briefly describes the background and problem statement of the opposition to GM soybean in the Yucatan Peninsula, and the goals of the present research. Furthermore, the theoretical framework is presented, taking us to the research questions. At the end the methodology and structure used for the thesis are described.

Background

Over the past decades, all over the world protests, resistances and collective actions have been raised against the so-called modern agriculture model, including biotechnology packages. The debate around genetically modified (GM) crops has been expanding over the years: from benefits and disadvantages of biotechnology in agriculture to trade to environmental and human rights concerns at different levels (Scoones, 2008). Currently, the impacts and consequences of this industrial model have encouraged a worldwide assemblage of networks, organizations, and individuals that resist this model and aimed for construct other alternatives.

In Mexico, these associations have their roots in the peasant movement: The land can't handle anything else[1] (Modonesi, 2011; Damián and Benítez 2013). Mexican farmers and *campesinos* demanded that the Mexican government limit the negative effects of the North American Free Trade Agreement (NAFTA) - amongst others the use of GMOs. Despite the protests, the Mexican government approved the use of GMO's and allowed a free market for corn and beans - the basis of Mexican peasant agriculture. In the context of highly competitive, neoliberal commodity markets, Mexican peasant organizations interpreted this as the "death of the peasantry".

This context supported the creation of the national campaign – "Without corn, there is no country, and nor without beans, put Mexico in your mouth!"- for the defense of Mexican food sovereignty (Damián & Benítez, 2013; Modonesi, 2011). *La Campaña* (The Campaign in Spanish) is a national movement with almost a decade of existence with diverse members. It has been supporting peasant and indigenous struggles and has been constructing an alternative model of production in Mexico (Damián & Benítez 2013).

[1] In 2002, The land can't handle anything else *(El Campo No Aguanta Más* in Spanish) movement was the most important Mexican peasant movement during the first decade of XXI century. The different positions after the signature of the National Agreement for the Countryside ended the coalition but opened the dialogue and debate in the country (Damián & Benítez, 2013)

The alternative model is based on peasant and indigenous styles of production in Mexico and sustained by agricultural practices such as the *milpa*[2] system. The agroforestry system *milpa* is part of a traditional family farming and management model of natural resources in Mesoamerica. Central to the system are bees (because of their pollinization function) and, hence, beekeeping – an activity that today provides important environmental services (UCCS, 2012) as well as monetary resources to peasants and their communities (Echazarreta, Quezada-Euán, Medina, & Pasteur, 1997; Faust, 2001; Porter-Bolland, 2001; Gómez, Villanueva, Güemes, Echazarratea & Pat, 2003; Toledo, Barrera, García, & Alarcón, 2007).

Problem statement

In 2012, the Ministry of Agriculture and Livestock of Mexico authorized 253 thousand hectares of GM soybean plantation in the Yucatán Peninsula (YP), the Huasteca region and Chiapas – in total 7 states of Mexico (SENASICA, 2012). The authorization was granted to *Monsanto Comercial S.A. de C.V.* to liberate to the environment, the seeds of Roundup Ready® (RR) soybean in a commercial phase. This authorization included the use of glyphosate as part of the technological package for weed control. In consequence, the resolution motivated diverse effects and reactions in the YP and elsewhere.

To start off, it created a geographical overlap of two contrasting agricultural models: the Mayan[3] traditional model and the industrial model with RR soybean (Gómez González, 2016; UCCS, 2012). In the YP, the *milpa* and beekeeping are the basic productive strategies of the traditional model (Toledo et al., 2007).

The states of the Peninsula, Campeche and Yucatán, are the main producers of honey in Mexico (SAGARPA, 2015b) and this activity has a long tradition in the region (Toledo et al., 2007). The main importer of Mexican honey is the European Union (SAGARPA, 2015a). In 2011, the Court of Justice of the European Union ruled that honey containing more than 0.9% of transgenic pollen needs to be labelled as a GMO product. Although, it was only accepted in the European market, if it had pollen from an authorized GM crop by European regulations. A few months later, transgenic pollen was found in some honey samples from YP

[2] *Milpa* is a very complex system where maize, beans and pumpkin grow along a great diversity of crops, plants, insects and fungus which all together proportionate a nutritious and balanced diet (CONABIO, 2012a)
[3] The Mayan people are considered to be the original inhabitant of the Yucatan Peninsula and northern Central America.

(Raezke, 2012). These new European regulations and the risk of honey pollution caused an impact on the production and commercialization of Mexican honey because of a potential ban on the product.

On top of that, there has been an increase in deforestation where GM soybean was allowed. For instance, the municipality of Hopelchén, in Campeche, has been identified in a deforestation study of the region by Ellis, Romero, & Hernández (2015) as one of the hotspots of deforestation and fragmentation in the Peninsula. It is noteworthy to note that much of the deforestation caused by the expansion of mechanized agriculture is associated with migration of Mayan peasants and the purchase or lease of land by the Mennonite population in the region. The mechanized agriculture in the region is largely practiced by the Mennonites communities (Ellis et al., 2015).

Another important threat was the extended and intensive use of pesticides due to GM crop plantations due to their pesticide dependence. In the case of RR soybean, this GM crop is resistant to glyphosate. This pesticide can be a risky product for human health. The International Agency for Research on Cancer of the World Health Organization (2015) classified glyphosate as "probably carcinogenic to humans". This international organization also declared that there is evidence that this herbicide has caused cancer in animals in laboratory tests. Moreover, this product can eradicate traditional bee's foraging vegetation and can be a toxic product for several wildlife species (Batllori, 2012).

In summary, the presence of RR Soybean in the YP represents a threat for indigenous and peasant livelihoods. As well as, a threat to the Mayan forest and all its environmental implications. These impacts will sooner or later affect businesspersons, urban population, and other ecosystems.

As a consequence, this situation stimulated the emergence of a GM soybean resistance movement in the Southern Mexico. Members of the Mayan communities (including beekeeping sector) created a common front in collaboration with diverse organizations, institutions, private enterprises and professionals. Some of them have formed activist collectives, like the alliance called MA OGM collective ('Ma' in Mayan means 'no' and 'OGM' is the Spanish acronym for Genetically Modified Organism). In collaboration with

other associations and collectives, they are actively resisting the imposed agricultural model in the region.

This social movement has several points of view. In 2012, a massive campaign against GM soy crops happened. In addition, Mayan people started a legal procedure against Monsanto. The legal procedure against Monsanto has been a long and complex journey. In 2015, the Supreme Court of Justice of Mexico provisionally suspended the planting licenses of Monsanto while indigenous communities are consulted. As there had been numerous indigenous consultation experiences in Mexico and in the world in which the established standards of the 169 ILO agreement had not been fulfilled, this assemblage opposing GMO's in YP has developed diverse strategies to inform, monitor and verify the consultation process.

The theoretical framework

i. Understanding social movements

For some years, many social scientists have been fascinated by the study of social movements and collective action in their different natures. According to Chesters and Welsh (2011:120), "social movements are networks of individuals, groups, organizations involved in complex interactions in real and virtual spaces representing and embodying a variety of causes, ideological positions and expressions of identity". The associations of these actors frame and articulate claims or grievances (Snow, Soule & Kriesi, 2008) that can boost social change (Massey, 2011). Moreover, these collective actions can take part outside or inside settle institutional frameworks (Snow et al., 2008). Their complex nature of associations endorses the exchange of ideas, practices, and resources. Consequently, these movements produce significant information and knowledge related to their area of action (Chesters & Welsh, 2011).

The theories behind the study of social movements are based on collective actions that took place during the 60's i.e. student, environmental, civil and women's mobilizations (Edelman, 2001; Snow et al., 2008; Chesters & Welsh, 2010). These classical theories are the New Social Movements Theory (NSM) and Resource Mobilization Theory (RMT), which aim to understand these movements.

The main differences of these approaches are based on contextual factors as the dissimilar intellectual backgrounds and political frameworks (Chesters & Welsh, 2010). The

theorists of NSM, as Touraine, Melucci, Castell, Habermas, had the intention to explain collective action movements that referred to the 'new struggles' of their time around grievances and changes of 'modernity' (Edelman, 2001; Schurman & Munro, 2006; Chesters & Welsh, 2010). In other words, these theorists explore the social movements focusing on their identity by analysing actors and their agency. While RMT scholars, has a focus on the construction of social movements focusing on resources and strategies by analysing socially connected organizations (Edelman, 2001;Chesters & Welsh, 2010).

In the Latin America region, due to its history, rich culture and great diversity, collective action studies have been explored by numerous researchers and scholars–activists (Edelman, 2001; Sousa Santos, 2001) . Most of the Latin American intellectuals have embraced NSM perspectives due to its emphasis on civil society, and because of their pursuing to transform realities (Edelman, 2001). However, NSMs perspectives in the context of Latin America countries need to acknowledge the local dynamics of power, especially the inequalities among different groups like indigenous communities, peasants or women.

Moreover, there are other critiques of these theories. Some authors identified them as too rigid on their conceptualization of social movements and that background, context, people experiences, and complexity of associations needs to be taken into account (Chesters & Welsh, 2010; Edelman, 2001). These theories do not consider the new knowledge and realities that these collective processes construct. Therefore, it is relevant to rethink these approaches.

In recent years, there has been an increased on studies concerning networks and assemblages for understanding social phenomena like social movements (McFarlane, 2009; Davies, 2012; Marrero-Guillamón, 2013; Müller & Schurr, 2016). These studies have used theoretical tools that stem from Actor-Network Theory (ANT) and Assemblage. In a nutshell, these theoretical bodies of thought argue that, in order to fully understand collective action, pride-of-place should go to socio-material relations.

ii. Actor-Network Theory

Bruno Latour, the founder of ANT, and many other researchers have collaborated with this approach since mid-90. ANT is a relevant approach for studying the emergence of agency

of human and non-human associations, actor-network (Latour, 2002; Latour, 2005). For John Law (2004:157), ANT is an approach that

> "treats entities and materialities as enacted and relational effects, and explores the configuration and reconfiguration of those relations. Its relationality means that major ontological categories (for instance "technology" and "society," or "human" and "nonhuman") are treated as effects or outcomes, rather than as explanatory resources. Actor-network theory is widely used as a toolkit in sociotechnical analysis, though it might be better considered as a sensibility to materiality, relationality, and process."

This toolkit that Law mentions can be formed from different elements as concepts and strategies. The main concepts related to ANT are: *intermediaries* and *mediators* (Latour, 2005), objects that replicate input and objects transform or alter their input, respectively; *oligoptica* as centres of limited power (Latour, 2005) in order to trace associations; and *translation* used to refer to the process of network building.

In ANT, associations are evident by tracing the human and non-human actors (Latour, 1987; Latour, 2005). In other words, ANT's aim is to trace the processes by which actor-network relations are built, preserved and detached (Müller & Schurr, 2016). Outside these networks, there is a *plasma* "composed of myriad of monads, a chaos, a brew..." that is not part of "the social" (Latour, 2002:82). This theory can be a useful toolbox, but more important as an strategy, to study how networks are constructed; how actors and networks are interconnected; and how non-human actors motivate agency.

There are some criticism around ANT concerning the absence of contingency, the neglect of human capacities and its deficient attention on context and background (Thrift, 2000;Müller & Schurr, 2016). This approach has abandoned the history behind the actors and the hind reasons of actor-network's features and capacities (Davies, 2012). The recognition of these limitations shows that ANT can make use of insights from other currents of thought, such as Assemblage thinking.

iii. Assemblage

Assemblage thinking has its origins on the work of Deleuze and Guattari (1987) which attempt to account the processes of creation and stabilization of entities. Nevertheless, it has

been used in different social sciences as anthropology, geography, archaeology and ecology (Anderson & McFarlane, 2011; Müller & Schurr, 2016). In the last years, this approach has been taken by different types of research including its use in topics encompassing the environment (Murray Li, 2007), geography (Anderson & McFarlane, 2011) feminism (Rasmussen & Allen, 2014) and politics (Allen & Cochrane, 2007). There are even a few studies on social movements such as the ones by McFarlane (2009), Davies (2012) and Marrero-Guillamón (2013). Furthermore, Manuel De Landa (2006) attempted to develop an assemblage theory which describes processes of assembly with particular attention to social networks.

There is no specific concept that defines assemblage thinking, nevertheless there are sharing features that describe it. For instance, Deleuze and Guattari (1987), cited by Müller and Schurr (2015:3), referred assemblage as:

> "a multiplicity which is made up of many heterogeneous terms and which establishes liaisons, relations between them across ages, sexes and reigns - different natures. Thus, the assemblage's only unity is that of co-functioning: it is a symbiosis, a 'sympathy'. It is never filiations which are important but alliances, alloys: these are not successions, lines of descent, but contagions, epidemics, the wind."

In other words, *assemblages* are collections of emergent associations of heterogeneous actors linked rhizomatically (De Landa, 2006; McFarlane, 2009; Davies, 2012; Kennedy, Zapasnick, McCann & Bruce, 2013; Müller & Schurr, 2016). A rhizomatic connection refers to multiple and non-hierarchical associations (Kennedy et al., 2013). Moreover, these heterogeneous relations are based on socio-material associations, comprised by human and non-human associations. According to Fox and Alldred (2014: 401):

> "Assemblages (Deleuze and Guattari, 1988, p.88) of relations develop in unpredictable ways around actions and events, 'in a kind of chaotic network of habitual and non-habitual connections, always in flux reassembling in different ways' (Potts, 2004, p. 19) and importantly, operate as machines that do something, produce something."

The previous terms mentioned above - 'chaotic', 'emergent' and 'wind' – appeal to unexpected changes in relations. Socio-material associations are "diffuse, tangled and

contingent" (McFarlane, 2009:562) and come together with a variety of affects, feelings, practices and objects (Kennedy et al., 2013). This results in unpredictable productive processes of assembling and disassembling (McFarlane, 2009). Therefore, assemblages are not rigid, they are emergent complex flows, connections and *becomings* between diverse actors (Müller & Schurr, 2016; Kennedy et al., 2013)

Another feature of assemblage thinking is the notion of *affect*, meaning "the capacity to affect or be affected" (Fox & Alldred, 2015: 401) by any actor – which can be human and non-human. Due to its *becoming* nature (Deleuze & Guattari, 1987), this capacity denotes change of an entity which may be physical, psychological, emotional or social (Fox & Alldred, 2015). An affect can foster different changes. In other words, an assemblage is an expression of affects which are driving forces of associations.

Similarly, this on-going transformation of affective flows provokes te*rritorialisation* and *de-territorialisation.* The first one is the intern process of stabilization by an assemblage, where relationships are made. Importantly, the notion of distance in this process "is a function of the intensity of a relation" (Müller & Schurr, 2016:1). While *de-territorialisation* refers to disturbing processes by emergent elements where associations are dispersed. This process may challenge the existence of an assemblage or lead to a *line of flight* that could offer different possibilities around an assemblage (Fox & Alldred, 2015; Müller & Schurr, 2016). Hence, an assemblage is always in transformation, encouraging different affects due to the temporality of the actor's articulation.

In assemblage thinking, power is referred to as "multiple co-existences – assemblage connotes not a central governing power, nor a power distributed equally, but power as plurality in transformation" (McFarlane, 2009:562). Power resides in the affective flows of assemblages, including "the resultant capacities and constraints produced in bodies, collectivities and things" (Fox & Alldred, 2015:405). In other words, power has a multiplicity of forms and changes according to the affects generated by socio-material relations.

In summary, assemblage can be used to entitle an on-going process of gathering, organizing and setting of how heterogeneous actors become connected to each other as a social movement. Although, this approach has few limitations that need to be acknowledge. Its conceptual material is not fully armed to deal with the different processes of

territorialisation or de-territorialisation that could just result in a general descriptive approach. Moreover, its wider mixture of actors can generate diverse research focuses with high ambiguity and their geographical spatiality is implied (Müller &Schurr, 2016). Nevertheless, the next section describes how these limitations can be overcome by including an ANT approach.

iv. Cross-fertilisation: Assemblage thinking and ANT

Assemblage thinking and ANT share significant similarities and the cross-fertilization of their strengths can foster a better analysis of a social movement. In order to understand its multiplicity and fluidity, both approaches share a relational perspective and emphasize the relevance of socio-material associations (Anderson & McFarlane, 2011; Müller & Schurr, 2016). Moreover, both approaches underscore the processes of emergence. Additionally, another important similarity is the relevance of spatiality in these associations (Müller & Schurr, 2016).

Concerning their strengths, ANT can bring a rich conceptual framework into the analysis that is reduced in assemblage thinking. Specifically, ANT is very useful for engaging empirical research such as case studies. In addition, in order to avoid rigid structures, assemblage thinking embraces fluidity of processes. Associations can change and actors can transform without ending articulations. Moreover, assemblage thinking can share with ANT its vision on actors capacities and potentialities, embracing the affects generated by socio-material associations.

Taking the best of both approaches help us to better describe a heterogeneous collective, its affects and practices. The potential of assemblage thinking improved by the use of ANT can emphasis how complex associations unfold such as social movements. Bearing this in mind, in the interest of understanding the production of social transformation, the cross-fertilisation of assemblage thinking and ANT can explore the affects and (de)territorialisation processes of a social movement.

Research questions

How does the territorialisation of the assemblage opposing GMO's in Yucatan Peninsula unfold?

- What practices underlie this territorialisation?
- What associations underlie this territorialisation?

Methodology

In order to answer the research questions, this thesis uses an empirical research methodology based on a case study of resistance in action. For this, I used a set of techniques for collecting data. The methods that were employed in this study are participant observation, semi-structured interviews and secondary data analysis.

i. Case study

I motivated my inquiry in a case study in South-East Mexico, the social movement opposing GMO's in YP. I chose this research strategy in the interest of doing an intensive analysis of a social movement against GMOs. This case study is focused solely in the processes of two of the YP states, Campeche and Yucatan. However, the associations generated by this resistance not only affect local actors, but has scope at national and international levels. My initial contact with the case study was in 2012, when the first reports related with GMO soybean´s concerns appeared in the local news. The following years, I tracked the case on the media as a concerned person on the topic[4].

For my research, I primarily contacted the collective MA OGM through electronic means. They appeared to me as a central actor of the social movement. At the beginning, they invited me to public events and informal meetings. Afterwards, I participated in workshops and informative activities. Additionally, I realized interviews and assisted to events of other actors involved with the social movement.

ii. Techniques of data collection and analysis

The semi -structured interview is a qualitative research method, which seeks to understand answers that describe the experiences of the interviewee. This method was chosen because through specific questions, the researcher can inquire trends, and during an open conversation, the respondent can provide unanticipated answers that the researcher never had in mind to get

[4] I am Mexican and from the Yucatan Peninsula; the introduction of GMOs in my environment affected me negatively ever since I first heard of it.

at first. Therefore, the empirical material gathered is largely based on semi-structured interviews. For this, key actors were interviewed individually.

The interviews were designed to collect information needed to understand the *affects* and associations that unfold an assemblage opposing GMO's in Yucatan Peninsula. The interviews focused on four parts. The first was conducted to get insights on interviewees personal concerns on GM soybean production model. The second part was intended to discover the practices produce by this collective organization. The third part was concerning the kind of associations generated and about the issues they rally around. Finally, I asked about the opportunities and challenges of this social network.

I ground my sample interviews by initially contacting key leaders of the assemblage. Then through these significant informants, using "snowball sampling" (Noy, 2008), I approached other actors in order to develop an extensive web of interviewees. In order to protect the identity and security of the interviewees, the real names are omitted. It is important to state that the gathered information and statements were collected from mid-March until Mid-May of 2016. This was the period of the start of the indigenous consultation in Campeche, which took place in April 15 of 2016.

In total, 23 interviews were conducted: beekeeper leaders, scientists, lawyers and members of civil organizations and international development organizations. Additionally, I interviewed the Minister of Environment of Yucatan state and the delegate of the Commission of Indigenous people of Campeche. All the interviews were recorded and annotations were made.

My second tool was participant observation. By "following the actors" (Latour, 1987) I intended to shed a light on the practices of those assemblages who resist the GM soybean model and seek social change. I stayed for two months in the Yucatán Peninsula, based in Merida, the capital of Yucatan. From there, I participated in events and attended meetings, conferences and workshops of this social movement in the states of Yucatan and Campeche. Mainly, the community actions such as meetings and artistic events took place in the region of Los Chenes, Campeche. While, in the capital of Yucatán, most of the forums and manifestations were taking place.

Additionally, I carried out secondary data analysis with archival and document data. Including, official government records, press reports and academic and activist's organization publications. I used documentation and archival data to help clarify statements and understand the mobilization processes.

To analyse the respondents' answers, the interviews were transcribed. Afterwards, salient themes that emerged out of the data were coded. For this, I made use of the software Atlas.ti. Later on, the quotations of interviews for this thesis were translated from Spanish to English.

iii. Field work reflection

Once I arrived in Mérida, Yucatán I was invited to assist to an event for the anniversary of the foundation of Ich-Ek, Campeche. To go to the community, I shared a ride with a journalist and two activists. The event consisted of diverse artistic presentations, with two of them focused on providing information about the indigenous consultation process to come. The first was a play about GMOs, surprisingly in Mayan. And afterwards, a young talented boy sang Mayan rap songs about environmental and social issues.

During this activity, I was informally presented to members of the MA OGM collective. I had the opportunity to meet and talk briefly with one of the coordinators, that was my main contact. I explained the purposes of my research and asked if I could assist with any task or activity. This person explained to me that the consent of my research by the collective was not fully agreed upon. They requested that I send a brief summary of my research with a small personal presentation. After a few days, I received a call to assist to another activity. There, it was explained that they had few concerns in accepting my request. Mainly they were concerned about confidentiality issues. Therefore, I guaranteed to do anonymous interviews to avoid the disclosure of confidential information.

I stayed two months in the field, attending public events and informal meetings. Additionally, I participated in workshops and diffusion activities. I completed interviews and assisted events of diverse actors involved with the resistance. For instance, one of the most challenging persons that I had to interview was a member of an educational Non-Governmental Organizations (NGO) who asked me, "How your thesis will benefit communities?" I replied to him, that besides being an academic exercise, it attempted to help

raise awareness of the voices of the members of indigenous communities and people working for the cause. Nevertheless, this questions has haunted me ever since.

Goals of the research

I have defined a paired of goals for this research. The first is academic while the second one is more personal and professional. It is important to state that this study was motivated by a personal interest in the associations of different actors who constructs social change. I am deeply called by the enigma of social relations and collective action. Therefore, this research is a strategy to understand better social dynamics in the context of transformation. In addition, I see it as an opportunity to raise the voices of people that are fighting for their rights and constructing a better future for all.

The academic goal is based on the exploration of how the resistance to GM soybean production in Mexico is setting up a social movement. While many studies on social movements exist, so far there is a shortage of studies on collective action with a network and an assemblage perspective. This type of research needs to be more aware of the context, background and complexity of associations. Recently, a keen debate has emerged about how to use the Assemblage thinking and Actor-Network Theory for the study of empirical work (Müller & Schurr, 2016) and the study of social movements (Davies, 2012; McFarlane, 2009). We need to inquire upon the complex process of coalition building by means of a theoretical background that can engage with this empirical process. My research goal contributes to understand a resistance movement as an assemblage by examining its affects and associations.

Structure of the thesis

This thesis has been organized in seven Chapters in order to address the affects and associations found during the fieldwork and the literature review. Chapter 1, is organized to briefly describe the background of the opposition to GM soybean in the Yucatan Peninsula. It also includes the research goal, its theoretical framework, research questions and methodology.

In Chapter 2, I present the context of the social disputes over GMOs in Mexico. This Chapter is divided in two sections, a national and a regional section. The first is a Mexican overview, which includes a brief summary of the Mexican agro-biodiversity and background of the transformation process of agriculture in Mexico, focusing on the entrance of GMO´s

and national movements. The second part is related to the framework in the Yucatan Peninsula. I describe the conflict for the coexistence of two models of production and end with the context of the resistance.

The Chapters 3, 4 and 5 are the main phases identified of the resistance opposition to GM soybean in the Yucatan Peninsula, each explored individually. The first episode is the authorization of GM soybean and its affects; secondly, it follows the episode of the processes of *becoming* of 'Ma OGM' resistance movement -my case study; and the last episode in Chapter 5, is the Mayan indigenous consultation process.

In the Chapter 6, I discussed the processes of territorialisation of the assemblage opposing GMO's in YP. I focus on the practices and associations that underlie this territorialisation. Finally, in this same Chapter, I made my conclusions and describe briefly the further research possibilities.

CHAPTER 2. Social disputes over GMOs: A Mexican overview

This Chapter provides national and a regional overviews of the background and implications of GMOs. It provides a summary of the importance of Mexican agro-biodiversity and GM crops controversies in Mexico and the generated social movements. The regional section is focused on the repercussions of Mexican policies related with GMOs in the Yucatan Peninsula. Finally, this Chapter ends with the context of the assemblage opposing GMO's production model in the Yucatan Peninsula.

Mexican agro-biodiversity: Heritage and national patrimony

Mexico is the centre of origin and diversification of maize. This crop represents Mexican culture heritage and is the basis of family farming (Morales-Hernández, 2014). Central to the production of maize is the *milpa* system which dates back to pre-Hispanic times and remains a life until today (in Nahuatl language *milpa* means the space where maize is planted). This space has its own particular features according to each producer, indigenous community or climatic region. Although, the most fundamental components of the *milpa* are landraces of maize in association with bean, squash and chili which are basic components of the Mexican diet. This traditional agricultural system represents a complex combination of agronomic practices, crop associations and rotation sequences that differs according to cultural context and agro-environmental conditions (CONABIO, 2012a). Moreover, it is a biocultural heritage in which environmental services such as soil and water conservation, and the preservation of crops and wild flora and fauna are provided.

The *milpa* system allows subsistence opportunities to millions of Mexican families. Besides providing corn, the *milpa* make diverse food products available throughout most of the year (Aguilar, Illsley & Marielle, 2003). Hence, this traditional agricultural system is a production strategy for self-sufficiency. In addition to the *milpa*, peasant families have diversified their livelihood strategies with activities such as beekeeping, hunting or fishing. According to Hernández et al. (2004, as cited in Rodríguez Balam & Pinkus Rendón, 2014) economic activities developed by family members off-farm, such as trade, construction, day labourer, are those which provide an important family income. These revenues, both from men and women, allow to fulfil the clothing, housing and educational needs of rural Mexican households.

In the last decades, due to intense exploitation of land, organic matter reincorporation is no longer allowed. Consequently, soil fertility decreased provoking biodiversity loss and in consequently productive dependence to external products in a long term (Dzib, Baltazar & Escalante, 2012). In many areas, the *milpa* has been abandoned in order to produce other cash-crops required for national and international markets (Aguilar et al., 2003).

Transformation of agriculture in Mexico: GMOs and national movements

In mid-80's, Mexico started its transition from an interventionist state to a neoliberal national project. The state reoriented its activities to facilitate the development of a new industry towards an open economy by reducing social expenditure and creating productive and financial economies to foreign markets. Mexican government disregarded rural development and favoured export-oriented manufacturing and agribusiness (Richard, 2012).

As a consequence of the agrarian reforms, Mexican population grew and natural resources, such as land and water have been over-exploited. In addition, in some regions of Mexico, the *milpa* system fails to meet the food and economic needs of the rural population (Arias, 1994). The *milpa* system yields have been reduced from 1.2 ton of corn to 500 kg/ha (Dzib, Baltazar & Escalante, 2012). This is a result of a paradigm shift, that was initially driven by the Green Revolution model, which involved the introduction of hybrid seeds, heavy machinery, irrigation systems and the use of herbicides, pesticides and chemical fertilizers (Warman 2003, 20 cited in Richard, 2012).

The deep changes in the agricultural sector in Mexico began in 1992 when the Mexican communal land tenure, *ejido*, had a transformation. The *ejidatarios, ejidos'* members, were provided with formal titles to their land, enabling them to lease or sell their plots, if a majority of the members of their *ejido* agreed. This reform encouraged and legalized private land tenure, attempting to provide security to those who owned land and to promote investment. However, the reform was not an integral restructuring:

> "*ejidos* remain poorly integrated to the national and especially international markets mostly because they suffer from a lack of roads and marketing networks (Foley 1991), but also because the constitutional reform was not adequately accompanied by policies to deal with incomplete or segmented credit markets or with water allocation issues" (Avalos, 2013:161).

With basic technology, water issues and deficient access to markets, the *milpa* system has been displaced. Consequently, *ejido* land has been sold to powerful farmers or to corporations, letting the peasants in a more vulnerable and marginalized situation (Avalos, 2013).

In 1994, an international commercial agreement known as NAFTA was started with the United States of America (USA) and Canada. According to the treaty, in the course of 15 years – from 1994 to 2008 – Mexico must open its agricultural trade to its new partners. The NAFTA had three bilateral agreements; the ones with higher relevance were Mexico-USA and USA-Canada. With the bilateral agreement Mexico-USA, the different economic levels and deep inequalities in the agricultural sector were notorious during this association (Marañón & Fritscher, 1988).

For example, Mexican production costs increased in comparison with its competitor – due to American national agrarian subsidies (Fritscher, 2013). Specifically, Mexico had large disadvantages in terms of maize and beans, products that are basic in Mexican diet (Fritscher, 2013). Due to the differences generated by the land tenure reforms and NAFTA impacts, the Mexican government created three programs to support its producers: *Procampo*, *Alianza para el Campo* and *Apoyos para la Comercialización* (Marañón & Fritscher, 1988). However, the *milpa* system started to breakdown, the internal prices of corn were down and a weak demand of regional products from peasant producers (Wise, 2007)

Despite the international success of this treaty and the Mexican government efforts to compensate its effects on the national agricultural sector, there were deep differences in productivity, natural resources and technological resources among trade country partners (Sanchez, 2014). Consequently, Mexican producers demanded Mexican government to limit the negative effects of the NAFTA. This occurred in 2002 when thousands of *campesinos*[5] and farmers formed a coalition 'The land can't handle anything else' (In Spanish, '*El Campo No Aguanta Más*') (Modonesi, 2011; Damián & Benítez, 2013). The movement was raised by

[5] C*ampesinos*, depending on its approach has diverse meaning, for this paper it will be used the one from Vía Campesina (2009): A *Campesino* is a man or woman of the land, who has a direct and special relationship with the land and nature through the production of food and/or other agricultural products. *Campesinos* are peasants that work the land themselves, rely[ing] above all on family labour and other small- scale forms of organizing labour. *Campesinos* are traditionally embedded in their local communities and take care of local landscapes and agro-ecological systems. The term *campesino* can apply to any person engaged in agriculture, cattle-raising, pastoralism, handicrafts-related to agriculture or a related occupation in a rural area. This includes Indigenous people working on the land.

twelve farmer organizations, including the Unión Nacional de *Organizaciones Regionales Campesinas Autónomas* (the National Union of Autonomous Regional Peasant Organizations, Spanish acronym, UNORCA), the National Association of Peasant Commercial Enterprises and the National Union of Producers, Traders, Industrial and Service Providers *El Barzón;* after few months other important groups got involved. This farmer's coalition disclosed six proposals to protect the Mexican countryside, which emphasized the re-negotiation of NAFTA's agricultural treaties as well as prohibition of import and experimental cultivation of GMO crops. Its climax point occurred in January 31, 2003 when more than 100 thousand people occupied the *Zócalo*, the main public square of Mexico City (Damián & Benítez, 2013).

The pressure exerted by different demonstrations of this coalition forced the government to open a dialogue and accept signing of the National Agreement for the Field. The Mexican government agreed to establish some conditions for sovereignty and food security to fostering rural development. However, inside the *campesinos* and farmers' coalition different outlooks about the agreement arose. Few organizations did not sign the agreement, producing the fracture in the movement (Quintana, 2004). Nevertheless, this movement placed peasant demands and their proposals on the national agenda (Damián & Benítez, 2013). Moreover, this *campesino* and farmer's movement raised the interest and participation among non-rural people such as researchers, artists, intellectuals and specially syndicates.

At the same time, in 2002 civil society organizations such as the *Centro de Estudios para el Cambio del Campo Mexicano* (Study Centre for Change in the Mexican Countryside, Spanish acronym CECCAM), *Grupo de Estudios Ambientales* (Environmental Studies Group, Spanish acronym GEA,), Greenpeace Mexico, Estudios Rurales y Asesoría (Rural Studies and Counselling, Spanish acronym ERA), among others called for the first forum in defense of maize. More than 300 representatives of social organizations, farmers, civil society, researchers, and international foundations and government institutions were involved. It attempted to raise awareness about the risks of GM crop contamination in native corn varieties. This event marks the emergence of the national network, in Defense of Maize, which is a referent in the fight against GMOs in agriculture.

By mid-2006, the rural situation in Mexico turned very complex due to the world food crisis (Perelmuter, 2012). A few months later, the *tortillazo* happened - the price of corn and tortillas increased. The main reason was a grain supply shortage in the USA due to the use of grains for agro-fuel. This situation affected Mexico because its maize importations from USA covered almost 30% of Mexican maize consumption (Massieu Trigo, 2009; Perelmuter, 2012). White and yellow maize price increased from 58 to 87 per cent over the course of 2006 until February 2007 (Keleman & García, 2011). This situation affected the economy of Mexican families and put at risk their food security, underlining the dangers of food dependency.

This background supported the creation of the National Campaign in Defense of Food Sovereignty and Re-activation of Mexican Countryside with the slogan: "Without corn there is no country and without beans either, Put Mexico in your mouth!" (Damián & Benítez, 2013; Modonesi, 2011). *La Campaña* (´The Campaign´ in Spanish) is a national movement with almost a decade of existence with more than 300 diverse members. Including farmers, human rights organizations, environmentalists, consumer organizations and citizens from all over the country. The distinctiveness of this assemblage is its roots in rural struggles and its convergence between *campesinos* and other actors from broad social sectors in a peer relationship. It has been supporting peasant and indigenous production and has been constructing an alternative model of production in Mexico (Damián & Benítez, 2013).

Another important peasant network in this social movements is the Vía Campesina that has a global focus on defense of the rights of peasants, rural women, indigenous communities, people without land, migrant land workers and rural youth (Edelman, 2001; La Vía Campesina, 2006). They advocate for food sovereignty, which is the right of people and their states to define their agricultural and food policy that includes peoples' right to healthy and culturally appropriate food production through sustainable practices; and their right to define their own food and agriculture systems (La Vía Campesina, 2003).

In Mexico, the various social movements mentioned above have been processes of resistance and multiple collective actions seeking to defend the Mexican agro-biodiversity and livelihoods of the Mexican countryside. In addition, these social movements are spaces where both rural and urban actors converge to seek other options for a more dignified life. The current dynamics of collective action against GM crops requires a recognition of social and

economic inequalities including power relations in the agro-food system (Edelman, 2001; Motta, 2014; Schurman & Munro, 2006). Social movements against GM crops are creating spaces that foster relationships among different actors and sectors in order to shape alternative food and agrarian models.

The coexistence of two models of production in the Yucatan Peninsula

This is the regional section, which is focused on the repercussions of the transformation of agriculture in Mexico. First, it is briefly describes the traditional model of production in the Peninsula and after, it explores an attempted shift to an industrial agricultural model of production, including GMOs. Finally, this Chapter concludes with the setting of the Mayan resistance to the GM soybean model of production.

i. The traditional Mayan model of production

Peasants of the Yucatan Peninsula, many of them self-identified as Mayans, consider the *milpa* as the centre of their cosmovision (Toledo et al, 2007). In the Yucatán Peninsula, the *milpa* o *kook*, in Mayan language, is an agro-biological space where maize (*Zea mays*) is generally associated with camote (*Ipomoe batata*), squash (*Curcurbita moschate*) and different beans varieties (*Phaseolus vulgaris, Phaseolus lunatus, Vigna spp*) (Dzib, Baltazar & Escalante, 2012). In Mayan communities, the *milpa* is complemented with home gardens, called *solares*, and beekeeping, which has significant functions inside the Mayan *milpa* system (Echazarreta, et al., 1997; Porter-Bolland, 2001; Toledo et al., 2007). In the *milpa* system, products and sub-products produced can be self-consumed, commercialized and exchanged, such as honey. Moreover, in the region beekeeping has been an activity that provides monetary resources to peasants and their communities (Echazarreta et al., 1997;Faust, 2001;Porter-Bolland, 2001;Toledo et al., 2007).

The Mayans have a long beekeeping tradition that has survived over generations, providing important environmental services and constitutes a crucial strategy for the sustainable management and conservation of the Mayan forest. According to Irme (2010) since ancient times, honey was collected mainly from *Melipona beecheii* (the most-used stingless honeybee in Mayan language called '*Xunan kab'*). Both honey and bees were considered sacred and valuable by the Mayans (Imre, 2010;Rodríguez Balam & Pinkus Rendón, 2015).

Honey production turned into an important commercial activity in the region during the 90's when large landowners imported *Apis mellifera* (known as 'Italian bee') and the Mayan producers recognized its high productivity (Cramp, 1998). Beekeeping in the Yucatan Peninsula has been developed from technical to trade segments, mainly with *Apis* bees but few Mayan beekeepers still preserve their practices with Meliponina's bees (Porter-Bolland, 2001). Mexico is one of the most significant honey producer countries in the world (FAO, 2013) and the states of Yucatan and Campeche, in the Yucatan Peninsula, are the two biggest producers of honey in Mexico (SAGARPA, 2015b). In addition, at regional level there are more than 15 thousand beekeepers (CONABIO, 2012b).

i. Two models of production in the Yucatan Peninsula

Mexico's neoliberal shift attempted to foster an intensification of agricultural production in the Yucatan Peninsula (Klepeis & Vance, 2003). To achieve this, structural and policy changes that followed affected the Mayan peasants by making it more challenging to cultivate their *milpas* and sell their products (Lutz, Prieto, & Sanderson, 2000; Carte, McWatters, Daley & Torres, 2010). Vulnerable peasants therefore needed to work for big farmers or to migrate (Lutz et al., 2000).

Since 1990s, mechanized agriculture, which increased investments in the sector by transnational agribusiness and technology had happened with diverse cash crops and livestock projects prevailed as the model of industrial agriculture. This model of industrial agriculture has been fostered in the region by different state policies, most of which, were born in accordance with the NAFTA. The government programs that meant to support peasant production after NAFTA nurtured deforestation in the region and have not succeeded to foster agricultural and rural development (Ellis et al., 2015).

The largest tropical forest in the Mesoamerican region, the Mayan jungle (Rodstrom, Olivieri & Tangley, 1999), is undergoing an intense process of deforestation. In Campeche, during 1988 and 2000 the expansion of livestock production, the increment of agricultural development programs as well as policies associated and urban expansion caused deforestation activities in the area (Bray & Klepeis, 2005; Martínez-Romero & Esparza, 2010; Ellis et al., 2015). Meanwhile in Yucatán, the pressure on the land came from the urban growth, increase of the *milpa* area and investments in cash crops such as chili peppers (Ellis et

al., 2015). Although, in privatized *ejidos* they had greater deforestation rates, while in *ejidos* with collective ownership were more effective in forest conservation (Ellis et al., 2015).

This mechanized model is based on monoculture practices endorsed by technologies packages such as pesticides, hybrids and GMO varieties (Altieri, 1998). The model claims high yield productivity, but it raises diverse concerns of human well-being and o the conservation of natural resources for future generations in many social sectors (Jacobsen, 2013) . First off, the monoculture practices have crops that are more susceptible to sudden massive losses due to pest invasions and climate change (García & Altieri, 2005). Secondly, cycles of nutrients, energy and water requirements turned industrial crops, including GMOs, external input dependents (Altieri, 1998). As a result, monoculture expansion has increased the deforestation rates, as in the Mayan jungle (Ellis et al., 2015). In addition, the debates around GMOs are intense and increasing. People are seeing GMO technology as a hazardous tool of corporations to forced monopolization and manipulation of the market economy (Jacobsen, 2013) while causing ecosystem damages and natural resources deterioration (Gerasimova, 2016).

One of the most noted case where GM soybean production has had significant socio-economic and environmental impacts is from Argentina. In 1996, GM soybean was introduced in Argentina. Twenty years later, the area of production is 20,680,000 ha (SAGPyA, 2016). Comparatively, this area would cover all the states of Yucatán, Campeche, Quintana Roo and Chiapas in Mexico. In 2007, it was estimated that more than 90% of the soybeans produced in the country were GMOs (SAGPyA, 2007, cited in Lapegna, 2013). Soybean production represents almost 29% of Argentina's exports (INDEC, 2014), but there is "a dark side of the boom" (Lapegna, 2013). According to Lapegna (2013:3), "the expansion of GM soybeans has had three main negative consequences: serious environmental damage, intensified economic concentration and the eviction of peasant and indigenous families".

Some authors mention that the GM agricultural model that is accompanied with glyphosate is unsustainable (García and Altieri, 2005; Pengue, 2005; Lapegna, 2013). It has been discovered that in Argentina: deforestation and the use of pesticides have increased dramatically (Pengue, 2005; Lapegna, 2013). The massive and uncontrolled use of pesticides have fostered the appearance of herbicide-resistant weeds, causing contamination in water streams (Lapegna, 2013), and allowed the degradation of soils (Casabe et al, 2007). In

addition, authors such as Pengue (2005:321) reflects on the risk state of Argentina's food sovereignty by concentrating on agro-export commodities without benefiting vulnerable local producers, "leaving poor people without the possibility to afford a diverse diet".

These possible effects and risks have created strong GMO opposition network in Mexico and in the world. This opposition supports diversified agricultural systems, containing varied range of crops to ensure a diverse and rich diet in a more sustainable process that can reduce the vulnerability of poor farmers (Jacobsen, 2013). According to Frison, Cherfas and Hodgkin (2011), diversified agriculture minimizes the risk of harvest failures caused by extreme agro-climatic events such as droughts or floods which are intensified by climate change.

Nevertheless, social movements and various organizations and institutions have been protesting and questioning the assemblage of GMO seeds, technological package (pesticides), mechanized production, monoculture, and related association and are even taking legal actions. This is the case of the resistance movement opposing GMO's in Yucatan Peninsula.

The context of the resistance to GMOs in the Yucatan Peninsula

In Mexico, in order to have a permit to release GMOS for commercial purposes, it is necessary to have completed successful experimental releases and subsequent pilot programs according to the requirements of the Mexican Biosecurity Law. This law states that the Inter-Ministerial Commission on Biosafety of Genetically Modified Organisms (Spanish acronym, CIBIOGEM) needs to stablish the mechanisms of consultation and participation of indigenous communities where the release of GMOs is intended. Importantly, this organization must consider the value of biological diversity of the potential areas of release. However, these important requirements were not fulfilled in time and form.

In 2008, the release of RR soybean in the YP was permitted for its experimental phase. Afterwards, in 2010, the permission for a program pilot was granted. In this phase, 30,000 hectares were granted to release RR soybean. Nevertheless, the presence of GM soybeans in the region was not fully acknowledge. Until 2011 the UNORCA, Greenpeace Mexico, researchers and beekeepers all claimed that honey production and marketing in Yucatan was threatened by this model of production.

The states of the Peninsula, Campeche and Yucatán, are the main producers of honey in Mexico (SAGARPA, 2015b). The Mayan beekeepers and regional honey entrepreneurs were concerned about the implications of GM soybean in nearby areas were beehives and foraging areas of bees were located. Two of the main concerns were the potential pollution of honey with GMO pollen and the impact of massive use of pesticides on the productivity and health of honey bees. In other words, the presence of RR soybean in the YP represented a threat for the livelihoods of indigenous communities as well as risks in the honey market, affecting gatherers and exporters. Above all, the environmental risks involved with this industrial model of production are severe. Two of the most concerning are the deforestation and the potential pollution of the aquifer due to the expansion of mechanized agriculture and the intense use of pesticides.

In November 2011, the first reaction against planting GM soybean was demonstrated by the *Organización Nacional de Apicultores* (National Beekeeping Organization, Spanish acronym ONA), who arranged a forum for the analysis of the impact of GMOs and their impact in beekeeping in the Legislative Palace of San Lázaro, Mexico City. More than 100 beekeepers participated from all over the country as well as social actors related to this activity: members' of honey exporter companies, scientists and civil-society organizations (ONA, 2011).

After this first event others were organized throughout the Peninsula (Gómez González, 2016). One of the first ones of the region was called by the United Nations Development Program (UNDP), the forum "Beekeeping and Transgenics in Hopelchén Municipality" which was an important space where producers and beekeeping leaders, including members of the Indigenous Beekeeping Union of the Chenes acknowledged the risks of GMO´s in the region. Consequently, they made first agreements to call for the intervention of the municipality and Campeche state authorities to prevent SAGARPA´s authorization to use GMO crops. In addition, other forums followed including the forum titled "The transgenic, a threat for *campesinos* life", arranged by the NGO *Ka Kuxtal Much Meyac*.

Besides these events, in the Yucatan state, a legal process started against the plantation of RR soybean in the pilot phase. This first legal recourse aimed to suspend the permit of the release of RR soybean in its pilot project. Nevertheless, by June 2012, Mexican government allowed the cultivation in commercial phase of 25,3500 hectares in seven entities of the

country, with 60,000 hectares granted in the Yucatan Peninsula alone (Figure 1). Therefore, in order to stop the authorization for commercial purposes, the legal recourse was extended in Yucatan State and replicated in Campeche and in other states. In Campeche state, the legal process was initiated by indigenous communities of Hopelchén with the support of NGO members.

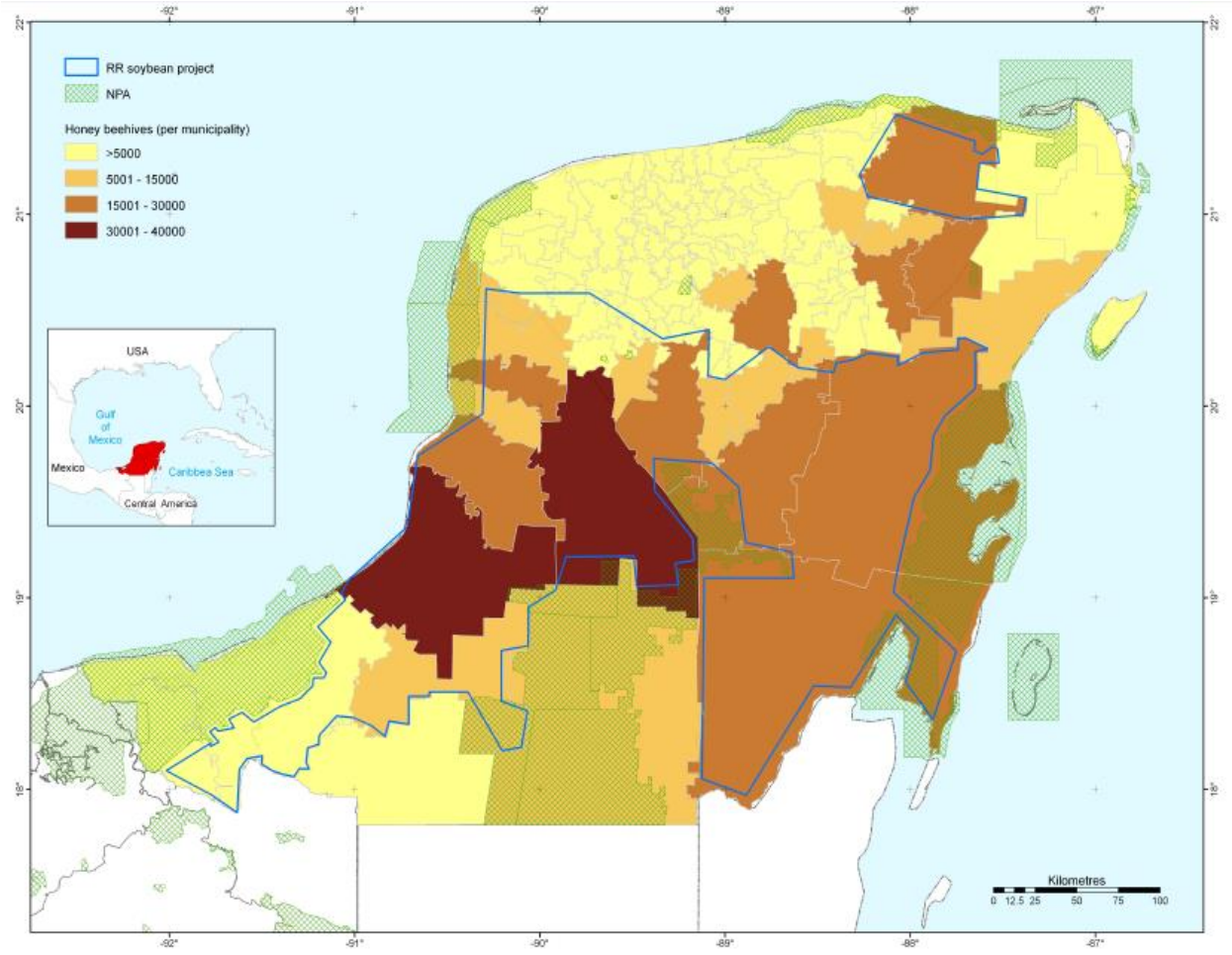

*Figure 1. Location of the RR soybean release granted areas for commercial purposes. *NPA: Natural protected areas **Honey beehives per municipality (Author: Tamariz, 2013)*

The approval of the RR soybean release for commercial purposes was not supported by the technical opinions of the federal institutions linked to the Ministry of Environment (*Secretaría de Medio Ambiente y Recursos Naturales*, Spanish acronym SEMARNAT) (see Table 1). The National Commission for the Knowledge and Use of Biodiversity (*Comisión Nacional para el Conocimiento y el uso de la Biodiversidad*, Spanish acronym CONABIO), the National Commission for Natural Protected Areas (*Comisión Nacional de Áreas Naturales*

Protegias, Spanish acronym CONANP) and the National Ecology Institute (today's *Instituto Nacional de Ecología y Cambio Climático*, Spanish acronym INECC) did not considered that releasing GM soybean in the Yucatan Peninsula was a viable option. Nevertheless, the General Direction of Impact and Environmental Risk of the SEMARNAT approved the liberation at the environment of GM soybean for commercial purposes, fully ignoring the institutions technical views. However, by law[6] this type of request in order to be approve needs to have positive technical opinions.

Table 1. Technical arguments of CONABIO, CONANP AND INE about Monsanto´s request to liberate GM soybean for commercial purposes (Note: I did the translation from Spanish to English of the following quotes).

Government institution	Technical opinion
CONABIO	"..due to the closeness of GM soybean requested plantations areas to Natural Protected Areas.. some requested areas that do not have an agricultural land use "(CONABIO, 2012:4). "a geographical coincidence between honey production zones and the GM soybean requested areas., "there is now a genuine concern by beekeepers of the Yucatan Peninsula derived from the very possible presence of genetically modified pollen of soybean in honey produce sustainably in the region" (CONABIO, 2012:5).
CONANP	"III. That although the request is the release of Genetically Modified Soybean (event MON- 04032-6), cultivation involves the use of chemical herbicides or required to care and development of genetically modified organism. Particularly Glyphosate is a water-soluble herbicide and therefore has the ability to be mobile in aquatic environments… These characteristics cause reasonable doubts in terms of the possibility of contaminating aquifers of the Peninsula Yucatan , given its karst features"(CONANP, 2012) There are mentioned the effects that glyphosate has on biological and ecological processes as well as in aquatic organisms. In addition, it is state researches that suggest that glyphosate could increase the risk of diseases in fish. "That even when the object of analysis is not about the use of pesticides genetically modified organisms, it cannot be omitted to mention all the risks to biodiversity increased use of glyphosate…weed populations adapt to the intense selection exerted by this herbicide , which hinders its long-term adequate control…"(CONANP, 2012) "it is necessary to consider the range of action of bees, since their foraging can reach a distance of 12 km…so they can be in touch of transgenic soybean as well as its pesticide…"(CONANP, 2012)
INECC	"The INECC not considered viable an environmental release in commercial stage of the event MON- 04032-6 due to insufficient information…" The company provided favorable analysis in economic terms of the GM agronomic practices but it omitted an environmental analysis as impacts on biodiversity.

[6] Biosecurity Law of Genertically Modified Organisms: http://www.diputados.gob.mx/LeyesBiblio/pdf/LBOGM.pdf

At province level, the Yucatan state through its Ministry of Urban Development and Environment (*Secretaría de Desarrollo Urbano y Medio Ambiente*, Spanish acronym SEDUMA) was against the approbation of GM soybean for commercial purposes. By May, 2012 Yucatan State government published an official invitation for Yucatan communities to request to be declared: 'GM-free zones'. This decree[7] was based on "the right to live in a healthy environment that allows Yucatecan inhabitants to have a decent life".

Afterwards, the government of Yucatan state published the official guideline to becoming a GM-free zone. In addition, in June of that year the SEDUMA published "The technical and scientific justification to issue a favorable opinion of requests for free zones of genetically modified organisms in the state of Yucatan"; this document provides enough arguments to support the process of declaring GM-free zones in Yucatan communities, according to the provision of the Article 90 of the GMO´s Biosafety Law (Batllori, 2012). Already, ten Yucatecan municipalities have requested this right. Nevertheless, the lack of an official regulation for the declaration of GMO-free zones freezes Yucatan state efforts. Even when the Law demanded it without federal legal instruments, the declaration of these zones do not exist.

Opposed to its neighbor's position, the government of Campeche has not showed interest in promoting a dialogue and instead it has manipulated the information of the GMO authorization (Gómez González, 2016). Mayan communities were informed about the presence of GM soybean and the possible impacts of honey by the previously mentioned non-governmental forums and by articles in newspapers.

The legal procedure against the plantation of RR soybean in the YP has been a long and complex process. In November 2015, the Supreme Court of Justice of Mexico has provisionally suspended the planting licenses of Monsanto while an indigenous consultation takes place. Ideally, this consultation must be free, informed and in good faith (ILO, 1989). However, there had been numerous consultation experiences with indigenous communities in which the established standards of the 169 ILO agreement had not been fulfilled. This was the

[7] Decree No. 525 by the Yucatan state government.

case of two of the most relevant and recent consultation experiences in Mexico, the Yaqui tribe and the Juchitán processes.

The Yaqui tribe in Sonora, Mexico, is settled along the Yaqui River, which is part of their livelihoods, ritualism and cosmovision. However, the high demand for water by cities and agribusiness in the region has caused severe water shortages for Yaquis communities. This was exacerbated in 2011, when the construction of the 'Independence Aqueduct' was authorized. Various legal recourses were presented until May 2013 when the National Supreme Court of Justice ordered to consult to the Yaquis about this project. According to the report of the Civilian Observation Mission of the Yaqui tribe consultation (2015), the consultation has been violated repeatedly. First for allowing the operation of the aqueduct during the consultation, despite evidence of irreparable harm to the rights of Yaquis. Additionally, incomplete and inaccurate information was provided about the project to the communities. The most unfortunate situation were the serious physical attacks and harassment suffered by spokespersons and traditional authorities of Yaqui tribe. The good faith requirement has been ignored when there was a campaign of criminalization and fear against the Yaqui tribe. Currently, the process has been suspended.

On the other hand, the case of Juchitán in Oaxaca, Mexico, is the first indigenous consultation about a mega - investment wind park in the country. The process began with a protocol previously designed by Mexican authorities and it was not fully agreed upon the indigenous community of Juchitán. Additionally, the phases of the consultation were rushed in time according to the needs of non-community members: closing early stages and superficial discussions without providing information requested. Above all, the indigenous people reported that during the sessions of the consultation, they were victims of harassment, direct threats and security incidents related their participation in the consultation process (Misión de observación- Juchitán, 2014). Nevertheless, the wind project was approved.

To conclude this Chapter, the GMO controversies in Southeast of Mexico are based on the coexistence of two different models of production in the region: the traditional Mayan model of production settled historically in the *milpa* system and beekeeping activity; and the model of industrial production that includes the use of GM soybean and its technological package. This overlap of activities has caused diverse effects on social actors in Yucatan Peninsula. The opposition processes have been under construction since 2011. Due to the

previous consultation experiences, the opposition to GM soybean in the YP has created a common front to inform, monitor and verify the current consultation process. This process will be described in Chapter 5.

In order to provide an overview of the way in which the anti-GMO (or, more generally, 'pro-*Mayan* system') assemblage has grown, three main episodes were identified: I) The authorization of GM soybean and its affects; II) MA OGM: The processes of becoming; and III) the Mayan indigenous consultation. The following Chapters explore each episode individually.

CHAPTER 3. Episode I: The authorization of GM soybean and its affects

This Chapter explores who was initially moved by the GM soybean production authorizations in the YP. In other words, it describes the ways in which actors were affected by this industrial model of production with GMOs (also named GMO assemblage) in the region.

The states of the Peninsula, Campeche and Yucatán, are the main producers of honey in Mexico (SAGARPA, 2015) with this activity having a long tradition in the region (Toledo et al., 2007). The main importer of Mexican honey is the European Union (SAGARPA, 2015). In 2011, the Court of Justice of the European Union ruled that honey containing more than 0.9% of transgenic pollen needed to be labelled as a GMO product. Although it is only accepted in the European market, if it has pollen from an authorized GM crop by European regulations.

A few months later with these new regulations launched, transgenic pollen was found in some honey samples for exportation from the YP (Raezke, 2012). Private honey enterprises and beekeepers producers were disturbed by this event due to the possible impacts in the European market. The importers of honey in Europe considered this situation as a risk for the marketing of honey, in that consumers could reject the product or demand transgenic-free honey (Gómez González, 2016). The exportation standards and the presence of GMOs in the YP had deep consequences in the local market in the form of the fall in price (Tuz, 2011), affecting Mayan honey producers, gatherers and exporters.

My first interview was with Dr. Eduardo Batllori, head of the Ministry of Environment of Yucatan State. The Ministry's participation in this process started at the request of honey exporters and producers, whom felt that their livelihoods were being threatened by the production of GM soybean in the region. According to the interviewee, during the first stages, there was a lack of public knowledge about the GM soybean plantation process in the Yucatan State:

> "We (SEDUMA) asked to the Ministry of Rural Development (of Yucatan state) about it and they said that they didn´t know anything (about the process). Afterwards, we asked someone from the area in SAGARPA (Yucatan office), and he also replied that he did not know anything (about the process). And because these are federal decisions (leasing authorizations

> of GM crops), from the center of Mexico, we began to have some information from those consultation processes that occurred on an online forum on internet in a hidden place... and then we started checking and realized that from 2005 (or earlier), experimental processes (of GM soybean) and then pilot processes had already started. We realized this situation when the second pilot project of 30,000 hectares of GM soybean was in process" (SEDUMA Minister, personal communication, March 28, 2016).

The lack of clarity of the presence of GMOs in the Yucatan State and the potential impacts of this model motivated the construction of a legal framework in order to set the base for declaring GMO free zones in Yucatan State. In addition, Dr. Batllori as SEDUMA's head did a technical study that included previous scientific reports and comparative cases such as the one in Argentina[8]. There were four serious concerns that Dr. Batllori had about the release and authorization of GM soybeans which were acknowledged in the scientific-technical study (SEDUMA Minister, personal communication, March 28, 2016).

Firstly, GM soybean crops that could be planted in the areas of release allowed by SENASICA/SAGARPA in their pilot and commercial phase, have not considered the recurring hydrometeorological events in the Yucatan Peninsula - hurricanes. There is no protocol for action or contingency plan in order to avoid possible GM seed dispersal that may occur if an event like this (hurricanes) happens in the period of flowering and pod formation, which occurs from September to October (Batllori, 2012).

The second concern was regarding the effects of glyphosate in the aquifer. There is high vulnerability of the Yucatan Peninsula to pollution due to its karst topography features that makes solutes infiltrate easily into groundwater (Batllori, 2012). The zones requested for releasing GM soybean are important recharge areas of the Peninsula aquifer. Glyphosate is a broad-spectrum herbicide that could cause damage to the aquifer and to aquatic ecosystems by infiltration, causing damage to the biodiversity as well (SEDUMA Minister, personal communication, March 28, 2016).

Thirdly, according to SEDUMA's study, the production of GM soybean in the region is not justified in an economic perspective. The use of Huasteca soybean seeds, a hybrid variety, would give producers greater economic benefits per ton and per hectare, differing

[8] See Chapter 2

only in the cost per hectare with GM soybean[9], since the use of the Huasteca variety provides a yield per hectare of 68 % higher than the GM soybean (Munguía & Rivera, 2012 cited in Batllori, 2012). Additionally, the benefit of this hybrid seed allows it for farmers to save it for further production cycles. Lastly, the fourth concern of the SEDUMA was related to the effects on flora and fauna, not directly targeted by glyphosate. According to this study, the affectations are diverse and poorly studied, but often are negative in nature and threatening to biodiversity (Batllori, 2012).

Dr. Batllori and his Ministry are perceived as allies in the current resistance to the entrance of GM soybean in Yucatan. "The SEDUMA is very clear that GM soybean admission in Yucatan would be a disaster. They have been good allies in generating regulations, studies..." (Lawyer, personal communication, March 30, 2016). Also, he was recognized as an ally by the business sector. "He (Dr. Batllori) created the legal mechanisms needed to potentially make things (GM free zones) materialize" (Honey entrepreneur, personal communication, May 6, 2016). An anthropologist mentioned, "It is a positive anomaly in the state government, it is not the usual profile of officials there. In other words, people well prepared in public positions which defend such causes" (Anthropologist, personal communication, April 19, 2016).

Through my interview with the Minister (Dr. Battlori), I contacted the coordinator of the UNORCA in Yucatan. This peasant organization in collaboration with Greenpeace Mexico, beekeeping organizations, honey enterprises, environmentalists and human rights associations made the first claims in 2011 that honey production and marketing in Yucatan was threatened by the presence of transgenic soybeans in the region.

In the beginning of 2012, the UNORCA, honey organizations and exporters as well as Greenpeace Mexico with the support of the NGO, *Organización de Litigio Estratégico de Derechos Humanos* (Spanish acronym, LITIGA) started the legal defence for their rights at district courts. These actors associated in a legal practices, demanded the cancelation of the authorization for planting GM soybean crops in its pilot phase. This first request was granted

[9] Nevertheless, Agrobio Mexico, a civil association of the leading developers of agricultural biotechnology in Mexico: including Monsanto, Bayer, Dow, DuPont and Syngenta, (2015) assures in its web page that Solución Faena ® soybean can be an effective tool for weed management. Reducing production costs and applications of herbicides as well as increasing yields (http://www.agrobiomexico.org.mx/publicaciones/SoyaMielbaja.pdf). In Campeche, the Mennonite community wants to produce GM soybean in order to benefit from these claimed advantages (Male mennonite, personal communication, May 14, 2016).

by the Yucatan district courts and became the first legal recourse in a long legal journey, which has led to the implementation of an Indigenous Consultation[10] in the region.

In Yucatan State, the UNORCA has been a significant actor in social mobilization. In the beginning, their first concern was the GM pollen flow, which represented a stigma in the quality of Mexican honey, putting at risk one of the few comparative advantages that honey from the Peninsula has in the global market. However, after a deeper recognition of potential risks and effects of the GMO assemblage, health and environmental concerns were added on to their claims (UNORCA member, personal communication, March 29, 2016).

The honey producers association with enterprises in this sector was inspired by potential economic losses for the whole trade chain. For the honey enterprises and entrepreneurs, the market standards set up in Europe motivated a recognition of the importance of GMO free zones. A common front to protect the quality of honey production was fostered.

> "It is a very simple thing, we all need to put (resources), It's like the saying: 'the same leather provides all the straps' ('*del mismo cuero salen todas las correas'*)... we are not doing anyone any favours or donation. We're just trying to be smart to care and trying to do something" (Honey entrepreneur, personal communication, May 6, 2016).

There are different types of entrepreneurship actors supporting the opposition to GM soybean. This includes, honey exporters and related enterprises with more than thousands of Mayan producers involved in their network trade as well as honey cooperatives and trade associations with a more social approach. Besides being affected by the negative effects of the market due to the potential GM pollution in honey, few members of the private sector have social and environmental concerns (Honey entrepreneur, personal communication, May 6, 2016). Their participation has been crucial in adding economic, legal and political vision to the social movement.

Nevertheless, the participation of Mayan communities and beekeepers organizations are the hearth of this process. However, not all the Mayan communities of the region are involved and there are different degrees of affectation in Campeche and Yucatan

[10] See Chapter 5

communities. Even inside the communities, there are peasants and other groups such as Mennonites that want to produce GM soybean.

In Campeche, particularly in the Chenes region, peasants, both women and men, have been associated with different processes of reflection concerning sustainable community development[11] for the last two decades. Non-governmental organizations as *Educación, Cultura y Ecología, A.C.* (Spanish acronym, EDUCE AC) have been crucial in these processes due to their supporting role. These processes of empowerment and capacity building motivated the community-based organization of the indigenous communities in the Chenes.

In the case of the production of GM soybean in the Chenes region, *Los Cheneros* (people from the region) were mainly affected by the threat to their livelihoods as beekeepers.

> "Twenty years ago honey was produced by drums and currently in by small containers. Why is there less production? First off, due to devastation and fumigation (due to GM soybean production). Many bees have died, and there is no enough jungle and no longer flowering. The environment is changing a lot. There is no rain. Then, all is unbalanced. I at least realized, we realized" (Male beekeeper of Ich-Ek, personal communication, April 30, 2016).

The Mayan communities of the Chenes, in Campeche, expressed different personal affectations that inspired their participation in this resistance movement. Economic, environmental and health concerns were claimed by interviewees.

> "I am moved by the interest of my brothers. It does not affect me, but if it affects my brothers, it affects me too. So this is solidarity ... because some people say, "our bees were killed, we cannot do anything" but I tell them "we must do something!" ... If honey is contaminated, European market won't buy our honey. So, if this happens I will suffer directly too. At first, I confess, we were extremely interested in the life of the bees: "Do not die (bees)!" We said ... since I was 16 years old, I have been fascinated by this work (beekeeping) and I see the benefits that it has. Thanks to the bees I have provided my children education, thanks to the bees I have enough land ... because the bees have helped me a lot. Then I say, this is not

[11] In 1992, Mayan beekeepers with the support of EDUCE AC advisors, created the first beekeeping organization of the Chenes region, *Campesinos Unidos de Los Chenes Kabi'Tah, S.S.S.* (Rosales and Llanez, 2003). This resulted in community-based structure of the region that supported the following community processes, including collective organization after crisis events even from extreme climatic phenomena as hurricanes.

possible, my brothers also are losing their colonies. We have been working for a long time on this activity. This is for us our heritage, our culture. We have been passing it from grandparents to children, from children to grandchildren, and so on. And it's something that I have the hope that will continue working." (Male beekeeper of Bolonchén, personal communication, April 30, 2016).

Among the environmental concerns, the recurrent ones were related with biodiversity loss. The interviewees associated the extended and intense use of pesticides with deforestation and water pollution issues of the region. There were claim cases were few beekeepers in the Chenes lost their apiaries or were affected at some degree by pesticides for GM soybean plantations.

"My bees were affected two years ago. In 2014, they planted soybeans in the field (*mecanizado*) nearby my beehives. A small airplane sprayed a pesticide and affected my bees. They were not affected 100% , just 25%, but it considerably reduced my production" (Male beekeeper of Sacabchén, personal communication, April 25, 2016).

Just like it was previous stated, there were other beekeepers who associated this practice with the reduction of their production and bees population.

"When a lot of herbicide is used, it causes the mortality of bees. They fumigated with machinery. Those who have a lot of money can get a plane. And with a plane, they fumigate large fields. Then, we realized that bees are dying and honey production is reducing" (Male beekeeper of Ich-Ek, personal communication, April 30, 2016).

Also, the wild biodiversity was mentioned as an affected actor by the excessive use of pesticides.

"Fumigations made by airplanes affect many animals of the jungle. Those who survive, they die with the liquid. Because the liquid is sprayed in many hectares of the industrial field (*mecanizado*). And they cannot spray only on the required area, but it is dispersed through the air, and carries it to, I do not know, far away into the bushes" (Female housewife of Xcalot, personal communication, April 29, 2016).

According to the interviewees in the communities, deforestation is a severe impact associated with the industrial production of GM soybean. The environmental services that the jungle provide to the communities, especially to the beekeeping activity, were recurrently claimed. The jungle-Mayan relationships livelihoods inspired the indigenous communities to demand its protection.

> "They are deforesting a lot of jungle, thousands and thousands of hectares. If you can see it from above the town, you would want to cry. What are trees useful for? For oxygen, medicines, blanket for the ground, shelters for animals, even for the animals we eat. In other words, a preserved jungle is life. In any angle and directions that you want to focus, it is life. Not having trees is death." (Male beekeeper of Suc-tuc, personal communication, April 30, 2016).

Water pollution concerns were also raised by the interviewees and its possible effects on human health were also associated.

> "Analyses were carried here in my town. People from Campeche came to take samples, and found that water is affected with glyphosate. The well where the sample was taken is a 100 meters deep to the water surface and found to be affected. And there is a well of 10 meters and it also was affected, and that one is not that deep… The water we drink, even the purified water, probably has glyphosate. Because from sampled wells, it is where water for consumption it is extracted." (Male beekeeper of Sacabchén, personal communication, April 25, 2016).

These analyses were part of an independent research supported by MA OGM collective to study the water quality of the region. Just as it was previously commented upon, other peasants were moved by the results of this research.

> "That the soybean farmers (…) should no longer keep polluting the environment, our soil and water, it is a priority for me. Because if this happens there goes our health, ours, our children and our grandchildren. So this is what worries me a lot ... We are defending this territory, so that it is not contaminated because it is the lung of Mexico. Because if it is contaminated, It will be the end of us, the Mayans, but also for those in the centre, in the north, because this is going to sweep evenly... and we are not just worried about the bees as we were before. We have come to realize that if the bees are dead, we are too. "(Male beekeeper of Bolonchén, personal communication, April 30, 2016).

Just like the previous beekeeper, the potential health risks were expressed repeatedly by other members of the indigenous communities.

> “They are destroying the forest, they are polluting the water. Here in Suc-Tuc is already checked, because the University did the study, and it was found contaminated. There is glyphosate in the water, glyphosate in the urine and in breast milk. The questions are, how many more people are contaminated? And then, how long will it take for this to explode and cancer is declared upon the entire population?” (Male beekeeper of Suc-tuc, personal communication, April 30, 2016).

Since the indigenous communities of Hopelchén knew about the GM soybean authorization, they started talking about the introduction of GM soybean crops and its technological package in their territory. From different communities with diverse productive activities, including beekeeping, these Mayan peasants discussed the possible impacts and effects of GM crops and they realized that they needed to create a common front, to work together. "We have to do something that has never been done to accomplish something that has never been achieved, and we did" (Male beekeeper of Suc-tuc, personal communication, April 30, 2016). They formed the Chenero´s Beekeeping Collective (*Colectivo Apícola Chenero*).

In this assemblage, the Chenero´s Beekeeping Collective, members of indigenous communities, honey producers of Campeche, cooperatives, and other groups with legal figures converged. The Chenero’s Beekeeping collective does not have a legal standing but they are united, “we are a group of different organized groups” (Male beekeeper of Bolonchén, personal communication, April 30, 2016). This collective structure inspires awareness processes in the communities, which awakens their consciousness. This powerful combination shape collective action. As Kumi Naidoo (2016) declared “contestation starts with awareness and consciousness”.

> “We started to meet, and we started talking… about what we were going to do, who could help us? Because we do not have all the resources, nor the ability to go to institutions and to tell them about our claims since we do not know the laws. We do not know how to get in. But thanks to the organizations that were supporting us, they helped us orienting and facilitating

the ways in which we should act" (Male beekeeper of Ich-Ek, personal communication, April 30, 2016).

The collective organization was encouraged as an essential strategy to raise their claims to the government and in the legal processes. In the communities, there was a bottom-up movement kick-off: "We started moving, we built between us a collective group. We divided tasks and community visits in order to share this problem. To expanded this message to all, especially for those who did not know yet about it" (Male beekeeper of Ich-Ek, personal communication, April 30, 2016).

These processes of consciousness, awareness and collective action, which articulated different stakeholders, started an important social movement in the Yucatan Peninsula opposing GMO production model. However, this assemblage seeks more than just resisting; they look forward to the protection and support of livelihoods that were constructed during decades as well as the preservation of their natural resources. In order to reach more people, diverse forums, campaigns, legal processes, collective actions took place. The regional anti-transgenic campaign in the Yucatan Peninsula was a yardstick in this process. Hence, the next episode will describe the most relevant effects and associations behind it all.

CHAPTER 4: Episode II: MA OGM: The processes of becoming

This Chapter explores the *affects* that motivated the *becoming* of collective action to resist the GMO assemblage in the Yucatan Peninsula. It is mainly centred on the MA OGM campaign, which developed as an assemblage of heterogeneous actors concerned with the social, economic and environmental implications of this industrial model. These processes of *becoming* are always in flux.

Between 2011 and 2012, the conjectural situation, associated with the presence of a GMO assemblage in the Peninsula, affected the fair trade movement, the initiatives in defence of the environment, public policies for sustainable development and honey entrepreneurships (Member of development organization, personal communication, May 13, 2016). As the territorialisation process started, concerned actors met at events[12] and in informal gatherings to get informed and join efforts between sectors. Their main target was to protect the Mayan territory from GM crops. There was no single particular person or organization who assembled them, but rather it was the state of emergency to protect livelihoods, natural resources and sustainable development projects that brought them all together. In other words, the 'vibrancy' (Bennet, 2012) of the 'good and dignified life' made a heterogeneous assembly of people and things with the purpose to *do* something, to take action.

During an emblematic campaign, women and men sent a message in a deforested field in Campeche: MA OGM - Demand of Mayans Communities (Figure 2). This message was replicated in important archaeological zones of the region. Mayan communities, beekeepers organizations, honey entrepreneurs and environmental organizations aimed to express their indignation and rejection of GM crops cultivation with this message. The repercussions in the media of this event made the collective concerns more visible to the authorities, and most important, to the Mayan communities. Actors affected by the campaign emerged and new associations were made to raise one voice: MA OGM! We do not want GMOs!

[12] In December 2011, one of the first notable events was the IX Regional Meeting of Experts and Representatives of Social Organization: Actual situation, analysis and perspectives. The declaration of the meeting mentioned the concern to protect and restore the food security and sovereignty of Mexican people; revenues of honey exportations; indigenous varieties and landraces; and freedom of choice for producers and consumers (Greenpeace, 2011). In this event, researchers from economic and biological sciences, environmentalist experts, producers, a peasant organization and the Minister of Environment of Yucatan participated.

Figure 2. In May 2012, women and men send a message: Ma' OGM - Exigen comunidades Mayas (´No to GMO- Demand the Mayans Communities´) in a deforested field in Campeche (Photo by Francisco Martín/ Source: Greenpeace, 2013).

The MA OGM campaign evolved in the collective MA OGM[13]. It is a broad, multicultural, heterogeneous and independent assemblage of actors, composed of individuals, organizations, and communities that originated in Southeastern Mexico, but in effect, extends far beyond. It's actors share an active and critical position against GMOs. The collective MA OGM has built different strategies to join efforts aimed at pushing forward a common agenda. Due to the diversity and expertise of actors involved in this association, it has a strategic vision, which is assembled in community-based activities as well as scientific, legal, and media practices.

Moreover, members of Mayan communities acknowledge the support given by this partnership. For example, a male beekeeper in Campeche said, "MA OGM is strongly supporting us by providing us information, encouraging us to keep going…I feel that my effort, that our collective effort is not in vain. We are standing on firm ground, and we are moving forward" (Male beekeeper of Bolonchén, personal communication, April 30, 2016).

Nevertheless, the history behind these associations was not always fraternal. For instance, among the honey trade sector, conventional honey exporters and fair trade

[13] https://salvemoslaselvamaya.wordpress.com/quienes-somos/

organizations had contrasting pricing strategies[14] which generated conflicts among them. However, the GMO assemblage affected them equally. As previously mentioned by an interviewee, "I believe that the circumstances began to join us and we were not willing to see our differences" (Member of development organization, personal communication, May 13, 2016). Therefore, a common threat, the industrial production model with GMOs, inspired these actors to build alliances.

The collective is an emergent and continuous processes were individuals and organizations are involved, according to their contextual circumstances, personal interests or other external forces. This form of association has no legal binding, and is a space where concerned people gather and collaborate for a common goal. One of the lawyers in this assemblage reflected, "the collective form allows us to reflect on different approaches, different looks, different knowledge that conjoined to lead a social struggle" (Lawyer, personal communication, March 30, 2016). These actors are in a constant *becoming* process of organization and development of strategies.

Likewise, other actors are circumstantially supporting these processes according to their possibilities and charisma. Additionally, there are no fixed positions and participation is influenced by people´s availability, capabilities, and interests to pursue. There are even people that are not self-identified as part of the collective but are more in a supporting role.

Everybody is affected in particular ways, and their motivations are often associated with personal experiences, social injustices, environmental concerns and economic drivers, or even a combination of all these factors. The richness of *affects* behind these associations have diverse backgrounds. There are individuals involved that have a personal attachment to the region as a producer, professional or even as a human being that has had a connection with the Mayan culture, its people or the natural resources of the region.

> "I have a personal relationship with the region since the 90's, having worked there, knowing those jungles that are being destroyed. I travelled and enjoyed those jungles, swam in the lakes that now are drying. Overall, I join with the people when they organized to export or to

[14] During mid-90´s, a local honey fair trade organization was accepted as a supplier to the European Fair Trade Association. This new competitor in the region raised the prices of honey at local level, benefiting producers. Regular trade competitors had to raise their prices too. However, to avoid this fair trade market effect, conventional honey exporters made a common front to regulate prices.

certify. And, right now, you cannot leave them alone. You feel personally, subjectively, attached" (Member of development organization, personal communication, May 13, 2016).

Moreover, the concern to protect the culture and livelihoods of the Mayan peasants inspired by personal or professional backgrounds, also motivated new associations.

"I was fortunate to grow up in a healthy environment, where my grandparents were peasants. They always professed this respect and love for the land…my grandparents always had that moment after the *milpa* for contemplation and reflection, a moment in silence, thinking about what they say, the harvest, everything that happens in the mind of a campesinos. In rural communities there is still a respect for natural resources" (Male journalist, personal communication, April 27, 2016)

The protection and defence of territory have deep *affects* on Mayan people involved in this social movement. In particular, the producers interviewed are affected by the uncertainty in the quality of life that their children and grandchildren could have in the future.

"Now we understand, if you do not speak no one will speak for you, if you do not defend yourself, no one will defend you, if you do not say what you feel, who is going to do that for you? We now realize that we are responsible for future generations. What is going to come, we have to take it seriously. If we do not speak for this to be stopped, in twenty years there is not going to be a jungle. Then, what will our children inherit? What will our children do? Will they be Monsanto´s slaves? Will they go to day labour in GM soybean fields? We do not want that for them!" (Male beekeeper of Suc-tuc, personal communication, April 30, 2016).

In addition, there are women and men that have years of professional experience regarding land issues and interests in the protection of indigenous territory. These engaged people are moved by the defense of indigenous' rights to live in their territory and to decide about them.

"I am very attracted by movements of defence in this territory since this is a case of agribusiness... the neoliberal capitalist system is going above people's rights, and more specifically now indigenous people´s rights and control of their natural resources. And how to change that model, and return to the indigenous people, or farmers, or those who live in its territory their decision power to do what they want with their land?" (Female member of Colectivo MA OGM, personal communication, April 23, 2016)

In this framework of defence of territory, human rights organizations got interested in engaging with the cause. Particularly, the organization, *Indignación, Promoción y Defensa De Los Derechos Humanos, A.C.*[15] (Spanish acronym Indignación) has accompanied the legal process of the Mayan communities in Campeche.

> "The reason why Indignación got involved was because indigenous people were affected, to the extent that there are indigenous people who have not been consulted. However, the right to a healthy environment is there too, so the struggle has been expanding in that direction… we are in defense of the biocultural heritage. Because it has a biological component and also since these projects impact culture, the Mayan heritage" (Lawyer, personal communication, March 30, 2016).

The biocultural heritage defence associated with the defence of human rights motivated the participation of the Indignación as well as members of other NGO's. Discourses are permanently under construction inspiring the becoming processes of this assemblage.

On the other hand, development agencies have spent decades, providing funding for developing social capital and conserving natural resources. These actors are concerned about losing everything they have funded or supported in the region (Member of development organization, personal communication, May 13, 2016). This motivation has a more diplomatic approach, such as the United Nations Development Programme that has provided spaces of dialogue for the process.

Behind these associations, there are years of personal and professional collaboration. In the beginning of the 90's, a community-based network initiative was built on the Yucatan Peninsula, the Peninsular Program for Participative Development (Member of development organization, personal communication, May 13, 2016) were professionals in the field, community leaders and *campesinos* exchange experiences in different spaces as workshops, events, and meetings (NGO member, personal communication, May 3, 2016).

[15] At regional level, this organization is interested in the promotion and defense of the territorial claims of indigenous people as well as no discrimination cases.

> "We formed the first leaders in the region, including many who are right now (in the movement), in a training program. After that, many others were trained, sponsored by the Indigenous *Campesina* University, the UCI. This network built capacities for more than 10 years. Furthermore, we exchanged knowledge with other initiatives" (Member of development organization, personal communication, May 13, 2016).

This social capital has been constructed in the region for decades. The rise of beekeeping organizations, the collective identities, the historic memory, the empowerment of *campesino*s and former or current NGO´s members sharing information, and constructing a life in these communities provoked this social capital building and accumulation.

Correspondingly, the academic sector has also participated. Providing research and scientific assistance, from bee specialists, economists, agronomists, ecologists and even toxicologists. The first scientists concerned about the effects of GMO´s in the region were the bee specialists from *El Colegio de la Frontera Sur* (Spanish acronym, ECOSUR) which have provided important inputs in the debates. Initially, their first inquiry was to find if bees forage in GM soybean crops, which was denied by Agrobio[16] propaganda.

In order to have evidence on it, a field research to identify if bees forage on GM soybean flowers was conducted in Chiapas. It also inquired about the presence or absence of GM pollen in honey samples of *Apis mellifera* and determined its percentage concentration. The technical report confirmed bees visited soybean and that most of the honey and pollen samples contained GM pollen (Vandame & Vides, 2012). This information was shared in the CONABIO web[17] page and in diverse forums.

Institutions, organizations, individuals as well as other researchers used this study in order to build their arguments for the debate. In addition, this first research fostered other studies such as the one from Villanueva-Gutiérrez, Echazarratea-González, Roublik and

[16] AgroBio Mexico is a civil association of the leading developers of agricultural biotechnology in Mexico: including Monsanto, Bayer, Dow, DuPont and Syngenta. According to an AgroBio's publication called 'Sustainable production of honey and soy GM is possible in the southeast', it stated that "the flowers of soybean are auto-fertilized before opening, and therefore, the bees do not visit them, because in them, they cannot find nectar nor pollen" (p. 2).

[17] http://www.biodiversidad.gob.mx/usos/mieles/pdf/RepECOSUR_sobreSoyaGM.pdf

Miguel-Ordóñez (2014) in Campeche, which also found that bees visit the flowers of soybean and harvested honey samples contained GM soybean pollen[18].

Other important research inputs for the debate have been reports from the Global Forest Watch[19]; the 'Evaluation and mapping of the determinants of deforestation in the Yucatan Peninsula' by Ellis et al. (2015); the 'Cost-benefit analysis of Honey-Soybean: in the context of the Yucatan Peninsula honey contamination with GM soybean pollen' by Munguía and Rivera (2012); and independent studies by the MA OGM collective on water pollution. These associations with the academic sector are important elements on processes of becoming due to exchange information and systematic analysis practices. Specifically, the scientists inspired by the movement have a crucial community-based approach that adds scientific expertise and tools to the debate.

The collective MA OGM has a strategic vision. Besides community-based approaches, it has other strategies in order to cover the legal, scientific and social fields. Moreover, it is an emergent assemblage that is always in construction – a *becoming* -, which works with a horizontal consensus structure. The case of MA OGM is particular, in that it gathers people independently of their organization or occupation in order to contest against a GMO assemblage putting aside differences.

People engaged or supporting this process have been collaborating with NGOs for more than 20 years, and been involved in development processes, gender projects and environmental networks or are involved in the trade sector. To foster good partnerships among different sectors as the academic, NGO´s, private sector and legal organizations have produce different effects that results in social change.

> "Trustful relationships are generated, we began to know each other, we lived personal crises while we are in the collectivity, and then we support each other in those moments… personal life is mixed and bonds of trust are built. Some of them have several years, others are recent,

[18] Nevertheless, a study by Galvéz (2013) found only one positive sample of honey with GM soybean pollen. In addition, it argues that RR soybeans are allowed in the European Union and that in their preliminary results obtained GM pollen concentration were much lower than 0.9% (threshold level for GM labelling in Europe). However, it is important to observe that for the organic market of honey the presence of GMOs is unacceptable. European bottling companies of honey want to maintain a high quality product which means not buying honey with GM pollen (Villanueva-Gutiérrez et al., 2014).

[19] http://www.globalforestwatch.org/

but it has that personal component that goes beyond the materiality" (Member of development organization, personal communication, May 13, 2016).

This means new types of associations, strategic alliances, innovative organization practices, non-human relations and even personal changes. At the end, virtual and real processes are combined. Moreover, these becoming associations are inspired by *affects* and their reflections. Just to recall a few key non-human actors in this process - the bees, honey, the jungle, the aquifer, the pesticides, the media, the European regulations - affect at some degree the Mayan territory. The reflections on their current and future state were frequently connected with the heritage of future generations. In the next episode, we will see how these associations take us to the Mayan Indigenous Consultation process.

CHAPTER 5. Episode III: The Mayan Indigenous Consultation

In this Chapter, the third and current episode of the opposition to GM soybean in the Yucatan Peninsula will be described. It is centered on the Mayan indigenous consultation process, including the *affects* and associations generated during the National Supreme Court of Justice's procedure until the beginning of the consultation in the municipalities of Hopelchén and Tenabo in Campeche.

The Supreme Court of Justice process: Previous to the consultation

After a long legal battle, in 2014 the case was brought to the National Supreme Court of Justice (NSCJ). The NSCJ is the highest court in Mexico, with no national authorities or other legal recourses above NSCJ's decisions. The Mayan communities and beekeeping organizations of Yucatan Peninsula centred their claims in three aspects:

- The plantation of GM soybean affects the Mayan beekeeping, an ancestral and traditional productive activity.
- The cultivation of GM soybean violates their right to live in a healthy environment, expressing the need to follow the 'precautionary principle[20]'.
- SAGARPA and SEMARNAT did not make a free, prior and informed consultation, for the Maya people in terms of ILO Convention 169[21].

Two days before the NSCJ's decision, Mayan beekeepers and members of civil society delivered more than 63,000 signatures (Figure 3) demanding the federal judges to cancel the SAGARPA´s permits to liberate seeds of RR soybean in a commercial phase. The platform Change.org[22] was an effective tool in this territorialisation process in order to raise awareness, to collect the signatures, and with this pressure the court was in favour of the indigenous communities and beekeeping organizations.

[20] In order to protect the environment, the precautionary principle of the United Nations states "where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat" (UN, 1995).
[21] In 1989, the International Labour Organization (ILO) in its Convention 169, established the international rights for tribal or indigenous people. It is states that "governments shall have the responsibility for developing, with the participation of the people concerned, co-ordinate and act systematically to protect the rights of tribal and indigenous people and to guarantee respect for their integrity".
[22] https://www.change.org/p/detengan-el-avance-de-la-siembra-de-soya-transg%C3%A9nica-en-m%C3%A9xico-scjn

Figure 3. Members of Chenero's Beekeeping Collective and civil society organizations arrived in the National Supreme Court of Justice to deliver 63 thousand signatures demanding the federal judges who ruled in favour of Mayan communities (Photo by Robin Canul/ Source: MA OGM, 2015).

On November 4, 2015, the decision of the Supreme Court was in favor of the communities of the Yucatan Peninsula. The court determined that the responsible authorities had an obligation to guarantee the communities' right of consultation due to the release of GM soybeans, which could cause a significant impact on members of the indigenous communities located nearby the areas of release. This consultation needed to cover the minimum international standards established in the ILO convention 169 and in the Inter-American Court of Human Rights (IACHR), which the Mexican government is a part of. This process was a *line of flight*, offering new possibilities for the resistance movement.

The consultation process has four international minimum standards. First, this process needs to be carried out prior to the beginning of a project. Therefore, the consultation should be carried out during the planning phase of the project. Clearly, this requirement did not form in time for the case of the assemblage opposing the GM soybean in the YP.

Secondly, the consultation must be culturally appropriate. This means that the duty of the state is to lead a process in accordance with the customs and traditions of the indigenous community to be consulted. Hence, community members to be consulted are free to choose the forms of internal decision as well as individuals, groups or institutions that will represent them during the consultation process (ILO, 1989).

Thirdly, the consultation requires to be an informed process for the communities. The indigenous consultation entails the existence of accurate information on the nature and consequences of the project, including possible environmental and health risks to the communities (IACHR, 2009). Moreover, the Inter-American Court of Human Rights has determined that in order to carry out an informed consultation, the state is required to disseminate precise information[23] among communities in their native language.

Finally, the consultation must be conducted in good faith. This process requires the absence of any kind of coercion by the state, its representatives or any other individual. According to the international standards, it should be carried out in an environment of mutual trust between the actors involved (ILO, 1989).

The NSCJ also determined that the CIBIOGEM in collaboration with the National Commission for the Development of Indigenous Communities (Spanish acronym, CDI) would conduct the indigenous consultation with the communities involved, covering the standards previously mentioned. In addition, during the indigenous consultation process, the authorization to plant GM soybean was suspended by orders of the NSCJ.

However, the NSCJ decision did not consider the argument about the violation of the right to live in a healthy environment. Nevertheless, the Court recognized that plantation of GM soybean and the use of glyphosate in the requested areas could involve significant risks to the life and environment of indigenous communities (NSCJ, 2015).

This stage of the legal process garnered attention from national and international media, reinforcing the collective identity. The efforts of Mayan communities and involved

[23] In that sense, the information that the state provides must be objective and impartial, especially when there are individuals in the project involved with lucrative interests (ILO, 1989). If it is required, the authorities should conduct scientific studies in cooperation with the people and communities involved, in order to assess the environmental, social, spiritual and cultural impacts that the project may cause (NSCJ, 2015).

organizations to seek environmental and social justice were heard by the apex Mexican Court. Nevertheless, the indigenous consultation was a new challenge due to the numerous experiences of consultations where the international standards were not fulfilled as in cases of the Yaqui tribe[24] and the indigenous community of Juchitán de Zaragoza[25].

For the communities, the consultation process required a higher level of organization and communication as well as resources to fund it, resources which they did not have. Nevertheless, MA OGM collective and different organizations and individuals supported the community process in order to understand the nature of an indigenous consultation and its organization. In the next section, this case is described in detail.

The Indigenous Consultation: The case of Campeche

The NSCJ authorized the consultation to the indigenous communities located in the areas requested by Monsanto for the release of GM soybean. The communities first called for consultation were the ones from the municipalities of Hopelchén and Tenabo, in Campeche. This is the first consultation process of this type in the region and the first one concerning a GM crop. This section describes the organizations and practices generated for the indigenous consultation, the notions of this process and the provoked *affects* during its first stages. Currently, the Mayan indigenous consultation in Campeche is still in process.

In this process, the collective MA OGM was again a crucial assemblage, to support the communities of Campeche. For the processes of organizations and diffusion of information on the indigenous consultation, different tools and strategies have been used. This includes crowdfunding platforms, artistic events, informative meetings and workshops just to mention a few. National organizations, networks and NGOs concerned got involved and support this informative campaign about the indigenous consultation in the communities.

[24] See Chapter 2.
[25] See Chapter 2.

Figure 4. Informative poster in the entrance of a community store in Campeche (Photo by the author, April 6, 2016).

The Fondeadora[26], an online crowdfunding platform, was helped in supporting the MA OGM project "Report and verify the procedure of consulting the indigenous Mayan communities in the Yucatan Peninsula about the planting of transgenic soybeans". The total amount raised with this platform was €4,350. This money was invested in workshops, forums and meetings to inform and exchange knowledge about the indigenous consultation. In addition, these resources supported the creation and dissemination of informative materials (Figure 4) and research about the potential impacts of planting GM soybean in the region.

Once the NSCJ ordered the Indigenous Consultation, a new social process began. Many people in the communities, even in urban context, did not know what really a consultation of this type was. Several times, I heard an anecdote from Mayan people, "there are places where I said, there will be an indigenous consultation! And people saying that, what doctor is coming?" Therefore, the labour of MA OGM and their supporters was crucial for the communities to understand the nature and implications of this consultation process. Even civil society organizations were unclear about the forthcoming consultation process.

[26] https://fondeadora.mx/projects/consulta-indigena-maya

"Since the decision of the Court was made, we were interested in working on the issue of consultation. However, there is not much clarity about it. Even though there are previous experiences, nobody really knows how to deal with it. It is a relatively new process, a fairly new right" (Male NGO member, personal communication, April 19, 2016).

One of the first forums used to inform about the consultation process to be held and to gather funds for the informative campaign took place in January, 2016 by the *Colegio de Antropólogos de Yucatán, A.C., Indignación* and MA OGM collective.

> "Our NGO (*Colegio de Antropólogos de Yucatán, A.C*), thinks that anthropology has treated indigenous issues and their relationship with the state throughout history. We thought it was important to get involved, so we discussed in the organization, and agreed to start collecting more information on the subject of the consultation. We made our first forum with a judge, the community's attorney and an affected Mayan producer" (Male NGO member, personal communication, April 19, 2016).

It was an interesting space due to the participation of a representative of beekeepers, the lawyer of the Mayan communities and the judge of the XIV district Court Unit. Moreover, it was a space to reflect on the NSCJ decision and its possible implications as well the concerns of the participants.

To end the fundraising project, local artists collaborated with a theater play called *Traslocaciones*. This play was focused on food concerns and GMO´s implications. In addition, artistic activities have been an innovative strategy to inform about the commencement of consultation process and the possible impacts of GM soybean production in the region. Other theater plays, concerts and poetry presentations took place previous to the official start of the consultation, including events in Mayan language (Figure 5). Different artists of the region have participated in these events. A remarkable aspect about these activities is the fact that people from the Mayan communities had the opportunity to know more and contemplate about GMO issues, and to reflect on this process in their own language.

Figure 5. Mayan women were part of a musical-poetry recital in Mayan language in Bolonchén, Campeche (Photo by the author, April 1,2016).

Mayan people started to know about the consultation process and its implications. They saw it as an opportunity "to be heard", "to wake up" and to organize themselves better in the Mayan communities so that they could raise awareness outside the community as well.

The Mayan indigenous consultation is a mechanism of participation that has five phases: prior agreements phase, informative phase, deliberative phase, consultative phase and implementation and tracking phase. The prior agreements phase is the first step of a consultation. The responsible authorities must call for an assembly with the indigenous communities to be consulted. In this meeting, the responsible authorities should present the general objectives of the consultation, its methodology and implications. As a result of this phase, a protocol of the whole procedure is created in collaboration with all the parties involved.

The informative phase is intended to deliver accurate and relevant information to the communities concerning the GM soybean plantation and its possible impacts. The next phase, the deliberative one, has the objective to open a space for communities for the dissemination

and analysis of the information received from the authorities. Subsequently, the consultative phase follows, where the communities decide their position about the subject consulted. Finally, an implementation and tracking phase of the decision and agreements made follows.

The CDI, CIBIOGEM, SENASICA and SAGARPA organized the first assemblies of the consultation in Hopelchén and Tenabo. The official start of the Mayan indigenous consultation in Campeche was on April 14th and 15th of 2016, correspondingly. The call for them was directed to 34 indigenous communities of the Hopelchén municipality and 7 indigenous communities of the Tenabo municipality. Two weeks before the assemblies, the delivery of these calls were made during two meetings with the e*jido* commissariat of Hopelchén and Tenabo. These meetings had a couple irregularities. In the session of Hopelchén the CDI was not present, although it is one of the coordinating authorities of the consultation. It was remarkable that Mayan translators and interpreters were not present in either of those two sessions (Misión de Observación-YP, 2016). These irregularities showed a lack of good faith and a low level of cultural appropriate process.

In this context, the Mayan communities and MA OGM collective started to demand a more transparent process and to point out its flaws. It was necessary to have an impartial actor that could objectively report and claim the inconsistencies of the consultation as well as any type of violation of the rights of the indigenous communities to be consulted. Hence, the Mayan communities requested that a group of experts monitor this process from an objective and impartial position. They accepted, conforming the Observation Mission of the Mayan Indigenous Consultation. There are more than 20 organizations and researchers engaged with this new assemblage. By witnessing the development of the consultation, their aim is to contribute through their participation in watching over the quality standards of the process stated by the highest international criteria of human rights (Misión de observación-YP, 2016).

The controversies of this ongoing process have been described in the first report of the Observation Mission. In the report of "Prior agreements phase", the main observations are:

- Translation and interpretation: The sessions in Tenabo and Hopelchén had certified translators. However, their performance was poor and only a few interventions were translated. There were incomplete and interrupted during the both sessions. In addition, the Mayan people participating in Hopelchén's session questioned the interpretation made by the translator.

- Lack of accurate, clear and culturally appropriate information: The objectives of the session, the consultation and its procedures were not clear for the people who were consulted. This generating disagreements and confrontations.
- Pressure to follow the schedule and pre-planned procedure by authorities: In the Tenabo session, just one represented community attended. The authorities pressured the community representatives to approve their proposed protocol. It is noteworthy, the CNDH's visitor attitude did not comply with his impartial and vigilant role.
- Lack of impartiality from the authorities: During the call delivering in Hopelchén, an indigenous leader of the communities was approached by an official of the SEMARNAT. He told her that the damage was already done, and although it was not fixable, it could foster agreements that benefit the affected people with infrastructure projects. Also, in Tenabo, an official of CDI offered a new public road to the *ejido* commissionaire. In the session of prior agreements in Hopelchén, a representative of CIBIOGEM approached the attendants to share with them the benefits of soybean production. This person also denied that in Europe there are several countries which prohibit the plantation of GM soybean.

The irregularities described above confirmed the concerns of Mayan communities and experts. Moreover, the indigenous consultation is not a binding process. This means that if communities says no to GM soybean production, the authorities do not necessarily have to respect their wish. Nevertheless, if is needed, this is going to be contested once the consultation is finished.

On a positive note, this consultation created the association between different assemblages and emergent actors. For example, the relationship with organizations, such as the NGOs CEMDA, FUNDAR and SERAPAZ which participated in the consultation processes of Juchitán or the Yaqui tribe, have been decisive for the precise understanding of this participatory mechanism. The exchange of experiences and dialogue development have opened spaces of reflection with the Mayan people and members of national organizations. One key outcome of this, is the empowerment of indigenous communities ability to contest for their self-determination right.

To conclude this Chapter, the resolution of the NSCJ was an historic triumph in the Yucatan Peninsula. Nevertheless, the indigenous consultation is just another episode of this

resistance to GM soybeans in Mayan communities. However, the support of loyal allies like the members of collective MA OGM and emergent collaborators, are valuable stimulus in the defense of the territory, culture and human rights.

CHAPTER 6. Discussion and conclusions

This section discusses how the territorialisation of the assemblage opposing GMO's in the YP unfolds. Mainly, this analysis has a focus on the practices and associations that underlie this territorialisation process. Territorialisation represents the process where associations are established or reinforced. It also can be a de-territorialisation process where associations are dispersed by disturbing events, meanwhile, new possibilities (i.e. *line of flight*) can arise simultaneously.

This territorialisation *affect*s a large heterogeneous list of human and non-human actors. It is an on-going process that is always under construction. In the Mayan Indigenous Consultation process diverse actors of the resistance movement converge, like: the Mayan communities who want to be respected concerning their decisions on how, when and what they want in their territories; laws and international agreements which attempt to defend the rights of indigenous communities, to protect ecosystems and biodiversity, and to guard human rights; the institutions, organizations and people behind these processes of defense and protection; the maize and the bees as beings and symbols of identity; and the aquifer, represented with cenotes and wells.

Ong and Collier (2015:562) declare "assemblages are material, collective and discourse relationships", were human and non-human actors articulate. In our case, it is observed that a dignified and good life in balance with the environment is the collective association of the pro-Mayan assemblage. The actors involved in these associations are affected by the GMO's assemblage material and discourse relations. Therefore, the pro-Mayan assemblage was moved to act through multiple practices. These practices have created spaces of action, interaction, and reflection. The interplay of practices across diverse elements prominently has a political or legal nature.

To start off, these actor's associations have affected community-based organization. The Chenero's Beekeeping Collective, the MA OGM collective, NGO´s and academic members have been organizers and active promoters of workshops and meetings and innovative activities such as theatre plays, concerts and festivals. These spaces of reflection attempt to raise awareness and foster networking for the movement. These processes of territorialisation have reached not only the Mayan communities but also cities like Merida and

Mexico City. Therefore, this assemblage has no geographical boundaries yet, and involves geographical points of reference, like Hopelchén in Campeche or Mérida in Yucatan.

The events and activities are not in charge of a particular organization or person. They depend on the capacities and availabilities of the people involved as well as their position at a given moment and in their willingness to join forces by organizing workshops or performing a play or a concert. With their participation, they turn into mediators and actors who transform and translate the message of this assemblage: "We do not want GMOs!", in a multiplicity of discourses, expressions and interactions.

In order to contest to the GMO assemblage in the YP, the legal practices of the assemblage have made a significant difference on its process of stabilization by prompting new associations. Actors with an adverse history and actors that are focused on causes such as land grabbing, environmental or discrimination issues have established collaborative relations with the movement. These legal practices and associations during the three main episodes of this assemblage have been improving, scaling and replicating in the region and at national level.

Moreover, scientific practices like the production of impartial studies and dissemination activities have been determinant in producing relevant information and knowledge for the resistance movement. The case of honey samples[27] with GMO pollen was one of the first disturbing events, which caused a *line of flight*. New associations had to emerge in order to study the potential pollution of honey with GMO pollen from soybean. Additionally, forums and informative events took place to share the knowledge produced.

The interplay of these associations and practices with a political or legal nature leads to crucial communication processes. Massive communication media practices have evolved in order to gain recognition and support for the movement. Newspapers and television, as well as social media and networks, have been used. These non-human and human-actors interact in unplanned ways, generating new *affects*. Technology makes easier to share grievances, events, and relevant information in real time, allowing further territorialisation, and new possibilities of associations. For example, during the NSCJ deliberation, the delivery of

[27] See Chapter 3

63,000 signatures demanding the federal judges to rule in favour of Mayan communities was possible due to the association with these media practices.

The affective flows of these practices have generated new relationships among heterogeneous actors. However, during the three episodes mentioned in our previous Chapters, with time, they have also dispersed initial associations. In the first episode, the union of actors against the authorization to release GM soybean was the first association. This process was reinforced in the second episode with the MA OGM campaign. Moreover, in the third episode, the indigenous consultation process promoted new relationships such as associations with experts and actors involved in the cases of Juchitán or Yaqui tribe. This fostered capacities and potentialities of the assemblage, by learning about previous experiences and used tools.

The processes of territorialisation unfolded by associations are fostered through alternative discourses, ways of expression, exchange of practices and other socio-material interactions. This assemblage is in a continuous state of *becoming*, including a potential dispersion. In this sense, as a reference, there are actors of the honey trade sector that are not engaged in the assemblage anymore due to personal agendas. However, their separation has not dispersed the assemblage. It just 'changed its shape' by articulating emergent associations in unpredictable ways like networks and processes of social transformation.

The pro-Mayan assemblage is composed by diverse associations and networks, including diverse organizations and individuals such as the assemblage of MA OGM collective. The MA OGM collective is an innovative structure for collective action. This organisation was created to support Mayan communities in their resistance to the GMO assemblage. The role of collectives is, that peasant organizations, entrepreneurs, academics and NGO's members (as a wider selection of concerned people) associate in multiple and non-hierarchical forms. As an illustration, in order to raise awareness and to provide data concerning the presence of GMO's and its technological package, artists and researchers have collaborated with the collective doing performances or studies, respectively,

In order to join forces, they had to put aside personal agendas so they could converge in appropriate circumstances. In addition, this assemblage effectively articulates by having two key components on its associations: trust and respect. MA OGM is a good case of how

actors, which are, bound together in a constant, active, organization are fraternal and professional. These associations are feasible by the use of devices like phones, and computers as intermediaries. These non-human actors are intermediaries which help to coordinate the network by transporting meaning without alterations (Latour, 2005).

The forces that drive the resisting assemblage are the affects generated by the desires/wishes of concerned actors. The desire for a dignified and good life for the Mayan communities and their future generations. The desire for profits in the honey business is decisive for honey exporters, gatherers and producers to be enrolled in the assemblage. The wish to help and to preserve a healthy environment as well as to defend the rights of these communities employs the help of NGOs, researchers and concerned professionals. These forces had to come together for the assemblage to emerge, and for binding their socio-material relations: indigenous people – bees - honey – forest - NGO´s members – water – scientists – entrepreneurs – professionals – media devices – pesticides – etcetera.

However, desires/wishes can also dissolve associations. The clash of forces and multiple co-existences can result in de-territorialisation (Müller and Schurr, 2015). For instance, in the municipality of Hopelchén, there are peasants that rent their lands to Mennonites. During the first event of the Mayan consultation, one peasant claimed his interest on allowing the production of GM soybean. For a moment, this intervention generated a discussion among the attendants which led to the dis-establishing of the meeting. However, this intervention generated a *line of flight.* It opened the space to share the benefits of beekeeping in the region. Moreover, indigenous people stated their preference to plant maize instead of soybean, since they are experts in its production and is the basis of their diet.

The resistance movement against the GMOs in the YP is a process of emergent collectives that materialised though multiple and non-hierarchical associations (which includes socio-material relations), fitting with the features of assemblage thinking (De Landa, 2006; McFarlane, 2009; Davies, 2012; Kennedy et al., 2013; Fox & Alldred, 2014; Müller & Schurr, 2016). The assemblage opposing GMO's in the Yucatan Peninsula is working through network fluidity. The relationships of this resistance movement have a long historical and political background that is in constant transformation. The context changes as well as the assemblage. Unforeseen events such as illegal GM crop plantations or changes in market

regulations can contribute unpredictably to the resistance process. Nevertheless, the actors learn to adapt and to contest, meanwhile, they develop other models for a dignified life.

The network of this social movement is constructed by other networks. This assemblage develops different strategies for the construction and protection of a dignified life. The networks engaged are: the ones based on peasant's grievances; networks of sustainable development; networks concerning human rights, focus on indigenous communities; environmentalist networks; networks of international solidarity; and networks of social justice. Each network is an assemblage itself and they are part of a *whole*, the pro-Mayan assemblage. Again, it is important to note, that these networks are associated with socio-material elements which affect them.

To complete this analysis, it is important to mention the products of this assemblage. In the social movement, the socio-material associations, practices and *becomings* generate alternative discourses and produce knowledges otherwise, looking for "real transformations" (Escobar, 2007; 2010). This assemblage is resisting and constructing worlds otherwise, more just and sustainable. The practices of this assemblage (like native seeds festivals and peasant schools) as well as its alternative discourses (such as multicultural rights, biocultural heritage and a dignified life) enact a different way of collective mobilization and politics.

This research approach is relevant because of the context, background and complexity of associations that are taken into account. This would not be the case with classical social movement theories. Additionally, the emergence of socio-material associations and unpredictable *affects* are not considered in the political ecology approach. Bearing this in mind, the cross-fertilisation of assemblage thinking and ANT is interesting, because it helps to understand the production of social transformation through collective action, and the way the latter is *moved* by all sorts of affects, associations and practices.

It is important to acknowledge the limitations of this study. The semi-structured interviews were self-selected due to time and access constrains (yet, they were guided by the snowball sampling method). Moreover, this is an empirical research based on self-reported data from semi-structured interviews and participant observation; therefore, it is possible that interviewees did not share (or over-exaggerated) crucial experiences or events. These limitations may have led to bias in the analysis. To manage these possible biases, I used the

information provided as point of departure for my inquiry, and cross-checked it with available literature and information from other interviewees.

The recommendations for further research are concerning social inquiry with assortment of other methods. For instance, including a quantitative research where affects and associations could be measured, reflecting on perceptions of community members. Additionally, it would be interesting to explore how this type of research affects the studied assemblage as one more association. Last but not the least, it is important to understand the associations and *affect*s of the GMO assemblage.

The study of assemblages, as we saw, is the study of processes in transformation, inspiring different actors. Perhaps it is fitting to end this discussion with a brief reflection on the way I was affected as a researcher. To begin with, by collaborating with the assemblage as well as by reading, analyzing and writing, I changed my perception of collective action in a resistance process. First, I understood the meaning of '*compañera* (o)' (comrade). That it is more than just supporting or participating in a cause: it means to share, to be there. Especially, it signifies actions more than just speaking. Secondly, I recognized the capacity of indigenous people, peasants and minority groups to resist, to defend their culture, their livelihoods, their rights - despite fears and uncertainties inside the resistance movements, and regardless of the apathy or aggressions of people not involved.

To summarize, this thesis was the study of a social movement by using a new approach. This thesis inquired upon the complex process of collective action with a network and an assemblage perspective. It was argued that the cross-fertilization of assemblage thinking and ANT is worthy in explaining the complexity of affects and socio-material associations in a resistance movement. These associations function through affects that stabilize or intervene its territorialisation. Relevantly, it is possible to appreciate the developing capacities and potentialities of the resistance in action. More important, these local collective actions make a difference that encourage social transformation. To conclude, I hope this paper has *affected* you in some way. Perhaps, in being more inspired by the people behind this resistance movement or moved by the described associations with crucial non-human actors (like the bees and the *milpa)*. At the end, hopefully, these affects could produce something, and a call to *do* something more.

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