

# From Universal to Mayan Permaculture: An Analysis of Ontological Encounters in San Lucas Tolimán, Guatemala

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August 2020



Master's Thesis Submitted in Partial Fulfillment of the  
Requirements for the Degree of Master of  
International Development Studies

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## Abstract

Permaculture can be found in nearly all corners of the world, yet little empirical research has been conducted to analyze the manifestation of permaculture in a context outside of the Global North. In this thesis, I explore how permaculture educators and Mayan farmers in *San Lucas Tolimán*, Guatemala, define, share, and adapt permaculture principles and practices in relation to the Mayan cosmovision. I found that the *Kaqchikel* Maya community in the *San Lucas Tolimán* area have adopted an ontology shaped by Christianity seemingly incompatible with the Mayan cosmovision. Nevertheless, permaculture practitioners in *San Lucas Tolimán* consider the Mayan cosmovision integral to the permaculture philosophy, and that permaculture serves as a window of opportunity to restore lost connections with the Mayan cosmovision. The *Mesoamerican Institute of Permaculture* (IMAP), founded by community members, plays an important role in the diffusion of permaculture, by offering practice-oriented courses and through the employment of 'promoters', who use their personal networks to promote permaculture. As most *Kaqchikel* Mayas are Christian, three ontologies interact: the permaculture philosophy, the Mayan cosmovision, and the Christian-based ontology. These ontologies are by no means static: they are constantly reproduced by the community members in *San Lucas Tolimán*. While the Christian-based ontology poses a challenge for the diffusion of permaculture and the Mayan cosmovision, the permaculture practitioners in *San Lucas Tolimán* demonstrate that the three ontologies are not mutually exclusive. An explanation for this could be that permaculture practitioners, who maintained their Christian faith, refrain from adopting the entire Mayan cosmovision or permaculture philosophy. Rather, they cherry-pick elements of each ontology, often related to agriculture, that are beneficial for them.

**Keywords:** Permaculture, knowledge diffusion, ontology, Mayan cosmovision, Guatemala

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## Acknowledgements

First of all, I would like to thank my supervisor, dr. Mindi Schneider of the Sociology of Development and Change Group at Wageningen University and Research, without whom this thesis would have been much more difficult to write. Your support and encouragement throughout the duration of my fieldwork, which was cut short as the COVID-19 pandemic befell the world, was indispensable to me. Moreover, your feedback was invaluable in writing this thesis and has helped me lift this thesis to a higher level.

I would also like to thank my second reader, dr. Elisabet Rasch, of the same chair group, for acting as my second reader. Moreover, I am very thankful for the support you offered me when I abruptly had to leave Guatemala.

Furthermore, I am profoundly grateful to the Mesoamerican Institute of Permaculture (IMAP), who not only allowed me to conduct my fieldwork with their organization but has provided extensive support and assistance in doing so. I would especially like to thank Christian Chacón, whose network allowed me to connect with many community members. Your help extended the duration of my stay in Guatemala and I am very grateful for your help. Our informal conversations greatly contributed to my understanding of the context in *San Lucas Tolimán*, Guatemala.

I would also like to thank the research participants without whom this thesis would have been impossible. I greatly appreciate the effort you have taken to contribute to this research project, and I am stunned by the patience and kindness you have shown me during both interviews and participant observation.

Finally, I would like to thank my parents and friends, especially Anouk and Emily, for providing continuous and unfailing support throughout the process of researching and writing this thesis.

## Chapter 1

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### From Universal to Mayan Permaculture: Introducing Indigenous Permaculture in San Lucas Tolimán

The civil war had just ended when Rodrigo came back to his community in *San Lucas Tolimán*, Guatemala, in the late 1990s after having spent several years abroad. The community he came back to was different than the one he had left years before. Families had lost their homes, their land, and many had lost their lives. During his time abroad, Rodrigo, who was raised a Christian, had become interested in rekindling his relationship with the Mayan cosmovision of his ancestors – a cosmovision he knew very little about. While his community was *Kaqchikel* (one of the twenty-one recognized Mayan ethnolinguistic groups in Guatemala), only superficial remnants such as clothing and language remained. Upon his return, he saw how his community had become dependent on global capitalism: most farmers no longer had their own land and were forced to work on large monoculture plantations to provide for their families. The farmers who managed to keep their land were forced to hop on the Green Revolution bandwagon to be able to compete with the low prices of products from monoculture farms. This resulted in farmer families earning lower wages and adopting less diverse diets. Rodrigo felt responsible to help his community break the vicious cycle that characterized its dependency on global capitalism.

So, Rodrigo organized dialogues with many different indigenous communities around Lake Atitlán. From these conversations, he learned that agriculture was at the heart of the Mayan culture. This led him to conclude that revitalizing ancestral knowledge could solve the communities' struggles with global capitalism. But there was one problem: Most communities were devout Christians with an aversion to their ontological past. When Rodrigo returned to his hometown, *San Lucas Tolimán*, a local organization called *Ija'tz* had a similar mission: they sought to reconstruct agricultural techniques from the Aztecs to make coffee production in Guatemala less exploitative of the environment. It was this organization that inspired Rodrigo to explore the fields of agroecology, biological agriculture, and ultimately permaculture. He realized that the permaculture principles and ethic could help him bring back ancestral knowledge to the community. In the year 2000, Rodrigo established the *Mesoamerican Institute of Permaculture* (IMAP), which has aimed “to promote food sovereignty and biodiversity conservation, empowering individuals and communities in Mesoamerica” (Instituto Mesoamericano de Permaculture, n.d.<sup>a</sup>, p. 2) for the last twenty years. IMAP seeks to achieve this using the permaculture principles, as well as ancestral Mayan knowledge, thereby reproducing both the permaculture philosophy and the Mayan cosmovision.

#### Problem Statement

Rodrigo was drawn to permaculture, a concept developed by Bill Mollison and David Holmgren, due to its roots in indigenous farming practices and its divergence from the global, neoliberal systems that render many Mayan farmers dependent on multinational corporations. More than just an agricultural method, permaculture is a holistic approach to agriculture that sees ‘culture’ as a part of nature (Suh, 2014). I first encountered it in the Spring of 2018. I was an intern at a permaculture farm called Maya Mountain Research Farm (MMRF) in the Maya Mountains in Belize. Upon my arrival, I could not distinguish between the farm and the surrounding jungle: the farm itself *was* the jungle. This is the essence of a permaculture farm: the farmer creates an ecosystem using only species of use to the farmer or the community that can maintain

itself as any naturally established ecosystem could (Ferguson & Lovell, 2013). As such, permaculture is a form of agriculture where ‘culture’ and ‘nature’ converge (Mollison & Holmgren, 1978).

Permaculture is becoming increasingly popular all around the world (Ferguson & Lovell, 2013). While it originated in Australia, permaculture cases can be found in nearly all corners of the world, including Europe (Brawner, 2015), North America (Veteto & Lockyer, 2008), Latin America (Millner, 2016), and Africa (Kruger, 2017; Didarali & Gambiza, 2019). A common denominator in many instances of permaculture is their connection to the work of Bill Mollison and David Holmgren. Many permaculturists have taken the Permaculture Design Course (hereafter: PDC) created by Mollison and Holmgren, which provides its participants with a certificate that holds considerable informal authority (Massicotte & Kelly-Bisson, 2018). Both the PDCs and the original work by Mollison and Holmgren are key to the global diffusion of permaculture. Research shows that permaculture is adaptable in various ecological settings, such as different climates or soil types (Mollison, 1978) and cultural settings, as permaculture has been adopted in- and outside of Australia, where it was developed (Kruger, 2017; Veteto & Lockyer, 2008). Nevertheless, there is a lack of empirical studies regarding if and how indigenous peoples practice permaculture, and the extent to which permaculture overlaps with or is adaptable to the food and farming systems of particular indigenous communities (Ferguson & Lovell, 2013). The proposition that permaculture is universally adaptable thus calls for scrutiny in indigenous contexts.

I argue that to examine this proposition, the compatibility and adaptability of both indigenous practices and the permaculture philosophy need to be examined. As neither indigenous cosmologies nor the permaculture philosophy are static, ontological interactions between them may invoke change in both. As such, to examine this interaction, on the one hand I will look at how permaculture is diffused, and on the other hand I will consider the adaptation of permaculture, by which I mean how farmers or practitioners implement and possibly modify permaculture practices and ideas. This thesis, therefore, examines the encounter between permaculture and indigenous cosmologies (or ontologies) and farming practices in a Mayan, specifically *Kaqchikel*, community in the municipality of *San Lucas Tolimán*, Guatemala. The *Instituto Mesoamericano de Permacultura* or Mesoamerican Institute of Permaculture (hereafter: IMAP) is a permaculture center in *San Lucas Tolimán* that offers permaculture design courses and provides funds for local farmers and non-farmers seeking to adopt permaculture as an agriculture method or in their home garden (Instituto Mesoamericano de Permacultura, n.d.<sup>a</sup>). To examine the relationships between permaculture and indigenous farming practices, this thesis asks:

How do permaculture educators and Mayan farmers in *San Lucas Tolimán*, Guatemala define, share, and adapt permaculture principles and practices in relation to the Mayan cosmology?

To answer this question, I developed three sub-questions:

1. How do permaculture educators and Mayan farmers define and describe permaculture?
2. How are permaculture principles adopted and diffused in *San Lucas Tolimán*, Guatemala?
3. Are there tensions between the philosophy and practices of permaculture in general and Mayan cosmology with regards to farming in particular?

Following Elizabeth Hoover’s (2017) work on how Native American community farmers in the United States define and describe the concept ‘food sovereignty’, I asked farmers what permaculture means to them, comparing their responses to definitions developed by Bill Mollison and David Holmgren to answer the first sub-question. Moreover, to answer the second sub-question, I focus on how knowledge around permaculture is constructed in the community and how the permaculture principles developed by David Holmgren have translated into practice on site, and what modifications people make. Finally, I address the

ontological encounters in *San Lucas Tolimán* to identify how the permaculture philosophy and the Mayan cosmovision are being reproduced. As such, I explore commonalities and discrepancies between the philosophy and practices of permaculture, the Mayan cosmovision as well as the dominant Christian-based ontology of the community members with regards to agricultural practices thereby contextualizing permaculture in *San Lucas Tolimán*. To examine the philosophy and practices of permaculture, I mainly rely on existing literature on permaculture as well as input from IMAP employees and permaculture farmers. To gain an accurate understanding of the current ontology of *Kaqchikel* Mayas in *San Lucas Tolimán* concerning farming practices, I have sought out ‘stories’, as discussed by Leonie Sandercock (2003), for Blaser (2013) notes that this is a useful starting point as ontology often manifests in stories.

### Host Organization

Before ultimately working with IMAP, Rodrigo’s organization, the initial site of this research was in the *Tzununá*, Guatemala with a permaculture farm called Atitlan Organics. Atitlan Organics (2020) is a permaculture farm based in *Tzununá*, a Maya village on the shore of Lake Atitlán, Guatemala. It was founded in 2010 by Shad Qudsi and Colleen Donovan, who took interest in permaculture and decided to realize their dream of starting a permaculture farm. 20% of the farm consists of food and fuel forest, 30% consists of intensive vegetable cultivation, and the remaining land is food forest with integrated wetlands. The farm produces fresh produce including fruit, vegetables, and herbs, as well as chicken, pork, and eggs. The animals roam freely over the property, although their grazing patterns are kept in check in order to optimize use of their manure and to prevent them from eating crops. The farm employs *Tzununá* residents to work and manage the farm. Additionally, they welcome volunteers to work and learn on the farm. (Atitlan Organics, 2020a)

In my contact with Atitlan Organics, I was informed that I could stay at *Granja Tz’ikin* or Farm *Tz’ikin*, a neighboring permaculture farm that hosts many volunteers as well as other tourists. Upon my arrival, I learned that Atitlan Organics itself was not able to accommodate my research, but I was able to do my fieldwork at *Granja Tz’ikin*. Though *Granja Tz’ikin* is located within the community of *Tzununá*, the organization was managed by non-Guatemalans. The founder is an Irish man and the current team consists of him, his Colombian wife, and an American man. The farm is entirely based on permaculture principles, including the hostel and restaurant on site. Additionally, the farm has a consulting service where the team advises other farms or organizations about permaculture design (*Granja Tz’ikin*, n.d.). While there, I noticed that the farm depended on the help of many volunteers, all of whom were from the Global North (i.e. the Netherlands, the United States, Australia). The farm employed some community members, but their jobs were limited to following orders from the team: working in the kitchen and working on construction. Though the dynamic between *Granja Tz’ikin* and the community in *Tzununá* should be explored further, I quickly realized that this site was unsuitable to explore how the Mayan population of *Tzununá* experienced permaculture, as they did not practice permaculture. As such, I reached out to another organization on the other side of the lake.

The Mesoamerican Permaculture Institute (*Instituto Mesoamericano de Permacultura* or IMAP) is a permaculture center based in *Pachitlulul*, a Maya community in the municipality of *San Lucas Tolimán* on the shore of Lake Atitlán, Guatemala. As mentioned, it was founded in 2000 by a group of local *Kaqchikel* Maya people, who took notice of the environmental and social issues in their community. Even today the team predominantly consists of *Kaqchikel* people from the area. The founders decided to address these issues by promoting food sovereignty and biodiversity conservation, through the combining of permaculture principles and ancestral knowledge. IMAP not only offers permaculture design courses and scholarships to follow these courses, they also have a seedbank. They seek to combat malnutrition by promoting ancestral, native seeds such as chia and amaranth, which are cheap yet extremely nutritious, but have been forgotten by the community. (*Instituto Mesoamericano de Permacultura*, n.d.)

Their mission is as follows: “to promote food sovereignty and biodiversity conservation, empowering individuals and communities in Mesoamerica” (Instituto Mesoamericano de Permacultura, n.d.<sup>a</sup>, p. 2), and their vision is: “based on ancestral knowledge and permaculture principles, we accomplish a “buen vivir” (wellbeing) in an ecological culture” (Instituto Mesoamericano de Permacultura, n.d.<sup>a</sup>, p. 2). By the year 2019, IMAP has created 66 local employment opportunities: these jobs include maintenance and reparation of the center itself, services such as food preparation and transportation for the workshops and courses, amaranth and chia producers, producers of artisanal products, aquaculture farmers, and producers of agroecological products such as honey and coffee (Instituto Mesoamericano de Permacultura<sup>2</sup>, n.d.). IMAP facilitates in distributing these products in their store in *San Lucas Tolimán*.

IMAP’s activities are organized in four programs: education, biodiversity, food sovereignty and institutional strengthening. The education program contributes to the dispersal of information about permaculture and ancestral knowledge from the community in *San Lucas Tolimán* through courses, workshops, tours, internships, and facilitation of farmer-to-farmer networks. Some of the courses are oriented towards international audiences, such as the English Permaculture Design Course or the tours of the center (Instituto Mesoamericano de Permacultura, n.d.<sup>b</sup>). But IMAP additionally hosts many workshops oriented towards the local community at a lower price and they offer scholarships when possible (Rafael, personal communication, April 14, 2020). Plus, IMAP works with local ‘promoters’ who they train to diffuse ancestral knowledge and permaculture in their respective communities (Eduardo, personal communication, March 6, 2020).

The biodiversity program is oriented at raising awareness about heirloom seeds, such as amaranth and chia, while also making such seeds available to the community by cultivating crops on the property itself and collaborating with local producers and facilitating the distribution of the seeds (Instituto Mesoamericano de Permacultura, n.d.<sup>a</sup>). In 2019, IMAP expanded their inventory with two new species, and it improved their strategy to promote amaranth and chia in the community (Instituto Mesoamericano de Permacultura, n.d.<sup>b</sup>). As such, IMAP has been able to make more amaranth and chia seeds available for distribution – with the help of promoters – to the community for the food sovereignty program (Ilma, personal communication, March 17, 2020). This program intends to create ecological agro-systems to ensure the abundance and quality of food to feed the community (Instituto Mesoamericano de Permacultura, n.d.<sup>a</sup>). On the one hand, IMAP helps farmers to adopt permaculture to make their plots more diversified and resilient. On the other hand, IMAP processes amaranth and chia on site in collaboration with local producers and businesses. The last program is institutional strengthening, which entails that IMAP always seeks to extend the reach of IMAP’s work as well as improving its impact, while also securing the wellbeing of the staff.

To conduct ethnographic research in *San Lucas Tolimán*, I worked as an intern at IMAP. The internship program is designed to educate students or other interested individuals about permaculture and ancestral Maya knowledge, and they require interns to stay for a minimum period of one month. The interns are required to design their own internship project, which needs to contribute to one or more of IMAP’s programs. As such, in order to conduct my research, I had to design an internship project that not only granted me access to the research participants and enabled me to conduct participant observation, but that also generated value for IMAP and by extension the community. To achieve this, I combined my participant observation with daily, general maintenance tasks which fell under the institutional strengthening program. Every week, I spent one day working with someone from the team, to help them where necessary while learning about IMAP, permaculture, and ancestral knowledge and their experiences and perspectives with regards to these topics. Likewise, I planned to use the output from the interviews with the research participants to create educational materials for IMAP based on local farmer experiences, rather than academic research. This would contribute to IMAP’s education program. However, as I had to leave IMAP



suddenly and unexpectedly due to the COVID-19 pandemic, I was not able to complete the last goal due to lack of interviews with farmers.

### Research Participants

In this thesis I use the input of twelve research participants, most of whom I spoke with during my time at IMAP. However, prior to arriving at IMAP, I spent a week in *San Pedro La Laguna*, another town on Lake Atitlán, where I took an intensive Spanish course. In this section, I will introduce the research participants, each of whom I gave a different name to ensure anonymity. I conducted all the interviews, as well as informal conversations, in Spanish. Most of the research participants' native language is a Maya dialect: *Tz'utujil* for the participants from *San Pedro La Laguna* and *Kaqchikel* for those from the *San Lucas Tolimán* area, though all of them spoke sufficient Spanish as well.

Firstly, my teacher at the Spanish school, Laura, and another teacher, Daniela, provided information about the historical and contemporary context of the Maya people in Guatemala. Laura and Daniela are both *Tz'utujil* Maya women, so their experience might differ slightly from experiences of the *Kaqchikel* Maya in *San Lucas Tolimán*, but their stories often concerned the entire highland region, and therefore I include them in chapter 4, where I address the historical and cultural context of the Maya in Guatemala.

When I arrived at IMAP, the first person I met was Rafael. Rafael is from El Salvador but has worked and lived at IMAP – in the community of *Pachitulul* – for three years. He is not Maya, but through his work as coordinator of the Education program at IMAP and being the only non-Maya employee, he has become very informed about the Maya condition in Guatemala. He studied liberation psychology in El Salvador and as a result he is very aware of his position as a foreigner in a local organization founded by *Kaqchikel* Mayas. Nevertheless, as Rafael's prolonged experience at IMAP and in *Pachitulul* made it easier for me to understand the context, as it bridged the initial cultural gap between myself and the research participants. I had many informal conversations with Rafael which all contributed to my understanding of the current Mayan culture and ontology.

During my first week at IMAP, I worked with a different staff member each day to learn about their position within the organization. This is how I met most of the research participants, though I did not interview them right away. On my first day I worked with German, who does maintenance work on the property and is involved in the education program. German is from *San Lucas Tolimán* and has been involved with IMAP from the start: he helped find the location where IMAP was to be established. He has considerable knowledge about the Mayan cosmovision and permaculture alike, so he provided valuable information. Once a week, I made sure to work with German: I helped him with maintenance tasks and during our work I was able to do participant observation. German also gave lectures to the interns on site about the Mayan cosmovision and permaculture.

In the second week, German took me and the other interns to a tree nursery in *San Lucas Tolimán*, belonging to Dionisio. Dionisio had inherited the nursery from his father, who established it approximately 30 years ago. The nursery's goal is to combat deforestation in the area. Besides growing trees on site, Dionisio uses his nursery to educate local children from local schools. Dionisio draws on ancestral knowledge he learned from his father and grandparents in his work, and like IMAP, he seeks to revitalize the Mayan cosmovision in the *San Lucas Tolimán* area, because he believes this is key to respecting the environment.

Additionally, Rafael helped me connect with promoters hired by IMAP to spread awareness about the ancestral seeds amaranth and chia in the communities in and around *San Lucas Tolimán*. In total there are four promoters, but I was able to speak to two. I spoke with Eduardo, a miller who lives in the center of *San Lucas Tolimán*. Eduardo is the brother of Ilma, who works at IMAP and is also one of the research participants, and Don Benjamin, a farmer from the small village of *San Martín*. As mentioned in the previous section, they were approached by IMAP as part of the Food Sovereignty and Biodiversity programs. Talking to them offered me important insights in the diffusion of permaculture outside of IMAP's Education program.

The week before I left, I interviewed Denis and Ilma, both staff members at IMAP. Ilma has worked at IMAP for 8 years and she oversees the administration. She is from *San Lucas Tolimán* and was raised in *Kaqchikel*. Denis started working for IMAP around the same time as Ilma, and he assists her with administrative tasks. Additionally, he is in charge of the seed bank. Denis is from a younger generation than Ilma, and though he is also *Kaqchikel*, he was raised in Spanish.

I had to leave IMAP before I could talk to everyone I had planned on interviewing, but I arranged some interviews via Skype or WhatsApp call. This way, I was able to conduct three more interviews from the Netherlands. First, I spoke with Adrien, who works in the amaranth and chia processing center at IMAP. IMAP has a store in *San Lucas Tolimán* where they sell amaranth and chia products, prepared by Adrien. Adrien is from the community of *Santa Cruz Quixaya* nearby *San Lucas Tolimán*. His father, Emelio, cofounded IMAP and has contributed to the implementation of permaculture and the corresponding revitalization of the Mayan cosmovision in *Quixaya*. As such, despite being from a younger generation, Adrien was raised in *Kaqchikel* and with the Mayan cosmovision.

Moreover, I spoke to the second cofounder of IMAP, Rodrigo. Rodrigo is from *San Lucas Tolimán*, but during the civil war he had to leave Guatemala in exile. While in exile, he reconnected with the Mayan cosmovision, which he had not learned about during his upbringing. Upon his return, he took a permaculture course in *San Lucas Tolimán*, and he saw permaculture as a feasible alternative to the intensive, export-oriented agriculture that had taken over most small-scale farms in the area, as well as a way to revitalize the Mayan cosmovision. The Mayan cosmovision, in his opinion, is key to living in harmony with the environment.

Finally, I spoke with Roberto. Roberto, like German, does maintenance work at IMAP and has worked there for 3 years. I worked with Roberto many times during my time there to help with daily tasks, though I did not get the chance to interview him while I was in Guatemala. Roberto is from *San Jose la Providencia*, a former large-scale farm where many *Kaqchikel* families lived. The farm owner eventually left the area, but his employees and their families stayed behind

. Roberto was raised in *Kaqchikel*, though most people in the community only speak Spanish nowadays. Likewise, though Roberto himself learned about some ancestral beliefs and practices when he was younger, most people from his community no longer engaged with the Mayan cosmovision.

### Societal and Academic Relevance

When I initially discussed the possibility of conducting ethnographic fieldwork at IMAP, they referred me to their internship program. They were immediately enthusiastic about the topic, yet they emphasized the importance of giving back, rather than simply taking knowledge. By creating an internship project for the duration of my fieldwork, I was able to contribute to IMAP and the community. Moreover, though my thesis itself is not directly relevant for the community in which it is situated, it will potentially produce indirect advantages for the community in *San Lucas Tolimán*. My thesis makes the experiences of permaculture practitioners explicit, thus facilitating the process of diffusing permaculture – for both the instructors, promoters, and local farmers. Additionally, it potentially provides valuable lessons for other indigenous contexts where permaculture is practiced, bearing in mind that not all conclusions will be generalizable to other contexts.

On the other hand, I expect that my thesis will be directly relevant for the anthropological discourse on permaculture. Despite the increasing global prevalence of permaculture, it has not been studied to the same extent as similar movements, such as agroecology (Ferguson & Lovell, 2013). Moreover, more attention is directed towards permaculture communities in the Global North, such as Earthaven in North Carolina (Veteto & Lockyer, 2008), than towards permaculture in the Global South. While Didarali & Gambiza (2019) shed light on permaculture in South Africa and Zimbabwe, they focus on livelihood by looking at quantifiable variables such as income and nutrition, rather than focusing on farmer experiences. As permaculture claims to be applicable in all contexts, instances of permaculture outside the Global North

require further qualitative attention. Therefore, this thesis will contribute to closing the excessive gap in the anthropology literature with regards to permaculture in an indigenous context.

## Chapter 2

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### What Do We Know?

#### Defining Concepts and Reviewing Literature

#### Permaculture in Theory and Practice

In order to compare the definitions and descriptions of permaculture I collected in *San Lucas Tolimán*, Guatemala with the Mollisonian (Mollison & Holmgren, 1978) definition of permaculture, the latter requires some unpacking. First as Mollison & Holmgren (1978) implied that permaculture relies on ‘indigenous’ values, I will trace the origins of permaculture to better understand where these values originated, and what the authors mean by ‘indigenous’. Secondly, I will examine the claim of the permaculture movement that it can be customized to many different cultural settings by briefly summarizing several instances of how permaculture has been practiced in both contexts in the Global North and Global South, to illustrate how the claim to customizability manifests in these respective instances.

#### The Roots of Permaculture

Though the term ‘permaculture’ was coined by Bill Mollison and David Holmgren in 1978, the concept can be traced back to the beginning of the 20<sup>th</sup> century when scholars Cyril G. Hopkins (1910) and F. H. King (1911) observed farming practices in China, Korea and Japan, which they labeled ‘permanent agriculture’ (Suh, 2014). According to Millner (2016), the word ‘permanent’ as used in the early 1900s has a similar meaning to what we now call ‘sustainable’, meaning this type of ‘permanent’ agriculture sought to conduct agriculture that did not exploit the environment and could therefore, theoretically, be continued in the same locale for generations to come. These practices were based on small and slow solutions that ensured resource efficiency and recycled waste including the composting of human manure, and above all, were extremely labor intensive (Suh, 2014). These characteristics bear a striking resemblance to what we now understand as ‘permaculture’, which is based on the twelve principles of permaculture as denoted by David Holmgren (Brawner, 2015, p. 431):

1. Observe and interact;
2. Catch and store energy;
3. Obtain a yield;
4. Apply self-regulation and accept feedback;
5. Use and value renewable resources and services;
6. Produce no waste;
7. Design from patterns to details;
8. Integrate rather than segregate;
9. Use small and slow solutions;
10. Use and value diversity;
11. Use edges and value the marginal;
12. Creatively use and respond to change.

These principles contribute to the underlying ethical code of permaculture, which entails “caring for the earth; caring for people; setting limits on population and consumption; and redistributing surplus” (Suh,

2014, p. 82). This ethical code, along with the twelve principles, has been used as a framework to examine permaculture efforts by several authors (Brawner, 2015; Veteto & Lockyer, 2008).

The philosophical context of the farms that influenced permaculture as it is known today, should be noted: they were based on Taoist and Buddhist beliefs. Suh (2014) argues that both philosophies are still present in current understandings of permaculture: permaculture requires close observation of patterns in natural ecosystems and energy flows within the targeted landscape, very much like *feng-shui* practices in Taoism. Likewise, *karma*, a Buddhist concepts that refers to the cosmic laws of cause and effect, underpins the permaculture ethic that humans should care for the earth, because harming nature will ultimately lead to harming humanity (Suh, 2014).

Nevertheless, the ‘permanent agriculture’ farms differ from permaculture in two key aspects: firstly, Suh (2014) argues that the practices observed by Hopkins and King were embedded in a feudal society and exploitative of the farmers. Mollison & Holmgren describe an agriculture system based on egalitarianism, where social justice is as important as environmental justice (Suh, 2014). Secondly, Mollison & Holmgren (1978) present permaculture as essentially rooted in ecology – which provides farmers the knowledge to effectively mimic a natural ecosystem to minimize external input and management (Ferguson & Lovell, 2013). As such, Suh (2014) defines permaculture as follows: “Permaculture incorporated the Oriental (sic) principles of permanent agriculture, including composting and recycling of human manure, into a science-based design theory for sustainable living environments” (p. 80). In short, the philosophy of permaculture is mixed: traces of Buddhism and Taoism are combined with ecological principles.

### Permaculture Movement

Various scholars have asserted that permaculture is no longer just an agricultural practice, rather, it has become a global movement (Millner, 2016; Veteto & Lockyer, 2008; Ferguson & Lovell, 2013). Naomi Millner (2016) argues that in Central America, the permaculture movement was kickstarted by agroecology initiatives similar to current permaculture practices that spread in connection to guerilla uprisings: intensive agriculture technologies had become associated with repression and land grabbing for many farmers, and this provided popular support for alternative agriculture methods. These practices began to gain ground when in the 1980s floods destroyed many monoculture farms as they were stripped of the fertile layer of topsoil, while the agroecology farms remain largely intact (Millner, 2016). After Mollison & Holmgren published *Permaculture One* in 1978, permaculture missionaries started to spread permaculture in Central America, predominantly in El Salvador, Nicaragua, and Guatemala (Millner, 2016). Millner (2016) describes that many indigenous farmers were encouraged to adopt permaculture, as they could learn from scientific knowledge and combine it with, or even customize it to, their own indigenous practices. Likewise, Brawner (2015) notes that in the implementation of permaculture, “the blurring of ‘expert’ and ‘lay’ knowledge creates a space for collaboration and inclusion” (p. 436).

### Permaculture Studies

Theoretically, the customization of permaculture is rendered possible due to the lack of standardization and formality in the education and dispersal of permaculture principles – David Holmgren himself notes that his principles are, and should be, subject to change, for permaculture evolves with each farmer that adopts it (Veteto & Lockyer, 2008). Though conducted far and in between, several studies have addressed the manifestation of permaculture – and by extension, its principles – in different settings. These studies show how permaculture manifests in different ways depending on the context, with regards to self-sufficiency and community involvement. They demonstrate that while autonomous permaculture communities can work, they necessitate seed capital. As such, many permaculture farmers combine their endeavors with

other forms of agriculture or sources of income, thus practicing permaculture within the neoliberal paradigm. However, the town of *Shipka* demonstrates that self-sufficient permaculture without copious amounts of seed capital can be achieved provided that the existing community is receptive to permaculture (Brawner, 2015). The latter case illustrates that how permaculture takes shape is highly dependent on the community and its context.

Mollison & Holmgren argued that permaculture should be communal rather than isolated, as isolated permaculture farms face more difficulty attaining self-sufficiency (Suh, 2014). In discussion of Holmgren's twelve permaculture design principles, Veteto & Lockyer (2008) state that "the overall aim of these design principles is to develop closed-loop, symbiotic, self-sustaining human habitats and production systems that do not result in ecological degradation" (p. 51). In practice, few permaculture initiatives have achieved this ideal (Suh, 2014; Didarali & Gambiza, 2019), which contributes to the critique that permaculture is too utopian (Suh, 2014). The examples in which a communal permaculture has been realized tend to be found in countries in the Global North, such as Veteto & Lockyer's (2008) example of Earthaven in North Carolina (Suh, 2014). Here, a community of 60 wealthy retirees established a permaculture farm on 320 acres of land. The initiative is entirely funded by the members itself, though recently members with no financial capacity to contribute have been accepted into the community as well (Veteto & Lockyer, 2008). Nevertheless, a considerable amount of seed capital was required to establish the community. Suh (2014) argues that one way of making permaculture more realistic elsewhere, is to focus on implementing permaculture in readily existing farming communities which are equipped with existing relationships and communitarian spirit, as opposed to creating a new community built around permaculture. Additionally, Didarali & Gambiza (2019), who focused their research on permaculture outside of the Global North, question whether permaculture in the Global South can be self-sufficient at all – they found that in practice, permaculture is often combined with other forms of agricultural practices.

Brookman & Brookman (2005) illustrate how permaculture endeavors can also be combined with educational and recreational efforts: they generate income from hosting permaculture design courses, hosting volunteers, and giving tours to tourists. Moreover, they sell their products for a 'premium' price, as demand for organic products allows them to do so. Nevertheless, Brookman & Brookman (2005) established their farm in Australia, a country in the Global North, therefore these efforts might result in different outcomes elsewhere. Furthermore, Kruger (2017) found that in South Africa, like Brookman & Brookman's (2005) permaculture farm, permaculture projects stayed largely within the neoliberalist paradigm, for they require considerable seed capital and once established, permaculture farms did not result in self-sustaining communities. Farmers were forced to continue working jobs outside of the farm to make ends meet (Kruger, 2017). Moreover, residual inequality from the Apartheid is clearly visible in permaculture practice in South Africa - permaculture is most popular among white citizens (Kruger, 2017).

On the other hand, June Brawner (2015) reported an instance of permaculture where the community became predominantly self-sufficient. She studied permaculture sites in the village *Shipka*, Bulgaria – geographically in the Global North, though Bulgaria is not a high-income country. In *Shipka*, both local farmers and migrant farmers from the United Kingdom practice permaculture (Brawner, 2015). Due to the presence of many permaculturists, numerous permaculture events take place to connect both permaculture practitioners and non-practitioners, to share experiences and knowledge. Brawner does not mention how permaculture first came to *Shipka*, so it remains unclear whether migrant farmers or local subsistence farmers took initiative. She describes the Balkan as a region in transformation, "situated 'in between'—a time and place that calls into question the mutual exclusivity of communism and capitalism, rural and urban, progress and regression, and other familiar categories and narratives in the social sciences" (Brawner, 2015, p. 432). The motivations for people in *Shipka* to resort to permaculture was that wages of blue-collar jobs had become insufficient to sustain livelihoods due to inflation, leading to workers resorting to other means of subsistence. In *Shipka*, people attributed various meanings to permaculture: "permaculture might be

practiced in the pots in the windowsills of a high rise urban apartment or on subsistence farms in the valleys of the Balkan mountains” (Brawner, 2015, p. 430). Nevertheless, Brawner’s informants stressed the importance of the philosophical and ecological principles of permaculture, which they defined similarly to the twelve principles formulated by Holmgren. *Shipka* residents who engaged in permaculture perceived it as “nothing new” (Brawner, 2015, p. 440): many practitioners remembered a time where intensive agriculture was not the main source of food production. One resident emphasized the social component of permaculture: *Shipka* has historically always been an ecovillage, where the strong sense of community has rendered subsistence farming possible (Brawner, 2015). Nevertheless, some residents regard permaculture efforts as backward, because 1950s and 1960s socialism has instilled a desire to modernize and develop (Brawner, 2015).

The examples show that though in the Global North, i.e. in Australia and the United States, it might be possible to achieve the closed-loop, self-sustaining permaculture farms as intended by Mollison & Holmgren (1978), in the Global South such as South Africa or Zimbabwe this proves very difficult. It should be noted that I use this dichotomy by lack of a better word: for example, Brawner’s (2015) research on permaculture in Bulgaria shows that this distinction does not fully capture reality, for Bulgaria is located in the Global North, but it is by no means a high-income country. As permaculture often requires considerable seed capital, farmers often combine their permaculture endeavors with other jobs and thus remain dependent on the economy (Didarali & Gambiza, 2019; Kruger, 2017). Likewise, permaculture farms in contexts in the Global North sell their produce at a ‘premium’ price and organize tours for tourists to fund their farm (Veteto & Lockyer, 2008; Brookman & Brookman, 2005), or perhaps even make profit, thus ‘neoliberalizing’ their permaculture farm. Didarali & Gambiza (2019) even suggest permaculture should not be entirely self-sufficient, indicating disagreement about whether ‘self-sufficiency’ should be an aim of permaculture at all. However, Brawner (2015) showed that full-time permaculture as envisioned by Mollison & Holmgren (1978) can be achieved: in *Shipka*, Bulgaria, a community has emerged around permaculture farms: local trade of products and sharing of information have replaced blue-collar jobs for many residents. The adoption of permaculture in *Shipka* felt natural to the residents, as permaculture resembled traditional agricultural methods preceding the Soviet occupation (Brawner, 2015). So perhaps the community in *Shipka* was receptive towards permaculture, specifically because of the similarities between their pre-Socialist traditions and the permaculture philosophy. All in all, it proves impossible to generalize outcomes of permaculture practices with regards to self-sufficiency and customization to varying contexts. Therefore, I argue that permaculture – how it is defined and described – should be examined on a case-by-case basis, as I intend to do in the community of *San Lucas Tolimán*, Guatemala.

### Diffusion of Knowledge: From Knowledge Transfer to Social Process

My second sub-question entails the diffusion of permaculture in *San Lucas Tolimán*. As one of IMAP’s main aims concerns education about permaculture and ancestral knowledge, I will first briefly discuss literature about the diffusion or transfer of knowledge in the development sector. Secondly, I will address the most prevalent method of diffusion regarding permaculture: The Permaculture Design Course (hereafter: PDC) (Ferguson & Lovell, 2014), which has been critically studied by Massicotte & Kelly-Bisson (2018). Finally, I will address farmer-to-farmer networks, specifically the *Campesino-to-Campesino* Agroecology Movement (MACAC) as described by Rosset et al. (2011), which might play a role in the diffusion of permaculture in *San Lucas Tolimán*.

Historically, agricultural development efforts have gone hand in hand with a linear mode of knowledge transfer: knowledge and innovation were generated by scientists and diffused via development organizations to those in need of development (Leeuwis & Aarts, 2011). Gorman (2002) describes how knowledge is both embedded and embodied in specific social settings. Accordingly, embedded knowledge

refers to tacit knowledge in each social context, which forms a lens from which all members of that social setting perceive the world. Embodiment is the enactment of this knowledge via tacit skills (Gorman, 2002). As such, if knowledge is generated in a vastly different social setting than the projected site of implementation, such as a different ontological context, linear transferal of knowledge becomes problematic, for misinterpretation and miscommunication are bound to occur. Therefore, the linear model of diffusion led to some implementation issues in practice – development practitioners and knowledge recipients often experienced compatibility issues between the local context and the scientific knowledge. Modes of knowledge transfer have shifted towards a more integrated approach in the last four decades (Leeuwis & Aarts, 2011). Here, adoption of new technologies is no longer viewed as an isolated event at the level of the individual. Rather, the adoption process becomes a building block, along with scientific knowledge, to create suitable technologies customized to specific contexts (Leeuwis & Aarts, 2011). The construction of knowledge thus becomes an iterative process between scientists, development practitioners and recipients, where diffusion includes redesign of the technology. The focus therefore lies on the dispersal of the adoption process, not on the mere adoption of the product (Leeuwis & Aarts, 2011).

Permaculture founders Bill Mollison and David Holmgren integrated this recent mode of knowledge transferal in their work by claiming that permaculture is not a static product to be adopted, but rather requires an adaptation process in order to function in each individual setting (Veteto & Lockyer, 2008). However, permaculture design courses appear to be key to the dispersion of the permaculture method: many permaculture farmers have taken a course with Bill Mollison himself (Ferguson & Lovell, 2014). Moreover, PDCs often promise their students an official permaculture design certificate, which retains its validity as the PDCs have preserved the curriculum as outlined by Mollison in *Permaculture: A Designer's Manual*, published in 1988. The curriculum entails extensive hands-on activities on a permaculture farm (Massicotte & Kelly-Bisson, 2018). Massicotte & Kelly-Bisson (2018) note that each course includes approximately 72 hours of training and participants are charged a fee ranging from 1000 to 2000 USD – though often locals are charged a lower fee than international participants. Furthermore, Massicotte & Kelly-Bisson (2018) argue that PDCs “hold a great deal of informal authority” (p. 584), which suggests that farmers might feel obliged to take a course prior to engaging in permaculture. Demand for PDCs is considerable, to the extent that many permaculture farmers rely on teaching a PDC as a source of income (Massicotte & Kelly-Bisson, 2018). As such, Massicotte & Kelly-Bisson (2018) conclude that PDCs themselves tend to become a commodity produced on permaculture farms, which appears to reproduce the neoliberal agenda permaculture inherently seeks to reject. In fact, this market has given ground to the rise of ‘permaculture celebrities’, who visit PDCs as a guest-lecturer around the globe (Ferguson & Lovell, 2014). Another issue Massicotte & Kelly-Bisson (2018) indicate is the inclination towards vertical instruction: courses tend to maintain a set course design, despite of the claimed flexibility of the permaculture method itself.

Another methodology of diffusing agricultural knowledge has recently gained considerable ground in Guatemala, as well as in Mexico, Honduras and Nicaragua: the social process methodology, often referred to *Campesino-a-Campesino* (hereafter: CAC) which translates to farmer-to-farmer (Rosset et al., 2011). This methodology offers an alternative to conventional extensionist, linear methods where peasants were expected to simply accept and adopt innovations as presented by scientists or development practitioners. Instead, CAC involves horizontal diffusion of knowledge, where “farmer-promoters who have innovated new solutions to problems that are common among many farmers or have recovered/discovered older traditional solutions, and who use popular education methodology share them with their peers” (Rosset et al., 2011, p. 169). The CAC methodology was developed within the *Campesino-a-Campesino* Agroecology Movement (MACAC), thus recent literature discusses the methodology in connection to agroecology, rather than permaculture. According to Miguel Altieri (1989), agroecology provides technological solutions to the challenge of making agriculture sustainable. Wezel et al. (2009)



state that agroecology does not only refer to a scientific discipline, but it can also refer to a social movement or a practice.

As a scientific discipline, agroecology is more widely studied than permaculture (Gonzalez de Molina, 2013; Altieri, 1989; Gliessman, 2013; Holt-Giménez & Altieri, 2013; Sevilla Gúzman & Woodgate, 2013). Permaculture is an alternative to agroecology with a “unique approach to system design” (Ferguson & Lovell, 2013) with Buddhist and Taoist influences (Suh, 2014), that despite its origin in science and parallels to agroecology, has little direct connections to agroecology. On the surface, permaculture appears to be based on a very specific set of principles as outlined by Bill Mollison and David Holmgren, in contrast to agroecology, which has its basis in ecology but is open to interpretation. Nevertheless, permaculture knowledge is in practice not always based on Mollison’s and Holmgren’s ecological principles as outlined, rather it is developed based on pseudo-scientific knowledge accumulated through practical experiences of farmers (Ferguson & Lovell, 2013). The permaculture movement consists of practical manifestations of permaculture which may be (loosely) based on the permaculture principles as created by Mollison and Holmgren. According to Ferguson & Lovell (2013), “permaculture shares with the discipline of agroecology a focus on the intersection of ecology and agricultural production, a normative orientation toward agroecological transition, and an association with popular movements consisting largely of land users” (p. 254). Hence, a key difference between permaculture and agroecology lies in the sense that farmers give meaning to their farming practices by either referring to it as permaculture or as agroecology. Nevertheless, farmers in *San Lucas Tolimán* might be familiar with the CAC methodology and use it in order to diffuse their knowledge about agricultural methods in addition to their engagement with permaculture.

#### Knowledge Diffusion in *San Lucas Tolimán*

Thus, questions remain concerning whether current modes of permaculture instruction and diffusion are as horizontal in practice as Mollison & Holmgren envisioned in theory (Veteto & Lockyer, 2008). An obvious starting point to examine diffusion modes in *San Lucas Tolimán* are the courses offered by IMAP. They offer a PDC that grants participants a certificate of permaculture design, but, in addition, they offer other courses that cover permaculture-related topics that do not include certification (Instituto Mesoamericano de Permacultura, n.d.<sup>a</sup>). To disclose how permaculture is diffused in *San Lucas Tolimán*, I asked both course participants from the community as well as course instructors about their experience with regards to, respectively, participating in or teaching the different courses. Moreover, other methods of diffusion might also occur within the community, for example, sharing of information as happened in *Shipka*, Bulgaria (Brawner, 2015) or via a farmer-to-farmer network similar to the CAC methodology (Rosset et al., 2011). As such, I need to identify these methods. Establishing an overview of all different modes of diffusion provides a locus for analyzing how permaculture is adapted by farmers in *San Lucas Tolimán*, which I will discuss in the following section.

#### Adaptation: Political Ontology

To answer my third sub-question, ‘Are there tensions between the philosophy and practices of permaculture in general and Mayan ontology with regards to farming in particular?’, a thorough understanding of ontology is necessary – the permaculture philosophy and practical examples have been extensively addressed already. First, I will provide a conceptual understanding of ontology based on recent anthropological literature. Then I will discuss the significance of ontology in relation to permaculture’s adaptability claim.

In his mini-ethnography of the anthropology of ontology, Michael W. Scott (2013) states that anthropology has become increasingly inclusive of the notion that alter-realities or multiple ontologies exist. In *A Dictionary of Anthropology*, Scott & Marshall provide a clear definition of ontology:

Any way of understanding the world must make assumptions (which may be implicit or explicit) about what kinds of things do or can exist, and what might be their conditions of existence, relations of dependency, and so on. Such an inventory of kinds of being and their relations is an ontology. (Scott & Marshall, 2005).

Mario Blaser (2013) adds to this definition that ontology does not precede action or mere beliefs, rather, ontologies are reproduced, and thereby altered, through interactions between both human and non-human actors.

In discussing ontologies outside of the Global North, many scholars have referred to the term ‘indigenous’ (Blaser, 2013; De la Cadena, 2010). Lauer & Aswani (2009) argue that this term is problematic in relation to ontology and knowledge, for it fails to capture their hybrid and heterogeneous nature. Ontology and knowledge are not static: they are reproduced and regenerated by every generation and individual through practice and interaction (Blaser, 2013; Lauer & Aswani, 2009). According to Lauer & Aswani (2009), the distinction between ‘indigenous’ and ‘scientific’ is a residual from 19<sup>th</sup> century anthropology: we have replaced controversial terms such as ‘primitive’ and ‘modern’ with less controversial terms, yet their meaning has been preserved. Inherent to the dominant global ontology, is the dichotomy between science and religion. Scott (2013) defines this dichotomy as follows: “whereas science (or philosophy more broadly) seeks to displace wonder with knowledge, religion keeps wonder alive” (p. 860). Accordingly, in the anthropology of ontology, science forms the base for the ontology of the Global North and draws on the notion of dualism – separating the body and soul – whereas religion is considered as the base for other, ‘indigenous’ ontologies, such as animism (Scott, 2013). In short, this science-based ontology appears to perceive itself as superior to other ontologies by reducing ontology to religion. Perceiving science and religion, or non-scientific ontologies, as irreconcilable entities has led to the flawed assumption that each produces knowledge about a different subject matter. Lauer & Aswani (2009) illustrate that this is not necessarily the case in their example of fisher’s knowledge in the Western Solomon Islands. Here, the community experts provided information about the Roviana and Vonavona lagoons that was similar to information generated through Geographic Information System technologies (Lauer & Aswani, 2009). Their example illustrates that knowledge produced within different ontological contexts, can in fact converge.

Lauer & Aswani (2009) therefore argue for a practice-oriented, in-situ approach towards knowledge, for knowledge is always subject to change and external influence. They argue that the notion that knowledge is solely mental and separate from the physical – another product of dualism engrained in our ontology – is wrong: knowledge is regenerated through experience in an ever-changing physical environment (Lauer & Aswani, 2009). Blaser (2013) suggests a similar approach to examine ontology. He argues that ontology, like knowledge, manifests in practice and interaction, and is consequently altered. Additionally, notes that ontology manifests in stories, for in stories “the assumptions of what kinds of things and relations make up a given world are readily graspable” (Blaser, 2013, p. 22). As such, discourse analysis, particularly storytelling analysis, could provide a useful tool to uncover the ontology of a particular community (Sandercock, 2003).

#### *Adaptation in San Lucas Tolimán*

Moreover, Mario Blaser (2013) offers a theoretical framework applicable to instances of ontological conflict, which he labels ‘political ontology’. Blaser (2013) describes it as follows: “The term ‘political

ontology' simultaneously implies a certain political sensibility, a problem space, and a modality of analysis or critique" (p. 24). To answer my final sub-question, I compare the ontology in which permaculture was established, which draws ontological elements from science as well as Buddhism and Taoism, and the ontology of the permaculture practitioners in *San Lucas Tolimán* with regards to farming practices. I expect that the implementation of permaculture in *San Lucas Tolimán* might serve as a meeting ground for multiple ontologies. Blaser (2013) argues that when ontologies encounter, two outcomes are possible: one ontology can dominate and oppress the other, or both can be preserved through political ontology, by rendering politics inclusive of multiple ontologies. Chantal Mouffe (2005) describes the former as antagonism, which is based on exclusion, and the latter as agonistic pluralism, which refers to a form of harmonious conflict in which each ontology is represented, and the outcome is negotiated in a democratic manner. De la Cadena (2010) stresses that 'indigenous' knowledge does not imply righteousness, in the same way that the scientific knowledge should not be oppressed onto indigenous communities. Through agonistic pluralism, ontological collaboration becomes possible.

In short, to compare the philosophy and practices of permaculture to the local ontology or ontologies with regards to farming practices, an in-situ approach following Lauer & Aswani (2009) is necessary to reveal how ontology takes shape for the residents in the *San Lucas Tolimán* area. To gain a better understanding of their ontology, I will rely on information provided by members of the community, for the *Kaqchikel* Maya ontology captured in literature might not align with the current experience of the local residents. Nevertheless, I provide an overview of ontology in Guatemala in the following section. If the ontology of *Kaqchikel* Mayas in *San Lucas Tolimán* differs considerably from the permaculture philosophy, which is influenced by Buddhist, Taoist, and scientific values and principles, it can be questioned whether the implementation of permaculture in this context leans towards antagonism or agonistic pluralism.

### Ontology in Guatemala

Cosmovisions or ontologies are not static but are constantly changing and evolving. Ontologies manifest in social practices and interactions between people, and consequently they are reproduced (Blaser, 2013). The Mayan cosmivision therefore, since the Spanish inquisition, is no longer the same as it was when the Spanish first arrived (Díaz, 2015). Watanabe (1995) argues that the public image, resulting from marketing in the tourism industry or from reductionist anthropological accounts, still sees the Mayas as either a civilization that has withstood years of oppression and has managed to preserve its ancient culture, or as a civilization that has lost all connection with its roots. According to Watanabe (1995), the Mayas are neither. They have assimilated to some degree to cultural facets imposed on them by the Spanish colonizers, while retaining certain elements of the ancient Mayan culture, such as language and dress, or the cosmivision, such as beliefs. Hence, in Guatemala the current Mayan cosmivision and the Christian ontology have evolved around each other and have become intricately connected (Hinojosa, 2018). In this section, I will address how the Mayan cosmivision and the Christian ontology are manifest in contemporary Guatemala.

When I discuss the 'Mayan cosmivision', I refer to the pre-conversion Mayan cosmivision, meaning the Protestant conversion which initiated in the late 19th century upon the independence from Spain. After the Spanish invasion in the 15th century, the indigenous population of Mesoamerica was forced to abandon their own symbols and calendars and become Catholic. But during this time, many peoples managed to keep their own cosmological ideas about the world (Hinojosa, 2018). However once the Protestant church started sending missionaries, starting in the late 19th century, this changed. Especially in the 1980s, when President Rios-Montt pumped a lot of money in the Evangelical church, many Mayas converted to Protestantism (mainly the Evangelical and Jehovah's Witness churches) (Althoff, 2014). According to Althoff (2014), these churches actively disdained ancestral knowledge and beliefs, describing ancient ceremonies as satanic or pagan. This encouraged many to cut ties with the past and take on a

Christian ontology, though Hinojosa (2018) and others argue that Evangelical communities have perpetuated their Mayan beliefs despite conversion.

Hinojosa (2018) offers an overview of beliefs key to the Mayan cosmovision: the belief that the landscape is sacred, the belief in regeneration and renewal of energy flows, collectively honoring the dead. Hinojosa focuses on the Evangelical and *Kaqchikel* community of *Comalapa*, whereas Díaz (2015) examines the cosmovision in Mesoamerica at large, stating that it varies considerably per community. Nevertheless, like in *Comalapa*, the communities in and around *San Lucas Tolimán* are predominantly *Kaqchikel* and Evangelical, therefore I will draw on Hinojosa's account of the Mayan cosmovision. Additionally, following Mario Blaser's (2013) argument that ontology manifests in stories, I will illustrate Hinojosa's descriptions using indigenous folklore tales from the Atitlán area as collected and published by Sexton (1992). Sexton collaborated with a *Tz'utujil* Maya from *San Jose la Laguna*, Ignacio Bizarro Ujpán, who learned about the stories via his parents, grandparents, or community elders he knew. Most often, it is unclear whether stories originated in pre-Columbian times or after, nor is it always possible to pinpoint the location of origination. Nevertheless, their origination might not be as important as their "present social and cultural context" (Goosen (1974) in Sexton (1992), p. xxiii).

First of all, Hinojosa (2018) describes that the Mayan cosmovision sees the landscape as sacred, specifically, it hosts a wide array of Gods, spirits and patron saints that control the environment. These should all be respected, for they can bring fortune as well as inflict harm (Sexton, 1992). This is exemplified in 'the *Poder* of Persons When They Are Born' by Elena Cholutío Meza, recorded by Ignacio Bizarro Ujpán (Sexton, 1992). Men blessed with *Poder*, which translates to ability, used to be in charge of making rain - they would wear special clothing, green for normal rain, red for a hurricane, and black for unstoppable rain. The men would make rain as ordered by God - after the Spanish invasion, most Maya communities adopted the Christian notion of there being one almighty God, without dismissing the existence of other Gods or spirits (Althoff, 2014). Nobody knew about the men with *Poder* except for the midwife, a shaman and the mother. One day, a brother of one of these men followed his brother and was seduced by a piece of black clothing. He put it on and went into the clouds, causing unstoppable rain. When he was captured, him and his brother were punished and eventually killed by God via an illness. After this, the rain was no longer left in the hands of men and spirits took over this responsibility (Sexton, 1992). Hinojosa (2018) states that some community members in *Comalapa* still perform rituals or make offerings to please the spirits or town patron saints to keep them from withholding rain or obstructing human activity in some way.

Likewise, following the Mayan cosmovision, mankind is a part of nature and nature consists of the constant recycling of energy (Hinojosa, 2018). Hinojosa (2018) given an example of a local in *Comalapa* who was confronted by a spirit for hunting too many squirrels, which implies that people are allowed to fulfill their needs by hunting or farming, but should not be greedy, or it will disrupt the flow of energy. A story that illustrates this is the story of 'the Gods of Corn' by Ignacio Bizarro Ujpán (Sexton, 1992). This story is about many gods of different crops: the gods of corn, the gods of beans, but also the god of sweet potato and yucca, the god of pumpkins, and the god of herbs. These different gods were in dispute about whether the world required 'justice', which meant the end of the world and thereby humanity. This dispute was settled by the almighty God. In the end, the gods agreed that some people were obedient, they respected the gods and the plants, while others were disobedient. The latter were turned into coyotes and rodents, who remain enemies of mankind, for rodents eat crops and coyotes eat chickens. This story shows the importance of being humble and respectful - those who fail to do so will face repercussions. The flows of energy are partly determined by spirits, but the moon and its lunar phases, as well as the seasons, are of influence (Díaz, 2015). The energy flows are not limited to Earth, but include the heavens and underworld, where spirits and deceased ancestors live (Díaz, 2015). Hinojosa (2015) describes the importance of honoring the dead in the Mayan cosmovision.

Following the Mayan cosmovision, animals, spirits and gods should be respected and honored (Sexton, 1992). Mankind is a part of nature, and as such, people should be humble. In the stories collected by Sexton, as well in the ethnographic findings of Díaz and Hinojosa respectively, virtues such as modesty, fairness and respect are central. Respect manifests in ceremonies and acts of kindness towards the environment (Hinojosa, 2015; Sexton, 1992). Those who live virtuously will be rewarded, those who do not will be reprimanded.

Like the Mayan cosmovision, Christianity in Guatemala can hardly be generalized as one religion or ontology, due to stark contrasts between the Catholic and Protestant churches. The most predominant Protestant churches are the Evangelical and Jehovah's Witnesses churches (Althoff, 2014). Andrea Althoff (2014) offers an extensive overview of the religious pluralism in Guatemala, and she found that while most whites or *Ladinos* in Guatemala have stayed Catholic despite the conversion efforts under President Rios Montt, the indigenous population largely, though not entirely, converted to Protestantism. While both denominations are based on the same values from the Bible, the Catholic church leaves more room for interpretation (Gros, 1999). After the Spanish invasion, many indigenous communities became Catholic while keeping many of their Mayan beliefs and practices (Althoff, 2014). In fact, Watanabe (1990) argues that religious syncretism occurred in many communities, which he describes as the “seamless fusion of native and Christian elements” (p. 131). For example, Watanabe (1990) describes that in the town *Santiago Chimaltenango* in Western Guatemala, locals substituted many of their patron saints for Catholic saints. In *Santiago Chimaltenango*, locals see the Catholic saint Santiago as Mayan: they explain the saint’s origins using Maya myths (Watanabe, 1990).

When many Maya communities converted to Protestant denominations, they were urged to discard these beliefs and practices, as the Protestant denominations are based on a more literal interpretation of the bible (Althoff, 2014). Nevertheless, many scholars have found ways in which Evangelical Mayas have preserved remnants of the Mayan cosmovision (Hinojosa, 2018; Althoff, 2014; Watanabe, 2015). Moreover, Christian Gros (1999) describes the influence of the Evangelical church on indigenous communities, and he notes that the Evangelical church promotes a modernist worldview. The rise of Protestantism in Guatemala occurred simultaneously with the Green Revolution, which is no coincidence (Althoff, 2014). According to Gros (1999), the Evangelical church promoted the (global) market economy that pushed for higher exports and intensification of agricultural systems to achieve this.

Nevertheless, it should be noted that the Mayan cosmovision and the Christian ontology alike are experienced differently depending on the Mayan ethnicity, and even within one ethnicity experiences might vary.

### Describing and Defining Concepts

In the preceding conceptual framework, the academic descriptions and definitions of concepts like permaculture, diffusion of knowledge, and ontology are discussed. Elizabeth Hoover (2017) rightfully points out that these definitions might clash with definitions of actual people who operationalize them. In her ethnographic research on the concept ‘food sovereignty’ in 39 different American Indian community farms and gardens in the United States, Hoover (2017) found that though frequently used, the term remains ambiguous: its meaning varies depending on who uses it. As such, she explored how native American farmers and gardeners describe and define the term and how it is enacted (Hoover, 2017). Additionally, she compares these descriptions and definitions to the broader literature around food sovereignty (Hoover, 2017). Thus, I will follow Hoover’s approach to take a step back from the concepts discussed in this chapter and make an inventory of how the research participants in *San Lucas Tolimán* define, describe, and operationalize them.

For instance, like the term ‘food sovereignty’, the term ‘permaculture’ can mean different things to different practitioners, as intended by founders Bill Mollison and David Holmgren (1978). As such, to

speaking of permaculture in the *Kaqchikel* community in *San Lucas Tolimán* it is necessary to make an inventory of descriptions, definitions, and operationalizations of permaculture in this context. Likewise, I refrained from using terms such as ‘horizontal’ or ‘linear’ education in my conversations with research participants, which are often used in literature on knowledge and innovation (Rosset et al., 2011; Leeuwis & Aarts, 2011). Rather, I will focus on how the participants themselves describe the diffusion of knowledge about permaculture and how they value this. Finally, Lauer & Aswani (2009) highlight the hybridity and heterogeneity of indigenous traditions. Hence, to speak of ‘Mayan ontology’ or ‘Mayan farming traditions’ generalizes all manifestations of what it means to be Maya. By using participant observation as well as semi-structured interviews, I intend to uncover which specific descriptions and definitions the residents of *San Lucas Tolimán* attribute to their traditions and ethnicity. The concept ‘ontology’ might require a more indirect approach, as Blaser (2013) argues that it manifests in stories and behavior. In addition, I do not expect the participants to be familiar with the term itself. Therefore, I complement given descriptions and definitions with stories the participants shared with me. I will discuss this in the ‘Methodology’ chapter.

## Chapter 3

### Getting My Hands Dirty: An Ethnographic Approach

I use an ethnographic approach to achieve my research aims, as I believe this approach enables me to gain an intuitive, holistic understanding based on visceral experience of the context, as well as to make an inventory of the descriptions, definitions and operationalizations attached to the concept ‘permaculture’, in *San Lucas Tolimán*, Guatemala. I use two methods: participant observation and semi-structured interviews with different actors involved in the diffusion and adaptation of permaculture in *San Lucas Tolimán*, such as permaculture farmers, non-farmer permaculture practitioners and IMAP’s employees. Finally, through engaging in participant observation and conducting semi-structured interviews, I collected ‘stories’, as defined by Leonie Sandercock (2003). As previously stated, key loci where ontology manifests are stories told within a community (Blaser, 2013). As such, I intended to use storytelling analysis to answer my third sub-question, but the onset of COVID-19 in Guatemala rendered this impossible.

#### Participant Observation

My work as a volunteer at IMAP facilitated participant observation, through which I generated insights in the workings of everyday life. As an observing participant, I am an outsider who participates. Therefore, my observations were biased. This called for substantial reflexivity on my part and in effort to minimize the impact of my bias, I checked and evaluated all my generated information. I reported my interpretation of the observations back to the respective research participants to ask them whether they felt adequately reflected, and if not, I asked them how I should alter these interpretations. This step was especially important as I am not a native Spanish speaker. In my conversations with participants, which were entirely in Spanish, miscommunication or misinterpretation could lead to erroneous conclusions, therefore I needed to ensure the accuracy of my conclusions throughout the duration of my fieldwork.

Through participating and getting my hands dirty for an extended period, I planned for a duration of 2.5 months but ultimately it was reduced to 6 weeks, I aimed to improve rapport with the research participants and to decreased reactivity on their part. As an intern on site, IMAP’s staff members accepted me as a part of their mundane daily activities, and they engaged in these activities as usual, thereby granting me access to their everyday life on the farm. Additionally, I hoped to gain the farmers’ trust to share their true experiences and opinions with me – not merely what they anticipate I want to know. As my time in *San Lucas Tolimán* was relatively short, this proved rather difficult. For example, all the participants shared stories about the Mayan cosmovision with me, without telling me that they had only heard about these stories themselves later in life. Likewise, I aimed to gain a better understanding of how permaculture is enacted in *San Lucas Tolimán* and what role permaculture plays in the lives of the research participants. Through my work as an intern at IMAP I was able to participate in the experiences of the staff members, who are all but one *Kaqchikel*, with permaculture. The combination of both participating and observing enabled me to assess the correspondence between what participants share with me through conversations and interviews and their actual behavior on the farm. Finally, the participant observation period of my research facilitated the formulation of sensible questions to ask the research participants during semi-structured interviews.

The first two weeks of my stay, I mostly observed the activities at IMAP to familiarize myself with the context – as well as to make myself familiar to the research participants. After these two weeks, I aimed to actively engage with the farmers in *Pachitúlul* and *San Lucas Tolimán* through my work as an intern at IMAP. However, ultimately, I was only able to talk to two promoters outside of IMAP. As an intern, I intended to observe everyday life on the different sites and have conversations with the farmers, as well as IMAP employees. I took notes to report my activities, experiences, and observations. I also kept a log to track my activities during my field work, I took scratch notes during these activities, which I integrated into comprehensive full field notes that I complemented with analytical notes to generate a thin description of locals' experiences with permaculture in *San Lucas Tolimán*. To make the description thick, I will use semi-structured interviews.

## Interviews

Through participant observation, I made general observations regarding the functioning of permaculture in *San Lucas Tolimán*. As I aimed to research specific aspects of permaculture in *San Lucas Tolimán*, namely how practitioners define and describe it, how it is diffused, and how its philosophy and practices align or contrast with the Maya ontology concerning agriculture, I complemented the participant observation method with semi-structured interviews. These interviews were not isolated from the participant observation process: they were intricately connected to the participant observation and took place in the last three weeks of my stay. Knowing the context of different interviews is necessary to assess the reliability of the information: the motivations for participants to partake in an interview should be considered. The answers yielded by the interview were therefore complemented by observations: often, non-verbal aspects of the interview such as attitude and posture can be relevant to interpret the verbal information correctly. Moreover, I documented participant rhetoric as well: silences, stories, and lies (if recognizable to me as such) served as clues to uncover new, potentially relevant information. I took notes during the interviews and recorded the interviews using the audio recording app on my smartphone – to which all the participants agreed.

I conducted interviews with permaculture farmers as well as non-farmer permaculture practitioners, as permaculture can also pertain to home gardens rather than farms or other facets of life. Additionally, I conducted interviews with IMAP's employees who manage the education, food sovereignty, and biodiversity programs. I relied on the participant observation component of my fieldwork to help me ask participants the right questions and especially my conversations with Rafael really facilitated this process. Nevertheless, according to Holstein & Gubrium (1995), interviews are never as simple as questions and answers. Rather, they argue that both the interviewer and interviewee actively construct knowledge through their interaction. Hence, I utilized semi-structured interviews to allow for spontaneous input from the participants, as well as to enable the inclusion of new information generated during participant observation. To ensure that the interviews covered the topics of interest to me, I asked the participants general questions about the role permaculture plays in their daily life; what permaculture entails according to them; how they learned about permaculture; if they share their knowledge within the community and if so, how this takes place; how they practiced agriculture prior to permaculture; and how permaculture fits in their traditions and culture. When I discovered that many research participants were Christians, I also included questions about when they learned about the Mayan cosmovision; how the Mayan cosmovision and their Christian faith go together; and why they adopted the Mayan cosmovision in addition to their Christian ontology.

Though the participant observation element of my fieldwork yielded an intuitive understanding of permaculture in *San Lucas Tolimán*, it to primarily touched the surface of how permaculture is experienced and enacted by permaculture practitioners in *San Lucas Tolimán*. The semi-structured interviews led to a more comprehensive understanding of how participants define and describe permaculture, as well as how permaculture compares to traditional agricultural methods. This generated a thick description of



permaculture in *San Lucas Tolimán*, which I will relate back to my conceptual framework in chapter 5 through 7.

### Storytelling Analysis

To answer my third sub-question, I require an understanding of the Mayan cosmovision in *San Lucas Tolimán*, Guatemala. According to Mario Blaser (2013), a starting point to gaining such understanding is to look for stories. I asked each of the research participants to share a story at the end of the interview and I relied on secondary literature on collected stories in the Atitlán area. I intended to examine stories using Sandercock's (2003) storytelling analysis. She argues that stories told by research participants themselves can often result in a much more thorough understanding of a specific social context than traditional social science methodology can achieve (Sandercock, 2003).

Through my conversations with the participants, however, I discovered that many people are Christian and no longer hold beliefs from the Mayan cosmovision. All the research participants had stories to share, but I found out that most of the tellers had not learned about these stories prior to becoming acquainted with IMAP. As such, I opted to investigate in their current ontology, which is based on Christianity. As my time at IMAP ended abruptly due to unforeseen circumstances, I was unable to collect stories about the participants' current ontology. Nevertheless, the stories I collected still display key values to the Mayan cosmovision, and I will share them to complement available literature on the Mayan cosmovision as well as the experiences of the research participants.

As such, I use the collected data from the participant observation and interviews to answer my third sub-question. However, future research could rely on story-telling analysis to provide further insights.

### Ethical Considerations

I am in a position of privilege: I am Dutch, white, and have completed 17 years of formal education. My privilege allows me to go Guatemala to conduct research for my Master thesis. I need to be aware that this position of privilege has shaped my perspective, hence I need to be explicit about the biases I have evolved. For example, when I think about people living in poverty in Guatemala – knowing that many Guatemalans are seeking a better life in the United States – I make assumptions about Guatemalans wanting to be 'developed' or 'modernize'. However, as previous experiences with volunteering in Central America showed me, this generalizes the sentiment of all Central Americans: a generalization based on news items about poverty, drug-related violence, and the like. What I learned in Honduras, where I previously volunteered in an after-school care program, is such generalizations ignores the agency and dynamism of the lives of people in Central America.

As such, when working with the community in *San Lucas Tolimán*, I had to remember that my research is in fact a collaboration with the community, not an objective report about it. Firstly, all research participants needed to give informed consent. As my contact with the community members in *San Lucas Tolimán* went via IMAP, an organization that facilitates them in their permaculture-related endeavors, participants might have felt obligated to participate due to the potential unequal power relations between them and IMAP. As such, I informed them that my research is separate from IMAP and that they were not obligated to participate. I informed them about the research and how it might affect them, and I gave them the opportunity to withdraw their participation. As I also worked as an intern for the organization, I needed to make clear that during my intern activities, I was also making observations for my research. I asked all the prospective research participants for their explicit consent. Moreover, I informed them about their right to anonymity and their right to withdraw from the research at any time, which included observations previously made. Secondly, I aimed to represent all participants accurately. To ensure this, I repeated all my observations and notes from the interviews back to the participants, to give them the chance to correct them should they be mistaken. Finally, I took measures to prevent harm – physical or social – as a result

from my research project from incurring to the research participants, by safeguarding their rights to informed consent, anonymity, and withdrawal.

Though my research was conducted independently of IMAP, they provided me the opportunity to conduct it in *San Lucas Tolimán*. As I also be worked as an intern for their organization, my activities as a researcher reflected on them. As such, I kept in mind their code of conduct for interns and generally reflected on my actions to ensure they did not negatively affect IMAP's position in *San Lucas Tolimán*. Additionally, IMAP's staff employees were also research participants, as their perspective was essential to obtain a holistic view on the adoption and adaptation of permaculture in the area. Therefore, the same principles of informed consent, anonymity and right to withdraw applied to them as well.

I also have a responsibility towards fellow or future researchers. By conducting my research ethically, I aimed to maintain a good relationship with the community of *San Lucas Tolimán* as well as IMAP. If they experienced their involvement with my research positively, they might agree to other research projects in the future. Moreover, I refrained from offering them compensation from their participation: their motivation to participate needed to be intrinsic. If I offered them compensation, they might expect the same from future researchers.

Additionally, I have a responsibility towards Wageningen University & Research to act in accordance with their code of conduct for academic practice. Should I have violated this code, it would reflect negatively on them. Though I already addressed the principles of honesty and scrupulousness, reliability, impartiality, and independence in the previous paragraphs, I will address the remainder of the principles here. The first is the principle of verifiability: I need to report my findings in a way that is verifiable for other researchers. I intend to be explicit about my methods and make my observations and notes from interviews available on request (though potentially with altered names in accordance with participants' right to anonymity, or incomplete in accordance with participants' right to withdraw). The second principle is responsibility, which involves the societal implications of my research. I will elaborate on this in the section 'Societal and Academic Relevance'.

Finally, I had an ethical responsibility towards myself. As I conducted research in a country in a 'Yellow Zone', according to the Dutch Ministry of Foreign Affairs, I needed to ensure my own physical safety and personal health. When the Guatemalan government took measures to prevent the spreading of COVID-19, it closed its airport and borders. Tourists were no longer allowed outside. IMAP arranged an ID card so I would be considered an employee of IMAP instead of a tourist, but as one of the few Caucasians in *San Lucas Tolimán* I could no longer walk around without stares or comments. Additionally, the health care system in Guatemala was much less equipped to deal with the pandemic than the health system in the Netherlands, which is why I decided to end my fieldwork 6 weeks early and return to the Netherlands.

All in all, the discussed ethical considerations all required me to remain reflexive and to employ my personal judgment to assess whether my actions were ethical or not. In order to maximize my ability to reflect, I took personal notes in addition to observational or interview notes. By writing down my own experiences, I was able to stay critical of my position as a researcher in *San Lucas Tolimán*, Guatemala.

## Chapter 4

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### Colonialism, Chemicals, and Christianity: Historical & Cultural Contexts for Mayas in Guatemala

IMAP is located in *Pachitulul*, a village in the municipality of *San Lucas Tolimán* on the shore of Lake Atitlán in the Guatemalan highlands. The population in *San Lucas Tolimán* is predominantly *Kaqchikel*, one of the twenty-one recognized Maya ethnolinguistic groups in Guatemala (French, 2010). Nevertheless, an IMAP employee, Denis, shared that *San Lucas Tolimán* is a migrant town – many people who migrated from the North and the West have now settled there (personal communication, March 18, 2020). Other groups in *San Lucas Tolimán* are *K'iche'* and *Tz'utujil* – these three groups are the main ethnolinguistic groups in the Atitlán area (French, 2010). Denis and Ilma, another IMAP employee, stated that the other towns on the lake have remained much more unified than *San Lucas Tolimán*. For example, a neighboring town, *Santiago Atitlán*, is almost completely *Tz'utujil*, and if people from there travel around the lake, everyone will recognize them as from there by their accent and their dress (personal communication, March 18, 2020). Accordingly, the community identity in *San Lucas Tolimán* is much less consolidated.

In my conversations with people from the *San Lucas Tolimán* and in the greater Lake Atitlán area during travels, I asked them if they could tell me something about their culture and what it meant to them. In these conversations, the importance of the historical and cultural context when discussing permaculture became evident. Rafael, who is a non-Maya employee from El Salvador but has worked for IMAP as coordinator of IMAP's education program for three years, told me that the historical and cultural context has shaped IMAP's mission, for IMAP's work is a form of resistance (personal communication, April 14, 2020). According to Vogt (2015), the Maya resistance in Guatemala in general faces difficulty in acting as a strong, unified front. He argues that there are barriers to the horizontal voice, and as a result the vertical voice of the Maya mobilization, which prevents the movement from “articulating a common agenda of collective action” (Vogt, 2015, p. 37). He attributes this due to organizational sectorization, as many Maya organizations specialize around a specific theme. As such, “achieving a common position among Maya organizations at the national level has so far proven very difficult” (Vogt, 2015, p. 38). Other barriers to successful Maya mobilization are external to the movement, for the Guatemalan government has adopted strategies to prevent the empowerment of the Maya population (Vogt, 2015). These strategies include utilizing the internal conflicts of the Maya mobilization to weaken their horizontal voice, as well as denying the Maya identity altogether. Rafael shared that he believes “what IMAP is doing is baby steps” when it comes to Maya empowerment (personal communication, April 14, 2020). Accordingly, “IMAP seeks to change people's ideology to change their behavior and ultimately make people more self-sufficient in a sustainable way” (Rafael, personal communication, April 14, 2020).

As such, IMAP includes information about this context in the courses they offer. For example, Eduardo, who helps IMAP promote amaranth in the community, informed me that in the courses he took at IMAP, quite some time was dedicated to addressing this context (personal communication, March 4, 2020). As such, four main issues were foregrounded: the issue of land, the Green Revolution, inequality, and religion. I will discuss the output from my conversations with community members regarding these four issues in this chapter. However, Eduardo also shared that many local *Kaqchikeles* are not very aware of their historical and cultural context: they simply know whether the community is doing well or not (personal communication, March 4, 2020). Therefore, I will not only draw on the input from the research participants, but additionally, I will complement their answers with existing literature.

According to David Carey Jr. (2011), many historical accounts of the Maya civilization in the post-Columbian time are available, but surprisingly few of these accounts are informed by Maya scholars themselves (Carey Jr., 2011). The few Maya scholars who have resorted to document their culture and history, have done so at the disapproval of their respective communities: Maya scholars are accused of perpetuating paternalistic relationships between modern academia and indigenous societies, as their findings are often inaccessible for the local population it depicts (Carey Jr., 2011). Mayan history is often told through the lens of the oppressor, after the Spanish conquest, this was Spain, but upon gaining independence, oppressive regimes took on this role. The Mayan perspective was often ignored and discarded, which complicates the reconstruction of the Mayan history. David Carey Jr. (2011) reviewed the work of several Mayan authors and artists to address how Mayas contribute to the narrative about the Mayan perspective, such as Rigoberta Menchú Tum, Edgar Esquit, Luis de Lión, and Montejo. As such, along with other available literature, I will draw on his findings to include their perspectives as much as possible. Additionally, I will compare historical facts from the literature to the information I gathered from the research participants.

### Dispossession

German, who has been involved with IMAP since its foundation in the year 2000, told me that without land, people cannot survive, because “without land, it is not possible to create a sustainable system where the family could cultivate their own food” (personal communication, March 6, 2020). He informed me that few people in the community possess land, because most of the arable land is managed by a small group of non-Maya elites (personal communication, March 6, 2020). German expressed his concern about this, because along with the loss of land, came the loss of ancestral knowledge and the *milpa* system, which is an ancestral agriculture method where corn, bean, and squash crops are cultivated together in the same plot (personal communication, March 6, 2020). According to Dionisio, the owner of a tree nursery in *San Lucas Tolimán*, the loss of land also signifies loss of resources. Farmers that do not own the land cannot opt for sustainable agriculture, because the owner of the land on which they work considers monoculture more profitable (personal communication, March 3, 2020). Dionisio, like German, pointed out that if the disbalance of landownership persists, this will pose an obstruction for the transition towards sustainable agriculture, because the disbalance coincides with monoculture (personal communication, March 3, 2020).

The Maya people in Guatemala have a long history of dispossession that initiated when the Spanish arrived in the 15<sup>th</sup> century (Carey Jr., 2011). Though little is known about the Maya civilization prior to the Spanish conquest, it is known that the different Mayan tribes experienced many conflicts between them (Lovell, 2008). The Spanish benefitted from this given when the *Kaqchikeles* for example aided the Spanish in conquering the *Tz’utujiles* of Atitlán. When the Spanish showed their exploitative interests, however, the *Kaqchikeles* rebelled. Nevertheless, the lack of cohesion among different Maya tribes facilitated the Spaniards in their quest of colonization (Lovell, 2008).

Though it is contested how large the native population was prior to the Spanish conquest, it is agreed upon that the conquest coincided with a drastic reduction of the Maya population in what is now Guatemala (Lovell, 2008). Because the population was considerably large, it managed to offer a sizeable resistance to the Spaniards – a resistance that could only be overcome by reducing the native population. Nevertheless, the depopulation was not exclusively caused by war-related violence, a major factor in the depopulation was the spread of new infectious diseases introduced with the arrival of the Spaniards. Illnesses such as smallpox, measles and the plague were responsible for the demise of many (Lovell, 2008). After the Spaniards gained dominance over the native population, two types of institutions were put in place: *encomienda*, which referred to an area that encompassed one or more native communities, in which the local population had to pay the Spaniards who ruled over them in either products or money (Lovell, 2008). This system shared characteristics with the European feudal system, though measures were put in

place to prevent the rise of feudal lords by limiting for example the tribute quotas as well as the possibility of inheriting *encomiendas*. The second institution was *congregación*, which refers to a policy where highly dispersed populations were congregated in one area, where they were converted to Christianity and ought to live in a ‘civilized’ manner, in order to facilitate the *encomiendas* (Lovell, 2008). Accordingly, this was done by force, leading to many families fleeing back to the mountains in order to escape the oppression of the Spaniards.

The Spaniards saw the highlands as *tierra fría*, meaning cold land, which they deemed far less valuable due to its reduced agricultural opportunities (Lovell, 2008; Carey Jr., 2011). Therefore, the Spaniards had more significant impacts on the native population in the East (modern Guatemala City and Antigua) and the South (the Pacific coastline). Even today, this is where most *Ladinos* live, which continues to be the dominant culture in Guatemala with roots of mixed ethnicity: Spanish, Maya, and African (descendants of former slaves). They identify mostly with the Spanish culture, though their ethnicity is no longer fully Spanish. In the highlands, many of the Mayan cultures were able to resist the Spanish cultural oppression imposed on them by the *congregación*, though these communities have become more hybrid: they retain elements of their pre-Columbian culture as well as the languages – though many languages are facing erosion – yet they have adopted many cultural elements from the Spanish colonization, such as Christianity. (Lovell, 2008)

After Guatemala gained independence from the Spanish, political struggle persevered between Conservative and Liberal politicians (Lovell, 2008). The Conservatives sought to maintain the Hispanic institutions, which allowed highland Mayas to continue reside in their own communities with each their respective cultures, while the Liberals sought to assimilate all Maya populations into one nation: the nation of Guatemala – existing of *Ladinos*. The Liberals gained the upper hand in the 1860s and 1870s. The Liberal agenda was characterized by progress, which meant they sought to position Guatemala on the global market and adopt its capitalist ideals. This resulted in land grabbing and the displacement of peoples. Because the effects of the liberal government in the second half of the 19<sup>th</sup> century has not been researched extensively, the scope of the impact on the Maya population remains unknown. Nevertheless, the liberal government was able to displace many Maya communities due to the liberal legislation, which did not recognize communal land as belonging to the community, it only recognized individually owned land. The government seized fertile land to create coffee plantations, which has become Guatemala’s number one export crop, leaving many Mayas without land. The Maya families who were able to obtain or regain some of their land, were left with small plots of land, often too small to ensure the family’s livelihoods. Again, more land was ‘given’ to Maya families in the highlands or *tierra fría* in comparison to the more fertile lowlands. Additionally, as the coffee plantations required intensive, seasonal labor, many Maya farmers were coerced into working at these plantations, also known as *fincas*, for 100 to 150 days per year (Lovell, 2008). The unequal distribution of land perseveres to this day:

In Guatemala, 2 percent of the total number of farms occupy 65 percent of total farm area, while 90 percent of the total number of farms account for 16 percent of total farm area. The best land continues to be used to grow coffee, along with cotton, bananas, and sugarcane, for export, not to feed malnourished local populations, 70 percent of whom live in a state of poverty U.N. statisticians describe as ‘extreme’. (Lovell, 2008, p. 428).

### Green Revolution

Synthetic fertilizer, pesticides and herbicides were introduced in Guatemala in the second half of the 20<sup>th</sup> century (Carey Jr., 2009; Goldín, 2009). Before this, most small-scale Maya farmers still used *milpa* systems (a polyculture with corn, beans, and a type of pumpkin). These small-scale farms were mostly located in the highlands because the land there was considered less suitable to establish large-scale

monoculture plantations (Carey Jr., 2009). Carey Jr. (2009) writes that the *Kaqchikel* people were hesitant to adopt these chemicals at first, but as population growth in combination with low yields persisted, they became more open to using chemicals in their agriculture. Moreover, he notes that in the late 1970s, Guatemala had “one of the world’s most unequal landholding patterns” (Carey Jr., 2009, p. 290). The large monoculture plantations of coffee, bananas and cotton were exporting all their yields. With a growing population, Maya people in the highlands simply did not have enough farmland to accommodate the sheer amount of mouths to feed. The scarcity of crops like corn also drove up the price, making it impossible for small-holder farmers to complement their subsistence farm plots with corn from the market (Carey Jr., 2009). This caused many Maya farmers to move to the Pacific coast to work on coffee plantations in order to provide for their families, often in exploitative conditions (Goldín, 2009). Carey Jr. (2009) states that “these conditions made the promise of the Green Revolution attractive” (p. 291) and to a certain extent, the new technologies protected smallholder farmers from famine and being exploited by large corporations. However, German notes that the Green Revolution technology itself created new power relations:

They created a technological package for farmers, they said, we are going to produce food for the world, and we promise that you will produce three times more food than before. It worked, but there were many things the people did not know about. The introduction of this technology also came with a certain power to control the farmers here. They provided the seeds, fertilizers and pesticides, and the farmers had no say in this. (personal communication, March 6, 2020).

Nevertheless, the Green Revolution technology resulted in increased access to proper nutrition for many families (Carey Jr., 2009). Carey Jr. (2009) describes that before the availability of synthetic fertilizer, corn, for example, had always been scarce. Ilma shared a story her grandparents told her about this:

My grandparents made a living off their corn and coffee plantations. Years ago, they had a problem: grasshoppers appeared, and they spread like crazy. One day, my grandparents opened the door and outside it was completely black because there were so many grasshoppers and they had eaten the entire corn harvest. A very difficult time followed for my grandparents because they did not have enough corn to be able to eat. The little corn they did have, they tried to save. So instead, they milled dry tree trunks to make flour. They mixed it with the corn flour so they could make tortillas. Now, this would never happen, because there are many chemical pesticides that can be used to prevent something like this from happening. (personal communication, March 17, 2020)

After the Green Revolution, chemical pesticides ensured a harvest and farmers’ lives became less precarious as a consequence (Carey Jr., 2009). Plus, farmers could generate a higher yield on their small plots or expand their cropland to areas that were previously not arable (Carey Jr., 2009).

Farmers’ experience with such chemicals, however, is that it has led to a “long-term deterioration of their public health, soil quality, and financial independence” (Carey Jr., 2009, p. 286). Carey Jr. (2009) describes that *Kaqchikel* farmers argue that the chemicals weaken them and that before they lived longer and did not get sick as much. People from the community in *San Lucas Tolimán* told me the same. For example, German describes it follows:

The Green Revolution caused was a silent war, which refers to the sicknesses the processed food incurs. Nowadays, everything that is produced globally is not very healthy. This is killing more people than a war with firearms would. The food is not healthy, many people have diabetes or cancer nowadays. The more people are sick, the more the pharmaceutical industry can sell medication. (personal communication, March 6, 2020)

Likewise, Eduardo, an amaranth promotor for IMAP, has noticed how in his family's coffee farm the yield has not been as high in recent years (personal communication, March 4, 2020). Observations that public health and soil quality are deteriorating are mostly backed by research. The chemicals contaminate not only the soil and water, but they are also ingested directly with the consumption of the crops. Likewise, because farmers often do not have the means or knowledge to protect themselves properly when applying pesticides or chemical fertilizer, leading to skin exposure or breathing in hazardous chemicals. Carey Jr. (2009) lists nitrogen used in agrochemicals as a hazardous compound which can lead to many physiological issues upon excessive ingestion.

Furthermore, Carey Jr. (2009) states that the efficacy of pesticides has also been debatable. He notes that pesticides also kill natural pesticides, the lack of which can lead to secondary pest outbreaks, which has been an issue in Guatemala. Another problem is that some pests have become resistant to pesticides (Carey Jr., 2009). All in all, the occurrence of pest outbreaks has increased in the Guatemalan highlands since the introduction of chemical pesticides. So much so that even *milpa* farmers near pesticide impregnated farmland had to start using pesticides to deal with the increasing pest issues the Guatemalan highlands have experienced since the introduction of pesticides (Carey Jr., 2009). The use of pesticide thus seems to induce a vicious cycle where increasingly more pesticides are required to eradicate pests. According to German, this is a business chain that the industry has created in Guatemala: "the more plants get pests or diseases, the more agrochemicals can be sold to counter this" (personal communication, March 6, 2020).

Likewise, *Kaqchikel* farmers describe is that they increasingly require more fertilizer to generate the same effect, while the prices of the fertilizer also increase (Carey Jr., 2009). As such, it has become less profitable to use chemical fertilizer. Don Benjamin, who also works for IMAP to promote amaranth in his community, told me that the high cost of fertilizer is an important motivator for many farmers to switch back to organic fertilizer (personal communication, March 10, 2020). Additionally, it is difficult for small-scale farmers to compete with large corporations and, more importantly, the dumping of surplus food crops by US corporations, which are able to sell crops such as corn for a lower price than the cost of production (Carey Jr., 2020). Despite of the Green Revolution technology, some farmers are still being forced to sell their labor elsewhere to complement their subsistence farm, or in some cases, they are forced from their land as a result (Carey Jr., 2020). Thus, the Green Revolution technology increased disparities between the large-scale and small-scale farmers, the latter of which were predominantly Maya farmers in the highlands, as it "undermined small-scale farmers' self-sufficiency" (Carey Jr., 2009, p. 311).

In line with the statements from German and Don Benjamin, Carey Jr. (2009) notes that *Kaqchikel* farmers are becoming interested in reverting back to their *milpa* systems to prevent pests and using organic fertilizer to nourish the soil due to the "adverse public health effects, spiraling costs, and diminishing returns of synthetic fertilizer" (p. 307). Nevertheless, the switch from synthetic fertilizer to organic fertilizer can take long. Accordingly, it can take up to 8 years for the soil to restore itself after depletion caused by chemicals – a transition during which organic fertilizer will not be entirely effective (Carey Jr., 2009). Many farmers do not have the resources to make this transition. Additionally, though organic fertilizer is easily obtainable and cheap for animal holders, who can use manure, for those who do not have animals, it can still be expensive to purchase (Carey Jr., 2009). Don Benjamin informed me, however, that in his community where he teaches farmers how to make their own organic fertilizer, livestock owners often give away manure for free (personal communication, March 10, 2020). According to Carey Jr. (2009), other *Kaqchikel* farmers suggest using a combination of synthetic and organic fertilizers to facilitate the transition.

### Racism and Inequality

Lovell's (2008) chapter on the highland Mayas in the past few centuries offers a comprehensive overview on the history of the highland Maya people after the Spanish invasion, however, an ominous absence can be sensed when reading his work: namely, the extreme racism to which the Maya peoples have been subjected in the past five centuries. In fact, this racism and discrimination only deepened once Guatemala gained independence from the Spanish Crown (Martínez Salazar, 2012). Though overt racism and violence has decreased in the past decades, covert racism and inequality between Maya and non-Maya populations remain a reality.

Martínez Salazar (2012) describes how racism in Guatemala has created an image of indigenous peoples as primitive and passive beings. This image started with the liberal regime starting in the 1860s, the Maya people were left with little to no land, were forced to sell their labor for low wages to the bourgeois *Ladinos* or *Creoles*. Thus, the stereotype became that Maya people were only suited for low-status jobs, such as maids or working on coffee *fincas* (Lovell, 2008). Because so many Mayan women have worked in domestic settings since the 1870s, the *traje típico* or traditional dress was subjected to another image: that of being a domestic worker. Many of these domestic workers were subjected to violence and sex crimes, the law protected the perpetrators from persecution. To describe this, she refers to Agamben's definition of 'bare' life ("homo sacer"), which Agamben has borrowed from ancient Roman criminal law, where it was not allowed to sacrifice a *homo sacer* directly, yet anyone who would end *homo sacer* could not be persecuted for homicide (Agamben, 1989). The abundance of sex crimes in domestic settings "makes domestic work one of the most unsafe occupations women can take on" (Martínez Salazar, 2012, p. 73). Supposedly, many *Ladino* or *Creole* men saw themselves as superior and therefore assume Maya women are, or should be, happy to have sex with them.

The violence and discrimination against the Maya people reached an all-time high in the 36-year civil war (Lovell, 2008). During the civil war, the Maya people came to be associated with terrorism and communism, which served as a justification for the military governments to target and attack Maya communities. Specifically, the civil war genocide targeted men and children: men, because they constituted the resistance through guerilla uprisings, and children, because they were 'bad seed' and would seek vengeance when grown (Martínez Salazar, 2012). Martínez Salazar (2012) explains the genocide as follows: "Genocide in Guatemala deliberately sought to persecute and eliminate Mayas because they were Mayas and collective agents of anti-colonial/decolonial transformation" (p. 103). The genocide was justified in the name of protecting the free market and combatting its enemy: communism, a term which was used for any ideology in conflict with the status quo (most Maya people had never even heard of Karl Marx), and in Guatemala, as in many other Latin American countries, this fight against communism was backed by the United States. 'The war on communism' later made space for 'the war on terror'. Martínez Salazar (2012) describes this as a "crusade that was the concrete expression of the U.S. National Security Doctrine, a doctrine that gave the Latin American military and police forces not only training and economic support, but also the rationale for persecuting, controlling, and exterminating Indigenous communities such as the Mayas in Guatemala, and various social movements, as well as individuals, struggling for social justice" (p. 105). As a result, tens of thousands of Maya people lost their lives in this period (Lovell, 2008). Nevertheless, the occurrence of a genocide as a national policy has never been proven in a court of justice, and as it was backed by international powers, most Mayas never got justice.

Furthermore, Martínez Salazar (2012) draws on the present experiences with racism of many Maya people to document their experiences. She states that "on an everyday basis, Maya women wearing their customary clothes become the targets of various racist expressions, both overt and covert" (Martínez Salazar, 2012, p. 66). She lists an example of *Ladinos* or *Creoles* calling Maya people *inditos* or *inditas* (little male or female Indians), or refer to them as *envueltos*, which means wrapped, by which they imply that their clothes are not real, they are simply pieces of invaluable fabric used to cover the naked body. Mayan clothing has thus become a symbol of cultural inferiority, poverty, and powerlessness. But at the same time, the image of the same clothing has become a tourist attraction and indigenous people's bodies are commodified for tourism.



Martínez Salazar (2012) states that in the Atilán area, many foreigners own artisanal Maya crafts stores and other tourist attractions. They pay no taxes and employ local Maya widows who have lost their husbands in the civil war. Their children do not go to school, as they have to help their mothers and weave crafts for the stores. In these tourist towns, foreigners as well as *Ladinos* oversee the most successful businesses (Martínez Salazar, 2012). Devine & Ojeda (2017) note that tourism development in Guatemala, and in general, creates a social-spatial regime that transforms tourist destinations to become appealing to tourists. Accordingly, such transformations are administered through coercion and oppression. In Guatemala this has taken shape, for example, in the form of violent evictions where indigenous peoples become dispossessed (Devine & Ojeda, 2017). Likewise, dispossession occurs in other areas of tourism development as well when native peoples lose autonomy over cultural practices and products, such as the production of artisanal crafts. As Martínez Salazar (2012) also mentioned, many stores that sell artisanal crafts are not owned by the people whose culture such crafts represent. The Maya women that often work in these stores are hired by the investors for a wage far below the minimum wage, often as low as 5 Quetzales per day (approximately €0.60) (Devine & Ojeda, 2017).

However, inequality in Guatemala cannot entirely be attributed to racial differences: many *Ladinos* have Maya roots and the phenotypical appearance of Maya people is not that different from *Ladinos*. As such, “passing as a Ladino or Mestizo [mixed] has become a matter of survival” (Martínez Salazar, 2012, p. 74), which entails wearing *Ladino* clothing and speaking Spanish without an accent. This process of assimilation coincides with “shame, self-denial, and self-punishment” (Martínez Salazar, 2012, p. 74) and does not result from a desire to become *Ladino* but from pure desperation. Laura’s experience – a *Tz’utujil* woman from *San Pedro La Laguna* on the shore of Lake Atilán – aligns with this statement: according to her, Mayan men, including her husband, no longer wear traditional dress to increase their chances on the labor market (personal communication, February 12, 2020).

Nevertheless, the dominant *Ladino* culture in Guatemala often dismisses the actuality of racism as a thing of the past and reducing the Maya struggle to plain economic poverty. One of the justifications for this is that Maya people rarely use the word ‘racism’ to describe their struggle – which can be explained due to the lack of access to education many Maya people experience (Martínez Salazar, 2012). What Martínez Salazar (2012) points out, however, is that this does not mean that racism is not occurring. This is also an example of linguistic racism: Guatemala is structured in Spanish, even though this is not the maternal language for nearly half of the population. Monolingual Mayas are framed as backward, whereas monolingual *Ladinos* are the norm (Martínez Salazar, 2012). Another woman from *San Pedro La Laguna*, Daniela, shared that she went to a Spanish elementary school, while she only spoke *Tz’utujil*. As such, she could hardly follow the materials being studied. Nowadays, in *San Pedro La Laguna*, all schoolteachers are required to speak both Spanish and *Tz’utujil* (Daniela, personal communication, February 14, 2020). Nevertheless, Laura mentioned that her 6-year-old daughter only speaks Spanish at school and with her friends, because many *Tz’utujil* children no longer learn to speak *Tz’utujil* (personal communication, February 12, 2020). Denis confirmed that this is similar in *San Lucas Tolimán*, for he himself never learned to speak *Kaqchikel*. According to him, only secluded communities continue to raise their children in *Kaqchikel* (personal communication, March 17, 2020). Hence, linguistic racism in Guatemala seems to be contributing to the disappearance of Maya languages.

Finally, Martínez Salazar (2012) states that some Maya people who have been in little contact with *Ladinos*, *Creoles* or foreigners, do not recognize racism. This could be explained due to the isolation in which some Maya communities live. Though *San Lucas Tolimán* is a migrant town, all the migrants are Maya – mostly *K’iche’*, *Kaqchikel*, or *Tz’utujil*. There are few tourists there, which according to the people from the community is considered a virtue (Denis, personal communication, March 17, 2020). Denis, for example, did not recognize the fact that men no longer wear *traje típico* as a result of discrimination (personal communication, March 17, 2020), whereas Daniela, who lives in the more touristy *San Pedro La Laguna*, did (personal communication, February 14, 2020).

### Religion Conquest and Christianity

Though the tourist industry emphasizes the prevalence of the Mayan cosmivision, Christianity (Catholicism, Evangelicalism, and Jehova's Witnesses) is in fact the most prevalent religious affiliation among the Maya population in Guatemala (Hinojosa, 2018). During the Spanish conquest, Catholicism was imposed on the Maya people (Althoff, 2014). But in the recent decades during Civil War, Protestant denominations, such as Evangelicalism, gained more ground, because the government under President Ríos Montt provided funds to the Evangelical church (Althoff, 2014). According to Althoff (2014), this denomination specifically engages in the antagonization of the Maya cosmivision as practiced prior to indigenous conversion, by discarding it as pagan or satanic. Rafael, a non-Maya employee at IMAP, who has lived in *Pachitulul* for three years, shared that *Pachitulul* is entirely Evangelical (personal communication, April 14, 2020). As many of the people from *Pachitulul* cultivate crops on some of IMAP's land, IMAP frequently interacts with the community. Nevertheless, I did not get the opportunity to converse with members from *Pachitulul* to learn about their perspective.

Hinojosa (2018), however, argues that remnants of Maya culture are still present among Evangelical *Kaqchikeles*. She states that most Evangelical Mayas seemingly cut ties with their Mayan beliefs, because if they continue to practice the Maya cosmivision, they become subject to punishment. However, while they practice Protestantism, Mayas still retain some elements of the Maya cosmivision below the surface (Hinojosa, 2018). This information clashes with the experiences of Ilma and Denis, members of the *Kaqchikel* community in *San Lucas Tolimán*. Their families are both Christian – they did not specify which denomination - and they told me that their families have little remaining beliefs and practices from the Mayan cosmivision prior to them coming to work at IMAP (personal communication, March 17, 2020). However, Hinojosa (2018) suggests that in the *Kaqchikel* community in *Comalapa* these practices or beliefs are often present in a concealed way. It could be that the *Kaqchikel* community in *Comalapa* differs from the one in *San Lucas Tolimán*, or it could be that hidden beliefs do still play a role here. Either way, I had no opportunity to investigate this thoroughly, so this point should be addressed in future research.

Employees at IMAP shared that religion poses an obstacle to the re-introduction of ancestral knowledge, precisely because this type of knowledge is renounced by the Christian faith of most *Kaqchikeles* in the community – though Catholic *Kaqchikeles* are somewhat more receptive than Evangelical *Kaqchikeles* (Rafael, personal communication, April 14, 2020). Both Ilma and Denis, for example, call the mixing of Christianity and ancestral knowledge a complicated theme (personal communication, March 17, 2020). Ilma notes that “many people view ancestral Maya knowledge as something bad” (personal communication, March 17, 2020). Nevertheless, Denis remains hopeful:

Little by little, they are going to understand. If you do not live the experience, you won't understand it. Because I started to understand it as I was a part of such ceremonies here at IMAP. How it really is. (personal communication, March 17, 2020)

## Chapter 5

### The ‘Culture’ in Permaculture: Definitions and Descriptions from *San Lucas Tolimán*

In my conversations with permaculture educators and farmers, I found that both describe permaculture as more than an agricultural method: As a holistic approach to life, they consider the Mayan cosmovision to be an integral part of permaculture. Yet most permaculture practitioners have not adopted the permaculture philosophy in its entirety, favoring certain principles while omitting others. According to IMAP employees, this could be due to the lack of access to land, which prevents many locals from incorporating permaculture. Additionally, the prevailing Evangelical denomination in *San Lucas Tolimán* clashes with the Mayan cosmovision and by extension the permaculture philosophy, which renders many people reluctant to embrace the permaculture philosophy. In chapter two I offered an overview of the scientific literature on the concept of permaculture. However, Elizabeth Hoover (2017) alludes the importance of the definitions and descriptions attributed to a concept – in her case the concept of ‘food sovereignty’, in this case ‘permaculture’ – by the people who are operationalizing them. In this chapter, I explore the descriptions and definitions of permaculture from locals in *San Lucas Tolimán*, who are all involved with permaculture. Concurrently, I will compare these findings to the definition that resulted from the literature in chapter two.

I started my conversations with all the participants I interviewed – employees of IMAP, local farmers, or members of the community in *San Lucas Tolimán* – the same way. I asked them, ‘what is permaculture, according to you?’. The unanimous answer I got was that permaculture is a sustainable form of agriculture, but in addition to that, it is a way of life (personal communication, March, 2020). Ilma, who does the administration for IMAP, told me that “you can apply it [permaculture] to your life. And it is relevant in all aspects of life, even in administration” (personal communication, March 17, 2020). German, who maintains the property at IMAP and works on the education program, adds that permaculture is a permanent culture, which can only be achieved if culture is reunited with nature: “it seeks to create sustainable livelihoods, and for this, you need to be close to the food” (personal communication, March 6, 2020). Moreover, German mentioned that the permaculture ethic – earth care, people care, and fair share – is an ethic that applies to all facets of life (personal communication, March 6, 2020). This refers to the permaculture ethic as discussed in chapter two. Hence, the *Kaqchikel* research participants seem to value this ethic and see it as the core of permaculture.

As the conversations with the different participants progressed, a second aspect of permaculture was foregrounded: permaculture is highly context dependent. To Adrien, who produces amaranth at IMAP, permaculture is about the ability to produce one’s own food and to live with nature. He emphasized the importance of looking for multiple solutions to problems to produce proper nutrition for the people while conserving the forests and the water (personal communication, April 29, 2020). Eduardo argued that in doing so, farmers need to read their environment to uncover which resources it has to offer, such as the water in Lake Atitlán. Eduardo, a promoter of amaranth in *San Lucas Tolimán*, nevertheless stressed that resources should not merely be extracted: “we need to profit from these resources, the water from the lake can be used to irrigate crops. They should be integrated in our farm systems without destroying or altering the environment” (personal communication, March 4, 2020). Eduardo and German both shared that permaculture can manifest in different ways depending on the geographical and cultural context (personal communication, March 4, 2020; personal communication, March 6, 2020). This resonates with Holmgren’s

statement that permaculture is never static, as discussed in chapter two. Permaculture designs need to be tailor fitted to each cultural and topographical context (Veteto & Lockyer, 2008).

Like in the examples of permaculture in indigenous communities offered by Naomi Millner (2016) and June Brawner (2015) in chapter two, permaculture in *San Lucas Tolimán* has become intricately connected to ancestral, *Kaqchikel* knowledge. Brawner (2015) reported that in the Bulgarian town *Shipka*, many residents viewed permaculture as “nothing new” (p. 440), because their ancestors had practiced similar agricultural methods long before the term ‘permaculture’ was invented. I experienced a similar sentiment among locals in *San Lucas Tolimán*. For example, Don Benjamin, the other promoter I interviewed, stated that “permaculture is the Mayan culture” (personal communication, March 10, 2020). Accordingly, permaculture facilitates the preservation of ancestral seeds, such as chia and amaranth, which were once a vital part of the Mayan diet. But with the introduction of staple crops such as corn and beans, farmers yielded the cultivation of these crops, which has led to a state of near extinction for ancestral crops.

Founder of IMAP, Rodrigo, described the connection between permaculture and the ancestral Mayan cosmovision as follows:

The permaculture ethic is very compatible with the Mayan cosmovision. Care for the people, care for the earth, and equal distribution. It isn't an individual question, but a collective one. (personal communication, May 1, 2020)

Rodrigo had noticed that in Guatemala *milpa* systems (polycultures of beans, corn, and pumpkin) had been replaced with monocultures rendered possible by excessive use of chemical pesticides and fertilizers. People were starting to lose the ancestral expertise previously kept alive by ancestral forms of agriculture. He searched an alternative to monoculture: something more sustainable with the potential to revive the lost ancestral wisdom. Rodrigo shared that

That's how I arrived at permaculture, which is based on ancestral knowledge, but also on new knowledge. It is not just about the past, but also about the future and modernity. Furthermore, it involves an ethic: it is not just about agricultural techniques, but rather it's a way of viewing the world: a cosmovision. (personal communication, May 1, 2020)

As such, for Rodrigo, the definition of permaculture includes ancestral knowledge and the *Kaqchikel* culture. Accordingly, the concept of permaculture provides *Kaqchikel* Mayas a window of opportunity to revitalize their ancestral knowledge and preserving their *Kaqchikel* cultural heritage.

Besides the permaculture ethic, I also asked research participants about which principles they had adopted – or adapted – from permaculture. The promoters I spoke with, Eduardo and Don Benjamin, mentioned that they learned how to make organic fertilizer and pesticide at IMAP, which they see as an important aspect of permaculture (personal communication, March 4, 2020; March 10, 2020). Don Benjamin mentioned that smallholder farmers in his community, *San Martín*, now used cow manure to make organic fertilizer (personal communication, March 10, 2020). While not all farmers in *San Martín* have cows, the ones that do are happy to share the cow manure at no cost. This exemplifies the permaculture principle “integrate rather than segregate” (Brawner, 2015, p. 431), for it treats cow manure as a resource that can be integrated in the food production system. Another principle was mentioned by German: increasing biodiversity on farms. He illustrated this with a story:

There was an old farmer who had a parcel with corn in three different colors, or three sisters: black, yellow, and white. The yellow sister was named Maria, the white one was named Rosa, and the black one was named Juanita. These three sisters were part of a *milpa* system, where they also

cultivated beans, pumpkin, and potato. One day, when the corn was ready to be harvested, a storm was approaching. The farmer went into the field to harvest all he could before the storm. He started with the yellow corn. He brought it inside and the storm was getting closer and closer. He continued with the white corn, while the black corn, Juanita, was not harvested yet. Upon finishing the harvest of the white corn, the storm was getting too close, and the farmer went inside. Juanita began to cry because the farmer hadn't been able to harvest the black corn. There were some other crops in the parcel that knew how to withstand the storm, so they did not understand Juanita's tears. When they asked her why she was crying, Juanita answered: "the farmer did not harvest me, and now I will die because of the storm". The other crops responded: "cry no more, we will help you". In the story, all the plants climbed so that they hugged Juanita. They covered her completely. When the storm came, they protected Juanita. All the wind and rain could not take her. She was saved by the *milpa* system. (personal communication, March 6, 2020)

German shared this story with me because he wanted to illustrate the importance of biodiversity. In the occurrence of heavy rains, drought, or when pests are threatening certain crops, it hardly ever affects all plants within a *milpa* system. A pest or disease can target a specific plant, but not all plants. Something will always survive, securing a yield for the farmer (personal communication, March 6, 2020). This aligns with the permaculture principle "use and value diversity" (Brawner, 2015, p. 431). Furthermore, as previously mentioned, Eduardo and Don Benjamin saw the reintroduction of chia and amaranth as a permaculture practice (personal communication, March 4, 2020; March 10, 2020). This practice is also incorporated in IMAP's main activities under the biodiversity program (see chapter 1). Eduardo told me that the reintroduction of these products is of vital importance, because the Maya people are historically accustomed to eating these seeds and as such, they provide nutrients that other staple crops simply cannot provide (personal communication, March 4, 2020). Additionally, Eduardo stressed that these plant species are on the verge of becoming extinct and without proactive efforts to save them, the option of cultivating them in the future will be eliminated altogether. Again, this aligns with the principle "use and value diversity" (Brawner, 2015, p. 431): the 'value' of ancestral seeds being twofold, namely nutritional value and their value as cultural heirloom seeds.

Finally, in my conversations with permaculture practitioners in *San Lucas Tolimán*, I also asked them about their experiences with permaculture. Almost all the responses I got were extremely positive. Roberto, who works in the gardens at IMAP, shared that he thinks permaculture is very powerful, because it allows people to live life in a healthy way (personal communication, May 17, 2020). Likewise, Eduardo emphasized that permaculture offers a solution to the health risks posed by the use of chemicals in conventional agriculture practices (personal communication, March 4, 2020). In general, the people I spoke with saw permaculture as an appropriate way forward: it is better for the environment and better for the people.

Nevertheless, German and Rodrigo identified some challenges that need to be confronted. German stated that permaculture requires seeds, knowledge, and land (personal communication, March 6, 2020). IMAP plays a role in the facilitation of the first two, but the latter remains a considerable barrier to the implementation of permaculture in the *San Lucas Tolimán* area (personal communication, March 6, 2020). Didarali & Gambiza (2019) and Kruger (2017) indicated that lack of seed capital is a key barrier to realizing permaculture. In *San Lucas Tolimán*, however, land appears to pose the most significant obstruction to the realization of permaculture. Most people do not have access to land, and therefore permaculture diffusion is largely limited to smallholder farms through promoters (more on this in chapter 6). These smallholder farms implement certain elements of permaculture which they learn about via promoters such as Eduardo and Don Benjamin. I was unable to speak with smallholder farmers in the area, so more investigation about this is necessary to obtain a more complete picture of how permaculture takes shape on these farms. Moreover, Rodrigo indicated that culture and politics also pose a barrier to the implementation of permaculture (personal communication, May 1, 2020). He shared that the spread of the Evangelical

denomination in Guatemala has led to the antagonization of the ancestral knowledge permaculture promotes. As many people in the *San Lucas Tolimán* area are Evangelical, it has proven difficult to convince them to embrace their cultural heritage. Likewise, Rodrigo pointed out that the political climate in Guatemala is marked by corruption, which complicates collaboration with other organizations to promote permaculture on a larger scale in Guatemala.

Overall, permaculture practitioners in *San Lucas Tolimán* describe permaculture as a holistic approach to both agriculture and culture. They strongly associate it with the Mayan cosmovision and ancestral knowledge, such as the *milpa* system and the importance of lunar cycles. The main principles that were foregrounded in my conversations with the participants were ‘integrate rather than segregate’ and ‘use and value diversity’. Permaculture in *San Lucas Tolimán* seems to resonate with Didarali & Gambiza’s (2019) conclusion, that permaculture needs to be combined with other agricultural practices and that it should not always be self-sufficient. The farmers that work with Don Benjamin have adopted elements of permaculture to release them of their dependency on Green Revolution technology, yet they have not converted to permaculture entirely. The slow pace at which permaculture diffuses in *San Lucas Tolimán* might be attributable to the lack of access to land, as well as ontological differences between the Evangelical community and the permaculture philosophy, which in the eyes of the community represents the pagan Mayan cosmovision. Nevertheless, I was unable to speak to locals who have not (yet) embraced permaculture, and therefore more investigation is necessary to adequately document their experience.

## Chapter 6

### Priorities in Pedagogy: Diffusion and Adoption of Permaculture

The spread of permaculture in *San Lucas Tolimán* occurs both in- and outside the walls of the Mesoamerican Institute of Permaculture (IMAP). Within these walls, IMAP's pedagogical strategy dominates how knowledge is diffused. Yet outside, informal networks and relations of IMAP's employees as well as their interaction with the community of *Pachitulul*, in which the institute is located, guide how people learn about permaculture. Additionally, a more semi-formal type of diffusion takes shape in the form of promoters hired by IMAP. They contribute greatly to spreading the word about permaculture to their respective communities. While these promoters are hired by IMAP, they maintain considerable freedom to inform their communities as they see fit. While IMAP itself maintains a focus on customizing course pedagogy to the audience, informal or semi-formal types of knowledge diffusion are excluded from this strategy. The strategy mainly manifests in the courses offered by IMAP. While the Education Program seeks to stimulate the co-creation of knowledge and thus horizontal transmission of knowledge, in practice this proves difficult. For courses with an international or Latino audience, knowledge is often transmitted vertically, as the audience (often tourism or school classes) simply seeks to passively receive knowledge. When the audience consists of local farmers, the courses tend to be practice-oriented, to allow the farmers to experience the benefits of agricultural techniques that are foreign to them. As permaculture classes introduce ideas that are radically different from farmers' pre-existing knowledge, the farmers seem to receive the knowledge rather than actively co-construct it. Yet, I found that course participants take little issue with this, which suggests that IMAP's prioritization of the audience's needs over the importance of horizontal education is the proper way to go.

#### Means of Diffusion

As I did my fieldwork with IMAP, I focused on their role in the diffusion of permaculture. As an institute aimed at promoting permaculture in Guatemala and Mesoamerica at large, they play a considerable role in the diffusion of permaculture in this area (Instituto Mesoamericano de Permacultura, n.d.<sup>a</sup>). This role can be divided in three categories: permaculture related courses offered by IMAP, the diffusion through collaboration with residents of the *caserío* in which IMAP is based, *Pachitulul*, and lastly the promotion of permaculture via 'promoters'. In this section I explore how these means of diffusion take shape.

#### Courses

First of all, IMAP facilitates the diffusion of permaculture by offering an array of courses, only one of which is the certified 'Permaculture Design Course' (hereafter: PDC) (Instituto Mesoamericano de Permacultura, n.d.<sup>c</sup>). The PDC takes place over the course of two weeks and is offered twice per year, one in English and one in Spanish (Rafael, personal communication, April 14, 2020). Rafael, who oversees the education program at IMAP, often teaches the English course, whereas German is more involved in the Spanish version of the PDC (Rafael, personal communication, April 14, 2020). In addition to the PDC, IMAP hosts many workshops and classes to both international and local groups (Rafael, personal communication, April 14, 2020). Depending on the audience, these workshops can be taught in English,

Spanish, or even *Kaqchikel*. Likewise, the content of the workshops is tailor fitted to the audience's needs, meaning the workshops can focus on the technical side of permaculture, the cultural side, or they can incorporate both. Massicotte & Kelly-Bisson (2018) note that PDCs are characterized by a vertical mode of instruction. Accordingly, the PDC curriculum is rather static regardless of context. However, my conversations with course instructors from IMAP suggested that this was not the case for the courses offered by IMAP. Rather, Rafael indicated that IMAP never offered the same course or workshop twice, because the course evolved with the participants and the context (personal communication, April 14, 2020). Rafael noted that IMAP's curriculum is based on three variables: first of all, the permaculture principles and ethic; secondly, the Mayan context; thirdly, the audience.

The first variable, the permaculture principles and ethic, is quite static. Both Rafael and German told me they include the permaculture ethic as a building block of the workshops and courses they teach. During my time at IMAP, I joined three workshops led by Rafael and one led by German. In each of the workshops, they mentioned the importance of this ethic. German shared that "When you manage the three ethical principles – people care, earth care, and fair share – well, then you're doing a good job" (personal communication, March 6, 2020). Accordingly, the permaculture ethic is something to strive for and to reflect upon throughout the entire permaculture process. Hence, both German and Rafael viewed it as the core of permaculture and thus a vital aspect of any permaculture-related workshop or course. On the contrary, the permaculture principles were less present in the workshops in which I participated. In some workshops, certain principles were implied, such as Holmgren's first principle which stresses the importance of observation and interaction (Holmgren, 2002): in German's lecture, he spoke about how the ancient Mayas learned from observing nature, and that through observation, many solutions can be found (personal communication, March 9, 2020).

However, neither Mollison's 10 design principles (1978) nor Holmgren's 12 principles (2002) were discussed in full. Nevertheless, each workshop included a tour of the IMAP's property which was designed according to the permaculture design principles. Though the premises did not have one, main house to use as a point of reference, the design was built around the building that contained the communal kitchen on the ground floor and a dorm room on the second floor. For example, the vegetable garden is in 'Zone 1' for easy access from the kitchen. As such, the principles received some, albeit implicit, attention. Unfortunately, I was unable to attend the PDC offered by IMAP, but according to the PDC curriculum, this course focused on the permaculture principles more explicitly and extensively (Instituto Mesoamericano de Permacultura, n.d.<sup>c</sup>). Likewise, as Rafael stated that no two permaculture workshops are the same, a sample of four may not be a representative one. Therefore, it is very well possible that the permaculture principles are more present in other workshops than the four I witnessed.

As discussed in the previous chapter, permaculture in *San Lucas Tolimán* is inextricably intertwined with the local Mayan, or more specifically *Kaqchikel* culture. Rodrigo envisions permaculture as a new opportunity to reintroduce the *Kaqchikel* cultural heritage to the community (personal communication, May 1, 2020). Consequently, this cultural context plays an important role in the courses taught at IMAP. In his lectures and workshops, German especially emphasizes ancestral knowledge: he informs course participants, both international tourists and local *Kaqchikeles* who have become disconnected from their cultural heritage, about the Maya cosmovision. According to German, the Mayas succeeded in three things: mathematics, architecture, and astrology. They based their knowledge on extensive observation of nature. The Mayas believe that when you work with nature, everything will work out (German, personal communication, March 9, 2020). As such, German included important messages derived from ancestral knowledge in his workshops: in the lecture I attended he spoke about the importance of the lunar phases, the elements (air, water, fire, and earth), as well as the seasons (personal communication, March 9, 2020).



While German focuses on the practical implications of ancestral knowledge in permaculture, Rafael has adopted a more historical and political perspective in his courses. He sees permaculture as an act of resistance against the repression of indigenous cultures in Mesoamerica and some of his workshops are almost entirely devoted to the political importance of permaculture (personal communication, March 18, 2020). Rafael told me that acknowledging the hegemony of neoliberalism is the first step towards resisting it: “What IMAP is doing is baby steps. It seeks to change people’s ideology to change their behavior and ultimately make people more self-sufficient in a sustainable way” (personal communication, April 14, 2020). Accordingly, making the hegemony explicit in workshops contributes to this process.

Perhaps the most determining factor in IMAP’s curriculum is the audience: course participants greatly influence the content and pedagogical style of a workshop or course. An important factor is participants’ needs. For example, a workshop or course will be different for a group of tourists than for a group of farmers interested in learning more about permaculture (Rafael, personal communication, April 14, 2020). Rafael shared that:

IMAP seeks to customize course content and teaching styles to the different groups that come to IMAP. If the content is meant for local farmers, for example, IMAP relies on farmer-to-farmer teaching methods, which will be instructed by German, because he is from *San Lucas Tolimán*. He not only speaks *Kaqchikel*, but he understands the meaning of the language and he is able to convey the message in a more appropriate way than I can. (personal communication, April 14, 2020)

Rafael also told me that though IMAP aims to make workshops interactive and practice-oriented, the audience does not always render this possible. Horizontal instruction as advocated by Leeuwis & Aarts (2011) can only be achieved if both the instructor and participants are committed to this. Rafael indicated that in practice, some workshops result in more interaction than others. Accordingly, if the mindset of a group is to passively receive information, it can be difficult to change this mindset. On the other hand, if a group is motivated to actively participate, this gives ground to the co-construction of knowledge (Rafael, personal communication, April 14, 2020). In addition to participant motivation, the background knowledge of the participants also plays a role in the course content. Rafael noted that he observed a contrast between local, farmer participants, and international tourists (personal communication, April 14, 2020). The former category is more familiar with the landscape and has more general experience with agriculture, whereas the latter tends to consist of North American, European, or Australian tourists who have no background in agriculture. According to Rafael, a knowledgeable audience allows for a valuable exchange of knowledge for all participants, whereas if some participants are completely new to agriculture, the mode of instruction tends to become more vertical (personal communication, April 14, 2020). Likewise, if the audience is entirely unfamiliar with agricultural techniques, Rafael shared that “the participants will be too distracted with re-inventing the wheel to focus on the new content of the course” (personal communication, April 14, 2020). As such, depending on the audience, courses will be less or more interactive, dynamic or practice oriented. I will elaborate on the modes of instruction in the second part of this chapter.

### Local tenants

While staying in *Pachitulul*, I immediately felt the social cohesion in the community. Everybody knew everybody, and as a newcomer I stood out. My connection to IMAP made the community very welcoming of me, however, as since its foundation in 2000 IMAP and its employees have established meaningful relationships with community members (Ilma, personal communication, March 17, 2020). IMAP has made roughly 15 plots available for local families to use as vegetable gardens. During my time in *Pachitulul*, I spent some time working with Ilma as she did the administration these plots on IMAP’s land. Ilma told me to grant all families the possibility of tending to a plot on IMAP’s land, tenants can choose their preferred

method of payment (personal communication, March 17, 2020). The first method is in *Quetzales* (the Guatemalan currency), where the tenants are expected to pay an annual fee of approximately Q75.00 (€8.67) per *cuartillo* (approximately 130 m<sup>2</sup>). Alternatively, tenants can opt to spend one day working for IMAP.

In either case, IMAP has set general conditions for the tenants concerning the land-use, and all tenants are expected to attend meetings where these conditions are discussed (Ilma, personal communication, March 17, 2020). The conditions included that tenants need to respect the boundaries of their plots and work the land in accordance with the permaculture principles (Ilma, personal communication, March 17, 2020). Rafael told me that when community members first started farming IMAP's land, IMAP offered them workshops on permaculture that instructed them for example how to make organic fertilizer or prevent pests from demolishing the crops (personal communication, April 14, 2020). In effort to ameliorate the receptiveness of *Pachitulul* residents to these new ideas, the workshops were offered by Gregorio in *Kaqchikel*. Nevertheless, the communication between IMAP and the local community is delicate: according to Rafael, the community views IMAP as a rich organization from which they can profit. Over the years, many tenants have expanded their plots without consultation and when confronted about this during this year's general meeting which I attended, they refused paying a higher rent. Likewise, the diffusion of permaculture knowledge to the local community has not gone without a hitch: Rafael told me that many tenants still use chemical fertilizers and pesticides (personal communication, April 14, 2020).

The relationship between IMAP and the community in *Pachitulul* is thus more complex than I initially thought, and the permaculture philosophy has not been entirely accepted by the community (yet). Both Rafael and Rodrigo said that the Evangelical faith that dominates *Pachitulul* obstructs the community's receptiveness towards permaculture, especially since permaculture as taught by IMAP is closely related to ancestral knowledge and culture, which have been berated by the Evangelical church (see chapter 4) (personal communication, April 14, 2020; May 1, 2020). However, due to the short duration of my time in *Pachitulul*, I was unable to investigate the relationship between IMAP and the community from the perspective of community members. Therefore, my understanding of this relationship is compromised, and it requires further examination.

#### *The Campesino-a-Campesino methodology*

IMAP's founder Rodrigo informed me that the *Campesino-a-Campesino* methodology (farmer-to-farmer, hereafter: CAC) is an important aspect of IMAP's pedagogical strategy (personal communication, May 1, 2020). Though this methodology stems from the *Campesino-a-Campesino* Agroecology Movement (MACAC) (Rosset et al., 2011), the methodology seems to have manifested with regards to permaculture in *San Lucas Tolimán*. Like in MACAC, CAC in *San Lucas Tolimán* the farmers themselves are agents of change and contribute to the diffusion of knowledge in a horizontal manner (Rosset et al., 2011; Rodrigo, personal communication, May 1, 2020). As such, this type of knowledge diffusion occurs outside of IMAP. During my observations, I noted two ways in which diffusion via the CAC methodology evolved: via 'promoters' hired by IMAP to promote ancestral seeds such as amaranth and chia and via IMAP's employees themselves.

The 'promoters' were initially hired to support IMAP's food sovereignty program (see chapter 1). Their job description entailed informing their community about ancestral seeds, specifically amaranth and chia. IMAP hired and trained four promoters in total and I was able to speak with two: Don Benjamin and Eduardo. Don Benjamin is a farmer from a small community in the vicinity of IMAP called *San Martín* and Eduardo is a miller from *San Lucas Tolimán*. Don Benjamin told me that amaranth and chia are native to Mesoamerica – the latter got its name from its place of origin: Chiapas, Mexico. While these seeds are considered superfoods internationally, their health benefits are experienced even more among the indigenous population in Central America, said Don Benjamin (personal communication, March 10, 2020).

According to Don Benjamin, the indigenous peoples have consumed these seeds for so long that their genetic makeup has co-evolved with the plant species (personal communication, March 10, 2020). In addition to promoting amaranth and chia seeds, however, the promoters were also invited to partake in workshops about permaculture, giving them the knowledge and techniques to work with farmers and teach them about permaculture. Despite the amaranth and chia promotion project having ended, both Don Benjamin and Eduardo continue promoting permaculture in their communities. Eduardo, for example, said that he continues to talk to many farmers about permaculture:

It takes a lot of time to change people's minds. But through my conversations with the farmers, I simply plant an idea in their brain. Little by little, more people are starting to become interested in it. When people notice how my vegetable plot has improved, they also get curious, and they want to learn more about the farming techniques behind it. (personal communication, March 4, 2020)

Likewise, Don Benjamin frequently organizes classes or workshops in the evenings where local farmers can learn about permaculture after a day of work (personal communication, March 10, 2020). He also visits all the farmers that attend his classes, because he wants to get to know the plots to tailor his instructions to each farmers' needs: "each plot is different" (personal communication, March 10, 2020). He bases the classes on the workshops at IMAP in which he participated, for example on how to make organic fertilizer, because Don Benjamin wants to pass on all the information to the farmers (personal communication, March 10, 2020). As members of their respective communities, Don Benjamin and Eduardo seem to horizontally share their newly acquired knowledge to their peers. However, both Don Benjamin and Eduardo simply repeat what they have previously learned at IMAP. Eduardo told me that everything he knows, he learned at IMAP (personal communication, March 4, 2020). The instruction mode therefore seems to be linear, rather than the co-constructive, which diverges from the CAC methodology.

Another form in which horizontal sharing of knowledge takes place is through IMAP's employees in their personal networks. All but one of IMAP's employees are from *San Lucas Tolimán* or surrounding *caseríos* and are thus connected to many people within their respective communities. Most of the employees had no prior knowledge about permaculture when they started their job at IMAP, yet every single employee I spoke with sees permaculture as a valuable philosophy that applies to all aspects of life (see chapter 5). Ilma, for example, told me that she learned about permaculture from other employees at IMAP and that she also attended some courses to increase her knowledge (personal communication, March 17, 2020). She told me her work inspired her to implement some of her newfound knowledge in and around her house, where she also shares her knowledge with her family (personal communication, March 17, 2020). Roberto takes it a step further, like Don Benjamin and Eduardo, he teaches farmers from his community practical techniques that help them work the land in a sustainable fashion (personal communication, May 17, 2020). As such, the networks of IMAP's employees also contribute to the diffusion of permaculture. This type of knowledge diffusion is perhaps not entirely in line with the CAC methodology given that most of IMAP's employees are not farmers, but it follows the same logic: members of a community share their knowledge with their peers.

### Modes of Instruction

In this chapter it has become clear that instruction does not merely happen through IMAP's educational program – diffusion of knowledge takes place via courses, collaboration with neighbors, as well as via promoters or personal networks. As such, IMAP's pedagogical strategy does not entirely determine how knowledge is diffused. Nevertheless, Rodrigo, as co-founder of IMAP, and Rafael, as coordinator of IMAP's education program, are very critical and reflective of IMAP's position as educator. In my

conversations with them I deciphered three facets of the education program: horizontal education, practice-oriented education, and context-appropriate education, which I will discuss in the following paragraphs.

First of all, Rodrigo summarized IMAP's pedagogical strategy as follows:

The pedagogical strategy of IMAP is primarily recognizing that everybody has knowledge. Everybody can learn and teach. We have to reconstruct information together. The trick is to find wisdom between us. (personal communication, May 1, 2020)

This statement reflects on IMAP's role of revitalizing ancestral knowledge and culture. IMAP's employees, like other *Kaqchikeles*, share a cultural heritage. Though many people have become disconnected from their heritage, most *Kaqchikel* people still know stories from their grandparents and thus carry some ancestral knowledge with them (Rodrigo, personal communication, May 1, 2020). In addition to ancestral knowledge, Rodrigo stresses that "each farmer brings their own practical knowledge and experience" (personal communication, May 1, 2020). Even if farmers are unfamiliar with permaculture or ancestral knowledge, they still have relevant experience with agriculture.

As such, theoretically, IMAP's pedagogical strategy seems to align with Leeuwis & Aarts' (2011) call for an integrated type of knowledge diffusion, where the creation of knowledge is an iterative process between knowledge diffusers and recipients, where the latter co-construct knowledge rather than passively receive it. However, Rafael shared that practically, the co-creation of knowledge is not always possible. Depending on the audience's prior knowledge and motivation, different degrees of interaction and construction of knowledge are possible (personal communication, April 14, 2020). Likewise, when I talked to former PDC participants – Don Benjamin, Eduardo and Roberto have all taken a PDC as well as other courses at IMAP – they all stressed what IMAP taught them and how IMAP provided them with information that was completely new to them (personal communication, March 4, 2020; March 10, 2020; May 17, 2020). This suggests that in practice, the instruction mode may be more linear than co-constructive. The linear instruction Don Benjamin and Eduardo received at IMAP also translates to how they teach their peers: for example, Don Benjamin offers classes to the farmers of his community *San Martín*. Nevertheless, Rodrigo argued that the relationship between promoters and their community is more equal and confidential than a relationship between a technician and a farmer:

When a technician demonstrates a technique to a farmer, the farmer might see a barrier to adopting the technique in question and make up excuses: the technician has more money, resources, and so forth. But when a peer demonstrates the same technique, that barrier dissipates. The excuses no longer hold because they are the same. (personal communication, May 1, 2020)

Eduardo's experience consolidates Rodrigo's statement. Though not all farmers to whom Eduardo has spoken were receptive to learning about permaculture, he gained their attention when they could see how permaculture affected his vegetable plot (personal communication, March 4, 2020).

This relates to the practical approach of IMAP's education program. Denis mentioned that as many people from the communities in and around *San Lucas Tolimán* are Evangelical, the church explicitly disdains everything connected to the ancient *Kaqchikel* cosmovision (personal communication, March 17, 2020). Consequently, it proves difficult to convince them of the value of ancestral knowledge embedded in permaculture: both Don Benjamin and Eduardo experienced this when promoting amaranth and chia in their respective communities (personal communication, March 4, 2020; March 10, 2020). Denis argues that a practical approach to education solves this problem, as people can see that ancestral knowledge is not satanic or pagan and can in fact be useful for farmers while also benefiting nature (personal communication, March 17, 2020). Take Eduardo's example, people saw how permaculture improved his vegetable garden

and this incentivized them to learn more about permaculture. A practical approach thus facilitates the diffusion of permaculture in *San Lucas Tolimán*. However, Rafael noted that practical education does not work for every group. When he teaches the PDC to a group with little prior knowledge about agriculture, they need to process a considerable amount of new information. If they were expected to apply this knowledge immediately to an agricultural practice, such as sowing seeds, they might be so distracted by this task that they are unable to memorize the information at hand (Rafael, personal communication, April 14, 2020). Evidently, this is a common issue with international course participants not shared by local farmers who participate in PDCs.

As mentioned, the mode of instruction partly depends on the audience. To tailor fit the course to the audience, IMAP's courses have different instructors. Rafael often teaches international and Latino groups, as he is Latino himself and speaks both English and Spanish fluently (personal communication, April 14, 2020). German, Ilma, and Roberto are more involved in the diffusion of permaculture in the local community, through courses or collaboration with local communities, as they are *Kaqchikel* themselves and therefore have a better understanding of the cultural context (Rafael, personal communication, April 14, 2020). Following Gorman (2002), this prevents miscommunication between the instructor and the course participants. As discussed in chapter 2, Gorman (2002) argued that tacit skills and tacit knowledge shape individuals' perceptions of their environment. These tacit skills and knowledge are shaped within a certain society or community, and therefore vary between communities. Hence, miscommunication or misinterpretation might occur if the taught knowledge was generated in a different cultural or ontological setting (Gorman, 2002). When the instructors are members of the same community as the course participants, this becomes less likely. This is exemplified by the work of Don Benjamin and Eduardo in their respective communities.

## Conclusion

Returning to how the permaculture principles are adopted and diffused in *San Lucas Tolimán*, I distinguished three types of diffusion: the education program (courses and workshops offered by IMAP), the collaboration with locals from *Pachitulul*, and the farmer-to-farmer communication. Only the first is shaped through IMAP's pedagogical strategy, which aims for a horizontal and practice-oriented mode of instruction. However, the courses offered by IMAP are also tailor-fitted to the course participants, which sometimes results in less horizontal or practice-oriented education, but according to Rafael this is mostly the case for international audiences. Nevertheless, the promoters, Don Benjamin and Eduardo, whose work is inspired by the CAC methodology, also engage in linear modes of instruction when sharing permaculture with their communities: they simply repeat what they learned at IMAP. But as they are from the same community, there is no barrier between the instructor and the recipient of the information. They are equals. Moreover, the promoters mostly rely on practical education to convince their peers of the benefits of permaculture (Eduardo, personal communication, March 4, 2020) and to provide them with personalized advice (Don Benjamin, personal communication, March 10, 2020). Ferguson & Lovell (2013) state that permaculture is not based on a strict set of ethics and principles but is developed on the practical experiences of farmers rather than on scientific advances. This seems to be the case in *San Lucas Tolimán*, though more so for the promoters and their communities than for the courses offered by IMAP. Perhaps the most important aspect of the education program at IMAP is that it prioritizes understanding the context and the needs of the audience and tries to offer education that corresponds to these needs.

## Chapter 7

### The Ontological Trinity:

#### Cherry-picking from Permaculture, the Mayan Cosmovision, and Christianity

Prior to coming to Guatemala, I assumed that an ontological interaction was occurring between the permaculture philosophy and the Mayan cosmovision. As such, I overlooked the more dominant ontology present in the interaction: the Christian ontology. The ontological interaction is, in fact, a trinity. Most *Kaqchikel* Mayas in *San Lucas Tolimán* are Christians, and besides the *traje típico* and the *Kaqchikel* language, they no longer share their culture or ontology with their Mayan ancestors, for their Christian faith clashes with the Mayan cosmovision. The diffusion of permaculture in *San Lucas Tolimán* is therefore not the main goal, but rather, it serves to revitalize the Mayan cosmovision, which is considered an integral part of the permaculture philosophy in this area. The aversion towards the Mayan cosmovision and its intricate connection with permaculture poses a challenge to the diffusion of permaculture in the Christian communities in the *San Lucas Tolimán* area. Yet the employees of IMAP, as well as the promoters, are the prime example that the ontological reconciliation of the permaculture philosophy, the Mayan cosmovision, and Christianity is not impossible: despite their Christian faith, they have embraced permaculture and the Mayan cosmovision as a part of their life. This reconciliation seems to be rendered possible as these *Kaqchikel* Mayas did not entirely adopt the Mayan cosmovision and permaculture philosophy. They seem to cherry-pick elements of each ontology that are useful for them (such as the importance of lunar phases in agriculture). This resonates with Mouffe's concept of agonistic pluralism, where the interaction of multiple ontologies treats all ontologies as equal. In *San Lucas Tolimán*, this has resulted in a mix of all three ontologies.

#### The Mayan Cosmovision and Permaculture

As described in Chapter 4, most *Kaqchikel* Mayas in the *San Lucas Tolimán* area have lost touch with the Mayan cosmovision. However, when I first came to the area, I was unaware of this fact. The first conversations I had with locals were with German, who has worked for IMAP since its foundation, and the promoters, Don Benjamin and Eduardo. I asked them how they experienced the Mayan cosmovision, and their answers led me to believe they maintained a strong connection with it. For example, Eduardo told me that ancestral knowledge has key implications for agriculture. He illustrated this with the importance of moon phases: "Moon phases dictate energy levels on Earth" (personal communication, March 4, 2020). When working in the gardens at IMAP with German, I learned how much the moon influences agricultural activity at IMAP. German told me that depending on the plant species, seeds should be planted during a specific moon phase (personal communication, March 9, 2020). Don Benjamin also discussed the connection between agriculture and the moon (personal communication, March 10, 2020). He shared that root vegetables should be sowed during a new moon, because during this phase the energy level is highest below ground, whereas other vegetables such as corn and amaranth should be planted during the waxing of the moon, to help them grow tall. Moreover, Don Benjamin emphasized that seasons also guide agricultural practices. For example, in the winter months – in Guatemala these are September, October, and November – the soil is resting, and nothing should be planted.

As mentioned, ancestral knowledge is based on close observation of nature (German, personal communication, March 6, 2020). German told me that the ancient Mayas knew that the earth rotated

counterclockwise around its own axis because nature indicates this (personal communication, March 9, 2020). For example, beans grow counterclockwise around corn crops in a *milpa* system. According to German, the ancient Mayas grounded their knowledge in their environment because they had a deep respect for the earth, animals, and plants – they did not see themselves as separate from nature. Eduardo shared a story with me that illustrates this:

I learned from my grandparents that when sowing corn, we should always sow four grains. I never used to understand why, so I asked my grandparents. They told me that one grain is for the common grackle, who eats it. One is for the white-nosed coati. Another grain is for another animal, I do not remember which exactly. And that leaves the fourth, which sprouts and grows into a corn crop for us. We do this to ensure the crop grows, but also to share our food with the animals. Many people see animals as our enemies because they eat our crops, but animals are our friends. If you do not want animals to eat your crop, you should provide them a different crop so they can eat that one. You do not want to make animals angry and create enemies. That is what our elders taught us. (personal communication, March 4, 2020)

This suggests that the ancient Mayan cosmivision does not share the dualist approach that sees mankind as separate from nature that is inherent to the dominant global ontology (Scott, 2013). As denoted in chapter 5, this aligns with how locals in the *San Lucas Tolimán* area defined permaculture: a holistic approach to (agri)culture that integrates nature and culture. Moreover, Ilma noted that her grandparents engaged in practices very similar to permaculture, it only had a different name (personal communication, March 17, 2020). This is also what Brawner (2015) reported in her ethnography on permaculture in *Shipka*, Bulgaria, where ancestral agricultural practices resembled current permaculture practices, and therefore the unification of ancestral knowledge in Bulgaria as well as in *San Lucas Tolimán* and the permaculture philosophy seems to progress naturally. As such, both the ancient Mayan cosmivision and the permaculture philosophy seem to deviate from the dominant dualist ontology by adopting a more holistic approach to people and nature. Therefore, I did not observe a clash of ontologies – in Mouffe’s (2005) terms, neither antagonism nor agonistic pluralism seemed to accurately describe the interaction between the Mayan cosmivision and the permaculture philosophy.

### Christianity and Permaculture

Before I could scrutinize the Mayan cosmivision and its interaction with the permaculture philosophy in more detail, however, I discovered a more prominent area of ontological difference through my conversations with Rafael. Rafael is not from *San Lucas Tolimán* himself, nor is he *Kaqchikel*. He is from El Salvador and moved to Guatemala to work for IMAP and has lived in *Pachitulum* for several years. He pointed out what German, Don Benjamin, and Eduardo had not addressed in my talks with them: namely that most *Kaqchikeles* are Christians, and that many of them no longer have any connection with the Mayan cosmivision (Rafael, personal communication, March 14, 2020). As stated in chapter 4, the tourist industry uses the Mayan cosmivision for marketing purposes, thereby concealing the current ontological orientation of most Mayas in Guatemala (Hinojosa, 2018). Much of the literature focuses on how the Mayan cosmivision and Christianity have merged into an inclusive yet singular cosmivision (Hinojosa, 2018), while in reality the Evangelical church, which is the largest denomination in *San Lucas Tolimán* according to Rafael, scorns the Mayan cosmivision, thereby forcing many *Kaqchikeles* to cut ties with their roots (Althoff, 2014; Rafael, personal communication, March 14, 2020). As such, I expanded the sub-question I initially posed to include the current ontology of *Kaqchikel* Mayas in the *San Lucas Tolimán* area.

Following Hoover (2017), I did not merely want to rely on academic literature to define and describe the current ontology of *Kaqchikel* Mayas. As such, I asked locals about the interplay between the

Mayan cosmovision and Christianity in the *San Lucas Tolimán* area as well as their worldview. From the previous interviews, I learned that I could not simply ask about their culture or the Maya culture, as the resulting answers had excluded the influence of Christianity from the narrative. As such, I asked the participants about the role of the Mayan cosmovision in their lives prior to their involvement with IMAP; the role of the Mayan cosmovision in their current lives; and how the participants were able to reconcile the Mayan cosmovision and their Christian faith.

First of all, Denis explained the cultural remnants visible in *San Lucas Tolimán* are not necessarily indicative of remnants of the Mayan cosmovision. Examples are the *traje típico* (traditional clothing) and the *Kaqchikel* language. Though women in the Atitlán area mostly wear *huipiles* (traditional blouses), *cortes* (skirts), and *fajas* (belts with embroidery), they no longer indicate from which community a woman stems (Denis, personal communication, March 17, 2020). Ilma told me that historically, *traje típico* differed per town: each town on the shores of Lake Atitlán had its own style and embroidery (personal communication, March 17, 2020). Nowadays, Denis says that the style and embroidery of *traje típico* is subject to change as it follows temporary fashion trends (personal communication, March 17, 2020). Additionally, this type of clothing is used to demonstrate wealth, as *traje típico* is generally more expensive to buy than Western looking clothes (Denis, personal communication, March 17, 2020).

Unlike *traje típico*, Denis fears that the *Kaqchikel* language is in demise. Denis, who was born in the 1990s, along with many of his classmates, was raised in Spanish. He learned to speak *Kaqchikel* because he saw value in this, but he says that young people from *San Lucas Tolimán* tend to only speak Spanish (personal communication, March 17, 2020). Nevertheless, Roberto, who is from a smaller community outside of *San Lucas Tolimán*, stated that it depends on the community and the family whether children are raised in *Kaqchikel*, as well as whether they are taught about ancestral knowledge (personal communication, May 17, 2020). Moreover, Adrien stressed that speaking *Kaqchikel* and teaching ancestral knowledge are not necessarily related: in *Pachitulul*, for example, the main language is *Kaqchikel*, yet people are wary of engaging in ancient Mayan practices (personal communication, April 29, 2020).

Prior to IMAP's foundation, Rodrigo observed the loss of the connection of the community in the *San Lucas Tolimán* area with the Mayan cosmovision and he was determined to restore this connection (personal communication, May 1, 2020). In addition to the change of faith, the Green Revolution had altered agricultural practices as well: *milpa* systems made way for export-oriented monocultures (see chapter 4). Rodrigo started studying many alternative schools of agriculture before settling on permaculture (personal communication, May 1, 2020). Accordingly,

Permaculture combines ancestral knowledge with modern techniques, and it offers an ethic. This ethic is very compatible with the Mayan cosmovision. Care for the people, care for the earth, and equal distribution. Like the Mayan cosmovision, permaculture focuses on the collective rather than on individuals. It is not just about production, but it is a holistic approach to life. Permaculture allowed us to do exactly what we hoped to do: restore the connection with our cultural heritage in- and outside of our community. (Rony, personal communication, May 1, 2020)

As such, permaculture offered IMAP a tool to bridge the divide between ancestral knowledge and agriculture – a divide that has made farmers more dependent on international corporations and has led to unsustainable agricultural practices as discussed in chapter 4. Nevertheless, as described by Althoff (2014), Rodrigo also observed that this divide is very persistent, as the Evangelical church has prompted people to view ancestral knowledge as a pagan and unholy past to be forgotten now that the community has become civilized (personal communication, May 1, 2020). According to Adrien, even the Catholic church, which is often seen as the more tolerant church with regards to ancestral culture, treats *Kaqchikel* practices such as ceremonies as something out of the ordinary that should not be done (personal communication, April 29,



2020). Though the limited duration of my fieldwork did not allow to thoroughly explore the current ontology of *Kaqchikel* Mayas in the *San Lucas Tolimán* area, it seems that the influence of Christianity has contributed to a dualist perception of reality, where human kind is seen as separate from its environment.

As both the permaculture philosophy as well as the Mayan cosmovision maintain a holistic approach to humanity and the earth, this seems incompatible with Christian dualist views held by most *Kaqchikel* Mayas. Nevertheless, while most of IMAP's staff as well as the promoters identify as Christian, they have managed to accept and integrate the Mayan cosmovision in their lives. Eduardo, for example, told me he is teaching his son about the Mayan cosmovision (personal communication, March 4, 2020). He said that "if we do not actively maintain Mayan customs, we will lose touch with our roots" (personal communication, March 4, 2020). While many *Kaqchikel* Mayas in the *San Lucas Tolimán* area take little issue with this disconnect, Eduardo sees ancestral knowledge as something valuable deserving of respect (personal communication, March 4, 2020).

Ilma had a similar experience, though she was a bit hesitant at first. Her Catholic faith had led her to believe the Mayan cosmovision was something bad, but upon learning more about it, she realized that it was not too different from her own values and beliefs (personal communication, March 17, 2020). She grew up being intrigued by nature and carried a deep respect for it. Learning about the Mayan cosmovision made her feel more connected her environment (personal communication, March 17, 2020). Additionally, she became very interested in the Mayan astrology and during the weekly meetings she informs the entire team about the *nahual* of the day and what this means. *Nahuales* are folkloric people who can transform into animals, but they have also been included in the Mayan calendar. There are 20 different *nahuales* and every day a different *nahual* sets the tone for that day (Ilma, personal communication, March 17, 2020). Ilma, like the many others, found that the Mayan cosmovision and Christianity are in fact compatible: "You can call it nature or you can call it God, but in the end, you are thanking the same being. The name does not matter" (Ilma, personal communication, March 17, 2020).

Nevertheless, Rodrigo acknowledges that revitalizing the Mayan cosmovision in communities that associate it with paganism or even satanism is no easy task (personal communication, May 1, 2020). Using practice-based education and the *Campesino-a-Campesino* method as described in the previous chapter, IMAP aims to approach people in such a way that they start to see the value in the Maya cosmovision. Rodrigo argues that people are more receptive of permaculture technologies and practices than of ancestral knowledge, so the former can serve to create a window of opportunity to reconnect communities to their cultural heritage (personal communication, May 1, 2020). Like Eduardo stated, people in *San Lucas Tolimán* are becoming more interested in permaculture and eventually the Maya cosmovision: once they see the practical use, they want to learn more. But this is a slow process (Eduardo, personal communication, March 4, 2020). In chapter 2, I describe Mouffe's (2005) notion of antagonism, which refers to ontological conflict where one ontology dominates another. The interaction between the current ontology of the majority of *Kaqchikel* Mayas and the permaculture philosophy – and by extension the Mayan cosmovision – seems to lean more towards what Mouffe (2005) calls agonistic pluralism, where the interaction is more harmonious. In this case, the dominant ontology stems from the church, whereas the permaculture philosophy and Mayan cosmovision are a minority (Hinojosa, 2018; Rodrigo, personal communication, May 1, 2020). As discussed in the previous chapter, IMAP takes extensive measures to diffuse permaculture and the Mayan cosmovision in a horizontal manner. As such, it does not seem to impose its ontology on *Kaqchikel* Maya communities in the area.

## Conclusion

From my conversations with IMAP's employees and promoters Eduardo and Don Benjamin, I could not decipher many tensions between how they represented the Mayan cosmovision and permaculture. Nevertheless, I opted not to explore this relation in further depth, as I discovered that most *Kaqchikel* Mayas

no longer share the Mayan cosmovision and they no longer feel connected to their cultural heritage. Rodrigo observed this disconnect and he believed that revitalizing the Mayan cosmovision would bring people closer to nature once again and therefore less dependent on destructive capitalist systems (personal communication, May 1, 2020). A persistent issue in the diffusion of the Mayan cosmovision, however, is that the Evangelical and Jehovah's Witness churches all actively disdain ancestral knowledge. Permaculture in *San Lucas Tolimán* thus serves to revitalize the Mayan cosmovision and IMAP promotes a combination of the two to bridge the divide between the Mayan cosmovision and the current ontology of most *Kaqchikel* Mayas. The interaction seems to resonate with Mouffe's (2005) agonistic pluralism, as IMAP does not impose their permaculture philosophy annex Mayan cosmovision on anyone. The previous chapter illustrates how IMAP seeks to include communities in the construction of knowledge, which suggests the interaction is inclusive and harmonious, rather than oppressive.

Moreover, IMAP's employees display that the reconciliation of the dominant Christian ontology in *San Lucas Tolimán*, the permaculture philosophy, and the Mayan cosmovision is possible. I observed that the research participants predominantly focus on specific elements of the Mayan cosmovision to integrate in their daily lives, such as the importance of the lunar cycles in agriculture or astrology. I speculate that the reconciliation of ontologies in *San Lucas Tolimán* is rendered possible because permaculture practitioners can cherry-pick elements of the Maya cosmovision and permaculture philosophy as they please while retaining their Christian ontology. Denis stated that to embrace the Mayan cosmovision, people need to be open-minded (personal communication, March 17, 2020), which suggests that this reconciliation of ontologies might be more or less difficult to achieve depending on the community. The community in *Pachitulul*, for example, is strictly Evangelical, and according to Rafael, this explains why they show little interest in learning about permaculture (personal communication, April 14, 2020).

Nevertheless, as my fieldwork was cut short due to unforeseen circumstances, I was unable to extensively investigate the ontologies at hand: the Mayan cosmovision and the current ontology of *Kaqchikel* Mayas. Therefore, further research is necessary to gain a better understanding of these ontologies and how they interact, using for example Sandercock's (2003) storytelling analysis. I obtained several folklore stories relating to the Mayan cosmovision, but I ultimately refrained from carrying out the storytelling analysis, as I prioritized including the prevalent current ontology. Due to time constraints because of COVID-19, I was unable to collect stories to gain a better understanding of the latter ontology.

## Chapter 8

### The Evolution of Ontologies: Concluding Remarks on Mayan Permaculture in San Lucas Tolimán

#### Conclusions

Permaculture in *San Lucas Tolimán* manifests in complex ways: in this thesis I have merely touched the surface of how permaculture educators and Mayan farmers define, share, and adapt permaculture principles and practices. My fieldwork was limited to permaculture practitioners connected to the *Mesoamerican Institute of Permaculture (IMAP)*, which plays an instrumental role in the education and diffusion of permaculture in the area. As such, I used their network to find research participants. I started my fieldwork with the sub-question 'How do permaculture educators and Mayan farmers define and describe permaculture?'. Through conversations and semi-structured interviews with IMAP's employees and the permaculture promoters, I learned that all the research participants embraced permaculture as more than an agricultural method. To them, permaculture was a holistic approach to life, that was intricately connected to the Mayan cosmovision. In fact, IMAP's founder, Rodrigo, shared that he decided to pursue the diffusion of permaculture precisely because he saw it as a window of opportunity to revitalize the connection with the Mayan cosmovision. Rodrigo deemed this revitalization necessary as he saw that after the civil war, his community had adopted a Christian-based ontology that treated the Mayan cosmovision as something pagan. Simultaneously, with the onset of the Green Revolution, the community had become dependent on global capitalist systems that were both destructive to nature and the community itself. Rodrigo considered that the revitalization of ancestral knowledge would provide a solution to the community's struggle, but as the community had grown aloof towards the Mayan cosmovision, he needed something to reel in the community. Enter permaculture.

In its mission statement, IMAP includes the goal of educating the community of *San Lucas Tolimán* about permaculture. In their conception of 'permaculture', Bill Mollison and David Holmgren offer an educational package that manifests in the Permaculture Design Course (PDC) - which IMAP also offers. Additionally, IMAP offers a wide array of permaculture-related courses and workshops to both international and local audiences. I therefore chose IMAP's Education Program as the starting point for investigating the second sub-question: 'How are permaculture principles adopted and diffused in *San Lucas Tolimán*, Guatemala?'. In their Education Program, IMAP seeks to customize course content and pedagogical style to the audience's need. Theoretically, IMAP aims to offer courses in which both the instructor and the participants contribute to the construction of knowledge while also emphasizing the practical elements of knowledge. However, in practice, the degree to which the horizontal creation of knowledge and learning-by-doing are possible depends on the audience. As such, IMAP prioritizes the audience: if an audience knows little to nothing about farming, horizontal education could result in a less interesting workshop. Nevertheless, in my conversations with former course participants, I learned that all of them were very satisfied with the courses, with regards to both content and pedagogy.

Diffusion of permaculture also occurs outside of the institutional walls of IMAP. IMAP initially hired four promoters to promote amaranth and chia for the Food Sovereignty Program, but these promoters have expanded their promotion to cover permaculture as a whole. Drawing on information they gained from participating in courses offered by IMAP, the promoters emit their knowledge to their respective communities. Nevertheless, the promoters give their own twist to permaculture: they focus on elements that work for them and their community - which often results in a focus on agricultural techniques as opposed

to the entire permaculture philosophy. Consequently, the farmers from the promoters' communities use some permaculture principles, but refrain from adopting the entire philosophy. Ferguson & Lovell (2013) state that though permaculture is based on a strict set of ethics and principles, these principles are continuously developed through the practical experiences of farmers rather than on scientific advances. This seems to be the case in *San Lucas Tolimán* as well.

As such, the permaculture philosophy is redefined by the permaculture practitioners in *San Lucas Tolimán*. As no ontology or cosmovision is static, the permaculture philosophy, the Mayan cosmovision, and the current Christian-based ontology of the *Kaqchikel* Mayas alike are subject to change. The evolution of each of these ontologies in *San Lucas Tolimán* could be explained by the interaction of these three ontologies, which I sought to explore with the final sub-question: 'Are there tensions between the philosophy and practices of permaculture in general and Mayan cosmovision with regards to farming in particular?'. While I found little tension between the Mayan cosmovision and the permaculture philosophy, they clearly clash with the third ontology in this ontological interaction: the Christian-based ontology. This poses a challenge for the diffusion of permaculture, as most *Kaqchikel* Mayas in *San Lucas Tolimán* have adopted the latter ontology and have lost touch with the Mayan cosmovision. However, the permaculture philosophy has created some momentum to revive the Mayan cosmovision in *San Lucas Tolimán* and IMAP utilizes the permaculture philosophy to promote the Mayan cosmovision, without seeking to replace the current Christian-based ontology of community-members. IMAP's employees are the prime example of how the three sets of ontologies can in fact converge: they have adopted elements of both the permaculture philosophy and the Mayan cosmovision while maintaining their Christian faith. This fruitful result suggests that the ontological interaction in *San Lucas Tolimán* is harmonious rather than oppressive, which is what Chantal Mouffe (2005) refers to as pluralistic agonism. I speculate that this interaction is rendered constructive as IMAP's employees cherry-pick elements of each respective ontology to their liking, in order to create a new, personalized ontology that is not internally contradictory. Nevertheless, each ontology as well as the complex interaction that ensues between them in *San Lucas Tolimán* requires more attention to fully understand the ontological turmoil that has unfolded there.

## Discussion

I started my fieldwork with a different organization and in a different location, namely, Atitlan Organics in *Tzununá*, which is located on the other side of Lake Atitlán. Like IMAP, this organization promotes permaculture in the Atitlán area. In my communication with Atitlan Organics, I received a response from the founder of *Granja Tzi'kin*, which was located in the same town. Upon my arrival, however, I learned that contrary to my assumption, this farm was not connected to Atitlan Organics and that the farm served mostly as a hostel and restaurant for tourists. They employed some locals, but their jobs were limited to the kitchen, cleaning the dorms, and construction related tasks. The enterprise was run by tourists for tourists. This site was therefore unsuitable to conduct my research, as I aimed to explore how the local community experienced permaculture, and the involvement of the community in *Tzununá* with the workings of *Granja Tzi'kin* was very limited. Nevertheless, during my travels around the lake, I noticed many similar enterprises where tourists from the Global North had established restaurants or stores for other tourists. In other words, these establishments are unaffordable for the local population. As briefly discussed in chapter 4, the tourism industry in Guatemala has a large impact on the Mayan population. This impact is directly visible in the Lake Atitlán area: the most popular tourist destinations, for example the town of *San Marcos*, are also the poorest: these towns are tormented by drug trafficking and criminal activity. Conversely, I witnessed little poverty (i.e. homelessness) in *San Lucas Tolimán*, which was the least visited town on the shores of Lake Atitlán. As such, this is a topic that calls for more investigation and it should be addressed in future research.

The duration of my fieldwork influenced the depth in which I was able to conduct this research study. The initial duration of my fieldwork was 2.5 months, which was a small timeframe for carrying out

an ethnographic study. However, due to the COVID-19 pandemic, I had to leave after only seven weeks of fieldwork. The short duration of my stay left me with more questions than I had upon arrival, thus providing plentiful inspiration for future research. For example, I was unable to speak to the farmers with whom IMAP's promoters worked, or farmers who had previously taken courses at IMAP. Likewise, I intended to interview the local residents of the community in *Pachitulul*, as this community was strictly Evangelical, yet they worked with IMAP by tending plots on IMAP's land. According to several IMAP employees, the relationship between IMAP and the community members was characterized by strong ontological differences, the absence of their perspective renders my analysis of the ontological interaction incomplete. This thesis has a disproportionate focus on the permaculture educators with regards to the recipients of the education. Future research should attribute more attention to the perspectives of these recipients.

Likewise, the duration of my fieldwork affected my ability to conduct storytelling analysis. Mario Blaser (2013) argues that ontology manifests in stories, and that therefore stories are an appropriate starting point to gain understanding of a specific ontology. In my fieldwork, I was able to touch upon the different ontologies at play - the permaculture philosophy, the Mayan cosmovision, and the Christian-based ontology - yet I was unable to fully comprehend them. Throughout this thesis I used some of the stories I collected to illustrate my findings, and the stories, as well as how they were told and how the narrator learned about the respective story, served as a peek into the worldview of the research participants. As such, I suggest Leonie Sandercock's (2003) approach to storytelling analysis as a method to thoroughly explore these ontologies.

Moreover, in this thesis, I focused on the experience of permaculture educators and farmers with permaculture, how it is diffused, and how it is adapted. Consequently, I mostly learned about the different diffusion methods via conversations with the research participants, as opposed to engaging in these methods myself. For example, I did not partake in a PDC, nor did I participate in a course that was tailored to an audience consisting of local farmers. As such, the different means of diffusion in *San Lucas Tolimán* - courses at IMAP, diffusion by the promoters, and informal networks - could be explored in more depth. Future research could zoom in on the different methods of diffusion to construct a more accurate and detailed account of how they take shape.

This thesis has aimed to show how permaculture, which claims to be adaptable in many different cultural and ecological contexts, has manifested in the community of *San Lucas Tolimán*. While the scope of this thesis was limited by the short duration of the fieldwork, this thesis sets the stage for future ethnographic research on indigenous permaculture in Guatemala. This thesis shows that in *San Lucas Tolimán*, the permaculture philosophy interacts with the Mayan cosmovision and the Christian-based ontology of most community members - an interaction that contributes to the reproduction and evolution of each ontology. In the case of IMAP's employees, the interaction has even led to the creation of a new belief system that incorporates all three. This thesis shows that when the universal concept of permaculture manifested in the Mayan context in *San Lucas Tolimán*, the permaculture philosophy was reproduced through its interaction with local ontologies. Consequently, the universal permaculture philosophy as created by Bill Mollison and David Holmgren and the permaculture philosophy in *San Lucas Tolimán* are not the same philosophy. Or perhaps the permaculture philosophy can only be regarded as universal precisely because of its capacity to be adapted by those who seek to adopt it.

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