A Degrowth Approach to Deforestation: The Zapatista Alternative

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Abstract

Forests are fundamental environmental resources, crucial for biodiversity conservation, carbon sequestration and landscape resilience, and for the survival of all species on the planet. Thus, the phenomenon of deforestation has interested a number of researches, which have identified development dynamics, namely extractivist commodity crop agriculture and indigenous displacement, as its major drivers. Sustainable development (SD) is the most widely accepted approach to curb this phenomenon. However, SD projects have produced mixed results, while opportunities offered by more radical approaches, such as post-development, have been overlooked in the literature. This research takes the example of degrowth as a post-development critique and analyses the case study of the Zapatista Autonomous Communities (ZACs) in the Mexican state of Chiapas. It investigates to what extent Zapatista agricultural strategies mitigate deforestation caused by extractive commodity crop agriculture and indigenous displacement. On the basis of a triangulation of literature review, qualitative content analysis and unstructured interviews, this thesis argues that Zapatista agricultural practices represent a crucial opportunity to mitigate deforestation in Chiapas. Indeed, Zapatista price settlement mechanisms and farming practices offer an effective alternative to extractive commodity crop agriculture and, by fostering the resurgence of indigenous communities, oppose the cultural consequences of indigenous displacement.

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List of Abbreviations

AT	***Associazione Tatawelo***
DESMI	**Association *Desarrollo Económico y Social de Los Mexicanos Indígenas***
MNCs	**Multinational Companies**
SD	**Sustainable Development**
SLL	**Cooperative Society *Ssit Lequil Lum***
TAACM	***Torrefazione Artigianale Autogestita Caffè Malatesta***
YXC	**Cooperative Society *Yachil Xojobal Chulchan***
ZAC	**Zapatista Autonomous Communitie**

"The world we want to transform has already been worked on by history and is largely hollow. We must nevertheless be inventive enough to change it and build a new world."

Subcomandante Insurgente Marcos

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Introduction

The scientific evidence for the anthropogenic nature of environmental degradation was provided decades ago by prominent groups of scientists coming from a wide spectrum of disciplines. This begs, now more than ever, the reconsideration of the relationship between man and Earth. Environmental degradation includes, but is not limited to, climate change, deforestation, ocean acidification, excess of carbon dioxide in the atmosphere, loss of biodiversity, and water, air, and land contamination (Intergovernmental Panel on Climate Change, 2014; Herbert, 2019; Hooke & Martín-Duque, 2012; Lederer et al., 2018; Meadows et al., 1972; Rockström et al., 2009; Steffen et al., 2015). Amongst these, deforestation has interested a number of researches, which have established a direct relationship between development models and deforestation. These argue that extractivist economic development and population pressures have detrimental effects on forest cover (Cortés Calderón, 2018; Sathler et al., 2018). The dominant approach to curb this phenomenon is sustainable development (SD), exemplified by reforestation programs such as UN-led REDD+ or *Sembrando Vida*, initiated by the Mexican government. Nonetheless, these have produced mixed results, while opportunities offered by more radical approaches, such as post-development, have been overlooked in the literature (Fuentes-George, 2016; Tabor et al., 2017; Vassallo, 2019).

In the past two decades, drawing from the post-development critique, a variety of radical alternatives have emerged, such as degrowth, ecological *swaraj*, *buen vivir* and *ubuntu.* These

alternative approaches fundamentally challenge the current international economic and political order, considered responsible for environmental degradation, deepening forms of poverty and inequalities, the weakening of social fabric and dispossession of living beings. Thus, alternatives to development not only oppose the maintenance of the "business as usual" status quo, but also the widely accepted framework of SD. The latter is criticised for its inability to challenge the idea of economic growth, considered economically and environmentally unsustainable; the SD discourse is only an *escamotage,* taken by capitalist institutions to cope with limited resources. These approaches claim the centrality of indigenous institutions and experiences in the reconsideration of the relationship between man and Earth, and their key role in tackling environmental degradation. Nevertheless, alternative experiences are rarely contextualised on a particular environmental challenge, such as deforestation, leaving their ecological consequences unexplored (Brand & Lang, 2019; Daly, 2008; Demaria et al., 2019; Esteva, 2009; Hollender, 2015; Kothari et al., 2014; Kothari et al., 2019; Sachs, 2009; Spangeberg, 2010; Wanner, 2014).

This research takes the example of degrowth as a post-development critique and analyses the case study of the Zapatista Autonomous Communities (ZACs) in the Mexican state of Chiapas. It investigates to what extent Zapatista agricultural strategies mitigate deforestation caused by extractive commodity crop agriculture and indigenous displacement. On the basis of a triangulation of literature review, qualitative content analysis and unstructured interviews, this thesis argues that Zapatista agricultural practices represent a crucial opportunity to mitigate deforestation in Chiapas. Indeed, Zapatista price settlement mechanisms and farming practices offer an effective alternative to extractive commodity crop agriculture and, by fostering the resurgence of indigenous communities, oppose the cultural consequences of indigenous displacement.

The next two sections provide a review of the literature on the deforestation and degrowth debates, and a theoretical framework to investigate the relationship between the two key concepts of agricultural strategies and deforestation. The methodology section explains the research process and

briefly provides background on the two units of analysis, namely the coffee cooperatives Ssit Lequil Lum (SLL) and Yachil Xojobal Chulchan (YXC). Furthermore, deforestation in Chiapas is looked at from a historical perspective, highlighting the key role of extractive commodity crop agriculture and indigenous displacement. Subsequently, the ZACs and their agricultural strategies are analysed through a degrowth lens. The section *Zapatista Coffee Agricultural Strategies and Deforestation* provides the evaluation of how Zapatista coffee agricultural strategies, namely price settlement mechanisms and farming practices, mitigate deforestation in Chiapas. Lastly, the conclusion summarises the findings of the analysis and provides suggestions for further research.

Deforestation and Development

Forests are fundamental environmental resources, crucial for biodiversity conservation, carbon sequestration and landscape resilience, and thus for the survival of all species on the planet. These environmental services are severely compromised when forest cover is lost or degraded, making deforestation, forest degradation and land use changes the major drivers of greenhouse gas emissions, climate change, loss of fresh water reserves and land fertility (Stockholm Resilience Centre, 2015; World Bank, 2016). These global mechanisms have devastating effects on human livelihoods, including health issues, displacement, job and property losses, which disproportionately affect vulnerable groups, such as women and indigenous communities (Indigenous Environmental Network, n.d.; Müller et al., 2016; UNDESA, 2017; World Bank, 2016). Deforestation is defined in this research as “changes in forest cover causing reductions in biodiversity, soil erosion, impacts on water flows and biogeochemical cycling of carbon, nitrogen and phosphorus” (Rockström, 2015; Stockholm Resilience Centre, 2015).

A number of studies, from across the academic spectrum, have explored the relationship between development and deforestation in the Global South. Scholars particularly investigate the effects of extractivist development models on changes in land use and forest cover. Extractivism

dates back to colonialism and is based on the massive extraction of unprocessed or partially processed natural resources for export, which include minerals and oil but also commodity crops and timber (Acosta, 2013, p. 62). In the context of Latin America, the academic debate is focused on the consequences of extractivist development on states' economic sectors, social and economic inequalities (Browder, 1992; Gudynas, 2016; Ocampo, 2017; Orihuela, 2018, 2019). Nevertheless, there is consensus in the literature about how extractive development either caused or exacerbated deforestation, by promoting commodity crop agriculture, massive logging, and mining (Burchardt & Dietz, 2014, p. 469; Cortés Calderón, 2018; Fuentes-George, 2016; Sathler et al., 2018). Commodity crop agriculture is highlighted as one of the major drivers of this phenomenon. This type of cultivation indeed requires both intensive and extensive farming practices, which need large land plots owned by big national producers or multinational companies (MNCs), supported by the use of agrochemicals to enhance production and increase profit. These factors lead to land use change and forest cover loss, soil and water degradation, greenhouse gas emissions and climate change (Angelsen & Kaimowitz, 1999; Bennet et al., 2018; Cortés Calderón, 2018; Leblois et al., 2017; Nations, 1994; Sathler et al., 2018).

In addition, demographic pressures, such as population growth and migration from and to forest areas, often a consequence of extractive development, are also indicated as drivers of deforestation. The underlying mechanisms in this relation are the increasing national and international demand for commodity goods, urban expansion and displacement of indigenous communities (Angelsen & Kaimowitz, 1999; Sathler et al., 2018). Special attention is devoted to indigenous displacement from and to forest areas, since, in this context, socio-cultural dynamics interact with environmental sustainability. Indigenous communities hold conceptions of the forest fundamentally linked to the presence of their life, history and activity. Thus, when they are dispossessed from their land, these links are abruptly interrupted, causing the promotion of individual interest over the ecological one. In addition to this, indigenous communities are pioneers

in the implementation of ecological alternatives (Chatty & Colchester, 2003, pp. 5-6; Gudynas, 2016; Indigenous Environmental Network, n.d.; UNDESA, 2017; Meshack & Griffin, 2002; Kwiatkowska-Szatzscheider, 1997).

The literature linking deforestation and development identifies two major causes of deforestation, namely extractive commodity crop agriculture and indigenous displacement. Nonetheless, a gap emerges, concerning the approach adopted to face these factors. The literature advances or evaluates solutions linked to the theory and practice of sustainable development (SD). SD proposes the revision of productive processes and the design of technology to employ renewable resources, promoting a more environmentally conscious economic and social development. It is the most widely accepted framework for the promotion of economic, social and environmental sustainability worldwide. Yet, it does not challenge the current socioeconomic relationships, deemed responsible for environmental degradation (Brand & Lang, 2019; OECD, n.d.; Rockström et al., 2013; Wanner, 2014; WCED, 1987, para. 27). A number of reforestation programs follow this approach, such as the United Nations program REDD+, the Mexican project *Sembrando Vida*, or the Brazilian National Action Plan for Prevention and Control of Brazilian Amazon Deforestation. Although multiple among these projects manifested mixed results in terms of effectiveness and impact on indigenous communities, limited studies apply a post-development perspective to the issue of deforestation (Chatty & Colchester, 2003; Fuentes-George, 2016; Huaranca et al., 2019; Sathler et al., 2018; Tabor et al., 2017; Vassallo, 2019). Moreover, indigenous protest movements around the world, especially in Latin America, have demonstrated how vulnerable populations are disproportionately affected by deforestation, and the globally uneven distribution of its environmental and socio-economic costs and benefits. This calls for studies which put indigenous responses to deforestation at the centre of the analysis. The post-development critique offers an interesting opportunity in this field (Giovannini, 2016; Givens et al., 2019; Gudynas, 2016; Indigenous Environmental Network, n.d.; UNDESA, 2017). This research is aimed at addressing

this gap, and applies a post-development lens to the issue of deforestation, in particular through the degrowth debate. The following section provides an overview of the debate and its empirical gap.

Degrowth: The Debate

This scholarship draws from the post-development, political ecology and, more recently, ecological economics and decolonial epistemic traditions. It offers a radical approach to the integration of socioeconomic and environmental sustainability, by criticising productivism, economism and the logics of international development more broadly. It originated from the theorisation of *Décroissance* by Gorz in 1972 as an ecological imperative, in contrast with capital growth. The debate was sparked by the OPEC oil crisis and the economic recession that followed, but the idea was abandoned after neoliberal policies emerged as a response to the crises of the international economic system (Kallis et al., 2015, p. 24). During the late 1990s and early 2000s, the degrowth debate was revived as a critique to the SD discourse, sustained by international organisations, and became the main claim of green and anti-globalisation movements in Mediterranean countries, such as France, Italy and Spain (Demaria et al., 2019, pp. 3-4; Kothari et al., 2014, p. 369, 2015). Degrowth rejects the idea of economic growth as a social objective and challenges the marketisation and commodification of societal relations. Growth is criticised for its social and ecological consequences, and for its hegemonic power to eclipse ecologically friendly and egalitarian alternatives (Akbulut et al., 2019, p. 2; Brand & Lang, 2019; Daly, 2008; Esteva, 2009; Rodríguez-Labajos et al., 2019; Spangeberg, 2010)

Through the recent contributions of decolonial and ecological economic scholars, the degrowth debate emancipated from the European experience, explored paths beyond privilege and evolved from a critique of consumption to a critique of domination. The literature argues that colonial, neoliberal, and extractive growth models fuel not only overconsumption but also deprivation, depending on different geographic and social locations. The debate looks at the unequal

distribution of environmental benefits and at the unequal and unsustainable allocations of environmental burdens, which these development models encompass. Scholars highlight that nations of the Global South, and vulnerable groups as indigenous communities, are structurally positioned as both a tap for resources and a sink for waste within the global economic system of extraction, production and consumption. (Akbulut et al., 2019, p. 2; Givens et al., 2016; Gudynas, 2016, pp. 723, 725, 727; Nirmal & Rocheleau, 2019, p. 470; Rodríguez-Labajos et al., 2019; Singh, 2019). The literature employs Zapatista Autonomous Communities (ZACs) in the Mexican state of Chiapas and Adivasi communities in the Attappady region of India as main examples of degrowth experiences. These illustrate pathways to autonomy, sufficiency and resurgence against capitalist and extractive development logics (Demaria et al., 2019; Martel, 2019; Nirmal & Rocheleau, 2019). Synthesising the approaches reviewed above, degrowth is defined in this research as "the project for an economically, socially and ecologically just society, encompassing the democratically-led, redistributive downscaling of production and consumption (*economic*), the reorganisation of society with new functions, activities, forms and uses of energy, relations, gender roles, allocations of time between paid and non-paid work and relations with the non human world (*societal*), and the overcoming of patterns of colonial domination (*decolonial*)" (Akbulut et al., 2019; Demaria et al., 2019; Normal & Rocheleau, 2019). Three dimensions of degrowth emerge from this definition, economic, societal and decolonial.

However, an empirical gap emerges from a close examination of the literature. This scholarship fails to furnish a critical evaluation of the experiences of degrowth-based livelihoods, and their implementation strategies. The strategies employed by Zapatista and Adivasi communities in their paths to autonomy, sufficiency and resurgence, such as independence from the state and the rejection of extractive development logics, are rarely situated in a broader political, socioeconomic and environmental context. A research gap exists in the field of how degrowth communities "reconfigure - or try to reconfigure - territories, places and states along the way" (Demaria, 2019, p.

22). The political, social, economic, and ecological consequences of degrowth implementations strategies remain, thus, unexplored. It is especially crucial to explore ecological consequences, since the concept was born as an ecological imperative, and its ultimate aim is a socially, economically and ecologically just society (Akbulut et al., 2019; Kothari et al., 2014). This empirical gap makes the Degrowth literature vulnerable to the "romanticisation" of degrowth-based livelihoods and weakens its explanatory power and transformative potential. This research is aimed at addressing this gap, providing an ecological evaluation of degrowth strategies implemented by Zapatista indigenous communities.

The causes of deforestation have been identified as extractive commodity crop agriculture, and indigenous displacement. However, there is a theoretical gap in the literature, since post-development approaches addressing these factors, centred on the indigenous experience, have been overlooked. On the other side, the post-development approach of degrowth has looked at how indigenous communities in the Global South oppose extractive development logics, but has failed to critically evaluate the ecological consequences of degrowth implementation strategies. This research is aimed at addressing these gaps, by evaluating the effects of degrowth agricultural strategies on deforestation, through the case of the Zapatista social movement in Chiapas. The agricultural sector was selected among others, such as education or armed resistance strategies, due to the dominance of farming-related activities in the Zapatista economy. The research question is articulated as follows: *to what extent do Zapatista agricultural strategies mitigate deforestation caused by extractive commodity crop agriculture and indigenous displacement?* The following section clarifies essential concepts for the articulation of the main argument.

Agricultural Strategies and Deforestation

Agricultural strategies are defined by the researcher as "the set of price settlement mechanisms and farming practices, namely cultivated species and farming method, aimed at the

production and sale of a particular crop". The selected crop is coffee, the most widely cultivated within ZACs. Extractive coffee agricultural strategies involve cultivations in large, sun-exposed land plots, owned by MNCs and worked by small farmers, often underpaid, with devastating effects on deforestation (Dietsch et al., 2004; Zamudio & Miranda, 2019). The literature highlights two dimensions of this relationship: price settlement mechanisms and farming practices. Price settlement mechanisms concern the way crop prices are established. In extractive systems, coffee prices are set in the international stock market, and are, thus, extremely volatile. Small, independent farmers have limited accumulated wealth and access to credit; therefore, in case of coffee price drops, these could be so low that farmers lose money if they harvest or struggle to meet subsistence levels. Therefore, farmers either leave for the city, abandoning or selling their land to MNCs, or continue to grow crops but have to clear forest on and around their farms, to sell the timber and enlarge their cultivation, leading to deforestation (Blackman et al., 2005; Meyfroidt et al., 2013). Furthermore, farming practices are divided in cultivated species and farming method. The main coffee species are Coffea Canefora (Robusta) and Coffea Arabica (Arabica). Robusta is preferred by MNCs employing conventional agricultural techniques, as it requires sun-exposed cultivation, more suitable for both intensive and extensive methods, and for this reason linked to deforestation. On the other side, Arabica coffee requires cultivation under a canopy of shade trees. Farming methods concern the use of chemical pesticides, connected with deforestation, soil and water contamination and biodiversity loss. In opposition, agroecological and organic methods prohibit the use of chemicals and forbid deforestation. Thus, protection from price fluctuations, shade cultivation of Arabica coffee and agroecological or organic farming methods are agricultural strategies that mitigate deforestation caused by extractive commodity crop agriculture (Blackman et al., 2005; Dietsch et al., 2004; Hylander et al., 2013; Jurjonas et al., 2016; Meyfroidt et al., 2013; Tadesse et al., 2014). The literature on the Zapatista movement briefly describes agricultural strategies as more

respectful of forests, thus, this research further evaluates their impact on deforestation (Nirmal & Rocheleau, 2019, p. 474).

Furthermore, it is crucial to establish how these can impact deforestation caused by indigenous displacement. Indigenous displacement can be understood as "induced dislocation of indigenous communities from a specific ecological niche without geographic boundaries, namely the forest" (Meshack & Griffin, 2002, p. 261). For this purpose, the degrowth literature provides the conceptual tool of resurgence. Resurgence encompasses "resistance to domination, joined with the recovery, renewal, or reinvention of interspecies and social relations in and across places and times". It takes place through re-rooting and re-commoning, respectively the "reinforcement of existing roots, re-establishment of rootedness in lost and recovered places, or the establishment of new roots of uprooted, displaced or new cultures in new spaces" and the "re-establishment of an ethos of the commons, relocalising economic exchanges and reconstituting them outside or alongside markets" (Nirmal & Rocheleau, 2019, p. 472). This process opposes patterns of promotion of individual over ecological interest caused by the displacement of indigenous communities. Zapatista agricultural strategies are displayed as instruments of resurgence in the literature and this research investigates how this might mitigate deforestation (Nirmal & Rocheleau, 2019, p. 479).

The argument advanced in this research is that Zapatista agroecological shade coffee agroecosystems, managed by democratic cooperatives and sustained by international solidarity networks, offer an effective alternative to extractive crop commodity agriculture. Furthermore, these strategies enable the resurgence of indigenous communities, opposing the cultural consequences of indigenous displacement. These two factors suggest that Zapatista agricultural strategies offer a crucial opportunity to mitigate deforestation in Chiapas. The following section illustrates the research process underlying this thesis, and provides justification for case selection, data collection and analysis choices.

Methodology

The Zapatista Autonomous Communities (ZACs) in Chiapas were selected as they embody all three dimensions of degrowth, economic, societal and decolonial. Moreover, there is a rich literature dealing with the topic, compared to other experiences which are almost exclusively dealt with by the degrowth literature, such as the Adivasi case. ZACs resist capitalism, extractivist growth and the sociopolitical domination of the Mexican state. They created a space to realise the ecological integrity and autonomy of indigenous communities, by downscaling and re-shaping production, commerce and services. Furthermore, the case resulted relevant for the effects on deforestation, as Zapatistas contest land-grabbing practices for extractive development purposes, and the negative consequences of neoliberal policies, especially uncontrolled land private capital investments in the area, which threaten the environmental integrity of the forest and the indigenous cultural fabric. ZACs heavily depend on the agricultural sector for their subsistence, however their coffee agricultural strategies, as this research attempts to demonstrate, have a mitigating effect on deforestation (Demaria et al., 2019, p. 14; Manuel-Navarrete et al., 2006, p. 3; Martel, 2019; Muñoz, 2005; Nirmal & Rocheleau, 2019; Stahler-Sholk, 2010, 2014). Moreover, Chiapas offers a clear example of deforestation caused by extractive commodity crop agriculture and indigenous displacement. The analysis focused on current practices of Zapatista coffee cooperatives, although historical and ecological contextualisation is provided. The case study format allows for an in depth analysis of the historical, socio-economic and ecological context of the unit of analysis and to achieve high conceptual validity. These were valuable characteristics for this investigation, aimed at applying a degrowth approach to the deforestation debate and evaluating the ecological impacts of particular degrowth implementation strategies (George & Bennet, 2005, p. 19; Halperin & Heath, 2017, p. 217).

In the field of post-development, data collection is generally carried out through selections of primary and secondary literature, ethnography and interviews, analysed through literature

reviews, discourse or qualitative content analyses, since these research designs favour the interpretive nature of the approach. Accordingly, this research was conducted through three main channels. Firstly, a keyword literature search on Google Scholar, using different combinations of the words *Zapatista, agriculture, coffee, Chiapas, indigenous, culture, forest, deforestation* was carried out, and nineteen academic articles were reviewed (for a complete list, see Appendix A). This provided evidence-based accounts of the historical background of deforestation in Chiapas, cultural background of Mayan communities and their relationship with the forest, and effects of coffee agriculture on deforestation in the area. Secondly, a qualitative content analysis was carried out on online resources of ten European and North American solidarity networks involved in the distribution Zapatista coffee, including website entries, presentations of projects in Chiapas and magazine articles featured in websites (for the list of international solidarity networks, see Appendix B). From this analysis, it emerged that there are two active cooperative associations *en rebeldía*, autonomous from government political, administrative and economic reach, cultivating coffee for local use and solidarity export. These are called *Ssit Lequil Lum* (SLL) and *Yachil Xojobal Chulchan* (YXC), meaning respectively Fruit of the Good Earth and New Light in the Sky in Tzeltal language. They are coordinated by the association *Desarrollo Económico y Social de Los Mexicanos Indígenas* (DESMI), which adheres to the Sixth Declaration of the Lacandon Jungle, the latest constitution of the Zapatistas, promulgated in 2005, and therefore sustains the cause of the movement (DESMI, 2016; General Command of the Zapatista Army of National Liberation & Clandestine Revolutionary Indigenous Committee, 2005). Thus, an additional content analysis was conducted on the Internal Regulations and Norms for the Agroecological Production of Coffee of both cooperatives. Thirdly, two unstructured interviews were conducted, via email and on the phone, due to mobility restrictions, with pivotal members of two Italian solidarity networks, who had visited the plantations in Chiapas multiple times and are in constant contact with the cooperatives and farmers (for sample interview with coding, see Appendix C). The unstructured

format allowed for minimal interference from the researcher; interviewees freely explained their perspective on the relation between Zapatista coffee agriculture and deforestation in Chiapas, and highlighted both known and new mechanisms to the researcher (Halperin & Heath, 2017, pp. 288-289). Coding for the content analysis of written documents and interviews was based on the two dimensions of agricultural strategies, farming practices and price settlement mechanisms.

This research conducted a triangulation of three methods, literature review, qualitative content analysis of online resources and regulatory documents and unstructured interviews. This choice was motivated by the commitment to capture the perspectives of the academia, farmers and solidarity networks, and therefore provide a comprehensive, reliable analysis. The scope of the research prevented the inclusion of the viewpoints of the state and international organisations, nonetheless, this could represent a valid suggestion for further research. The following section looks at deforestation in Chiapas from an historical perspective and explores the relationships between its major causes, namely extractive commodity crop agriculture and indigenous displacement.

Deforestation in Chiapas

Deforestation in the South-Eastern state of Chiapas, linked to extractive commodity crop agriculture and indigenous displacement, dates back to the 1500s, when Spanish colonisers established large private estates, *haciendas*, for the production of corn, wheat, beans and for cattle grazing. Large portions of the tempered forest of the Central Highlands and the Eastern foothills, and of the tropical forest of the Lacandon Jungle were cleared, and Chol, Tzotzil, and Tzeltal indigenous populations, who inhabited the area, began to be exploited (Nations, 1994, paras. 4-6; Ross, 2010, paras. 1, 3). Independence and the Mexican Revolution, despite the establishment of communally owned estates, *ejidos*, did little to reform land ownership in the state; national agrarian laws started to be implemented between the 1950s and the 1960s, and a great number of *haciendas* closed, although leaving the population of indigenous descent landless and unemployed, and having

to migrate further into the Lacandon Jungle. This significantly contributed to deforestation, as displaced indigenous populations cleared areas for subsistence agriculture and cattle grazing (O'Brien, 1998). High agricultural commodity prices and government subsidies during the Echeverría administration (1970-1976) exacerbated deforestation, as Spanish-descent and indigenous people alike converted tropical forest areas for commercial farming and livestock production, aimed at the sale of coffee, bananas, palm oil, cattle, and lumber on international markets (Looney, 2019, p. 89). Poor and marginalised indigenous communities were further pushed into already degraded areas of the forest by big coffee companies and cattle ranchers, coming from the states of Tabasco and Veracruz, incentivised by these policies (Kwiatkowska-Szatzscheider, 1997, p. 270-273). These dynamics were aggravated by massive logging, oil exploration, timber extraction, and the introduction of nonnative farming practices and cattle ranching, representing a constant threat to the fragile forest ecosystem. Traditional swidden agriculture techniques were abandoned, in favour of intensive and ecologically unsustainable methods, more suitable for growing populations, such as tillage (Blackman et al., 2005, p. 1; Chavarría-Resendez, 2011; Henderson, 2017, p. 7; Nations, 1994, paras. 2-10; Grubačić & O'Hearn, 2016, p. 110; Jurjonas et al., 2016, p. 4; Ross, 2010, paras. 2-5; Rus et al., 2003, pp. 2-3; Stahler-Sholk, 2014, p. 197).

The connection indigenous groups of the Chols, Tzeltals, and Tojolabals had established with the forest in centuries of civilisation had faded, due to their eviction from the highland, foothill and jungle areas by Spanish conquerors, their exploitation in *haciendas* and the continuous displacement during the 1900s. The indigenous, subaltern conception of the forest is indeed fundamentally dependent on the presence of indigenous life, history and activity, and it cannot prescind from the experience of human settlements, villages and cultivations (Gollnick, 2008). The severance of tribal connections weakened the traditional regulations governing land ownership, promoted individual over community interests, and broke the ties between indigenous identity and the native place; when communities were displaced, their commitment to ecological sustainability

was altered, and the environment came to be increasingly conceived as a resource to exploit, thus leading to massive deforestation (Nations, 1994; Kwiatkowska-Szatzscheider, 1997; Ross, 2010).

The previous two sections highlighted how, in the case of Chiapas, dynamics of extractive commodity crop agriculture and indigenous displacement are closely interdependent in their effect in deforestation. In reaction to national and international concern, Mexican governments declared part of the Lacandon Jungle as owned by Lacandon Mayas in 1971, established the Montes Azules Biosphere Reserve in 1978, and, more recently, initiated SD programs such as *Sembrando Vida* in 2019, aimed at the plantation of a million trees in 19 states, including Chiapas, fighting deforestation and creating jobs, and thus reducing poverty and immigration to the United States (Jurjonas et al., 2016, p. 3; Nations, 1994, para. 15; Vassallo, 2019). However, these policies have fundamental flaws. The attribution of land ownership in the Lacandon Jungle to only one indigenous group exacerbated ethnic divisions and resulted in increased deforestation and violence (Nations, 1994, paras. 10-14, 16). Moreover, the *Sembrando Vida* project is correlated with increased deforestation, as many impoverished peasants cleared pieces of the forest to plant new trees, to receive the 5000 pesos compensation (Associazione Tatawelo Interview, 2020; Diaz, 2020; Secretaría de Bienestar, n.d.; Vassallo, 2019). Government attempts to curb deforestation implementing SD policies proved to be inefficient and highlighted the complexity of the ecological and social dynamics behind deforestation in the state, caused by centuries-long, interdependent patterns of extractive commodity crop agriculture and indigenous displacement. The following section introduces the historical origins of the ZACs, and delves into the degrowth characteristics of their ideology and strategies.

The Zapatista Autonomous Communities (ZACs)

The historical and ideological origins of the Zapatista movement draw from indigenous Maya conceptions of participatory democracy, the research for a reform of social justice and for the

strengthening of social capital of the Christian Liberation Theology, the articulation of claims for indigenous land property rights, which date back to the Spanish colonisation, and the series of agrarian rebel movements of the 20th Century, which were repressed, coopted and/or covered by the state. Moreover, since 1968, leftist activists had moved to the Lacandon Jungle, and clandestinely organised deprived peasant communities, unsatisfied with their socioeconomic, political and environmental conditions. Furthermore, external political and economic factors exacerbated discontent. In the 1980s, a drop in coffee prices, one of the main crops cultivated in the area, was aggravated by the sovereign debt crisis. Moreover, in 1992, land redistribution was suspended due to neoliberal state reforms, implemented in preparation to the participation in the North American Free Trade Agreement, which in 1994 opened the Mexican market to cheaper foreign goods (Martel, 2019, p. 1; Nirmal & Rocheleau, 2019, p. 474; O'Neil et al., 2018, p. 598; Stahler-Sholk, 2014, pp. 189-190; Zaga Szenker, 2014, pp. 10-12).

On January 1st 1994, the insurgency of the Zapatista Army of National Liberation (Ejército Zapatista de Liberación Nacional, EZLN) began, supported by civil indigenous communities, with the seizure of some cities in Chiapas, the occupation of agricultural land and the establishment of the ZACs. After 12 days of civil conflict, the EZLN signed a truce with the Revolutionary Institutional Party government led by President Salinas de Gortari (1988-1994). In 1996, The EZLN signed with President Zedillo (1994-2000) the Accords of San Andrés, which made considerable concessions in terms of autonomy and recognition of indigenous rights. However, the government never ratified the accords and when, in 2001 the Zapatistas protested by marching in Mexico City, the National Action Party government led by Fox (2000-2006) approved more limited Indigenous laws, which reneged the original accords, removing key provisions of territorial, autonomous and communal tenure. Nevertheless, the ZACs still recognise the Accords as a regulatory framework, and continue to administer the territories they control accordingly (Nirmal & Rocheleau, 2019, pp. 474-475; O'Neil et al., 2018, p. 598; Stahler-Sholk, 2014, pp. 192-193; Zaga Szenker, 2014, pp.

9-10). In addition to this, since the insurgency in 1994, a low intensity civil war started between the national military and the EZLN, with alternating degrees of violence, causing massacres, internally displaced people and dwelling damages; the conflict has currently intensified, due to the "circling" the Obrador administration (2018- in office) is carrying on EZLN controlled areas (Grubačić & O'Hearn, 2016, p. 151; Torrefazione Artigianale Autogestita Caffè Malatesta [TAACM] Interview, 2020; TAACM, 2020; Zaga Szenker, 2014).

The ZACs embody the three dimensions of degrowth: it is an indigenous peasant movement, which fights extractivist capitalist development by restructuring social and political relations from below, and downscaling production to respect the ecological and human realities of Chiapas. ZACs resist the dynamics of political domination by reframing the concept of power and autonomy. The communities are not interested in capturing state power but rather in transforming society from below and challenge capitalism as a global paradigm; the state is conceived as a mere regulator of capitalist accumulation sanctioned by neoliberal globalisation, stripped from its social and political functions and which only instrument is the repressive force (Esteva, 2019, p. 100; Grubačić & O'Hearn, 2016, pp. 123, 149, 159-160; Leyva-Solano, 2019, p. 335; Stahler-Sholk, 2010, p. 270). ZACs redefine power and politics through their everyday practices in society, and the actions of ordinary people. The pursuit of environmentally conscious livelihoods and the claim to exercise the existing indigenous right to autonomy beyond the state system are instruments for communities to collaborate and resist capitalism (Stahler-Sholk, 2010, p. 273). To realise this bottom-up, territory-based autonomy, ZACs are organised in Caracoles, administration at the state level, Good Governance Councils, financial administration at the state level and Zapatista Autonomous Rebel Municipalities, administration at the municipal level, which are delinked from the state's bureaucratic hierarchy. ZACs autonomously establish their collective control and community-based decision-making, including the respectful management of natural resources. Indeed, the Zapatista Revolutionary Agrarian Law calls for an end to "the plunder of our natural wealth", mandates the

preservation of forested areas and the reforestation of logged-out ones (Grubačić & O'Hearn, 2016; Leyva-Solano, 2019, pp. 335-336; Ross, 2010, para. 16; Revolutionary Agrarian Law of 1993, para. 13; Stahler-Sholk, 2010; Zaga Szenker, 2014, pp. 14-15).

Agricultural strategies are instrumental for the Zapatista resistance to extractivist development (Giovannini, 2016; Nirmal & Rocheleau, 2019). These are carried out through the restoration of ranches and plantations to food production by and for those who cultivate them, through a system of mixed private land ownership and collective *ejidos*. The crops, such as maize, beans, coffee and cocoa, are cultivated through agroecological, low input technologies, with no use of pesticides. Agricultural produce is employed for community subsistence and regional markets, and the production chain is controlled by cooperative associations. Surplus produce enters solidarity networks at the national and international level (Nirmal & Rocheleau, 2019, p. 475). The two coffee cooperatives analysed in this research, *Ssit Lequil Lum* (SLL) and *Yachil Xojobal Chulchan* (YXC), gather around 1300 Chol, Tojolabal and Tzeltal small coffee producers from the Caracoles of Oventic and Roberto Barrios (Associazione Tatawelo, 2015, n.d.; Café Campesino, n.d.; Coop Coffee, n.d.; Massetti, n.d.; Red Emma's, 2015; TAACM, n.d.-a). The following sections explore Zapatista agricultural strategies, implemented by the coffee cooperatives SLL and YXC, and how these mitigate deforestation caused by interdependent patterns of extractive commodity crop agriculture and indigenous displacement. As mentioned above, agricultural strategies involve price settlement mechanisms and farming practices, namely cultivated species and farming methods.

Zapatista Coffee Agricultural Strategies and Deforestation

Zapatista Price Settlement Mechanisms

As mentioned in the section *Agricultural Strategies and Deforestation,* farmers depending on fluctuating commodity prices yield higher risks of deforestation. This dynamic can be seen in the case of coffee production in Mexico. Most coffee production in the country is carried out by small

farmers, with limited accumulated wealth and access to credit, and who can easily sell or abandon their land in favour of MNCs when prices fall. Moreover, when producers are not organised in cooperatives, they rely on *coyotes* to purchase their harvest and sell it in the international market, having to face exploitative prices (AT Interview, 2020; Harvey, 1995, p. 44). The effects of price settlement mechanisms were seen in Mexico after the 1993 coffee prices crisis, when farmers left for the city or continued to grow coffee but cleared portions of forest to sell the timber and grow corn and beans. Thus, deforestation significantly increased in the period 1993-2001 compared to pre-1993 values, especially in areas closer to cities and main roads, where farmers could more easily move and which were considered more convenient by MNCs. MNCs took over the land plots and implemented Robusta coffee, sun-exposed cultivations using intensive techniques and agrochemicals, with devastating consequences for deforestation, soil degradation and fertility loss (AT Interview, 2020; Blackman et al., 2005, pp. 8-9; Diaz, 2020; Meyfroidt et al, 2013).

Contrarily, the SLL and YXC cooperatives have a different price settlement mechanism in place. Beyond production for the relatively small local market, these cooperatives have a direct relationship with European and North American solidarity, thus non-profit, trade networks. Zapatista producers consistently downscaled coffee production, rejecting participation in the wider national and international market, as they resist extractivist trade logics. Therefore, prices are settled by farmers through the cooperative, to cover production costs and their salaries, and obtain protection from price fluctuations and exploitation by *coyotes* (Associazione Tatawelo, 2015; TAACM, n.d.-b). Moreover, through the instrument for pre-financing, some solidarity networks organise every year to advance part of the final payment, so that farmers have a solid base to launch cultivation activities (Associazione Tatawelo, 2015). In addition to this, part of the earnings of these networks is re-invested within the community, in health, education, social infrastructures or production technology, contributing to the improvement of their socio-economic conditions (Associazione Tatawelo, 2015, n.d.; Café Campesino, n.d.; Coop Coffee, n.d.).

The organisation in cooperatives, pre-financing and solidarity trade protect Zapatista farmers from price fluctuations, and overcome one of the major drivers of deforestation. Indeed, farmers are not forced to sell or abandon their land to MNCs implementing intensive, conventional agriculture. In this, they contrast deforestation caused by extractive commodity crop agriculture. Furthermore, the democratic, horizontal characterisation of Zapatista cooperatives, and the alleviation of farmers' subsistence concerns, contribute to re-rooting and re-commoning processes towards ancient Maya cultures of participatory democracy, and communality. Zapatista farmers employ price settlement mechanisms to resist hegemonic dynamics of extractive development and create spaces for new sociopolitical organisations indigenous autonomy, understood as a collective interest. Moreover, these alternative mechanisms represent a bottom-up reinvention socioeconomic trade relations, between farmers, cooperatives and international solidarity networks, and contrast dominant exploitative patterns. These resurgence processes fundamentally oppose the loss of commitment towards ecological, communal interest caused by indigenous displacement and, thus, indirectly tackle deforestation (Nirmal & Rocheleau, 2019).

Zapatista Farming practices: Cultivated Species and Farming Methods

The section *Agricultural Strategies and Deforestation* highlighted how farming practices of Robusta coffee, non organic cultivation are major drivers of deforestation. As mentioned above, this mechanism applies to coffee agriculture in Chiapas, where MNCs cultivations, as Nestlé's, determine massive deforestation, decreases in forest and plantation biodiversity, use of toxic chemicals, and exploitation of small producers (Dietsch et al., 2004; Hylander et al., 2013; AT Interview, 2010; Zamudio & Miranda, 2019). On the other hand, the cooperatives SLL and YXC cultivate Arabica coffee and employ agroecological techniques.

Arabica coffee is cultivated employing a traditional indigenous method, under a canopy of forest trees or semi forest, to block direct sunlight, regulate temperature, prevent erosion caused by

rains and wind and provide organic material naturally (Hylander et al., 2013, p. 1032). The forested land plot where the plantation will take place is prepared by lightly cutting trees, to have three different layers of shade and have room to plant coffee seeds or plants while the original vegetation is largely maintained (AT Interview, 2020; YXC, 2017). In the case of degraded or non-forested areas, shade trees have to be planted, respecting the principles of plant nativity and diversity. Zapatista coffee plantations are forest agroecosystems, natural forest ecosystems that have been modified for the production of food (Associazione Tatawelo, 2015, n.d.; Café Campesino, n.d.; Coop Coffee, n.d.; Hodgson, 2012, p. 4; Massetti, n.d.; Red Emma's, 2015; SLL, 2012; TAACM Interview, 2020; TAACM, n.d.-a; Vassallo, 2017, 2019).

Moreover, SLL and YXC producers employ the method of agroecology. Agroecology applies sustainability principles and techniques in agriculture, respecting the environment and social reality of communities (Associazione Tatawelo, 2015; AT Interview, 2020; Café Campesino, n.d.; Coop Coffee, n.d.; Massetti, n.d.; SLL, 2012; YXC, 2017; TAACM Interview, 2020; TAACM, n.d.-a; Vassallo, 2017). Associated farmers must maintain the natural forest and protect threatened or endangered species, by limiting hunting and commercial extraction of flora and fauna; when pruning, they must preserve the reproductive processes of trees and safeguard the habitat they provide for plants and animals; in addition to this, farmers should carry forest restoration programs with native species in lands degraded by unsustainable cultivation practices. The use of agrochemicals, such as pesticides and fertilisers, is prohibited (SLL, 2012; YXC, 2017). To guarantee the effectiveness of the agroecological self-certification, which is often problematic for official organic certifications due to production-chain control issues, the cooperatives have an autonomous organisation system in place (Jurjonas et al., 2016). The association DESMI, involved with the promotion of agroecological techniques within ZACs, provides constant training to municipal and local technicians on agroecological principles, techniques, and technologies. Technicians are in turn instructed to train associates. Attendance to adjournments is mandatory,

associates are responsible for being up to date on the content of meetings and to implement directions in the plantations. DESMI delegates, with municipal and local technicians, regularly visit plantations, to provide direct assistance to associates, technical evaluation and ensure consistent control of the production-chain (Associazione Tatawelo, 2015, n.d.; Café Campesino, n.d.; Coop Coffee, n.d.; DESMI, 2016; SLL, 2012; TAACM Interview, 2020; YXC, 2017).

Zapatista cooperatives choose to farm in shaded coffee agroecosystems, cultivated through agroecological techniques, to preserve natural resources and care for the forest, soil and water. Moreover, they are motivated by the respect for the ancient indigenous traditions of their heritage and the Zapatista struggle of resistance to extractivist development models. These farming practices preserve forest cover, determining a lower deforestation rate. In addition to this, its negative effects are contrasted. Agroecosystems provide a habitat for biodiversity, of coffee and other plants and animals, at levels comparable to natural forests. They additionally offer valuable ecological services, such as nitrogen fixation, protection from soil erosion and improved soil health, stabilisation of agriculture-forest margins, carbon sequestration, aquifer recharge facilitation and improved water quality (Blackman et al., 2005, p. 1; Dietsch et al., 2004, p. 625; Jurjonas et al., 2016, p. 19). Zapatista farming practices provide a crucial opportunity to mitigate deforestation caused by conventional commodity crop agriculture.

Moreover, farming practices contribute to the process of resurgence of ZACs, by fostering the revisitation and re-appropriation of traditional agricultural methods and ethics, respectful of the forest. Chol, Tzeltal, and Tojolabal farmers re-established their rootedness in the rural spaces of Chiapas and reconstituted the ethos of respect of the forest. Re-rooting must be understood both in terms of a spiritual reconnection with the forest and nature more broadly, as well as a reconsideration of its material utility, and acknowledgement of the cultural, historical, social and economic benefits indigenous communities can draw from the conscious management of natural resources (Gollnick, 2008). Farming practices are tools for Zapatista farmers to resist dominant and

exploitative development models, and reinvent their relationship with the forest, after centuries of marginalisation and dispossession. Therefore, they constitute crucial instruments for the pursuit of ecological justice (Herbert, 2019; Normal & Rocheleau, 2019). These resurgence processes contrast patterns of disconnection from the native environment caused by indigenous displacement, and indirectly mitigate deforestation.

Conclusion

Environmental degradation poses a serious threat to the survival of humanity and all the species inhabiting the planet, and research has long proven its man-made origins. The example of deforestation demonstrates the devastating impact of extractive commodity crop agriculture and indigenous displacement on forest cover, soil and water contamination, biodiversity losses and climate change. Moreover, SD policies have often proven ineffective in addressing these problems. In the past two decades, drawing from the post-development critique, a variety of radical alternatives to the "business as usual" and SD approaches have emerged, such as degrowth. Nonetheless, these have been overlooked by the literature on deforestation. This research aimed to address this gap and additionally provide a critical evaluation of the ecological consequences of degrowth experiences, taking the Zapatista example. From these considerations, a research question emerged: *to what extent do Zapatista agricultural strategies mitigate deforestation caused by extractive commodity crop agriculture and indigenous displacement?* To investigate this relation, this thesis analysed the agricultural strategies employed in coffee cultivation by two Zapatista cooperatives, *Ssit Lequil Lum* and *Yachil Xojobal Chulchan*. Data collection and analysis were conducted through the triangulation of literature review, content analysis of online resources and regulatory documents and unstructured interviews.

This research argued that Zapatista agricultural strategies represent a crucial opportunity to mitigate deforestation in Chiapas, since they offer an effective alternative to extractive commodity

crop agriculture and, by enacting the resurgence of indigenous communities, oppose the cultural consequences of indigenous displacement. Agricultural strategies were operationalised in price settlement mechanisms and farming practices. Zapatista price settlement mechanisms, namely organisation in cooperatives, pre-financing and solidarity trade, were found to mitigate deforestation caused by commodity crop agriculture, by addressing farmers' dependence on volatile international prices. In addition to this, the democratic characterisation of Zapatista cooperatives, and the alleviation of farmers' subsistence concerns contribute to the processes of re-rooting and re-commoning towards ancient Maya cultures of participatory democracy, and to the redefinition of a sociopolitical space for indigenous autonomy. These resurgence processes oppose the loss of commitment towards the ecological, common interest caused by indigenous displacement, thus, indirectly tackle deforestation. Secondly, by choosing shaded coffee agroecosystems and agroecological techniques, Zapatista cooperatives offer an effective alternative to conventional commodity crop agriculture and mitigate deforestation caused by it. Moreover, these farming practices contribute to the process of resurgence of ZACs, by fostering the revisitation and re-appropriation of traditional agricultural methods and ethics, respectful of the forest, thus, indirectly tackling deforestation.

Nonetheless, this thesis displays some shortfalls. Firstly, although the case study format allows for in depth analysis and the uncovering of underlying mechanisms, its generalisability may be limited. Thus, conclusions should be understood within the historical, socio-economic and environmental context of Chiapas. Further research could focus on different degrowth geographies, or approach post-development solutions to deforestation from a comparative perspective. Moreover, the researcher implemented triangulation to capture the perspectives of the academia, coffee producers and solidarity networks. However, due to space limitations, the viewpoints of the state or international governmental organisations were not taken into consideration. This might represent a compelling path for further research, given that most international governmental organisations

support the SD model, while different governments, especially in Latin America, adopted conflicting stances towards ecologic alternatives to development, in particular when these encompassed autonomy claims (Gudynas, 2016, p. 728). Analyses in this field can deepen the understanding of how governmental organisations shape and are shaped by experiences of degrowth, and contribute to build a critical framework within the debate. Lastly, this research focused on agricultural strategies; nevertheless, other factors, such as armed resistance strategies, might uncover different mechanisms of deforestation. Further research, for example in the field of conflict studies, might follow this direction, especially since the recent "circling" policy sanctioned by the Obrador administration on EZLN controlled areas challenges the activity of coffee farmers (TAACM, 2020; TAACM Interview, 2020).

This research contributes to the debate on the effects of development on deforestation, by adopting a post-development approach to the issue. Indeed, this thesis aspired to further bring under the spotlight the role of subaltern subjects, as Chol, Tzeltal and Tojolabal communities, in transforming complex socio-economic relations and in reconsidering the relationship between man and Earth, slowly reversing centuries-old patterns, where large scale projects failed to deliver up to the expectations. The literature begs for further investigation along this track, and studies comparing SD and post-development approaches to deforestation could develop interesting policy insights. Furthermore, this research attempted to promote the contextualisation of the experiences of degrowth in their environmental conditions, such as the Zapatista movement within the long history of deforestation caused by extractive commodity crop agriculture and indigenous displacement in Chiapas. Further research might focus on how these communities are able to reconfigure territories and how they are in turn shaped by them.

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APPENDIX A

List of articles used in literature review for the case study

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APPENDIX B

Names, websites and emails of international solidarity networks

1. Associazione Tatawelo (Italy): http://tatawelo.it , info@tatawelo.it
2. Café Campesino (United States): https://www.cafecampesino.com , info@cafecampesino.com
3. Café Libertad (Germany): https://www.cafe-libertad.de , info@cafe-libertad.de
4. Caffè Malatesta (Italy): https://www.caffemalatesta.org , info@caffemalatesta.org
5. Coop Coffee (United States): https://coopcoffees.coop , info@coopcoffees.com
6. Crema (United States): https://crema.co/home , hello@crema.co
7. Higher Grounds (United States): https://highergroundstrading.com , hello@highergroundstrading.com
8. Progetto Café Rebelde (Italy): http://www.yabasta.it/?article203 , yabasta@sherwood.it , yabasta.bologna@gmail.com
9. Red Emma's (United States): https://redemmas.org/posts/2015-02-visiting-the-farmers-of-yachil-the-zapatista-coffee-cooperative# , info@redemmas.org
10. Rivista Anarchica (Italy): http://www.arivista.org/riviste/Arivista/360/dossier_Chiapas.htm#6 , usis@libero.it

APPENDIX C

Sample interview (AT Interview) with coding: *farming practices* **and** price mechanisms

Language: Italian

- Deforestazione nella Selva lacandona proibita ma avviene lo stesso per corruzione (Comune, Governo, Forestale, guardia Nacional,)
- Roza tumba y quema tecnica indigena per coltivare
- Sembrando vida riforestazione governo banco azteca e vivai —> in realtà indigeni deforestano per poi ripiantare e prendere i soldi
- *Yachil xojobal zapatisti tre livelli di ombra, descrive gli alberi alberi grandi trattenere terreno, pioggia torrenziale e mantenere umidità dilavarsi terreno*
- *Frontera sur video per il metodo rosa tumba y quema, per nomadi pulizia di territorio lasciando piante interessanti e non si ritornava se non dopo dieci anni, dire che sono devastatori non è vero*
- Concetto indigeno della natura è che tu sei parte, è la mamma, amore per la natura, non è funzionale da spremere gente con piante di caffè che hanno 30 anni, ma l'aveva messa mio nonno
- Mettere su piantagione 4 anni
- *Prendi pezzo foresta e prepari, devi tagliare qualcosa per fare livelli dombra, metti semi e aspetti pianta 4 anni*
- *Cosa succede con deforesatzione caffè spinto da governo: porto chiapas e veracruz nestle, caffe che arriva in Messico 100 arabica, Nestle e altra mnc, non vogliono arabica per Nescafe, rende poco non ha gusto, non possono mischiare con zucchero , need caffeina dipendenza da caffè solubile, chiapas e Oaxaca non hanno non estensive, piccole senza pesticidi Zapata*
- *Per far crescere robusta sole, non ombra come arabica*
- Stato sostiene multinazionale da una part e con il sole e dall'alto dice che sta riforestando con sembrando vida

- *Nestle: pacchetto tecnologico risolve tutto: fertilizzanti di agrochimici, pesante inquinamento*
- Deforestazione legata all'olio di palma soconusco —> roya decimando piantagioni, caffe solubile
- *Chiapas Starbucks regalava piantine robusta per roya*
- *Governo regalava RR, ibride arabica e robusta dilavamento terreno, perdita fertilità compensata da fertilizzanti chimici*
- Caffe quotato in borsa coyote quando vuole caffè usa quotazione
- 98 dollari libbra molto basso (metrico inglese) in dollari per 100 libbre al contadino arrivano 6 pesos, indebita, chiede prestito coyote, non paga e vende terreno (nestle e eco…) prendono pezzi terra e riformano latifondi, contadino lavora per il coyote come prima della rivoluzione messicana, prima ejidos, finca alemana cugina Hitler, ricostruendo latifondi facendo lavorare
- Non potevi vendere, tramandare, assemblea governava ejido, governo prova a cambiare legge per far cadere per beneficio dei soliti
- Ejido tilla autonomo, bruciato libri del municipio autogoverno (3 anni) non era già più come prima, dipende dalle zone Messico
- Yucatan governi più di destra, panisti, già distrutto tutto
- Chiapas, Oaxaca ancora ejido forma assembleare dei populi indigeni, come papa, sempre fatto cosi, governatore non ha toccato cosi tanto, usos y costumbres. Tutela diritti indigeni (usos y costumbres) legge nazonale/ statale nelle comunità vigono gli usi i costumi, non possono essere in conflitto, forme di autogoverno
- Università della terra Esteva forma giurisprudenza dell'agricoltura, titolo autonomo, puoi difendere come avvocato —> a volte legge più parole che altro, in sto caso funzia