A political ecology of smallholder oil palm production and forest conservation in the Peruvian Amazon frontier: towards a balanced approach to development

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Dedication:

To the Peruvian Amazon and the living beings that you host, thank you for sharing your inspiring beauty with me. For making me brave enough to do things, fight for things and survive things I never thought I could. You made me feel feelings I never knew existed. You taught me patience and humility, and you fired my passion. You made me profoundly aware of my own mortality, and at peace with that awareness. You changed me completely.

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Unkempt Smallholder oil palm farm and home in Curimaná. Photo: Author’s own

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Abstract

Through its meteoric rise to the top of the vegetable oils sector, palm oil has become one of the most contentious commodities on the planet. In recent years, the sector is increasingly spreading into new 'frontiers' in Latin America and Africa. There is concern about the prospect of oil palm projects being implemented in contexts where the socio-political and environmental dynamics of land and resource use are not adequately understood. This thesis presents a historical political ecology of oil palm in the Peruvian Amazon frontier region of Ucayali. The three pillars of the sustainable development agenda (social, environmental and economic) are used as a heuristic to facilitate the wider communication of the researching findings, with a focus on forests, livelihoods and society. The central premise of the thesis is that socio-environmental questions related to sustainable development are fundamentally political questions. The research deepens understanding about the scantily articulated dynamics and interaction between international commodity markets, land and resource access and use, and a poorly understood smallholder reality in the Amazon. A multi-methods approach including 450 surveys, 350 stakeholder interviews, visual remote sensing of 2,447 hectares of smallholder land and 14 months of participant observation is employed to critically explore social, environmental and economic aspects of smallholder oil palm production on the Ucayali forest/farm landscape.

Empirical findings reveal that oil palm is having a profound, but not always negative socio-environmental and economic impact in the study site, and that outcomes were highly dependent on specific modes of production, as well as international, national and regional policy that is not always directly related to oil palm. Political dynamics such as political regimes, unequal power dynamics, poorly planned and implemented decentralization of government power and vertical and horizontal multi-level governance contexts including trade and development agreements are important underlying drivers of environmental and social change in the region. However, common misconceptions about particular resource users (small and large holders) and crop types (e.g. oil palm) are other important political factors influencing socio-environmental change and acting as barriers to effective forest conservation and sustainable use in the region. Rural smallholders are highlighted as skilled resource managers that lack not in capacity, but rather in opportunity to engage with a sustainable development agenda. Many constraints to opportunity are policy and politics centred. Findings reveal opportunities for forest conservation and regeneration that can include these poorly understood smallholding groups without significantly altering or compromising their production strategies, crop choices, access to resources or cultural integrity.

Chapter One: Introduction

"There is no ecological crisis, there is a political crisis" – José Mujica
(speech delivered at the Organization of American States, Washington, 2014)

1.1 Introduction brief

This research was inspired by the following observations: When agricultural commodities are traded globally, consumer demand in one region influences the crops planted in another, often leading to widespread environmental and socio-economic transformation at production sites (Kapp, 1950; Vandermeer & Perfecto, 2005; McCarthy, 2010; Rival and Levang, 2014; Rist et al., 2010). These transformations happen through different development pathways that range from international capitalistic market, trade and political dynamics, to rural poverty alleviation agendas at different scales of governance (Meyfroidt 2014, Cramb 2016, Pacheco 2018). Once new development strategies reach rural social-ecological spaces they can be accepted, contested, changed or even ignored or abandoned depending on how well suited they are to already established cultural ways of being and/or time-specific or historically shaped political contexts (McCarthy 2002, Hecht 2010). These development pathways together with regionally specific embedded political ecologies including livelihood production, power dynamics, labour relations and land, water and resource access and use result in different modes of commodity crop production on large estate and smallholder farms and different socio-economic and environmental dynamics, impacts and outcomes therein (Hall, Scoones et al. 2017).

Palm oil is a commodity that at once embodies the status quo of the consumer demand/producer reality context of globally traded commodities, and novel in that its commercial boom coincided with a sustainable development agenda that ostensibly supports environmental conservation, poverty alleviation and economic equity in development

endeavours. Sixty percent of global palm oil is produced on large private plantation estates, and 40% by smallholding producers (RSPO 2018). Although non-indigenous smallholders are often the local demographic targets of rural development and poverty alleviation activities, they continue to be poorly understood (and often *mis*understood), and oil palm producing smallholders are no exception despite their prevalence in the sector.

The various modes of production of the oil palm sector are usually scrutinized, debated and critiqued from the perspectives of the three pillars of the sustainable development agenda: environmental, social and economic. However, to date the bulk of these discussions have been focussed on the environmental impact of large-plantations, with far less attention on environmental outcomes of smallholder production, and less attention again on socio-economic metrics of smallholder realities, especially in new production frontiers. The Ucayali region of the Peruvian Amazon is one of these frontiers.

Therefore, this research uses a case study in the Peruvian Amazon to pose the following central questions:

a) How has the establishment of oil palm for development in the Peruvian Amazon impacted forests, social relations and welfare and livelihoods in Ucayali, Peru?

b) What lessons can be drawn for 'sustainable development'?

1.2 Background

1.2.1 The global oil palm boom: Pathways to expansion on large and small farms

The oil palm (*Elaeis guineensis*) has become one of the most rapidly expanding equatorial crops in the world, the total cultivated area now accounting for more than one tenth of the world's permanent cropland (Corley 2015, FAO 2017). Palm oil records a staggering 39-fold increase in thirty years, the biggest volume increase of any vegetable oil in the world and it is now the most widely used vegetable oil on the planet, accounting for 34% of the global vegetable oil production (ibid.). It is the world's highest yielding and least expensive vegetable oil (Lowder, Skoet et al. 2016) and as such it is the preferred oil for products ranging from biofuels and energy, consumer retail, food and snacks, personal care and cosmetics, animal feed, pharmaceuticals and food /the service industry (Borras, Franco et al. 2015). Currently, 85% of oil palm is produced in Indonesia and Malaysia but rapid expansion is now taking place in other tropical sites, known as "frontiers" (Kuepper 2016, Vijay, Pimm et al. 2016, Furumo and Aide 2017).

The exponential global demand and burgeoning market for palm oil has generated windfall profits for the sector and made oil palm plantations hot targets for investment by financiers cashing in on the palm oil boom across the tropics. Wealthy business moguls control most of the biggest corporations in the palm oil industry, especially in Asia (Kuepper 2016, Steinweg 2017). The proliferation of production on large estates is done through forging international investment, trade and land use agreements that open-up investment-heavy agro-market opportunities, a process I call "international capitalist pathways" in the discussion next chapter.

Boom crops also proliferate through other socio-political pathways. For example, the considerable growth of new agro-commodity sectors is often recognised for the contribution they could make to rural economic development and poverty alleviation through smallholder production or plantation labour (Mingorría 2014). As such international development organizations and governments across the tropical belt often promote such crops as part of their rural poverty alleviation and livelihood improvement strategies, and oil palm is such a crop (MINAG 2001, Susila 2004, Feintrenie 2010, Bank 2011, Feintrenie 2013). Different development agendas and approaches have resulted in a wide variety of modes of smallholder production [1], each with different inherent terms, benefits and trade-offs and social, environmental and economic outcomes (Vermuelen 2010, Mingorría 2018).

1.2.2 Environmental, social and economic challenges and opportunities of oil palm

In the 1960s global concerns about environmental degradation at the hands of economic development activities such as agro-commodity booms were dubbed an 'ecological crisis', and the long-time antagonistic relationship between the goals of economic development and environmental protection intensified (Shiva, 2016) as those in favour of rural economic development often viewed initiatives towards environmental protection as a brake on growth (Rees, 2003). For a long time, there was a shared perception between both environmentalists and economists at high-level fora of a basic trade-off between the two objectives (Reitan, 1998). Eventually, conservation discourse begun to converge with development discourse to create a sort of hybrid agenda which led to the popularization of the concept of *sustainable development* in 1987 by the World Commission on Environment and Development (Brundtland 1987). The new paradigm moved away from previous separatist archetypes of

[1] By 'mode of production,' I mean: a production system with key characteristics as to who *owns* the land, who *works* the land, who provides *inputs,* including physical infrastructure, credit, chemicals, and seedlings, and how, if at all, producers and workers organize to negotiate for their interests.

conservation and development to a new agenda that emphasized the possibility of a simultaneous and mutually reinforcing pursuit of economic growth, environmental improvement and/or protection as well as social equity and poverty reduction (Dryzek 1989, Redclift 2005, Broman and Robèrt 2017, Menton 2018). The concept was and continues to be based on three pillars of sustainable development: social, economic and environmental[2].

The growth of the oil palm sector has not occurred without critique, and rather emerges as part of a long history of boom commodities that have had undesirable environmental, social and economic impacts at sites of production. The environmental issues arising from oil palm development have perhaps attracted the most widespread global concern. The extensive conversion of tropical rainforests to large oil palm plantations, has involved significant deforestation, land degradation, loss of biodiversity and ecosystem functions and the endangerment of endemic species (Fitzherbert, Struebig et al. 2008, Koh 2008, Ocampo-Peñuela, Garcia-Ulloa et al. 2018). For example, more than half of the oil palm in Indonesia and Malaysia has involved forest degradation and deforestation (Koh 2008), and these patterns are evident in other regions, too (EIA 2015, Vijay, Pimm et al. 2016). Except for a small number of studies (Gutiérrez-Vélez 2011, Lee 2013) the lion's share of environmental research investigates the impact of large-scale plantations, often excluding smallholders from the investigative remit. Second, the underlying drivers of environmental impacts, especially related to the local historical political ecologies that shape land-use decisions, do not receive enough attention to be of use for decision makers.

Aside from environmental impacts, concerns about socio-economic impacts pivot on human rights abuses such as the displacement of local people, unfair working conditions on

[2] The three pillars of the sustainable development agenda are used as a conceptual guide for designing this research project and reporting its results.

plantations and/or inadequate market access for smallholders (Cotula 2009, Li 2011, Mingorría 2014, Cahyadi and Waibel 2015). It has also been argued on many occasions that the establishment of oil palm has fomented social conflict and inequality due to new market and land-rush/grab dynamics, the destruction of locally utilized natural resources (or access to them) and traditional production systems (Peters 2004, Wakker 2005, Obidzinski 2012, Dammert 2016). Additionally, whether or not local people actually *want* specific crops or understand what planting them entails, and how suitable the production of a certain type of commodity is for specific local socio-cultural realities is often not considered at the design phase of development projects (Coomes 1996, Arce-Nazario 2007). This issue of suitability feeds directly into questions about how well they align with equity metrics of a sustainable development agenda. For example, there is a fervent consensus amongst development planners on the desirability to improve the yield and further intensify production on smallholders' farms to at once bolster livelihoods and meet increasing global demand for palm oil (Rhebergen, Fairhurst et al. 2018).

Whether or not intensified production is suitable to local cultural realities and farming practices has not been adequately discussed. At the same time, despite the burgeoning negative information being generated some are asking: If oil palm is so socio-economically undesirable in the sites of production, why do smallholders and poverty alleviation organizations continue to engage in oil palm development projects, and even lobby for their creation? (van Noordwijk, Suyamto et al. 2008, Feintrenie 2010, Vermuelen 2010, Hajek 2015). In most cases, the answer is not known, in all cases the answer is likely political, but it is widely accepted that the socio-economic dynamics of oil palm are underrepresented in the literature and as such are often also misunderstood (Mohd Noor, Gassner et al. 2017, Kubitza, Krishna et al. 2018). This is especially true where modes of production and the production

relations that underlie them fall outside the well-known archetypes of large plantations and outgrower-type schemes in Indonesia and Malaysia. This is a serious information shortfall, as failure to properly account for the heterogeneity of large and smallholder realities in the oil palm sector will undermine the effectiveness and scalability of *any* sustainable development endeavours (Jelsma, Schoneveld et al. 2017, Jelsma, Slingerland et al. 2017, Menton 2018).

Whilst the basic premise of sustainable development itself continues to be ardently critiqued by researchers, practitioners, grassroots groups and the media (Gladwin 1995, Redclift 2005, Mohd Noor, Gassner et al. 2017), it remains a useful and sometimes important agenda with which researchers must engage as it is actively and increasingly being put into practise through a myriad of certifications standards, corporate responsibility mandates, consumer ethics demands, international trade agreements and international environmental goals (see for example: the Round Table on Sustainable Oil Palm – RSPO-, The Forest Stewardship Council –FSC-, Reducing Emissions from Deforestation and Forest Degradation – REDD+-, Fair Trade and Rainforest Alliance Certification, Trilogue of EU Renewable Energy Biofuel Ban, Zero Net Deforestation Commitments and the United Nations Conferences on Sustainable Development[3]. This is particularly true for palm oil, a "vital commodity" (European Parliamentary Research, 2018) and the world's biggest oil boom as it spreads into new frontiers. For this reason, the sustainable development paradigm serves as a useful

[3] This research does not engage directly with the question of certification mechanisms and sustainability standards because the purpose of the research is to critically analyse the impacts of oil palm on the socio-economic and environmental realities of smallholders in the study site *de facto*. No oil palm certification schemes exist in this region, nor does introducing formal sustainability certification mechanisms feature as a recommendation in the conclusion of this research (see Chapter Seven). Nevertheless, the knowledge generated by this body of work is very relevant to policy makers engaged with supporting (or not) such standards, particularly with relation to the second question "what can we learn from this case about sustainability?". I welcome colleagues and stakeholders to engage with this work theoretically and empirically in critically assessing the value of implementation of certification and standards in rural smallholder forest-farm frontiers where smallholders live, but more than that I hope that this work demonstrates the absolute need for local-context specificity of doing so, especially on cultural and political grounds.

heuristic to communicate socio-environmental research to a wide audience (those advocating for and against oil palm) within and outside of academia.

Proponents of oil palm for economic development argue that it adheres to the sustainable development agenda in several ways: The exponential increase in demand for palm oil, higher price per tonne relative to other crops and higher yield per hectare promise *economic* sustainability for a vast array of actors from the smallholding farmer to capitalist companies and investors (Rhebergen, Fairhurst et al. 2018). Additionally, as a perennial crop it is harvested at 15-day intervals, all year round providing a regular income for smallholding producers and/or plantation labour workers (Härdter 1997, Pacheco 2018) and as such it has been heralded as providing a "pathway out of poverty" (UNODC, 2013).

Oil palm ostensibly contributes to *social* development by increasing nutrition (Basiron 2004, Euler, Krishna et al. 2017), by organizing rural agro-society into farmers associations, outgrower schemes, cooperatives and company-community partnerships that are claimed to provide better market access and reduced individual risk. Furthermore, large companies sometimes provide schools, housing, technological services and infrastructural development to workers and local people (Zen 2005, Vermuelen 2006, Koh 2008, Corley 2015). The perennial and high yield characteristics of the crop have also been heralded as an *environmentally* friendly characteristic, as it ostensibly produces more food on less land (Phelan 2011). Furthermore, it is heralded as a solution to migratory agriculture, as it 'settles' migrant farmers, theoretically reducing their encroachment into forest areas (MINAG 2001). Finally, being a 'tree' its capacity not only to 'restore degraded land' (Fairhurst 2009), but also to sequester carbon (Basiron & Wing, 2004) have been used to justify it in environmental terms.

Nevertheless, the sustainability claims of the palm oil sector have been vehemently challenged on all three grounds and the oil palm industry has become a highly contentious one (Cramb 2016, Pacheco 2018). Social sustainability issues have been reported connected with land-related conflict within and between communities and between communities and companies that buy contested land for oil palm. Economic sustainability has been questioned relative to the equity of access to markets and competitive trade, particularly with relation to certified oil palm and economy of scale. Environmental sustainability – perhaps the most contested element of oil palm expansion – is questionable due to the high levels of deforestation and drainage of peatlands taking place in the tropics to plant oil palm, the high chemical input for maintenance (and the resultant contamination of near-by ecosystems) and the toxicity of the waste from processing the fruit to oil. All the themes and debates around the sustainable development agenda make this agenda an excellent tool for shaping research undertaken in the tradition of historical political ecology (Turner and Robins, 2008). This is so because it connects broad concepts of livelihood production and reproduction, international, colonist, state and corporate intervention at the community level (as well as the uneven consequences and responses), causes and consequences of social-environmental marginalization and power imbalance and its remediation, and the relationship among social, environmental change (Offen 2004). Where capitalist economies infiltrate and merge with local political-economies and natural environments many of the outcomes of the scenarios discussed in this section depend on a long spectrum of power dynamics from the discursive to the physical at various levels of society and governance (Foucault 1980, Fairclough 2001).

1.2.3 Oil palm expansion into new frontiers: a global concern and research opportunity

As suitable areas of oil palm expansion in Malaysia and Indonesia are used up and international political pressure is driving increased moratoria on expansion on those areas that *are* left, the sector is turning its attention to new countries with suitable land for new production (Kuepper 2016, Pirker, Mosnier et al. 2016, Ordway, Naylor et al. 2017). Countries in Africa (particularly Cameroon, Democratic Republic of Congo, and Liberia) and South America (particularly Peru, Brazil and Colombia) have been identified as 'new frontiers' based on the opportunities presented by their favourable environmental and socio political contexts: Vast areas of 'suitable' land, political will/need, rural populations targeted for economic development schemes and cheaper labour forces (Kuepper 2016, Sen 2016, Furumo and Aide 2017). **Error! Reference source not found.**shows that although these countries are still small players in global production, they have the highest percentage increase in recent years.

New geo-political oil palm development opportunities also entail risks for frontier regions, many of which relate to political power (broadly conceived). First, these areas host the largest areas of vulnerable forests (Vijay, Pimm et al. 2016). Most of these frontier regions are also inhabited by rural indigenous and smallholding peoples facing challenging power imbalances, insecure land rights and poor institutional representation (Yengoh and Armah 2014). Additionally, frontier countries supporting oil palm expansion are often post-conflict politically fragile states seeking development and investments, confronted with to weak governance, weak legal systems and lack of government presence, absence of mechanisms to stimulate and regulate responsible management practices and accountability (Kuepper et al., 2016; Bennett et al, 2018). To what extent this is true is not well understood, as these regions lack adequate representation in the oil palm research literature.

This introduction has shown that smallholders are key actors in the oil palm and sustainability debate (WRI, 2018), but that there are several shortfalls in information about how they engage with and benefit from the sector (or do not). These information gaps are disciplinary (socio-economic and environmental), geographical (frontiers) and scale-related (smallholders versus large estates). By now, it is becoming clear that addressing some of the information shortfalls related to the expansion of oil palm in new areas is now critical. This thesis engages with these gaps as a research opportunity.

FIGURE 1.1: MAP OF OIL PALM FRONTIERS

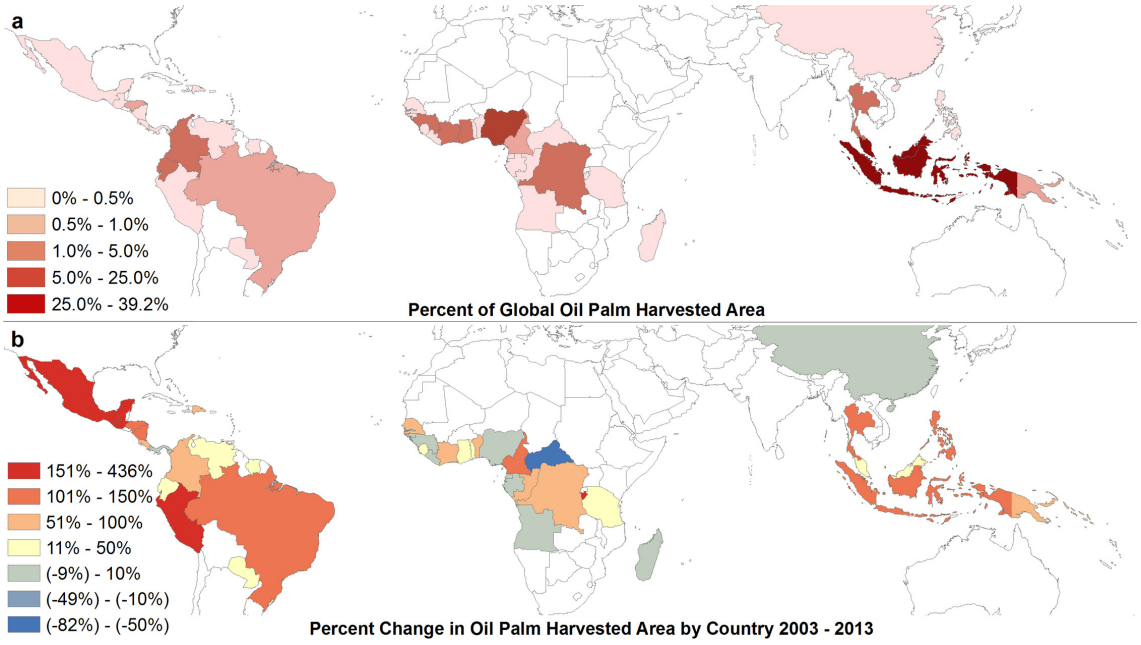


Fig 1. World production of palm oil. (a) Percent of FAO reported total global oil palm harvested area in 2013. (b) Percent changes in FAO reported oil palm harvested area by country from 2003–2013.

(Source: Vijay et al., 2017)

1.3 Study orientations and approach

The observations made at the beginning of this chapter connecting rural development, (sustainable) development agenda and oil palm led to the intellectual connection between the discipline of historical political ecology, and issues linking oil palm expansion to the

sustainable development agenda. Historical political ecology is a discipline of geography that is usually founded on field-informed interpretation of society-land relations in the past, over time and in the present, sometimes called a "chain of explanation" (Brookfield 1987). How, why and in what ways these relations have changed and the significance of those for improving social justice and nature conservation today has been at the heart of the discipline at least since the 1980's (Brookfield 1987). Furthermore, political ecology has emerged as an important academic field concurrently as sustainable development emerged as a political agenda, and as such they are theoretically complimentary in many senses.

The disciplinary rubric of Political Ecology serves as principal theoretical orientation and valuable adjunct to other theories, methods and disciplines that together examine the interrelations between political economy (broadly conceived), ecology and other disciplines and theories at the interface of global development, the environment, politics, culture, and justice (Brannstrom 2013). The political ecology theoretical framework and central thesis of this research is that socio-environmental questions are *fundamentally political questions*. For example, we may know that a forest is has been qualified by natural science as a tropical rainforest, we may know that 100 hectares of that forest were cleared for oil palm and we may know by whom. But if we do not understand why and how that action has taken place at that moment in time within the broader household, local, regional, national and international political space, and what the ramifications of that action are, we cannot hope for an intelligent or well informed sustainable development agenda.

According to Offen (2004) there are five key elements that generally characterize a political ecology theoretical approach in geography; 1. Livelihood production and reproduction as the key investigative site". 2. The relationship among social, economic, and environmental

change; 3 international, colonist, state and corporate intervention at the community level as well as the uneven consequences and responses (e.g. conflict over resource access, changing gender relations); 4. Causes and consequences of social-environmental marginalization and its remediation; and 5. Empirical field and historical research (Offen 2004). It is for this reason that many academics interested in power dynamics in labour relations, resource distribution and access and justice are drawn to the "tradition" (Turner & Robins, 2008) of Political Ecology as a framework or for thinking about issues related to people and the environment, and fieldwork as a methodological tool for understanding them (McCarthy 2010). In this sense, sustainable development thinking is used as a heuristic to analyse the issues that constitute the five elements of political ecology (Turner & Robins, 2008). This research very much engages with these five principles, as will be explored in the next chapter and evident in the entire body of the work, and finally summarized with relation to this specific research in Chapter Seven.

As with many political ecology studies (Offen 2004, Salisbury 2011), a multi-disciplinary and mixed method approach is employed for this research. Methods included participant observation, questionnaire surveys, participatory mapping (and participatory activities) and visual remote sensing. Because frontier regions are inherently understudied, case study research is an appropriate approach for exploring the question of the socio-economic and environmental impacts of oil palm expansion in new frontiers, and so a frontier region (Ucayali, Peru) has been selected as the unit of analysis.

A mixed method approach of this kind facilitates a research that is meaningful, relevant and accessible to a wider range of stakeholders concerned with the immediate socio-environmental and political problems being faced in new frontiers. This thesis is designed

under the premise that context specific problems are best confronted with context specific answers (Eisenhardt 1989). Thus, thematic relevance and a wide accessibility and applicability of the themes, the research and the findings for stakeholders at the sites being investigated was an important objective of this research.

In a seminal talk, Piers Blaikie asked "Can some Political Ecology be useful?" concluding after a compelling discussion that yes, it can and should be (Blaikie 2012). The venture towards the construction of a meaningful relationship between policy and practise in a development context in political ecology, is well supported by the ontological and epistemological position of critical realism. This is because the knowledge we have of environmental reality and the way that we engage with it is scientifically incomplete, and socio-politically constructed (Peet 1996), so that purportedly apolitical scientific phenomena in fact reflect and are produced by historic political and social relations with what we perceive as the ecological (Muldavin, 2007; Forsyth, 2001). For example, oil palm is a plant that only grows under certain conditions, it is a tropical lowlands specialist and does not like for example, that its roots be immersed in water. Therefore, tropical wetlands or peatlands are not good biophysical environments for oil palm. However, since oil palm became a commodity crop of global economic relevance, the locations in which it is planted depend on historical socio-political realities, and not on the natural needs of the plant. When Indonesian land surface became limited in areas where oil palm could naturally thrive, peat swamps were drained to make it so that the plan could grow there. On the other hand, it would be many years before such an occurrence would happen in the Peruvian Amazon, because there are enough lands politically available and suitable for palm establishment, that are also already apt for the needs of the plant. Such areas are mostly in old growth Amazon rainforest. As such, everything that we know about the environment is a political construction of what is

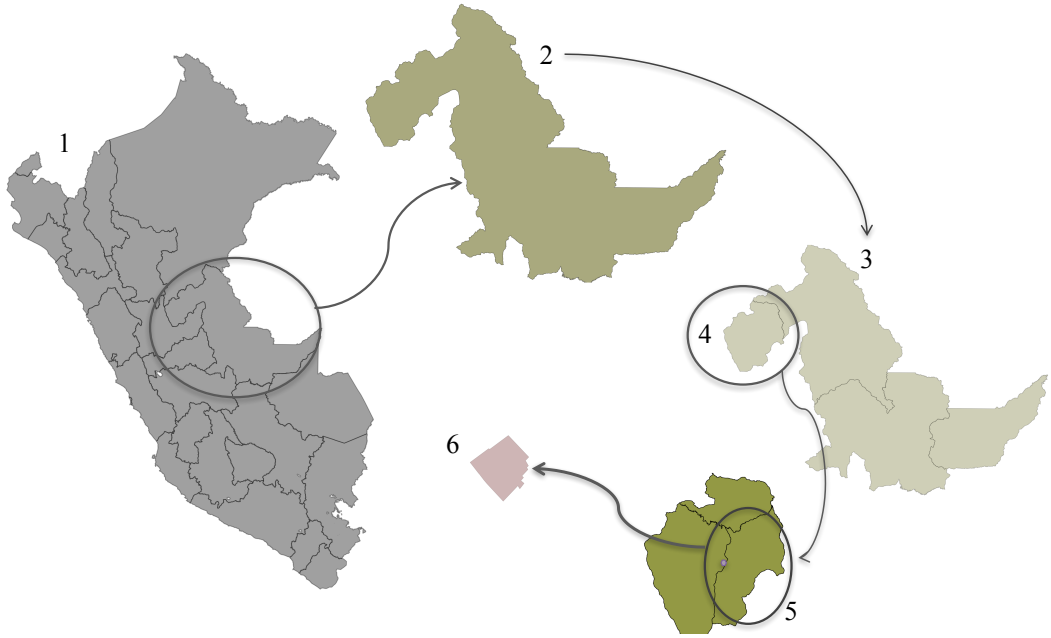
thought to be ecological (or not), and so environmental problems and their potential solutions are fundamentally political irrespective of the environmental determinism involved.

In terms of understanding the relationship between society and the environment, and what that means for livelihoods and environmental health some writings on political ecology raise important questions from the perspective of critical realism to the discipline (Forsyth, 2001). Critical realist political ecology does not just seek to illustrate how ideas about and interactions with nature and the environment are constructed, but rather it also seeks new and more effective science for environmental policy that is biophysically and socio-politically more accurate, and socially more just.

In choosing a study site it was important that it was a) a frontier area, b) it had oil palm. Peru is a decentralized neo-liberal economic state made up of 25 departments, four of which reside in the Amazon (Fig. 1.2) The Peruvian Amazon department of Ucayali has been selected as the case study focus for this research for several reasons: The Amazon biome hosts the single largest remaining tropical rainforest in the world and half of the world's tropical forests and houses at least 10% of the world's known biodiversity, including endemic and endangered flora and fauna. It is also home to a wide variety of human populations including indigenous and smallholding farmer peoples. At the same time, it is currently experiencing unprecedented socio-environmental change including large-scale deforestation, in part due to a growing agro-sector. The Amazon has already been earmarked as a frontier region 'apt' for oil palm expansion and strong economic incentives for Amazonian oil palm are already taking place in Brazil and Peru. Peru – which hosts the second largest portion of the Amazon – is significantly underrepresented in the literature, especially with relation to oil palm and smallholders (of any kind).

Within Peru, Ucayali is now the forerunner for both oil palm expansion - accounting for 42% of cultivated area – (Figure. 1.3) (MINAGRI, 2017) and deforestation rates in the country (Finer 2015). It is also a region with a strong historical political ecology of indigenous cultures, smallholder agriculture, natural resource extraction, economic booms, rural development intervention and socio-political troubles [4]. The site embodies all the characteristics identified in the literature as making new frontiers of oil palm expansion high risk for positive outcomes within the three elements of sustainability described above. This context also situates it well in the disciplinary framework of historical political ecology and justifies it as an important region about which to generate empirical knowledge.

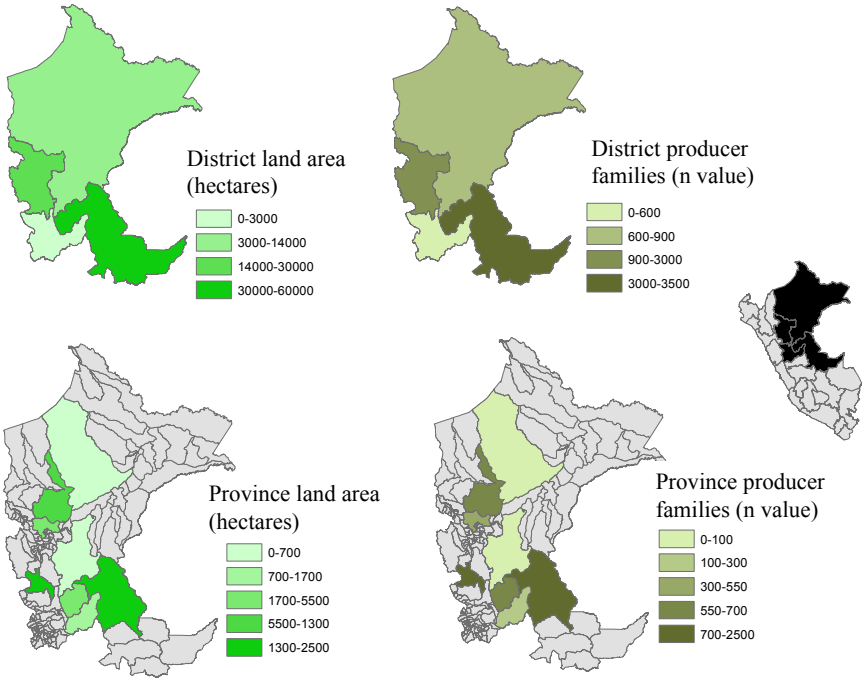
Figure 1.2: Peru Political Administrative Units



Peru is a decentralized state made up of 25 departments (1). Each department (2) is divided into a smaller number of provinces (3), and each province (4) contains a number of districts (5). Below the district level there are "populated centers" (6) which are bigger and have more facilities than the next administrative unit: the village or community (does not currently have political administrative borders). At every level there are presidents, mayors, and 'agents', 'lieutenants' or 'chiefs' – depending on the type and size of village and community.

[4] The details of the field site are further elaborated in Chapters Four, Five, Six, and Seven.

FIGURE 1.3: AREA PLANTED AND NUMBER OF FAMILIES BY DISTRICT AND PROVINCE



Map elaborated by author and Dr. Alex Morel using data from Junpalma (2015), Diagnóstico Loreto (DRA, 2016) and Diagnóstico Ucayali (DRA, 2016)

1.3.1 Thesis structure and presentation

The first three chapters provide the necessary information to understand the justification of the research, how it is situated conceptually in the literature and how it was designed and undertaken. ***Chapter One*** (this chapter) has provided a brief introduction to the existing themes, knowledge, research opportunities and the thesis questions and approach. ***Chapter Two*** explores some literature, with a specific focus on the writing that is most relevant to the three research papers. ***Chapter Three*** presents the methodology, clarifies ethical procedures and details the multi-methods utilized and the resultant datasets. Chapter Three also explains how methods and datasets contribute to answering the central and sub-questions of the thesis and reflects on challenges and limitations in field work, data collection and analysis.

The central questions of this research will primarily be addressed through papers written for peer review towards the paper route to the DPhil Degree of the University of Oxford, each

with its own sub-questions (see Figure 3.1): ***Chapter Four*** is the first results chapter and addresses the social and environmental themes of oil palm expansion: *The effects of rural development policy on land rights distribution and land use scenarios: The case of oil palm in the Peruvian Amazon*. The study analyses data from a household survey (n=252), and participant observation work in villages to unpack how key variables interact to influence resource allocation and distribution of rights over land and forests. The paper presents descriptive results comparing smallholder claims to their formal rights, and finds a large discrepancy between de facto and de jure land ownership scenarios – especially with relation to old- growth forest fragments. Statistical model testing qualifies the paper's hypothesis about the link between oil palm and land rights in the region at both the household and village levels. However, it is not a direct causal relationship. Rather, a more complex nuanced picture of how migration, oil palm expansion and development are more broadly linked to land use change in the region emerges. Policy recommendations that could facilitate improved forest conservation in the area, and a more equitable distribution of land rights to smallholders conclude the paper. **Status of paper: Published in *Land Use Policy*, 2018.**

Chapter Five is the second results chapter, again written in a format for peer review journal and addresses the environmental and social aspects of oil palm expansion: *The Political Ecology of Oil Palm Company-Community partnerships in the Peruvian Amazon: Deforestation consequences of the privatization of rural development.* A mixed methods research approach was employed, including visual measurement remote sensing of land use change on 2,447 hectares of smallholder land and ethnographic work. Results show that powerful private companies have caused major socio-ecological shift with significant deforestation 'spillage' out of the plantation into partnership farms. A major underlying driver of the negative outcomes of the CCP is the neoliberal policy approach employed by the

Peruvian government. The paper discusses how a more socially and environmentally just oil palm production strategy in Peru and elsewhere might look. **Status of paper: Published in *World Development*, 2018.**

Chapter Six is the final results chapter and mainly addresses the economic and social elements of the three overarching themes: Smallholder oil palm production in the Peruvian Amazon: rethinking the promise of associations and partnerships for livelihoods. Participant observation and a survey of almost 200 oil palm smallholders are the methods used to a) create a typology of smallholder producers and b) explore the debt, markets, contractual enclosure and smallholder social empowerment. Results show positive income scenarios, but raise concerns about the conditions under which it does so through formal associations and a new 'corporate' model, which causes comparatively extremely high debt for smallholders. Smallholder perceptions of their situations were generally positive, but perceptions were based on a poor knowledge of how governance and markets operate. High debt scenarios and low understanding of these mean that the provision of economic education to smallholders targeted for development projects is a priority. The paper challenges the prevailing theoretical link between "higher yield" and "better livelihoods", advocating instead a broader vision of sustainable and profitable livelihoods, allowing smallholders to participate in oil palm cultivation on locally relevant preferential terms. **Status of paper: Accepted in *Frontiers in Forests and Global Change, 2019.***

Chapter Seven summarizes the research findings within the remit of the central questions and the conceptual and empirical arguments of the thesis, offering a discussion about what lessons can be drawn from this case study research for sustainable development. It highlights

the theoretical and empirical contributions made by the thesis, and what ways future research might build on these findings.

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Chapter Two: Exploring the issues in the literature

"What really knocks me out is a book that, when you're all done reading it, you wish the author that wrote it was a terrific friend of yours and you could call him up on the phone whenever you felt like it." DJ Salinger

2.1 Theoretical orientations: The 'greener' agrarian question, historical political ecology and a sustainable development agenda

Several important concepts have already emerged in Chapter One related to the economic, social and cultural penetration of global market capital and capitalism into the tropics through oil palm, and the impacts and outcomes of this penetration on local power, social relations, livelihoods and the environment. Chapter One began to organize some of these ideas through the presentation of what I called 'pathways of development' an adaptation of the commodity expansion pathway concept elaborated elsewhere (Meyfroidt 2014). This ranged from capitalist market interests to programs for smallholder livelihood improvement and social change. As explained in Chapter One, these 'pathways' themselves are not mutually exclusive or independent, but are rather interconnected both theoretically and in practise. Furthermore, the pathways are not one directional; for example, many capitalist commodity market booms have also gone bust. In some cases, this is because international markets dwindle, but in others it is because particular political and economic dynamics of commodity production were not well suited to established cultural ways of being and contestation and resistance ensue at sites of production (Coomes 1994, Coomes 1996, Hecht 2010).

Indeed, the theoretical and practical impossibility of separating many of the dichotomous ideologies in a 'sustainable development' agenda is an important theme of this thesis. For example, as this chapter together with my research chapters will show, concepts of sparing land for conservation ('land spare') through intensive agricultural production in a concentrated space (Phelan 2011, Martin 2018) may be negated by socio-environmental

trade-offs (Martin 2018) as well as the inevitable political processes that draw smallholders into the same production landscapes, producing the same crops for the same global economy through a variety of modes of production including in partnerships with the very companies purported to be sparing land! A second relevant example is that of the ideological separation of indigenous and non-indigenous Amazonian people in land-use and land allocation policy and in conservation and development agendas. This vision of rural social organization often does not reflect the reality as "the Indians in reality, rarely live isolated from the mestizos or national population; there exists a symbiosis between the two groups which we must take into account" (Frank, 1967: 133-4).

Nevertheless, the interconnectedness of these phenomena does not devalue an in-depth investigation of any one of these elements, or undermine how important it is to understand how such dynamics individually fit in to a complex whole. To the contrary, the nuances are very important. This is as true for theoretical application as it is for policy and project development and implementation.

The issues inherent in any phenomenon that involves complex political and socio-ecological land relations such as a globally traded commodity crop are relevant to a wide literature and numerous theories that analyse a vast number of elements of a 'global economy'. In reviewing the debates and discussions around oil palm expansion and the palm oil sector, along with the literature about political reforms such as the agrarian reform and transition to neoliberalism in Peru the 'agrarian question' repeatedly came to the fore. In its simplest terms the agrarian question investigates the effects of the penetration of capitalism into the rural sphere (and the effects of the rural sphere on capitalist activity) and is a question that has

been extensively pondered and debated amongst intellectual thinkers (Harris 1978, Djurfelt 1982).

Production and labour relations, the political structures within which they are formed and operationalised and the power dynamics they embody are some of the core areas of investigation of the 'agrarian question' (Assies 1987, Peet 1996, Hall, Scoones et al. 2017). Furthermore, issues of political power in these production relations are often related to how colonialism (broadly conceived, and both external and internal) influences the equity in the distribution and organization of rights to land and resources which directly influences the resultant modes of production on large and small farms (also referred to as the 'estate versus smallholder debate') (Djurfelt 1982, Meyfroidt 2017). These themes are central to the question of expansion as a capitalist commodity crop such as oil palm into the Amazon, as this thesis will show. However, with relation to the conceptual framing of the sustainable development agenda and the theoretical/methodological orientations of political ecology that this thesis employs there is a critical element missing from the agrarian question underpinning so far: environmental conservation.

Gerbar and Veuthey (2010) advanced the agrarian question to incorporate a stronger theoretical element of environmental conservation politics, arguing that environmental issues have now been firmly incorporated into these intellectual domains resulting in a "greening" of the agrarian question and "providing space for a fruitful dialogue" between political ecologists and students of agrarian studies (Gerber 2010). Herein lies the important theoretical link with the political ecology investigative lens for this work, and the utility of the sustainable development agenda framework for exploring social, environmental and

economic elements of smallholder oil palm expansion - the most contentious tree plantation crop in the world today - in Ucayali.

The literature demonstrates a wide acceptance that many capitalist agricultural booms in new frontiers (for example rubber and sugar) have been a response to global political activity and power shifts (such as wars, trade agreements and colonialism) (Mar 1980, Kay 2002). These market booms operationalize the structural tendency of capitalist agro-expansion towards environmental degradation and social conflict and/or inequity in political-geographical frontiers where the production and reproduction of livelihoods and the dynamic of production relations are altered (Moore 2000, Le Billon 2001). The oil palm shares a similar history of expansion with many other boom crops, but it is somewhat distinguished by the fact that its biggest growth happened at the same time as the environmental movement also changed its political strategies and organizational structure to strategically include economic interests (Hajer 1997), culminating in a sustainable development agenda that has become unavoidable for the oil palm sector, as Chapter One explained. The antagonistic relationship between the environmental conservation agendas and economic development agendas can be tangibly seen in socio-political institutional set-ups such as for example the very often inferior political position of the Ministries of the Environment compared the Ministries of Agriculture in most tropical countries (Bennett A. 2017).

These parallel intellectual (the 'greening' of the agrarian question) and political (sustainable development agenda) developments also coincided with the rise of historical political ecology as a discipline of geography that uses empirical field and historical research to examine all of the themes that marry the agrarian question with emerging conservation and sustainability interests and concerns. For example, it is already clear that rural livelihoods are focal area of

interest of agrarian studies. Equally, livelihood production and reproduction and production relations has been identified as a 'key theme' of historical political ecology (Brookfield 1987, Offen 2004), it has also been identified as an empirical information shortfall with relation to oil palm smallholders (Jelsma, Schoneveld et al. 2017), and a concern for smallholder livelihood wellbeing in lieu of the apparent re-emergence of old colonial 'estate' mode of production with commodity crops (Hall, Scoones et al. 2017). The livelihood angle is also key to the integrity of a sustainable development agenda. This is clear not only in the political conceptual literature (Brundtland 1987), but also in the socio-political mechanisms that support it such as the standards and certifications inherent in the RSPO, which have become increasingly determined to include smallholder oil palm growers, for example (Brandi 2015).

The relationship between social, economic and environmental change, international, state and corporate intervention at the community level (and the responses and consequences therein) are also key elements of historical political ecology (Offen 2004, Blaikie 2012), the agrarian question (especially with relation to the modes of 'estate/smallholder' production abovementioned) (Harris 1978, Assies 1987) and the oil palm/livelihoods debate (Castellanos-Navarrete 2015). Some of this has already been mentioned above with relation to the dynamic of the infiltration of both capitalism (and indeed capital) and the response to that penetration by local socio-political dynamics. These issues are also key to the sustainable development agenda, as its three pronged approach (social, environmental and economic) makes clear. Thus, the central thesis of this body of research is that socio-environmental questions are *fundamentally political* in that the relationship between society and ecology and the impacts and changes in society and on the environment are essentially shaped and mediated by politics.

The ‘historical’ element of a historical political ecology is important as socio-cultural and environmental history heavily influences both local socio-environmental responses to development projects and the misunderstood nature of the spaces and peoples in which economic and conservation development agendas often play out (Brannstronm 2004). The long-term political processes of a region profoundly affect the political culture of a place. The history of the pathways of oil palm expansion in Ucayali is important to the current context and to policy makers and developers interested in pro-livelihoods environmentally sustainable oil palm in new frontiers. The specific history of oil palm expansion in Ucayali is elaborated in empirical Chapter Six.

The next section explores the (mainly political) history and context of oil palm expansion, tracking its evolution from a smallholder staple crop in Africa to a contentious Southeast Asian monoculture monopoly and back towards smallholder production through different pathways and producing different modes of production in new sites I call frontiers. I have separated this historical discussion on pathways into two parts (international market driven and national development driven), so that it can also follow the political pathways introduced in Chapter One, that are so important to the discussion on modern instances of capitalist penetration into rural spaces within the current discussions on the expansion of the palm oil sector. The final (next) section reveals some of the issues identified in the pathways with more specificity, and relates them to the themes and questions chosen for exploration in the empirical Chapters Four-Six.

2.1.1 International market-driven pathways to new frontiers:

The oil palm originated from West Africa, where evidence of its domestication and use as a staple smallholder food crop dates as far back as 5,000 years. A cask of palm oil was even

discovered in an Egyptian burial site and so, with such ancient origins, palm oil can be considered one of the earliest traded commodities (Ndon, 2006; World Bank, 2009; Stilliard, 1938; Dike, 1956).) The use of palm oil in international markets increased rapidly with the political-economic shifts inherent in the European Industrial Revolution and the development of overseas trade after World War II (Corley and Tinker, 2015). The oil palm crop was then introduced from West Africa to Southeast Asia via the Netherlands East Indies in 1848 and to British Malaysia in 1875 when Europeans began investing in palm oil plantations in response to growing demand. This particular pathway to expansion and the modes of production (namely large monocultures in previously forested areas and colonial-style smallholder outgrower schemes) begun the processes of large-scale deforestation, infrastructure development and local social and livelihood transformation it has become famous for today (Cramb and McCarthy, 2016). Like other crops such as rubber and sugar, Asian production soon went on to dominate the sector (Kay 2002), leaving the African production relatively small-scale until it was recently re-identified as a frontier region for large-scale expansion.

Although there is clear evidence that the palm oil industry has been in steady incline for many decades, it has been a veritable boom since the 1990s (Pirker et al, 2016). Ever more global demand and an increasingly complex and robust value chain has supported its rise to the top of the vegetable oils sector (Borras et al., 2016). Over time, oil palm production has largely moved away from the West African origins of smallholder modes of production towards industrial-scale monoculture plantations of between 1000 and 20,000 hectares. Currently 60% of oil palm is cultivated industrially in this way (RSPO 2018), and 85% of the overall production takes place in Indonesia and Malaysia.

This expansion has generated heated controversy on the grounds that it is not consistent with the sustainable development agenda already described in Chapter One. For example, high profile and emotive NGO and media campaigns and empirical research about the depleting orangutan populations has increased demand for products that are certified based on sustainable development standards related to environmental, social and livelihood safeguards (Koh and Lee 2012, Brandi 2015, Mohd Noor, Gassner et al. 2017). This in turn has manifested in international trade skirmishes that also impact political ecological contexts and processes. For example, today governments of non-producing consumer countries from the global north are under pressure by citizens to not trade commodities with countries that have dubious production standards resulting in new trade terms such as EU commission's mandate on oil palm. These political-economic shifts in turn have spurred national action in producer countries, such as the oil palm expansion moratorium the Indonesian government implemented in September 2018.

Nevertheless, the global demand for palm oil is set to continue to rise beyond 2050 (Cramb and Sujang 2013, Furumo and Aide 2017). This demand is due to a growing population utilizing products containing palm oil, policies promoting oil hungry uses such as biofuels, and rural development agendas including for poverty alleviation as is discussed later. As a result, developers are looking to new frontiers on which to expand cultivation of the oil palm. For example, South East Asian corporations such as Golden Agri-Resources, Kuala Lumpur Kepong, Sime Darby, Wilmar International, Felda Global Ventures, Melka group and more – are seeking to expand their palm oil to new areas, mainly in Latin American and African countries such as Cameroon, Democratic Republic of Congo, Liberia, Guatemala, Honduras, and Peru (Kuepper et al., 2016; Sen, 2016; Furumo & Aide, 2017).

It has been noted however that frontier areas earmarked for expansion may be easy political targets for powerful capitalist interests due to weak and opaque governance systems, high levels of corruption (especially with regards land allocations, distributions and sale) and low levels of accountability. Many frontier countries are also politically vulnerable post-conflict states (Kuepper 2016, Lund 2017). For example, about two million hectares of land have been leased for oil palm expansion in countries around the Congo Basin where war, violent conflicts and human rights violations have been taking place for decades (Greenpeace 2015). Somewhat unsurprisingly, empirical scientific research about the social, economic and environmental impacts of oil palm expansion is lacking in all frontier regions.

2.1.2 National development driven pathways within and to new frontiers

It is important when digesting the information presented in section 2.1.1 not to misunderstand national governments of developing countries as passive bystanders, helpless to stop international capitalist intervention in their political-economic realms and rural spaces. Despite their somewhat imprecise reputation as 'dependent' countries (Kay 1989), this concept is inherently problematic as colonialism and power is as relevant internally as it is externally and this is certainly relevant with relation to the expansion of oil palm. This section will briefly explore this national process, maintaining the 'pathway' theme, before moving on to some of the 'nitty gritty' pieces of the puzzle that forms the foundation of this research.

The economic success, bloated market, predicted continued growth of the palm oil sector and new opportunities to collaborate with increasingly interested international corporations has

seen governments of frontier countries themselves driving new expansion. This is done through a plethora of policies promoting oil palm at different scales and for different purposes. In South America, governmental pathways usually have two main sub-routes:

On the one hand, policies created to entice outside investment in national development often include lucrative tax advantages and legal loop-holes, exemptions and exceptions for large-scale land access and/or acquisition (Saleth 1991, Mingorría 2018). This is especially true in Latin America, where several countries couple a neo-liberal economic strategy with large expanses of 'available' land. In Peru for example, there have been two "National Oil Palm Plans", backstopped by at least 14 laws that support its expansion at the small and large scale, including tax exemptions for agronomic produce in the Amazon region (Bennett, Ravikumar et al. 2018). The idea behind such policies is that to facilitate implementation of agro-economic, resource extraction or infrastructure activities is to facilitate national economic growth, market integration and strengthened international relations of various kinds. Large-scale industrial oil palm plantations are just one of many such strategies. These policy gateways are clearly also open to in-country companies, too. For example, in Peru the Romero Group, a Peruvian family-run business, has the biggest share of oil palm plantations and palm oil product monopolies such as a margarine and comestible oil (Romero 2013, Steinweg 2017). This family also monopolises the biggest part of the banking sector, amongst other businesses (ibid).

On the other hand, many frontier countries see oil palm as a route to the socio-economic development of their rural poor, or 'social projects' (Castellanos-Navarrete 2015). Based on the economic support a number of development aid agencies such as the United Nations, USAID and IDB have given it would be fair to assume that they agree (USAID 2014, Hajek

2015, Lima 2015). From a local development perspective, recent socio-political instability and violent conflict is not necessarily seen as a reason why oil palm expansion should be particularly scrutinized, criticized or sanctioned. In fact, these socio-political predicaments sometimes even justify investment in oil palm in rural areas as a pathway to socio-economic peace, equity and improvement. For example, post-FARC Colombia leads in both oil palm expansion and unequal distribution of landownership in Latin America, with the top 1% of large farms accounting for 81% of the country's allocated land (Guereña, 2017). After the disarming and demobilization the FARC in 2016, the government created several strategies for peace, one of which was to expand economic and social investment in the countryside by encouraging agricultural development including oil palm - especially in areas that were previously off-limits due to conflict. In doing so, the government also promised to start to re-distribute land to families that had lost land through conflict and corruption during the troubled times thereby closing the alarming distribution gap.

Peru's smallholder oil palm sector is widely understood to also have been implemented to both combat illicit production of coca that had become unruly during the terrorism campaign of the Shining Path group in the 1980's and 1990's, to resettle and repopulate areas socio-politically shattered by the violence and to begin to establish a more formal economy in the region through credit and land titling processes (DeSoto 2000, Borasino 2016)[5]. Like many Latin American countries, Peru made political moves towards land redistribution away from socially undesirable colonial hacienda models towards smallholder land and production ownership through Agrarian Reforms (Kay 2007, Pacheco 2009). However, again similar to other countries Peru transitioned into a neo-liberal market state in the 1990's. Since then, agricultural development programs and policies and the move to formalize rural economies

[5] Chapter Four describes this process in detail

(rather than equity per se) drive land titling initiatives and rural land distribution (DeSoto 2000, Fort 2008). The expansion of oil palm into the Peruvian Amazon has happened through both pathways discussed here, and this historical political ecology is detailed in Chapters Four, Five and Six.

Much of more recent land-use change literature refers to the political elements (discussed as 'pathways' above) driving agrarian change as "underlying drivers" of change (Geist 2002). Whilst underlying drivers are invisible (but real) "proximate drivers" are the immediate causes of deforestation, such as for example the smallholder with the chainsaw in her hands. This element of pathways and drivers heralds back to the dichotomies that I mentioned at the beginning of this chapter, and the assertion that I made in Chapter One: "If we do not understand why and how that action has taken place at that moment in time within the broader household, local, regional, national and international political space, and what the ramifications of that action are, we cannot hope for an intelligent or well informed sustainable development agenda.

2.2 Issues and debates within pathways: selecting the themes for research chapters

Chapter One described some of the information shortfalls in the academic and political discussions about oil palm. It was explained that the bulk of scientific and civil interest in oil palm has been on the large-scale deforestation caused mainly by private plantations politically established through the international pathway described above. This extended discussion on pathways shows that there is a strong livelihood component mixed up in the agrarian, political ecology, sustainable development and oil palm discussions. At the beginning of this chapter I highlighted the centrality of the production and reproduction of livelihoods and analysis of labour relations for historical political ecology, the 'green' agrarian question, the sustainable development agenda and (somewhat reluctantly but ever

increasingly) an ostensibly more ethical oil palm sector. But outcomes for smallholders who participate in oil palm cultivation are not clear. On the one hand, agrarian studies stress processes of social differentiation (Cramb and Sujang 2013; Koczberski and Curry 2004) in which poor farmers, indigenous producers or labourers benefit rather little from engagement with the sector (Julia and White 2012; McCarthy 2010). On the other hand, some researchers point to the high returns obtained from oil palm cultivation (Feintrenie, Chong, and Levang 2010a; Rist et al. 2010). Part of the reason for this lack of clarity and consistence is the multiplicity of the modes of production through which smallholders are engaged in oil palm production which are highly context specific (Brandão 2015, Cramb 2016).

Earlier this year, the World Resource Institute stated that "Smallholder farmers are key to making the palm oil industry sustainable" (WRI, 2018) [6]. At the same time, it is widely accepted that the socio-economic realities of these people are both poorly understood and underrepresented in the scientific literature. Despite the prevalence of smallholders in the sector (I remind the reader that they produce approximately 40% of the global palm oil), the magnitude of their contribution to a booming agro-sector and their profile as targets of rural development programs it has been noted that in general the socioeconomic impacts in the small-farm oil palm sector have hardly been investigated (Euler, Krishna et al. 2017).

Debates about the relative merits and trade-offs of large and small farms for commodity crops, and their respective implications on the ground are connected with the development sector and global demand and supply (Green 2005, Hall, Scoones et al. 2017). This issue is known as the "smallholder versus estate question" or "large versus small" debate (Cramb and Sujang,

[6] This premise is based on promoting and facilitating access to international and national sustainability certification mechanisms, such as the RSPO.

2013; World Bank 2009). The different modes of production are understood to have different relative benefits, trade-offs and risks for different actors with diverse interests, and it is widely accepted that the nature of these arrangements has a direct bearing on the type and direction of socio-environmental outcomes that they produce (Cramb 2013). These modes of production are elaborated in research Chapter Five (global) and Six (Peru and Ucayali). For example, in economic terms (livelihoods) it is often claimed that farmers engaged with companies through partnerships, out-grower schemes and contract farming agreements benefit from a higher yield, and thus better financial results thanks to the resources and expertise of the company to which they are contracted (Vermuelen 2006). On the other hand, smallholders of "social projects" may have a lower yield and thus less oil palm-based income, but perhaps a better socio-economic wellbeing overall (Castellanos-Navarrete 2015).

The global discourse around the benefits of oil palm to local people is pervasive at all levels of society from international development organizations such as the united nations, to local village leaders (Feintrenie 2010, USAID 2014). Figure 2.1 shows how oil palm was used in a political elections campaign in the Peruvian Amazon as a symbol of progress, it says "work for everybody" and the second image provides illustrative instructions on how to mark 'X' over the oil palm tree in the ballot box. It could be argued that this type of discourse is ideological in so far as it contributes to sustaining particular relations of power. But the legitimation, manipulation, ideology, cooperation and identity represented by it and the ways it is contested, criticized and opposed are tangible political strategies.

Figure 2.1: Political propaganda and oil palm



"Chamba para todos" is a local way of saying "Work for everyone!". This propaganda was painted on houses, buildings and walls in support of a specific political party that used the oil palm crop as symbol of progress, economic development prosperity. The Three trees are the boxes on the ballot card, to be ticked when voting for this party. Considering the large illiterate population that these political campaigns target, the use of the image of the oil palm in this way is very powerful and suggests how the crop was viewed by proponents of its expansion at the time.

In general, these dynamics are in fact poorly understood and under-researched and the complex and contentious outcomes of these arrangements often includes resistance, conflict and violence around contested power dynamics and environmental harm. Very similar outcomes to socio-agro revolts that spurred many of the Agrarian reforms in Latin America (Pacheco 2009).

Consequently, evidence of large-scale land acquisitions for commodity crop production – particularly oil palm – causing enclosure of local people in Asia, Africa and now Latin America has refocussed attention on this long-standing debate within the context of 'modes of production' for 'inclusive', 'sustainable' fair and conflict-free palm oil production and livelihood outcomes (Vermuelen & Cotula, 2010; Borras et al. 2011; Brandao et al. 2018) (Soliman, Lim et al. 2016, RSPO 2018). The term 'enclosure' refers to the exclusion of people from access to the means of production (Castellanos-Navarrete 2015), but it also refers to exclusion of people from access to options, such as is the case with binding contracts

and credit and debt scenarios. This observation was the first inspiration for empirical Chapter Six, where I show debt scenarios to be of utmost importance for a pro-livelihood sustainable development agenda.

Research has shown how rapid expansion can lead to the loss of land and forest resources by local communities (Maher 2014; Schone- veld, German, and Nukator 2011; Yengoh and Armah 2014), a phenomenon particularly frequent in regions with weak land-tenure regimes (Hall 2011). In general, this issue of land rights ranks high on the index of concerns about oil palm expansion into areas where relatively vulnerable populations persist, often with weak or no formal land rights to the land on which they live and rely. The predominant focus of land rights issues in literature dealing with oil palm is on land grab, where local people are (sometimes violently) dispossessed of their land (Li 2017). Indeed, there is evidence in my own work of this also being the case in Ucayali, as shown in Chapter Five. However, as this review has shown, agro-policy has also been claimed to *facilitate* formal land rights in some cases (DeSoto 2000), an aspect I also found to be true in my investigation, evidenced in Chapter Four. Whether or not that has been done equitably is under debate and not even social projects have escaped land-related critique (Koczberski and Curry 2005). For example, concerns have been raised with relation to within-community inequalities and conflicts through processes of social differentiation fomented by new commodity crops that benefit some and not others in local places (McCarthy 2010). This angle of the relation of land rights to oil palm has barely been studied, and this information shortfall was the inspiration for the first empirical chapter of this thesis (Chapter Four).

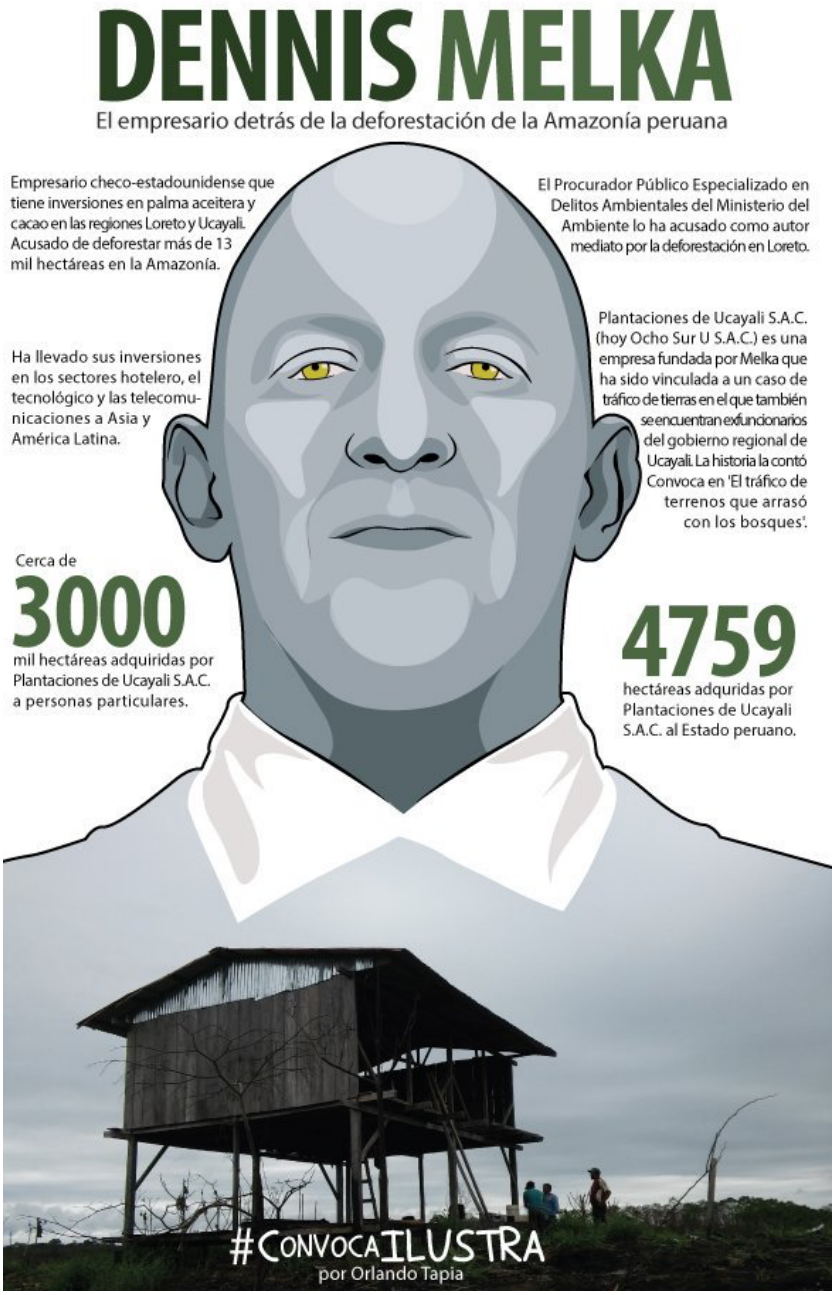
The impact of sudden land acquisition, facilitated mostly by the second ‘national’ pathway described above has always met with differential local responses, but now those local

responses are reinforced, legitimated and strengthened through the internationalization of their plights through NGO support and media. For example, Figure 2.2shows the powerful NGO-supported counterargument to the pro-palm campaign in the region of Ucayali, where this research took place, and Figure 2. 3shows a similar response to capitalist penetration (rather than oil palm per se) in the local area. The capitalist pathways, corruption and land grab involved in new large-scale modes of production and the impact they have had on local forests and people are the target of the anti-palm campaign, rather than the crop itself. This is an important observation because development and conservation agendas often (incorrectly) focus on specific land uses or crops (such as oil palm), or specific 'problematic' actors which range from the corporate company owner such as this case, to smallholder 'migratory' agriculturalists – often accused of deforesting on forest frontiers (Finer 2016, Ravikumar, Sears et al. 2017). A more appropriate focus for policy engaging with sustainable development would be specific modes of production and social organization of commodity crops, and a better analysis of the resources that are already available for sustainable exploitation with the view to moving away from reliance on exotic commodity crops for local economies.

Whilst non-indigenous smallholders increasingly find their land rights (and indeed rights to forests) linked to and constrained by agricultural policy, bestowing land to (legally recognised) indigenous people, is regularly cited in the literature as a conservation solution (Blackman, Corral et al. 2017). This links back to the inappropriate binaries in development that I mentioned at the beginning of this chapter. Observing these trends intensified my interest in understanding smallholders as they really are in the Amazon, and theoretically and empirically contributing to a better understanding of their realities with the view to informing more appropriate development and conservation policy.

Following on from the notion of smallholders or large holders as principal forest destroyers (depending on one's viewpoint) (Hecht 2010, Cossío 2014), it is important to remind the reader that large capitalist plantations are not seen as undesirable modes of production by everyone, quite the contrary. Rather, such plantations are viewed by many as more efficient way to fit a tree plantation into a tropical landscape. Proponents view intensive production on plantations as a more environmentally friendly 'land sparing' route to meeting the vast and ever increasing demands of global consumers as they ostensibly produce more food on a compact area. This type of production is not just intensified through land concentration as described, but also through higher yield facilitated by technological advances of the kind only the most wealthy capitalist corporations have access (Phelan 2011, Asafu-Adjaye 2015). From this perspective, smallholder production produces less commodity on more land dispersed over a larger space, which in theory at least may be less environmentally desirable (Phelan 2011). *Nevertheless*, it has also been said that by partnering up with these large efficient plantations, smallholders can *themselves* increase their yield and their incomes (Vermuelen 2010), thus explicitly merging the two production systems and having them both operational on the same space. To me, this seemed like a contradiction in the literature, and one that has not been adequately addressed.

Figure 2.2: Anti-capitalist media related to capitalism, oil palm and land grab



Writing translates as: Dennis Melka, the businessman behind deforestation in the Peruvian Amazon… Czech-American businessman who has investments in palm oil and cacao in the Loreto and Ucayali regions. He's been accused of logging more than 13 thousand hectares in the Amazon. The Ministry of the Environment's Special Prosecutor for Environmental Crimes has accused him as mastermind behind Loreto's deforestation. He has taken his hotel, technology, and telecommunications investment projects to Asia and Latin America.Plantaciones de Ucayali S.A.C. (today Ocho Sur U S.A.C.) is a company founded by Melka that has been linked to a land trafficking case in which former Ucayali regional government officials are also implicated. The story was told by Convoca in "The land trafficking that razed the forests." Near 3,000 hectares acquired by Plantaciones de Ucayali S.A.C. from individuals, 4,759 hectares acquired by Plantaciones de Ucayali S.A.C. from the Peruvian government. #ConvocaExplains By Orlando Tapia

Figure 2. 3: Community response to capitalist penetration



Photo from indigenous village before a meeting with the company and the government about issues with capitalist penetration and land grab.

Returning to the question of livelihood production and reproduction; relative to other crops, oil palm is investment heavy during the first three years before it produces. In order to be able to grow oil palm, most smallholders require credit, and for many this is the first time they have experienced formal lending scenarios. Credit contracts drawn up and distributed under the kinds of development pathways described above, relates directly to other elements of power involved in rural development involving commodity crop expansion (Braverman 1986, Zegarra 2008). On the one hand credit commitments makes smallholders highly vulnerable to debt enclosure, which seriously undermines the idea that development that emerges from these kinds of relations can be economically viable or sustainable for smallholders. Nevertheless, in fact, rural farmers can be powerful agents of change, resistance and innovation and it has been noted (by too few) that many formal development and policy strategies and interventions have failed because they do not recognise this (Adams 2009, Schreckenberg 2018). Rural non-indigenous people are sometimes thought to be a sort of

passive tabula rasa (blank slate) on which any development project can be targeted. The assumption inherent in this view is that if the project ostensibly increases economic income, it will be embraced and appreciated (Kay 1989).

For several decades a small group of scholars have been producing a wonderful depository of political ecological knowledge about non-indigenous smallholders that disprove reductionist assumptions about ribereños, caboclos, mestizos and 'invasores' in Brazil (Wagley 1953, Schmink 1989, Padoch 2008, Adams 2009, Hecht 2010) and Peru (Coomes 1994, Arce-Nazario 2007, Adams 2009, Sears 2011) is also evidence that smallholders are far from passive, dispassionate rural poor people desperate for any hand-out they can get or open to committing to any livelihood on offer. They have shown that in reality, inappropriate policies and development projects that are based on disengaged state-civil society relations are often ultimately contested or ignored (Gerber 2010, Sears 2011, Bennett, Cronkleton et al. 2018). This is because they disregard established and accepted traditions of market organization and exchange such as formal and informal markets, limit profits (or misunderstand what kinds of profits are desired), constrain powerful or important individuals along the chain, or criminalize and sanction production activities (Ribot 1998, Sears 2011, Bennett, Cronkleton et al. 2018).

These are critical economic elements to consider in a sustainable development agenda, particularly one such as oil palm which is investment (and usually debt) heavy, labour intensive and very long living relative to traditional subsistence crops. These issues connected with the pathways and modes of production described in this exploration of the literature were the inspiration for the final research chapter for this thesis: Chapter Six.

Whilst disempowerment of local people are the most commonly reported socio-political dynamics around tree plantations (Peluso 1992, Gerber, Veuthey et al. 2009, Borras, Franco et al. 2012, Rival 2014) in fact plurality in positions, perceptions, interests and understandings in relation to political standing and land-use means that outcomes of development endeavours can be complex and even counterintuitive (Kay 1989, Paulson 2003). For example, scholars have shown that political trade and production relations are not always one way, i.e. top to bottom, but can also be heavily influenced by acceptance, resistance and modification at production sites based on established historical political economies and ecologies and cultural norms (Kay 1989, Arce-Nazario 2007, Sears 2011, Bennett, Cronkleton et al. 2018). For example, I refer to my early example of multiple reasons for boom commodity markets to go bust. These interactions alter land-related policy in sites of production, particularly related to distribution of rights to use and own land through tenure regimes, the impact on the environment, and smallholder livelihoods.

The rest of this thesis is dedicated to making an empirical, conceptual and political contribution to the literature about oil palm expansion in Ucayali, Peru.

Figure 3.1 in the next chapter shows how the international national and local themes of livelihoods, environmental conservation and social dynamics explored in this chapter using the sustainable development paradigm as a heuristic contribute to novel research in the field of political ecology through this case study. Furthermore, exploring the ideas and themes of this literature has been helpful in unpicking and narrowing down topics that are both research opportunities and empirical and conceptual socio-political necessities within the three pillars of the (very broad and somewhat imprecise) sustainable development agenda. It is already clear that economic elements of this thesis focus on smallholder livelihoods and this is explicitly addressed in Chapter Six. Furthermore, I have woven the agrarian question of small

and large farms together with questions of modes of production and sustainable development themes to assess deforestation through smallholder production (Chapter Five), challenge the conceptual dichotomies of the smallholder vs the estate question and land intensification (land spare) (Chapter Five and 6) and expose the 'real' smallholder as a capable resource manager that lacks in opportunity, not ability when it comes to their contribution to and benefitting from development and conservation agendas (Chapter Four, Five and Six).

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Chapter Three: Methodology and Methods

Noted writers say that their craft cannot be taught, though it can be perfected. In the same sense, field work probably can only be perfected… no [laboratory] scientist ever spent twenty-four hours daily in the laboratory for months on end, to become one with its complex whole, solely to understand the phenomena of interest. Field workers live this way, and there are not short cuts. One learns a culture by living it; the next best resort is to live in it. (Ruth Landes: Women in the Field, p. 212)

3.1 Methodology

This study aims to shed light on the context of smallholder oil palm production and expansion in Ucayali, using the three pillars of 'sustainable development' – social, environmental and economic sustainability (Brundtland 1987) as a heuristic employed to facilitate the wider communication of the researching findings. As is common practice in human geography and historical political ecology research, both qualitative and quantitative research techniques provide the appropriate methodology for this work (Blaikie 1999, Offen 2004, Brannstrom 2013, Hay 2016). The primary methodological approach was 'fieldwork', embodied in a case study and utilizing three main methods: 1. Participant observation. 2. Survey questionnaires and 3. Remote sensing and participatory mapping.

Four main datasets were produced from fieldwork and used for this research: 1. Survey 1 (land use/ rights n=252) data. 2. Survey 2 (smallholder oil palm economics n=200) 3. Remote sensing of deforestation data. data and 4. Participant observation data. Figure 3.1 shows how

each dataset contributes to the central and sub-questions of the thesis and research papers, and which elements of sustainability are addressed in each.

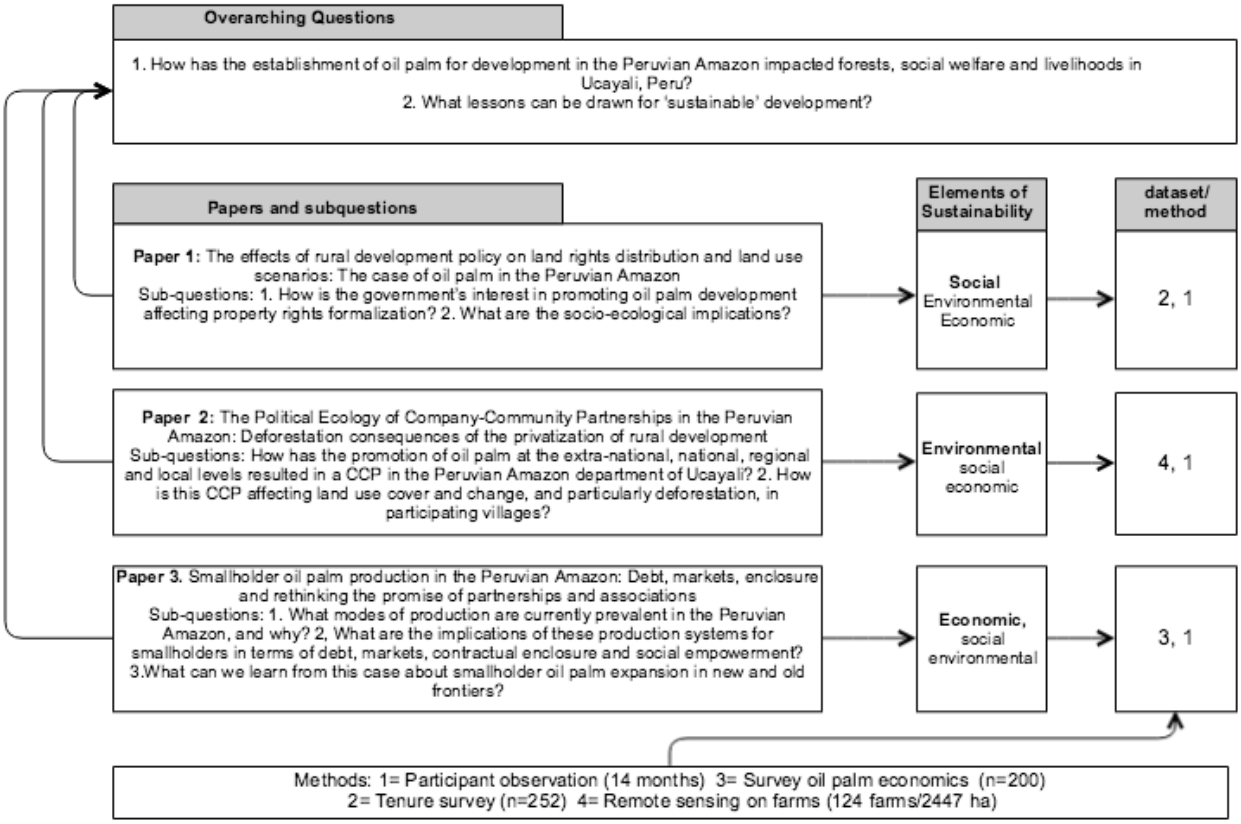
As is evident from Figure 3.1, this research did not approach any one of these data collection techniques as solely qualitative or quantitative methods, indeed all have aspects of both. For example, whilst participant observation is often considered a purely qualitative method (Jorgensen 1989, Jorgensen 2015) it can also generate both quantitative information (Bernard 2011). For example, during the participant observation undertaken for this research aside from the qualitative information gathered it was possible to collect many (photographs) of farmers' sales receipts, land title deeds and credit contracts that was later analysed quantitatively (see papers 3 economics and 2 deforestation). Equally, whilst visual remote sensing primarily involves quantitative data collection and analysis, this research combined remote sensing with participatory mapping and interviews to triangulate (Winchester 2016) and verify (Bernard, 2011) quantitative data. Survey questionnaires can develop quantitative and qualitative data, depending on the style of questions (structured, semi-structured or open ended) (Parfitt 2005, deVaus 2014) and this research employed all three styles in surveys to elicit different types of responses and generate different suites of information. Additionally, many data collection techniques also have analytic capacities (Bernard, 2011). For example, the participant observation undertaken for this thesis was indispensable for interpreting and explaining other data, as can be seen in Chapter five where statistical regression models are explored and interpreted using the expert knowledge gained through participant observation work.

Case study research is often considered the most appropriate approach for exploring new topics and/or cultural/geographical areas (Eisenhardt, 1989). It is now widely accepted that

meaningful engagement with sustainable development agendas is not possible without empirical case studies (Eisenhardt, 1989; Menton and Bennett, 2018). As mentioned in the chapter one, context specific problems are best confronted with context specific answers, but this does not mean that more generalised theoretical insights cannot be derived from a case study, quite the contrary (Flyvberg, 2006). This is especially true in frontier regions, as chapters one and two showed, and so a case study approach was chosen as the central point from which all aspects of this thesis are launched.

To compliment the main methods, field-tested participatory techniques were adapted and employed for both the ecological and socio-economic components of this study (Carter 1996; Lawrence 2000; Ambrose-Oji et al. 2002; Nemarundwe and Richards 2002; FAO 2003; Chambers, 2006; Hay, 2016). This predominantly involved participatory mapping, but also included some other approaches such as key informant interviews, vignettes and village history writing.

Figure 3.1: Chart of central and sub-questions, sustainability pillars, and methods



3.2 Methods

3.2.1 Ethics

The research conducted for this study underwent the ethical screening procedure of the Central University Research Ethics Committee (CUREC) at the University of Oxford. Participants in the research were informed of the objectives of the research and were asked for prior informed consent – including the choice to opt out. To enter villages, a meeting was held with village leaders and a letter of introduction and seeking permission was given to them for their future reference. An example of such a letter can be found in Annex 2. Participants were informed in introductory meetings and on several occasions thereafter that the data provided would be used in a thesis archived at the university, and in academic publications, policy briefs, government presentations and other information outlets such as online blogs and possibly other media. Informants were also informed about the anonymization process, which involved the following coding: District code, village code, project (chapter) code, informant number code. For example: CUM-MO-PA-01 (Curimaná, Monte Olivos, Palma, Entrevista 01). Prior to each field season in Peru, a travel risk assessment was also cleared with the School of Geography and the Environment to ensure safety in the fieldwork and overseas travel. Data was encrypted, backed up and stored in Oxford University's HFS Backup and Archival Portal.

Although all the requisite ethics approvals were met for this work, a brief reflection on the academic culture of 'ethics' and 'prior informed consent' is worth a moment's time (Murray 2011, Palmer 2014). After going through the process of ethics applications, and having recently been obliged by a journal to provide an ethics statement prior to the publication of the Chapter Six in their journal, I found myself pondering the motivation and efficacy of these processes. Are we as researchers and research institutions seeking informed consent

because we genuinely believe that this is morally correct, or are we doing it to cover our backs against later claims against us? If it is the latter it is patriarchal and thus unethical, and may better be understood as reinforcing the negative power and labour relations we – as critical realist political ecologists - seek to understand and address. If it is the former – why are ethics procedures most often mandated from above in such a patriarchal fashion, usually without any connection with or regard for the contours of local life at the site of research, or the expertise of the researcher undertaking the work? For example, according to the advised procedure for interviews and surveys, the people engaged in my study were initially provided an information sheet about the research, and invited to sign a consent form. However, during fieldwork it transpired that asking for signatures was a highly problematic endeavour due to terrorist activity the previous decade in which signatures of rural people had been used to rig elections, falsify admission of crimes and membership to specific political movements, groups and activities. The requirement to ask for prior informed consent (even verbally), and especially signatures disempowered me as a researcher, endangered my safety and created distrust and a perceived attempt by me to impose my formal culture onto them, ultimately causing delays in my research. Local people and institutions are highly informal, and imposing formalities such as these went against their view of building relationships. Consent in this region of the Amazon is gained through time and trust building, and they have their own system of formality, which in the case of non-indigenous people is to provide a letter to the head of the village and have that person discuss consent with their constituencies.

For the entire period I did my research, and to this day, I spent time with a group of women from the Shipibo indigenous tribe. Their primary language is Shipibo, and this is the language they speak together but they are bilingual in Spanish also. When I am with them, they choose to include me or not in their conversations by using a language I can or cannot access. Often,

I must sit for long periods without understanding anything they say, until they decide to include me again. Should I learn Shipibo in order to access these conversations, it will be because they have taught me the language, in which case consent for the research will be explicit and clear and on local terms. I believe that this is a good example of true consent rather than system we are developing to cover our own formal bureaucratic systems (even if this system has good intentions as its basis) (Foucault 1980). Thus, for this research, a new CUREC application was made explaining that under these circumstances, signatures and forms were not appropriate ethical safeguards and instead a proposal for locally relevant ethical procedures for consent was approved after I justified my case. Concern about the growing burden and rigidity of ethics procedures for research is warranted, and it may even be advisable that more research is undertaken on this issue.

3.2.2 Key informant interviews, Surveys and Participatory Techniques

Key Informant Interviews

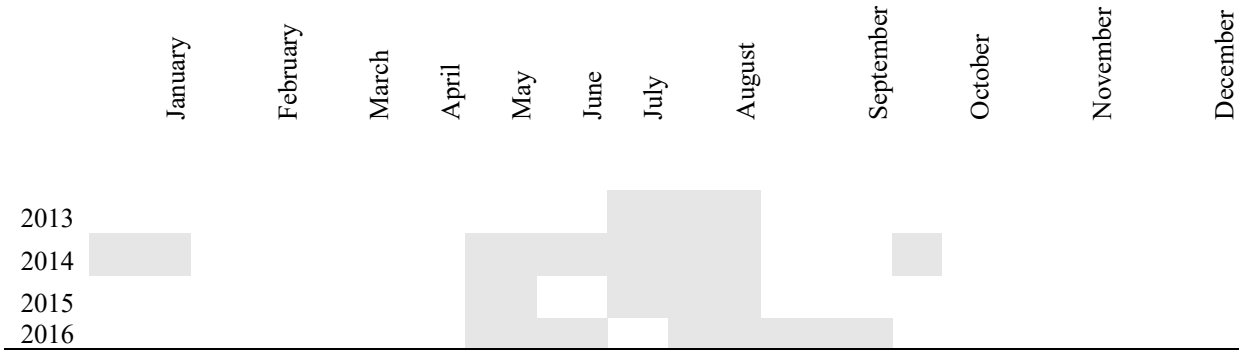
In anthropology, key informant interviews are often understood as key in-field individuals that are interviewed intensively over a period of time for the purposes of providing a relatively complete ethnographic description of social and cultural patterns of their group. Although these types of individuals and this approach to data collection was employed as part of my participant observation, and written up in log books, I have chosen a different meaning for the term in this thesis (Tremblay 1957). 'Key informants' in this section refers to representatives of professional bodies such relevant to the study as government agencies, lawyers, NGO's, journalists experienced in reporting the issues and other types of professional that could give in-depth and often educated information that helped to understand the contexts, guide decision making about the research and provide a lead to other

important key informants such as large private land owners (see Annex 6 for guiding questions). Much of this information was quantitative, such as the land cadastres which were solicited during such interviews in the regional directorate of agriculture (see Annex 4). Guiding questions were used for these interviews and each 'project' (Chapter) had different relevant guiding questions for these key informant interviews, that can be understood to be semi-structured. Examples of guiding questions are in Annex 6, and letters of request for meetings with and/or information from key informants can be seen throughout the Annex section. More than 300 key informant interviews were undertaken. The entities they pertained to are listed in the Table 3.1and the time spent in the field is presented in Table 3.2.

Table 3.1: Semi-structured key informant interviews

Agency/informant type	Number of interviews
Regional Directorate of Agriculture	111
Regional Directorate of Environment	13
AGROIDEAS	32
Oxfam	2
ProFOREST	4
Journalists	16
COCEPU	6
ASPASH	4
UNODC	22
USAID	2
DEVIDA	17
Congress/Ministers	5
AIDESEP	3
FECONAU	3
MINAM/SERFOR	18
MINAG	37
CONVEAGRO	14
EIA	6
SPDE	7
SPDA	3
PROFOREST	4
IDB	2
ICRAF	20
President of Peru (Humala)	1
Presidential candidate (Hiladio)	2
Private oil palm company managers	9

Table 3.2: Timeline of time spent in the field



Surveys

Survey questionnaires were employed as a qualitative and quantitative approach to data collection (Hay 2010). Survey questions and survey content were drafted in collaboration with funders, villagers and key informants in the field using central questions to guide their creation. In all cases surveys were grounds tested, piloted and edited. Pilot answers were not used in the published results. The first survey (henceforth 'survey 1') was conducted in 2013 with 252 smallholders in three districts and 18 villages (Figure 3.2). This survey focussed on land use, land rights, land allocation and smallholder perceptions about rights. The second survey (henceforth survey 2) was conducted in 2016 with 200 smallholders (and indigenous people) in six districts and 31 villages (Figure 3.3). The second survey solicited information about economic scenarios of oil palm smallholders, knowledge about farmer association governance and perceptions of equity and livelihood wellbeing. Surveys included structured, semi-structured and open-ended questions devised to answer the central question of the thesis, and sub-questions of each paper (see Figure 3.1). To protect the identities of the villages and

their residents (who are currently embroiled in violent land conflicts), villages do not appear on any maps in this thesis or its respective publications.

District, Village and household selection for surveys

Survey 1: Because land titling is a universal phenomenon in Ucayali, to begin with the whole department had to be considered, however this was broken down using selection criteria. In selecting sites, areas that were predominantly comprised of native communities with communal tenure regimes, and areas that were largely urban, were eliminated due to the nature of the focus on smallholders on the farm/forest interface and the central questions based on non-indigenous land tenure laws. It was important to have districts with oil palm and without, so that the latter could act as a control.

To cluster sampled villages, each district was divided into 25km x 25km grids. Cells were eliminated that had less than 12 villages present and cells were then randomly selected. Six villages and two back-up villages were randomly selected from each chosen cell. This method was employed to avoid logistical problems that would have resulted from a sample of villages spread across thousands of kilometres of Amazonian landscape. Finally, villages with >60 households were excluded, as the pilot phase revealed that participatory mapping became extremely problematic beyond this size. The size of villages could not be known before entering the field, hence the two back-up villages in the original random selection.

To generate a sampling frame at the household level, a list of resident landowners was drawn up using participatory mapping activities mapping every household in the village, their economic activity (crops) giving each household a number. Heads of households, their spouses and their adult offspring were defined as suitable interviewees. Village households had no land of their own, as well as absentee landlord households were excluded from the

sample. These included households that cultivated oil palm, and also those that did not. Households were selected using a random number table (see Annex 1) according to the number allocated to the household during the mapping activity. Two pilot surveys were conducted. Where the smallholders claimed more than one plot, the survey questions were applied to each plot individually and a 'main plot' was identified where multiple plots were claimed by interviewees.

Survey 2: Of the four provinces that make up Ucayali, only two currently host oil palm production and so only areas in these two districts were considered for sampling. Within these two provinces, there are 6 districts that are oil palm producers and all districts are relatively accessible by road and river thus the survey was applied in all six. Below the district level are the municipalities and villages (see study site for admin units).

Villages were first stratified based on the official information the regional government and the UN associations and mills provided, which was based on registered committees, their respective member villages and number of members in each committee, their names and their ID numbers. However, whilst the UN datasets were helpful, fieldwork revealed a significant disconnect between regional government reports on smallholder oil palm and the reality on the ground. For example, several villages on the list did not (or no longer) existed, and some listed villages had already abandoned oil palm as a livelihood strategy. Additionally, whilst the government documents had attempted to quantify how many smallholders were members of formal committees and associations, in reality many of these numbers had decreased or increased dramatically. Thus, key informant interviews with committee and association leaders, regional government representatives and village heads were conducted to create an approximate census and map of the general geographical area each committee (or ex-

committee) covered. Areas where there were smallholders producing oil palm but were not on the formal list were also identified, this maximized the potential to find and include independent smallholder producers as well as include smallholders that were members of the corporate association (CCP) that were not on the government list. From this list, a random sample of areas and then villages was drawn.

To generate a sampling frame at the household level, the same mapping technique and criteria were used as with survey 1, with the additional interviewee criteria of exclusion of households that did not produce oil palm. Finally, 200 smallholders were interviewed in 33 villages (6 households per village). Due to intense land conflict and social unrest that developed between the private company and the local people during the time the survey was applied (winter 2016), and the fear generated therein, eleven informants asked us not to use their survey responses in this analysis, so our final dataset includes 189 survey responses. The survey can be seen in Annex 5.

Figure 3.2: Map of Survey 1

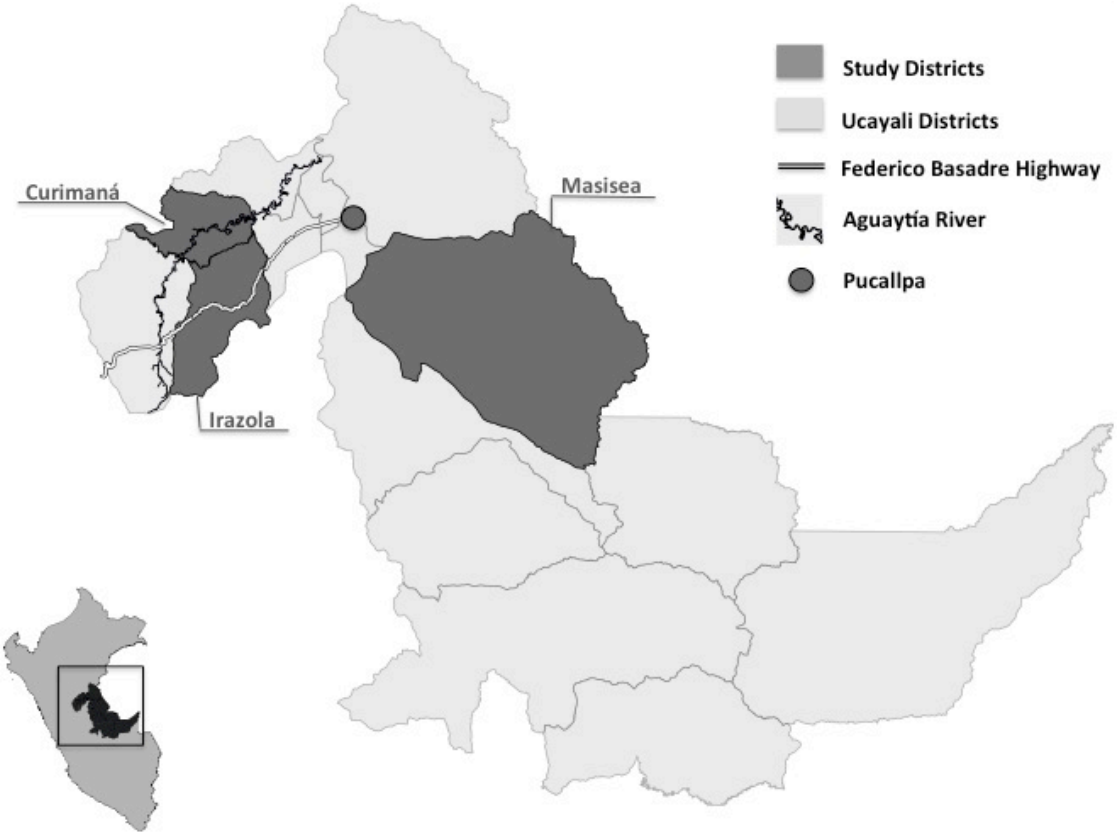
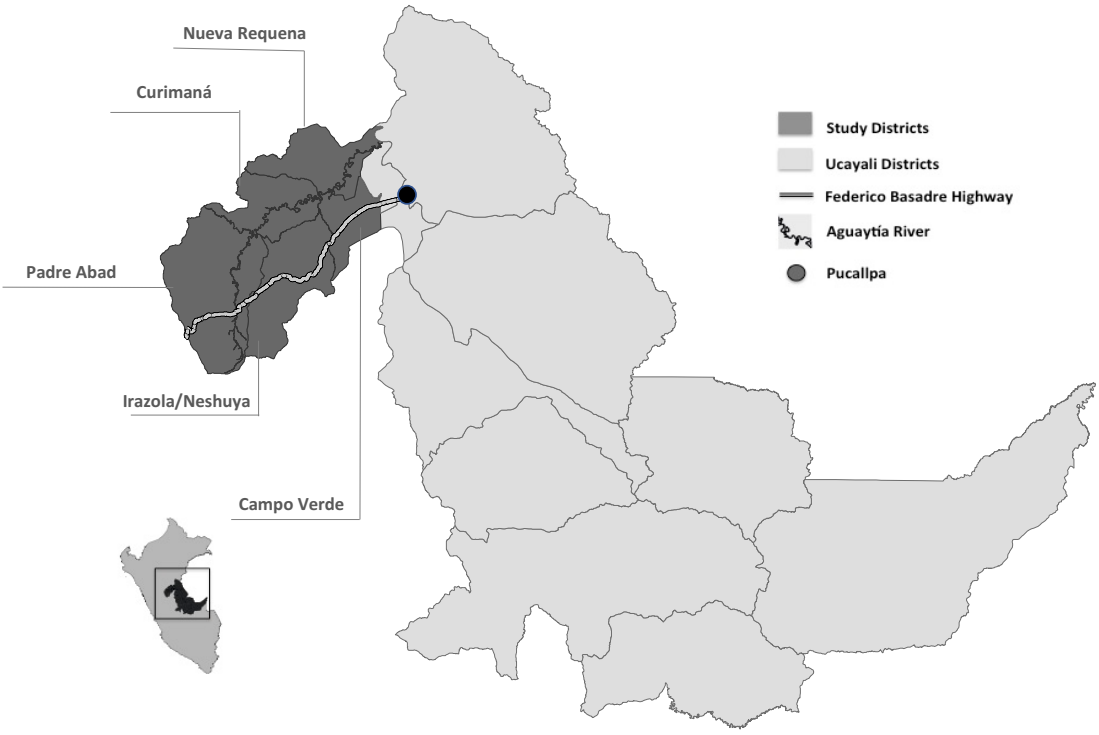


Figure 3.3: Map of Survey 2



Participatory techniques: Mapping, Vignettes and Participant Observation

Participatory mapping activities usually involve local people drawing maps of their territories together with researchers and locating key places and resources on them (Chambers 2006, Lynam 2007). This method, like many other methods we call 'participatory' have been critiqued on the grounds that there is not a genuine mutual participation or benefit in the activity (Barnard 2017). Rather, it has been suggested that it is merely another way that researchers generate information for themselves, without genuine creative participation of the informants. In the research for this thesis I attempted to make the participatory element meaningful in some ways to the communities I was working with. With the participant observation this was simple as I was able to attend events and participate by sharing knowledge and expertise and encouraging those with traditionally less propensity to participate and speak such as women and young people to do so. This was particularly relevant when it came to land rights meetings, where the research itself had generated information for the smallholders that was helpful to them as well as to me. As I explain below, the research itself attempted to be participatory in the 'reflexive' design, where the investigation was undertaken in parts and at the design phase of each part, local people and key stakeholders were invited to contribute to the themes of the research and the direction of its application. This is discussed more in the participant observation section below. Equally with the mapping, the participation of women where they may not normally be considered to have superior knowledge was also a strategy for inclusion and participation, although later in this section I explain some difficulties and limitations with enabling a purely participatory approach to the village mapping. Finally, participatory mapping (especially of farms, see Figure 3.7 was also followed

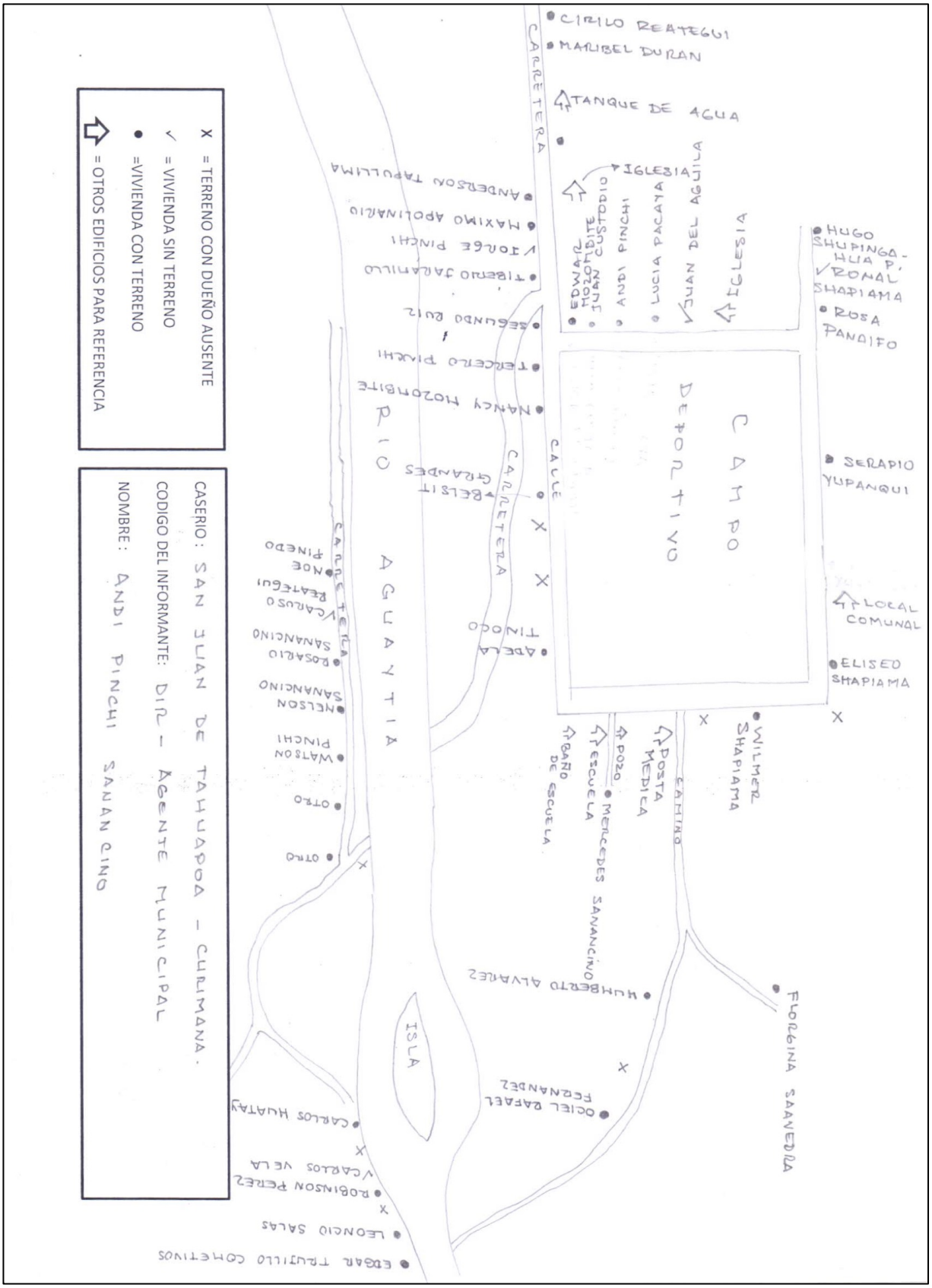
Participatory Mapping

For this research two scales of participatory mapping were employed, the village level (described in this section) and the farm level (elaborated below in *visual remote sensing*). At the village level the mapping activity had the primary purpose of supporting the generation of the randomised household selection as households were given symbols as to their qualification under the selection criteria. However, maps also served as a critical resource for fieldwork logistics. As

Figure 3.4 shows, many villages were dispersed across riverways and rudimentary paths and roads. Thus, the maps were invaluable for planning survey application and participant observation movements, timing, resources and safety of the field team and to ensure the ability to relocate households on return visits. Maps were drawn on carbon paper, so that multiple copies were available immediately.

It was important that as many people participate in village mapping as possible. A protocol designed for this research specified that mapping sessions must be attended by one village leader (for cultural reasons), and one village member that was *not a spouse or close relative of the village leader*. This second protocol arose after a pilot phase evidenced village leaders with a particular political agenda sometimes omitted 'problem' households from the map – attempting to influence our research results in favour of their political standpoint. For example, in one village a map was drawn up with a village leader and his spouse. The next day the mapping activity was repeated with a group of women. The second map had eight new households, all owned by neighbours that opposed oil palm expansion, It is possible that this also relates to knowledge: females (wives) were generally more up-to-date on the goings on of neighbours than village leaders.

Figure 3.4:**Participatory Village Map**


X = TERRENO CON DUEÑO AUSENTE
✓ = VIVIENDA SIN TERRENO
● =VIVIENDA CON TERRENO
⇨ = OTROS EDIFICIOS PARA REFERENCIA
CASERIO : SAN JUAN DE TAHUAPOA - CURIMANA.
CODIGO DEL INFORMANTE: DIR - AGENTE MUNICIPAL
NOMBRE : ANDI PINCHI SANANCINO
CARRETERA
CIRILO REATEGUI
MARIBEL DURAN
TANQUE DE AGUA
IGLESIA
EDWARD HORACIO
JUAN PINCHI
LUCIA PACANA
JUAN DEL AGUILA
IGLESIA
HUGO SHUPINGA-HUA P.
RONAL SHAPIAMA
ROSA PANAIFO
SERAPIO YUPANQUI
LOCAL COMUNAL
ELISEO SHAPIAMA
WILMER SHAPIAMA
CAMPO DEPORTIVO
CALLE
CARRETERA
RIO AGUAYTIA
ANDERSON TAPULLIMA
MAXIMO APOLINARIO
JORGE PINCHI
TIBERIO JARAMILLO
SEGUNDO RUIZ
TERCERO PINCHI
NANCY MOZOMBITE
BELSIT GRANDES
ADELA TINOCO
NOE PINEDO
CARLOS REATEGUI
ROSARIO SANANCINO
NELSON SANANCINO
WATSON PINCHI
OTRO
OTRO
ESCUELA
BAÑO DE ESCUELA
POZO
MERCEDES SANANCINO
POSTA MEDICA
CAMINO
HUMBERTO ALVAREZ
ISLA
OCIEL RAFAEL FERNANDEZ
FLORINA SAAVEDRA
CARLOS HUATAY
ROBINSON PEREZ
CARLOS VELA
LEONCIO SALAS
EDGAR TRUJILLO CORNEJOS

Vignettes

The type of vignette employed for this research diverges from more structured factorial survey techniques (Rossi 1982, Penn Handwerker 2001) in that hypothetical situations with specific variable combinations were not presented to the informants. Rather the informants were invited to play out their own vignettes (in this case in the form of paper stick puppets) as an additional tool to participant observation to help less confident informants such as rural women to express their views on oil palm farming life in its various forms, as well as to give informants a non-threatening, indirect way to disclose knowledge and perspective and to express themselves about issues they may normally not be socially licensed to do so. In this sense, the vignettes developed to be a highly participatory and mutually beneficial activity in the field for my informants and me.

Vignettes were made by hand during participant observation whilst staying in rural households and vignette activities were played casually when the context was appropriate (Sunday evenings, holidays, after dinner). Puppets were made to represent different stakeholders, the oil palm company, villages, indigenous communities as well as non-human elements such as land, palm trees, forests, animals. Smallholders engaged in this activity enthusiastically. Vignette puppets were left lying about households where I stayed and often ended up scattered around villages. Smallholders would frequently pick up a puppet and talk to it, or 'be' it, which provided a lot of rich ethnographic data. An excerpt from field notes illustrates:

Today I was sitting in the doorway of the family house after 'Juan' had left to work on the [oil palm] plantation. In passing the pile of puppets on the table after last night's games using them, 'Iliana' picked up the 'oil palm company owner' puppet and held it close to her face and looked at it and said "look at you, with all that money…. Ohhhhh what do you do with all your money? and you take allllll of our land to make more money and it's just money and money and money and capitalism. That's what you are, a capitalist. A thief. You are a thief. Aren't you? Yes, you are. I bet you eat very well ('deliciously')". She then thrust the puppet to the side and went about making breakfast, humming and tending to her baby, as she does every morning. Not only have I never heard rural people openly talking about

'capitalism', or ever using that word, I have never heard a woman express such strong views about the actions of the plantation in terms of land grab, and feelings of resentment towards them, either. (Bennett field notes, village San Juan de Tahuapoa, July 2014).

Participant Observation

Participant observation was undertaken in villages and Pucallpa to a total of approximately 14 cumulative months spread over a period of four years (2013-2016) (Table 3.2) and divided into six trips that ranged in consecutive time from six weeks to five months. Although my primary 'residency' for participant observation was predominantly concentrated in eight villages, one indigenous community and the urban area of Pucallpa, a meaningful amount of time was spent in 31 villages and three village annexes (see political administrative units in figure 1.2). 'Meaningful' means sufficient time to be able to observe socio-political and cultural dynamics that enabled a wider and deeper understanding of the political ecological dynamics of the region, and the sample and datasets sets as a whole. The amount of time this took depended on many factors including the size of the village, the purpose of the visit, the information sought there and how welcome/safe I was. Villages were accessed by arriving to the village and presenting myself, as well as a letter of introduction/intention of the study for the reference of villagers. This is standard practise for any entity going in to villages. In order to work in a village I solicited a meeting first with the village leaders and get their blessing to work in the village. In most villages we requested permission to sleep in a public building (usually the kindergarten or meeting house), and we would set up and pack up camp every night and morning. However, as time went by in some villages close bonds were developed, and I became more integrated, which made sleeping arrangements less formal. For example, I became godmother to two children, in those villages where informants had become friends, we stayed with known families where we were welcomed as family.

This geographical multiplicity of participant observation sites was intentional (Coleman 2011), and because of the socio-political interconnectedness of villages for everything from local football tournaments to formation of political groups, protests, lobbying and farmers' associations it was very appropriate to move around as events unfolded, because villagers themselves do. As time progressed, I was able to deduce more about a given context at the household or village level, and integrate more quickly in a shorter amount of time (Penn Handwerker 2001). This was greatly facilitated by my increasing knowledge of and good reputation with neighbours in other villages.

As smallholders grew to understand the research agenda, they would initiate phone calls or messages to inform me that certain meetings or events were going to take place. This was invaluable to me, as I was able to attend, observe and participate in things I would have otherwise missed such as the protests described in chapter six, and most farmers' association meetings – the cornerstone research for the theoretical and empirical contribution of Chapter Six. This process also gave the smallholders the option to participate in, guide and influence the research. This was an intentional methodological strategy of this research.

Except for early 2014 and late 2015, most participant observation took place in the regional dry seasons between May and October. This was mainly due to accessibility, which was limited in the wet season as roads often became impassable. Although experiencing the difficulty in mobilizing oneself because of weather conditions was an important aspect of the participant observation in itself, the purpose of participant observation for this research was to exist as part of a system, not as part of a household, village or clan as in more traditional anthropological approaches. As such being restricted within one village for long periods of time would have prohibited the observation approach I wished to employ. Additionally, the

decision to break up observation work throughout the duration of the research period was made so that a) it would provide a longitudinal dataset that cross cutting methods such as once-off surveys cannot and b) so that the research could be 'reflexive'. I use the term reflexive as Sultana (2007) does, it means that the research agenda was created together 'with' the participants on an ongoing basis and that results and reflection from previous field seasons or visits informed the next steps for the research. The research papers here are the result of this reflexive approach, and are representative of what interested me, research funding bodies and the local people that I was studying. This approach also provided the opportunity to have more genuine participation in the participatory approaches, as well as the research itself. Additional photographs of this fieldwork and the landscapes in which it took place can be seen in the final section of the Annex 7.

3.3 Visual Remote Sensing

Remote sensing techniques are excellent at quantifying the total extent of deforestation, how deforestation rates change over time (DeFries, Achard et al. 2007), for monitoring and responding to illegal deforestation in remote areas (Grecchi, Beuchle et al. 2017) and even for trying to identify drivers . However, whilst recent reports claim that most of the palm planted in Latin America to date has taken place in non-forest lands (Furumo and Aide 2017), these kinds of reports are often based on coarse scale data (for example MODIS at 250m resolution) focussed on large monoculture plantations. This approach excludes smallholding producers from the research remit.

Therefore, for this study visual remote sensing methods were employed to quantify the land use change on smallholder farms in four categories: forest, natural regeneration (mostly fallows), other crops, oil palm and cleared land or pasture (Figure 3.6). This analysis was

undertaken on 124 farms over 2,447 hectares. Observed changes were measured for the following land use categories: forest, other crops, oil palm, cleared land or pasture, and natural regeneration (mostly fallows). The visual remote sensing used a quantitative change detection technique, using high resolution satellite images obtained from Google Earth (IKONOS, at 1 m of spatial resolution) at two reference dates: 2011/12 before the corporate partnership and 2015/16 – after the partnership was implemented. The principal approach was visual (and manual) delineation in Google Earth of the land use classifications at both points of time. I acquired a recent (2016) cadastre of georeferenced polygons of titled farms for most of my study site from the Regional Government of Ucayali's Directorate of Agriculture (DRSAU) (Figure 3.5 cadastre map). These cadastres were brought to the rural villages to cross-check them with the property owners. Village leaders, interviewees and in some cases, focus groups, helped us to identify all the properties, households and/or property owners.

Farm-level participatory maps were used a) to cross check the validity of the polygons the regional directorate of agriculture had provided for the site, b) to note in detail any land use change activity that had taken place on the plot c) to safeguard from any visual identification problems that could arise as a result of bad quality remotely sensed images. The legend in image 3.6 shows the features and events that were mapped which ranged from uses (fallow, subsistence crops, oil palm) to events (storms, plagues, fires) as well as other socio-economic processes such as land sold, given as inheritance, lost to a company or split for any other reason. Remote sensing often reveals nothing about the crops being cultivated nor the socio-political drivers and incentives contributing to these deforestation patterns (Dove 1983, Ravikumar, Sears et al. 2017) and since this political ecological thesis precisely *did* wish to

understand these processes, visual remote sensing together with participatory mapping and the socio-economic methods described earlier in this section facilitated that.

Figure 3.5: Cadastre Map

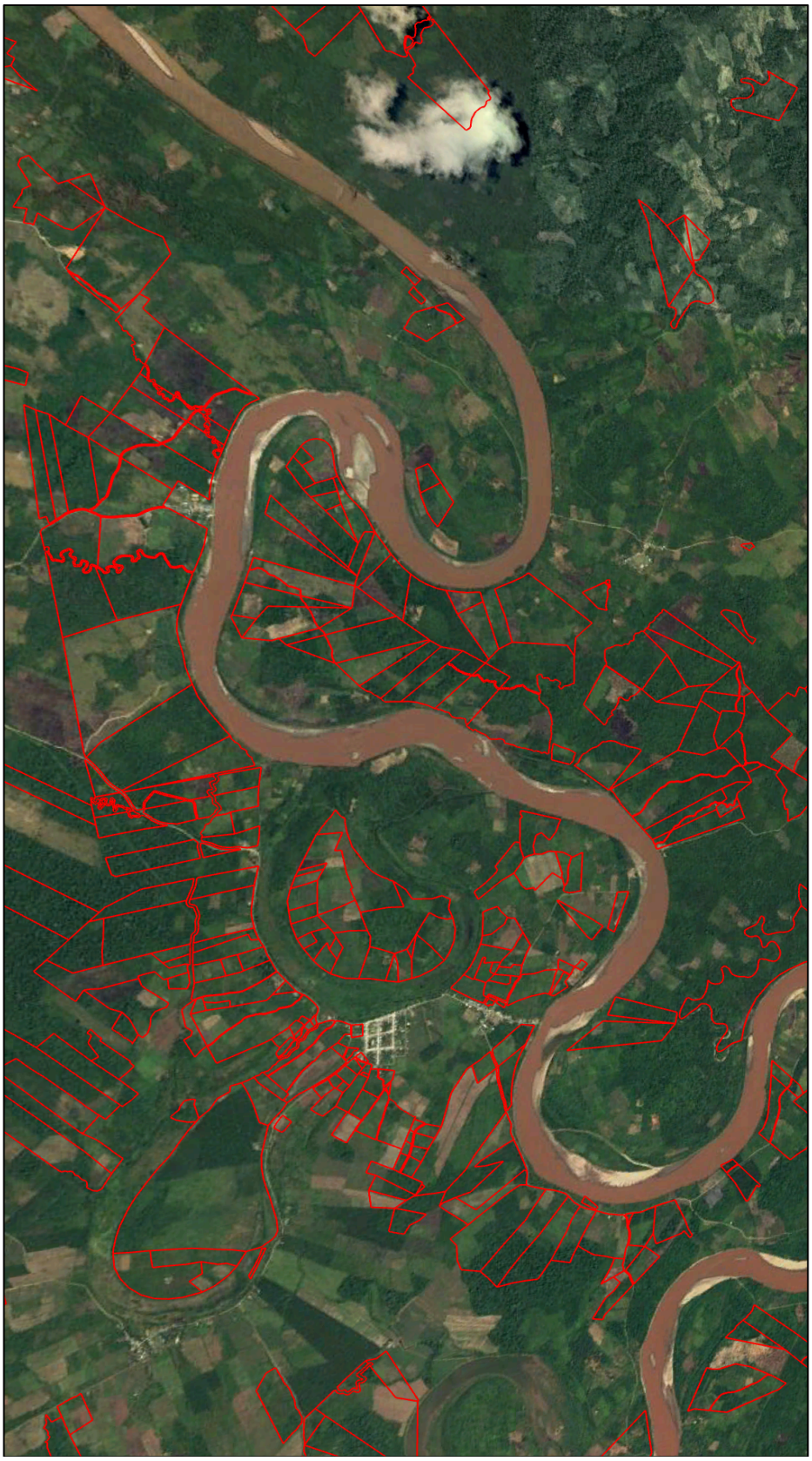
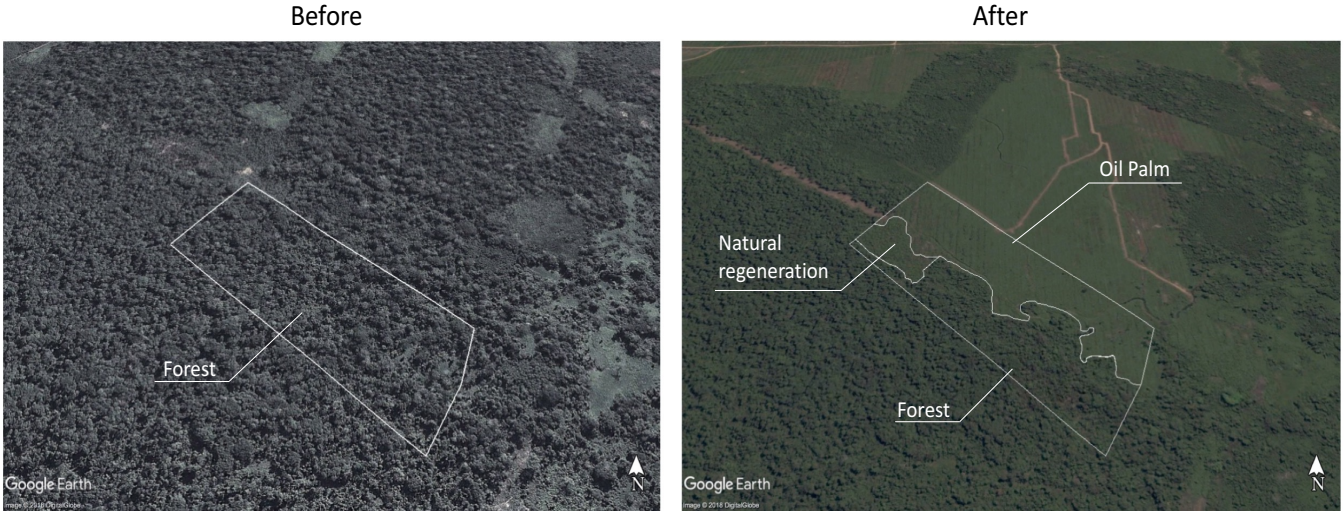
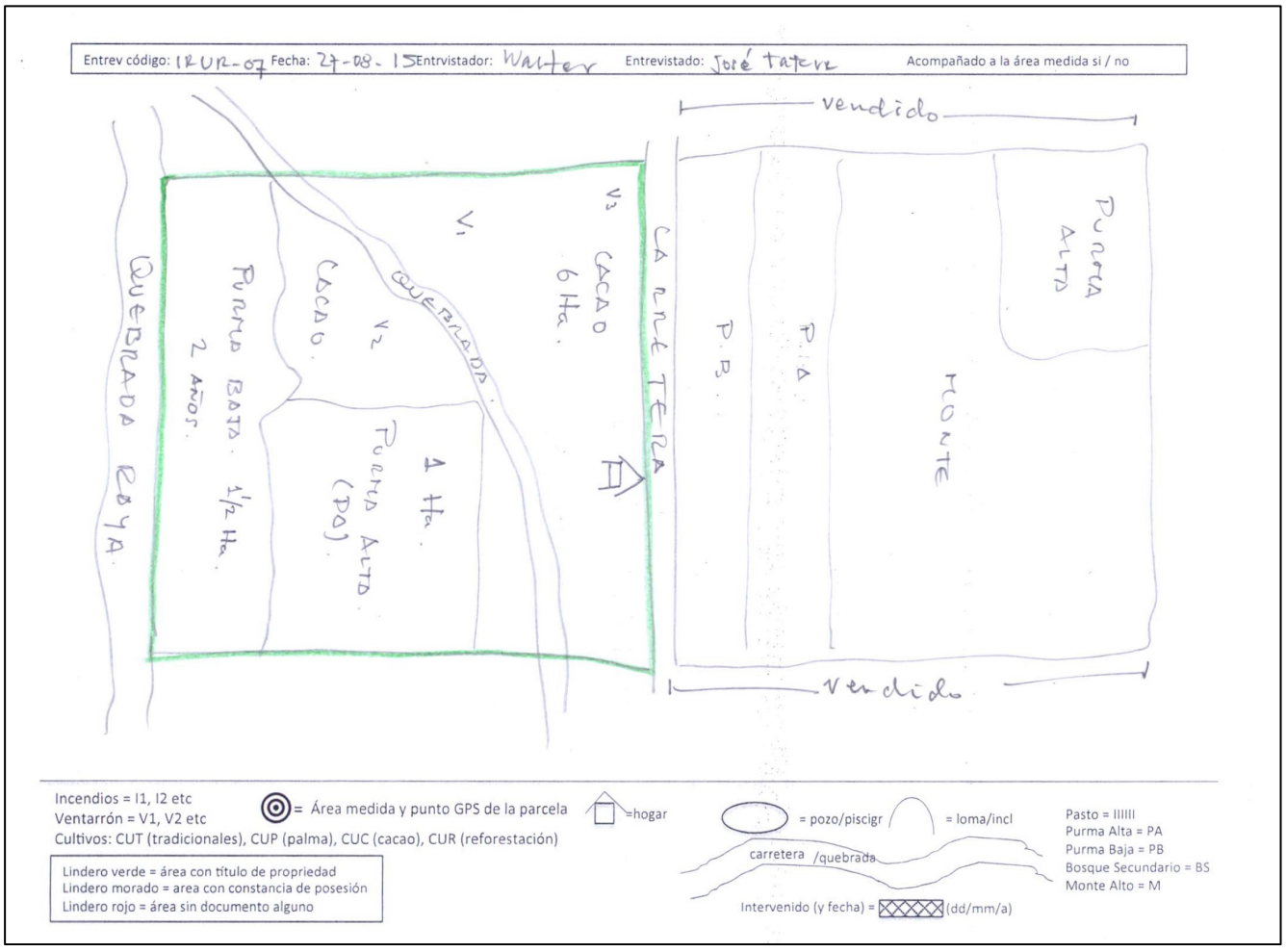


Figure 3.6: Visual Change Map



Land use change map: Before=2011, After=2016/2017

Figure 3.7: Farm participatory map



3.4 Field Assistance

At least one local field assistant was present at all times during fieldwork, but usually there were two. One field assistant had a lower third level technical degree in forestry, and the second had a university undergraduate degree in forestry. The participation of the field assistants in the research varied according to the research needs, time and resources available and their individual skill sets. Intensive and ongoing training was provided to both field assistants in ecological census techniques, survey questionnaires and social science methods. CIFOR funded a trip for them to attend an anthropological training course in Lima. Additionally, they were subject to rigorous training by me. Field assistants were expected to memorise surveys to make interview flow more engaging for interviewees (Schober 1997, Krosnik 1999) and many hours of practice surveying took place before entering the field (Willis 2005) to ensure that a consistent methodology and approach was applied across the team, and to ensure avoidance of survey 'destroyers' such as leading questions (Bernard, 2011). For the first week of every survey field assistant would observe my interviewing, then they would be observed for the second week and each day was followed by a feedback session on the day and specific issues or questions that arose from new experiences. For the first survey this was supported by explicit 'permitted prompts' right on the survey questionnaire. By 2016, when the second survey was undertaken, these two men and I together had conducted almost 700 surveys between us (additional surveys were undertaken that have not been included in this DPhil but will build on this work post-DPhil), and our technique was solid.

For the purpose of this research rigorous training of field assistants was without doubt necessary, and the undertaking of this training to the standard desired required a lot of investment in time and resources. Nonetheless, it is also important to be clarify that – like

many local people that ‘assist’ academics – Isaac and Walter are true ‘experts’ in their own ways in everything that this thesis investigates. The difference between us is our distinct livelihoods (mine being in intellectual commerce and theirs lying elsewhere). Whilst it is undeniable that the five years we spent together was mutually beneficial, it is also undeniable that this thesis is of the quality it is a result of our mutual strengths. I could not have done this work without these talented colleagues.

3.5 Limitations and observations:

- **Positionality:** My gender, my race and my age influenced my experiences and the way I was treated in the field. For example, although I became fluent in the local language, it wasn’t until the last field season that I learned any swearwords, as it had taken that long for people to feel fully comfortable speaking that way in front of me. Thus, it is likely that these elements affected other aspects of the work, too. My gender, my race and my age did not however, prevent me from being present at any part of village life, or other events.
- **Objectivity and neutrality:** In any field study the researcher must attempt to be prepared for some genuine tests of their ability to remain a dispassionate observer. Bernard (2011) advises that by suspending active judgement of behaviours, actions, attitudes and comments a researcher may normally react to, they may be able to record them, and to try to understand them and place them within the broader context of the other things learnt, and this is the approach I took. However, objectivity is not the same as neutrality. We can research can be strong in its objective and factual documentation, without expecting neutrality. As such, my position on social and environmental justice, on rhetoric and narratives around oil palm that are dishonest and misleading to the unjust detriment of the rural poor and the Amazon rainforest is evident in this body of work.

- **Participant expectations**: An explanation of the study objectives and my role as a student prior to engaging participants in the research helped overcome some expectations from smallholders and communities. However, this was something that had to be constantly addressed and at times was a problematic aspect of the research, especially as I was going in and out over a long period of time.
- **Survey questionnaires:** The various issues with survey questionnaires are widely known and debated as many of those cited in this section have explored. The art of creating and undertaking good quality surveys is something one learns with time and even still they are intrinsically problematic. Nevertheless, a large number of issues pertaining to questionnaires (inappropriate or unhelpful questions, not providing the correct 'choices' in closed questions, the style and approach of delivery of questions etc.) were overcome through both the reflexive approach undertaken, the extensive piloting and the strong foundation of participant observation.
- **Remote sensing:** The accuracy of visual remote sensing results depends hugely on the clarity of the images, and the ability to discern what exactly is in the image. I was lucky in that the images were clear for the 2447 hectares I measured. However, the farm-level participatory mapping and land use interviews provided a strong triangulation and verification technique to support this in any cases where there were doubts (for example, banana plantations can sometimes appear as oil palm plantations)
- **Participatory mapping:** can be problematic when local people do not want to divulge or do not know everything that is happening on their territories. This was overcome using the protocol I designed specifically to avoid this issue.
- **Participatory methodology:** Although I endeavoured to make the participatory methods artistically, intellectually and socially co-beneficial to both the people I was working with

and myself, the village mapping activities were not as co-beneficial as I had hoped. The maps that smallholders and communities drew were sometimes very beautiful, but were not usable for the critical element of the field team being able to use them to locate themselves and find households. Therefore, it was necessary to have a more standardized way of doing the map that took away some of the artistic integrity from the activity. Nevertheless, the activity did serve to bring women into an important role and highlight their knowledge to the male leaders of the village, so I do not wish to downplay the value of the activity too much.

FIGURE 3.8: FIELDWORK METHODS IMAGES

A smallholder village with oil palm



Participant observation



Participatory mapping



Surveys



Getting to the villages



Discovering a village no longer exists





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Linking Legend: *The Ayaymama*

During my time in the field, in my mosquito net during bed time, at dinner, at parties, celebrations and gatherings I was told so many stories and legends, which I wrote and re-wrote, collected and re-collected. Here I offer reader a small taste of this indescribably sublime storytelling. I'm just sorry I cannot do it better justice.

There is a fabulous bird in the Amazon called the Ayamama. People say that its name is onomatopoeic, because of the legend from which it was born. Once upon a time there was a traditional Amazonian farming family, a mother a father a son and a daughter, and they lived in rural agricultural lands here in our turtle lands. They were a very happy family, but tragically the mother died of a serious illness and left her husband a widow. After some time, the man grew lonely and begun to think about taking a new wife. He met a very beautiful woman, and they soon fell in love and moved in together. Although the woman was very beautiful on the outside, she was bitter and jealous inside. She wanted the man for herself, and resented the two children, whom she could see the man loved a lot. One night, after making love to the man, the woman told him that she wanted him to get rid of the children. The man protested, and -trying to placate the woman- he explained that his children were very special to him but that his love for her was inimitable. He reassured her that the children posed no threat whatsoever to her, that soon they would grow up and move away leaving the two lovers alone. This did not reassure the woman, who finally said "You must choose, me or them. You have two days". The man was obsessed with the woman, and so decided that his only choice was to get rid of his children. The next day, he told his children that he would be going deep into the forest to hunt for meat, and he invited them to come. They were excited to be allowed to accompany their father, and eagerly agreed to go. Although the father had decided to abandon them in the forest, as he left he got cold feet. As they trekked deep into the forest, he trailed a string behind them leading from the house to the inner forest. When he got to a remote spot, he said to the children "Wait here, I see a monkey over there, I am going to go kill it for our dinner. I will come back and get you later". But he did not come back; instead he went home alone with his catch, leaving the children in the forest. The woman was very happy to see him come home alone, and she rewarded him with her best sexual flairs, which helped him to forget his worries. Hours and hours passed and the children begun to worry, they searched for their father calling his name, to no avail. The night descended and the big trees that surrounded them begun to loom like monsters. They felt very afraid and lost. Just then, they found the string, and followed it home. Whilst the father was delighted and relieved to see them arrive, the woman was furious. The man tried to pretend that it would be impossible for him to lose them, as they would always find their way back. The woman told him that she would wait only one more day for him to get rid of the children, or she would leave. The next day the man invited the children to help him go fruit picking, deep in the forest. They trusted that the previous incident had been a mistake, and happily went along with him. Again, the man faltered at the last minute, and decided to leave a trail for them. He grabbed a bag of grain, and made a trail of seeds. When they got into the forest, he told the children to wait as he had seen a very tall tree with the best fruit on top, he said he would go and pick the fruit and then return to them to go home together. However, he did not return. Instead, he went back to the woman alone with a sack full of fruit. Hours passed and the children begun to worry. They looked for their father, they called him but he did not answer. They looked for a string or a trail, but the birds and animals had eaten all the seeds. They began to wander around the jungle crying and wailing with despair, getting more and more

lost. They got very hungry, but did not know how to forage for food. The trees and animals of the forest begun to pity them. Three days passed and the two young children were so hungry that they became too weak to look for a way home. Mother nature had been observing them all this time, and could not bear to watch them in such a condition any longer. So, she turned the two youngsters into birds so that they could fly. They grew wings and flew back to their home. When they got there they saw their father and the woman living together, well and harmoniously and the children's hearts filled with pain. They opened their beaks to make their first bird sound, and so it came; "Ayaymama Ayaymama Huischuhuarca, Ayaymama" (our mother has died and we are abandoned, oh mother!). Now, when you go into the forest, you can still hear the ayaymama singing its sad and eerie song Ayayamama, Ayaymama…

Linking Statement to Chapter Four:

The first empirical chapter looks at the land titling dynamic linked with oil palm expansion in Ucayali. It includes important observations about the power dynamics in this land titling system. Equity for people and forests was at the heart of this research, as was a critical view of labour relations, power and traditional life. In keeping with the critical realist approach of this research, and operating within the rubric of a historical political ecology that seeks to engage with real world problems, the paper has very much approached the central questions with a view to tangible and feasible changes in land titling procedures that might benefit people and forests in the Peruvian Amazon. The paper was published in the journal *Land Use Policy*.

The qualitative and quantitative research for the first empirical chapter, was conceptualized, designed and carried out (fieldwork, data entry and first analysis) by me and I am also the first author on the journal article. All fieldwork was assisted by two local field technicians, their training and contributions are detailed in chapter three. Ashwin Ravikumar contributed with ideas at the design phase, and organization of drafts including direct writing contributions and comments on drafts and Ashwin was primarily responsible for running the data in the models. Peter Cronkleton provided ongoing supervision for this work. He was also involved in the conceptualization of the central questions, organization of the manuscript and comments on and changes to drafts. Yadvinder Malhi also provided ongoing supervision for this work. In addition, he contributed to the organization of the draft including data presentation in tables and graphs, as well as comments and changes to drafts.

Chapter Four: The effects of rural development policy on land rights distribution and land use scenarios: The case of oil palm in the Peruvian Amazon

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Abstract

Decades of development history show that rural agricultural policies and government support for specific *en vogue* crops can seriously alter land rights, land tenure regimes and land use strategies for local people in tropical forests. Today, oil palm is such a crop, and it is an emergent commodity that is proliferating in the Peruvian Amazon. This paper asks: How is government interest in promoting oil palm development affecting property rights formalization for smallholders in the Peruvian Amazon region of Ucayali, and what are the socio-ecological implications? While there are strong theoretical reasons that expect these phenomena to be related, the precise nature of their interaction has not been rigorously examined in Peru. The study analyses data from a large household survey, and three years of participant observation work in those villages to unpack how these factors interact. The paper presents descriptive results comparing smallholder claims to their formal rights, and finds a large discrepancy between de facto and de jure land ownership scenarios – especially with relation to old- growth forest fragments. Furthermore, whilst our statistical model testing qualifies our hypothesis about the link between oil palm and land right in the region at both the household and village levels, it is not a direct causal relationship. The empirical results suggest a more complex nuanced picture of how migration, oil palm expansion and development are more broadly linked to land use change in the region. We conclude with policy recommendations that could facilitate improved forest conservation in the area, and a more equitable distribution of land rights to smallholders.

Keywords: Peru, Amazon, Land-titling, Oil palm Smallholders

4.1 Introduction

In Peru, land titling processes are legally required to be 'unbiased' and 'universal' (Fort, 2008). This means that areas with fewer formal rights should be targeted for titling, regardless of agricultural production, the presence of infrastructure, or the level of socio-economic development. Using recent data from Peru's Ucayali region—a land use change hotspot in the Amazon basin—we assess whether land titling has in fact been unbiased by analysing the connection between the pro- oil palm policy and the land titling of non-indigenous smallholding farmers. Specifically, we ask: How is the government's interest in promoting oil palm development affecting property rights formalization for smallholders, and what are the socio-ecological implications?

Researchers have studied the effects of government development policy on rural landscapes and people for many decades (Coomes et al., 1994, 2000; Coomes, 1996; Lambin et al., 2001; Pacheco, 2009). Many of these studies have examined the tangible socio-ecological outcomes of the land-use and land rights policies that have emerged from broader international markets and national agricultural development agendas. This body of research has shown links between development policies related to agriculture and deforestation for input-intensive monocultures (Barraclough, 2000; Pacheco, 2009; Pacheco, 2012). Furthermore, agro-policies can profoundly affect regional social dynamics and migration patterns, provoking demographic change and even land conflict (Padoch et al., 2014; Hecht et al., 2015).

With growing global demand for oil palm, research has increasingly focused on the role of pro-palm agricultural development policies in shaping socio-economic (Rist et al., 2010; Feintrenie et al., 2010) and environmental outcomes (Koh and Wilcove, 2008; Obidzinski et al., 2012; USAID, 2012; Hajek, 2015; Potter, 2015; EIA, 2015). While some studies find that pro-oil palm policies have caused displacement (Carlson et al., 2012) and enclosure of local communities (Castellanos- Navarrete and Jansen, 2015), others describe scenarios in which smallholders actively seek to benefit from development projects that facilitate market access and higher incomes (Feintrenie et al., 2010).

Formal property rights are often a prerequisite for smallholder participation in development projects promoting commodity crops like oil palm. Land titles are frequently identified as key to using land as collateral to secure loans for participation in agricultural development programs (DeSoto, 2000). Indeed, formal lenders tend to specialize in areas where farmers have land titles (Hoff and Stiglitz, 1990). However, when, smallholders overwhelmingly lack formal land rights that are preconditions for participating in oil palm projects, then

governments wishing to promote the crop would be expected to prioritize land titling in the areas suitable for oil palm production.

We test the hypothesis that the oil palm crop is associated with land titling in areas targeted for the crop in Ucayali. We use descriptive and inferential analyses of data collected through a large household survey, and by participant observation techniques over a period of three years. The empirical data is utilized in three ways: First, we compare smallholder land claims to the formal rights bestowed upon them by the state. This comparison highlights the problematic discrepancy between recognized de jure land rights and de facto ownership perceived by smallholders. Second, we statistically test the relationship between oil palm production and the prevalence of individual land titles at both the community and the household level. Finally, we discuss the implications of results for current and future policy.
Our findings illustrate useful observations for policy makers and development organizations interested in the equitable promotion of oil palm as a regional strategy for rural economic improvement. This analysis will be particularly useful for the national and the regional government's agencies charged with leading the large-scale land titling projects as well as donors, such as the Inter-American Development Bank (IDB), supporting large-scale titling campaigns in the Amazon region.

4.2. Oil palm in Peru: justifying the case

Among global oil palm producer countries, Peru ranks 19th, and its modest output is less than the national consumption (FAOSTAT, 2016). Nevertheless, oil palm production is rapidly becoming a dominant strategy for agricultural development in the country (Hajek, 2015). The Peruvian state formally declared it a crop of "national best interest''[7] in 2000 (El Peruano,

[7] All translations are author's own

2000;), the promotion of oil palm was heralded as a strategy for developing rural economies, and used as an alternative to the illicit production of coca (El Peruano, 2000; UNODC, 2012; USAID, 2014). Since then a variety of policies have promoted it for both small farms and large scale plantations. The cultivated area of oil palm in the Peruvian Amazon grew from 26,700 ha in 2012 (INEI, 2012) to almost 78,000 ha today, with pending requests for 99,356 ha to establish 11 additional oil palm concessions (Alvarado, 2015)[8].With these new and planned plantations, oil palm is rapidly approaching the area covered by the country's biggest export product—coffee (330,000 ha)—and its primary product in terms of area sown—rice (380,000 ha) (INEI, 2015). The government recently demonstrated its continued commitment to the expansion of oil palm by declaring another 600,000 ha 'apt' for cultivation (Ninahuanica, 2014), and the establishment of a 'Multi- sectoral Commission on Oil Palm'. According to the official reports, 60% of oil palm is on smallholder lands (MINAGRI, 2012)[9].

Oil palm projects are conceived by the government and non-government development agencies as a way of improving the market access and the economic competitiveness of farmers in an increasingly globalized market economy (MINAG, 2001; AGROIDEAS, 2012; USAID, 2014). However, the informal rights are a barrier to rural development in Peru, because they mean farmers lack collateral to access credit to finance investments (DeSoto, 2000; Lima, 2015). For example, in 2012, 15% of formal loans solicited by smallholding farmers were rejected due to lack of a land title (40% of which were in the Amazon region), and a further 44% of applications failed because they did not have a guarantee (INEI, 2012).

[8]Exact numbers are unknown, with many claiming that many illegal plantations exist and the blurry line between areas in preparation, cultivated, and in production has resulted in disputed and inconsistent data on the extent of the crop (EIA, 2015)

[9]This fact is contested by anti-oil palm groups that claim that the portion of oil palm pertaining to smallholders is exaggerated by the state, rather it is large private plantations that hold the lion's share of the land dedicated to this crop (Pautrat, 2013)

In this vein—over the past 20 years—the Peruvian Government, backstopped by money from the IDB (amongst others), have developed several land titling strategies with the goal of increasing agricultural productivity, improving the incomes derived from agriculture-based livelihoods, reducing poverty, and increasing social equality and environmental sustainability (Lima, 2015). Indeed in 2014, 221.3 million Nuevo Soles were given to regional government offices for land titling. Furthermore, an agreement between the IDB, the National Commission for Development and Life Without Drugs (DE- VIDA) and the Regional Government of Ucayali was drawn up to title more than 4500 plots before the end of 2015 with a budget of more than 80 million dollars (Gestión, 2014).

Proponents expected large-scale land titling processes to formalize rural holdings and thus provide improved rural land rights security. These large land-titling projects have been slow and difficult due to an array of socio-political problems at different levels of governance, which are documented elsewhere (Gestión, 2014; Fort, 2008). Nonetheless, in its first ten years these titling operations formalized more than 1.5 million properties, and between 2000 and 2008, the programs brought the national titled population from an estimated 19% to over 50% (DeSoto 2000; USAID, 2012).

In theory, the land titling process in Peru should target agricultural smallholder titling ‘en masse’ (that is, targeting many households in a given landscape), and in an ‘unbiased’ fashion (El Peruano, 2008). This means that areas (e.g. a watershed, a district or, a series of villages) with the greatest need for land formalization are identified and prior- itized prioritized /prioritised for titling. Once an area is identified as in need of formalization, as many eligible people in the selected area as possible should be titled (El Peruano, 2008; Fort, 2008; Lima, 2015).

However, evaluations of the titling campaigns have highlighted inequitable outcomes at the community and the household level due to historical biases rural land titling approach (Lima, 2015; Zegarra et al., 2008). For example, the preferential titling of areas with greater agricultural productivity may have skewed the distribution of land rights (Lima, 2015; Zegarra et al., 2008). Relative isolation and migrant dynamics were identified as other variables needing to be assessed as possible system biases. We elaborate on this further in our methods.

4.2.1 Farm and forest land rights for smallholders

Peruvian land policy has long associated the legitimacy of property rights claims with the productive use of the land. In 1969, the first Agrarian Reform in Peru mandated that "land should belong to he [sic] who works it" (El Peruano, 1969: Law Decree 17716: 1). At the time, this referred rather broadly to populist notions of 'giving the land back to the people', supporting working farmers to profit from their labors directly. However, in 1991, this concept became legally prescriptive in that it was mandated that only the cultivated part of the land claims could be titled (El Peruano, 1991). This exclusion was consolidated in 2008 by "Legal Decree 1089 to Establish a Temporary Extraordinary Regime of Formalization and Titling of Rural Plots", which decreed that smallholders "must demonstrate economic exploitation" of the land (El Peruano, 2008 (regulations supplement): 5) that "could include the preparation of the land for planting"—that is, clearing forest (El Peruano, 2008 (regulations supplement): 7).

In theory, this limitation on property follows a simple logic: Why title more land to smallholder households than they can actually cultivate? However, in practice, these restrictions are not necessarily aligned with local ways of using land (Porro et al., 2014; Cronkleton and Larson, 2015). It is known that diverse production strategies exist on rural

farms, which include timber and non-timber forest products for both subsistence and commercial ends (Sears and Pinedo-Vasquez, 2011; Putzel et al., 2013; Porro et al., 2014). Our ethnographic work found that aside from economics of timber, on-farm forests and forest areas around villages were a part of the local socio-cultural life.

For example, on Sundays and public holidays, it was common for extended families to get together to bathe and picnic in streams and small lakes. Male heads of households with forest lands hunted at least one night a week. The meat was divided into two parts: one for the family, and the other to be sold to the neighbours by the kilo. were an aspect of the social bonding of village members. Maintaining forests and natural areas such as lakes around villages, for example after a storm, was an activity called a 'faena,' or communal work project. On these occasions, the men were expected to demonstrate their commitment to the village by taking a day off working on their own farms to help the neighbours with tending to communal areas. This could include clearing debris from lakes, pulling down trees that were broken or dying, clearing paths, and sometimes transplanting seedlings.

Finally, forest land was often leased by villagers when neighbours needed extra space (often due to their need to fallow their own land or in response to the arrival of new family members from outside). In these cases, the forest would be leased for several 'seasons' (the lifecycle of whatever crop was planted) and then returned to the owner and left to fallow. Finally, local micro-climate or 'fresh air' and 'cooling' was regularly cited as a reason the smallholders liked to have forest on and around their farms. These examples highlight some of the reasons why the smallholders often lay claim to bigger areas than what they are sowing, and gives important context to our results.

Given the high cultural importance of forests, and their centrality in local livelihoods, not allowing smallholders to legally own mature forest may create a mismatch between de facto land use patterns and de jure land rights, and may encourage deforestation because only non-forest lands can be owned. While this phenomenon is generally understood, the magnitude of this mismatch has not been well-studied. To address this gap, we characterize the degree to which de facto and de jure rights are or are not congruent in this paper. We then connect this analysis to the broader question of how oil palm has altered land tenure arrangements.

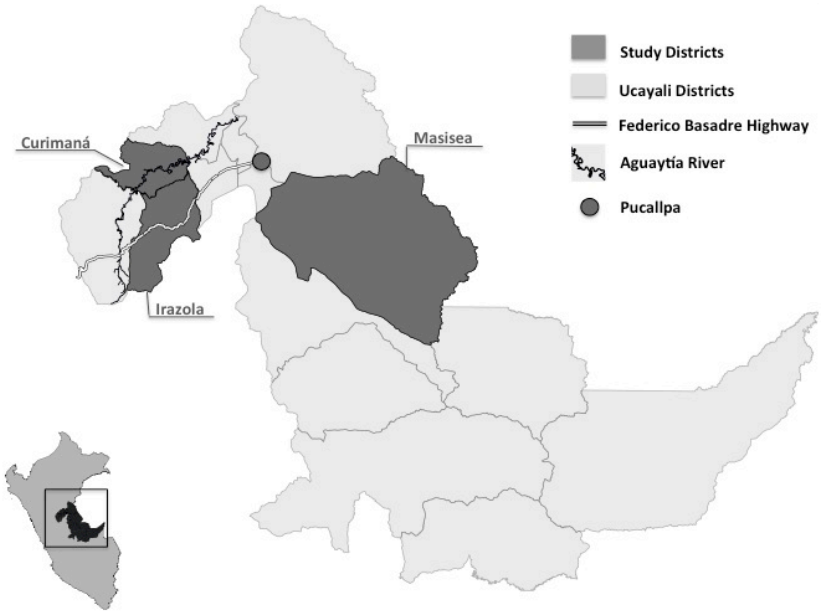
4.3. Study region and sites

This research focuses on Ucayali, a department in Peru's central Amazon (Figure 4.1). Its capital city, Pucallpa, has a population of more than 200,000 people, which represents approximately 75% of Ucayali's total population. The peri-urban and rural landscape is a mosaic of villages, smallholder agricultural farms, large plantations of oil palm and timber concessions, abandoned lands, young and old second- growth forests, and expanses of mature forest. The diverse population includes (but is not limited to) indigenous and non-indigenous communities and villages, evangelical communes, shamanic healing collectives, foreign hermits, logging, mining, coca, charcoal and academic research 'camps'.

63% of the rural population is thought to be non-indigenous (INEI, 2012), yet this group remains understudied in Peru (Cossío et al., 2014; Cronkleton and Larson, 2015). While both indigenous and non-indigenous communities live in the study landscape, we focus on non-indigenous smallholders in order to shed light on this poorly understood group. Additionally, to date, it has mostly been non-indigenous groups that have been targeted for oil palm projects. Thus, understanding how oil palm affects land tenure and land use decisions by this non-indigenous 'forgotten majority' (Menton and Cronkleton, 2014) of rural Amazonians is critical, as they are arguably at the vanguard of oil palm expansion in Peru.

The districts of Ucayali are topographically, demographically, culturally, and politically diverse, and within-district differentiation can also be substantial. This research focused on three for Ucayali's 15 districts: Masisea, Irazola/Neshuya (henceforth 'Irazola') and Curimaná (Figure 4.1).

FIGURE 4.1: UCAYALI AND STUDY SITES MAP



Masisea is characterized by vast river systems and non-indigenous and indigenous groups at varying levels of isolation. There have been few state development interventions in Masisea. From Pucallpa, it takes about half a day to get to the town of Masisea, and anything from half a day to 11 more days to reach the villages.

Irazola, by comparison, is a more developed district with a relatively high non-indigenous population both in relatively dense urban centres and in agrarian lands. The district has been the target of substantial development intervention in the form of agricultural growth and intensification, alternative development for crop substitution of illicit coca production, and

smallholder resettlement schemes. It is one of the four districts aggressively targeted for market integration to support smallholder oil palm production. Unlike in the other districts, Irazola has a well-developed road infrastructure that facilitates transporting agricultural goods. Irazola can be reached by highway from Pucallpa within an hour, and most of the villages can be reached from there by road within half a day (weather permitting).

The district of Curimaná borders the forest frontier on one side and the developed district of Irazola on the other; it has a population density a third of that of Irazola, and is more ecologically and demographically diverse than its neighbour. In a sense, it has a mix of the characteristics of the two other selected districts, since a river (Aguaytía) divides a relatively more agriculturally intensive landscape dominated by oil palm and cacao from a densely forested area characterized by both non-indigenous and indigenous villages dedicated to other crops and activities. Roads are of a lower quality than in Irazola, and accessing villages can be challenging.

Fieldwork revealed different ways of living in villages amongst these districts. For example, the village infrastructure in Masisea tends to be rather 'nuclear', where households are clustered around in a small clearing with the farms dispersed in the radius around up to 5 kilometers from this center. Farmers rise very early—about 3–4 a.m.—to walk to their farms with a packed lunch and return in the early evening to the village center. These small villages were often predominantly comprised of large extended family groups.

By contrast, households in Irazola villages were more dispersed. Although there was always a central village area that looked similar to those in Masisea—complete with a school, communal meeting room, and a shop, many of the families lived out of the central village in

on- farm households. Working days started late, and farmers returned home for lunch, before setting back out to the farm in the afternoon after the hottest hour had passed. One of the reasons cited by the smallholders for the need to live on-farm was the different crops. Palm and cacao fruits can be easily stolen, as they are commodity crops usually found on farms easily accessed along roads. By contrast, in Masisea, subsistence and seasonal crops, as well as a seasonal rice harvest on communal land did not face this danger.

Village politics and socio-political gatherings were often more organized and formal than those in Masisea, which tended to be more spontaneous and informal. For example, in Irazola, village members of certain community associations could get fined for not attending meetings. People from Irazola were more organized in lobbying government agencies for services in their villages. Ethnographic work in Curimana revealed a mix of both kinds of social structure in terms of land, politics, and organization.

4.3.1. Oil palm in Ucayali

There have been four principal government projects for oil palm development on the smallholder farms in the Ucayali sites. The first was a United Nations project in 1991, which was established to combat the negative socio-economic effects of illicit coca production. It targeted six villages, 270 smallholder families, and covered 1,350 ha. The clause "The establishment of oil palm plantations is declared in the national interest to . . . contribute to the recuperation of lands deforested by migratory agriculture and illicit activities[10] (El Peruano, 2000: 186334; El Peruano, 2000; El Peruano, 2000: 186334) was appropriated by alternative development (AD) agencies such as DEVIDA, who established a plethora of AD projects for smallholders. In 2008, a regional government project started. It initially reached

[10] All translations are by the author

160 families with 800 ha of plantations, and included the construction of a 24-kilometer road to enable transport of the palm fruit from farms to mills. Finally, between 2011 and 2013, a state level project AGROIDEAS facilitated 2,677 ha of oil palm to 624 smallholders. Thus, by 2015 official oil palm estimates in Ucayali were 25,193 ha[11][12] (at least 15,277 of which belong to large private companies) (DRSAU, 2015). By then the oil palm sector's social infrastructure had expanded momentously to encompass five large central farmers' associations made up of at least 53 village committees, 2,702 families, 21 independent committees comprised of 1049 member families, and 12 registered private companies (DRSAU, 2015). Ucayali currently possesses 35% of Peru's oil palm in production and 28% of the plants 'in growth' (young plants), and is one of the departments with the highest rate of deforestation in the country (Finer et al., 2015a, 2015b).

4.4 Methods

This paper is based on a survey conducted with 252 non-indigenous smallholder households in 18 villages selected from three districts in the Amazon Department of Ucayali, and ethnographic work over three years by the principal author. Provinces and districts were selected based on the heterogeneity of contexts they offered in terms of the variables we wanted to measure (see Table 4.2 for final variables).

We based our assessment criteria on variables that are specific and regionally relevant, we have tailored them as follows: We have divided our researched population into migrant and

[11]Figures from Lima reported only 14,791 ha in Ucayali in December 2012, it is unlikely but possible that this amount of growth did take place in the 7 months between the reports, the question of inconsistencies in official statistics is beyond the remit of this paper, however it is an important note.
[12]This figure includes areas in production and areas in growth. It does not include abandoned areas (which were included in previous year editions of the same report), nor areas already approved for near future planting.

non- migrant categories. We measured relative isolation of farms in terms of whether they were accessible by road (easy access), or only by river (poor access). Land titling agents in the Regional Agriculture Office (DRA), claimed that travel to river villages was logistically difficult and they were reluctant to visit these villages for titling due to budgetary constraints and uncomfortable conditions. Land productivity was defined according to crop type, with oil palm plantations representing a proxy for 'high productivity' and other (subsistence) crops as 'low productivity'. Additionally, the districts themselves qualify as indicators of agricultural development programs' presence, as some districts have been targeted for development more than others. In selecting our sites, provinces and districts that were predominantly comprised of native communities with communal tenure regimes, and areas that were largely urban were eliminated. Except for forest lands (their inclusion in the analysis has been justified above), we excluded lands that are legally mandated as not eligible for a title, such as conflict zones, overlapping/contested land claims, and floodplains. The districts of Curimaná, Irazola, and Masisea were chosen from the remaining options through a consultative process with the key informants in the region.

Irazola is a district that has experienced high levels of government intervention for agricultural development in the form of oil palm. It enjoys a relatively developed road infrastructure and has attracted a large recent migrant population. By contrast, Masisea has none of these characteristics. In this way, Masisea acts as an important 'control' in measuring our hypothesis about the connection between land rights and oil palm. Overall, each district has a different socio-political and ecological history. Policies aimed at agricultural modernization have targeted these districts to varying degrees, or have reached some districts earlier than others. By including these diverse districts, we can analyze how oil palm

expansion, land tenure regimes, infrastructure, and migration interact in varied contexts and as development policies unfold.

The information available about villages in the four information sources[13] we used was inconsistent. The RG maps offered the most accurate information, so we worked with regional and local authorities, as well as an experienced field team to update them as much as possible. To cluster sampled villages, we divided each district into 25 km × 25 km grids. We then randomly selected a cell where at least 12 villages were present, excluding cells with too few villages. We then randomly selected six villages from those present in the cell. We used this method to avoid logistical problems that would have resulted from a sample of villages spread across thousands of kilometers of the Amazonian landscape. To generate a sampling frame at the household level, we drew up a list of resident landowners using participatory mapping activities, mapping every household in the village, their economic activity (crops) giving each household a number. We defined heads of households, their spouses and their adult offspring as suitable interviewees. We excluded households in villages that had no land of their own, as well as absentee landlord households. These included households that cultivated oil palm, and also those that did not. Households were selected using a random number table according to the number they had been allocated during the mapping exercise. Two pilot surveys were conducted. Where the smallholders claimed more than one plot, the survey questions were applied to each plot individually. For the sake of this paper, a 'main' plot was identified by the smallholders based on criteria related to frequency and type of use, crops, family variables, and informant residency.

[13]National census data, the Regional Directorate of Agriculture, the Regional Government and local government offices

Survey data was coded and analyzed in SPSS 21. To explore the relationship between the selected variables (see Table 4.2), we analyzed the data using simple statistical models to isolate the effects of individual factors and reveal interactions of variables in the descriptive analysis. Data was analyzed using Logit and OLS models at the household and village level respectively to show how village-level and household-level variation both shape the region's political ecology.

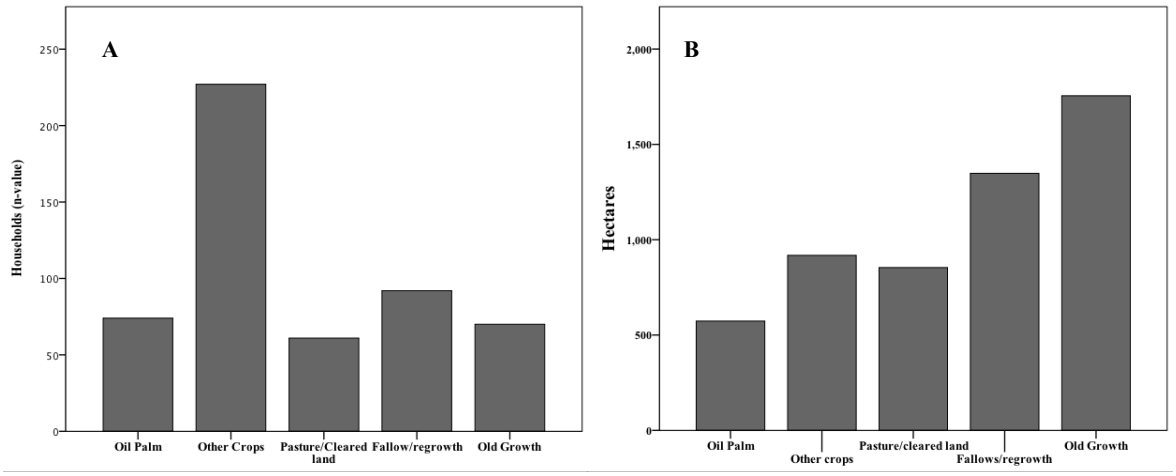
4.5. Descriptive results: patterns and distributions of land, people, and rights

4.5.1. Land claims, land uses, and land user descriptions

This section describes smallholder land claims based on survey data. Claims refer to the smallholders' own perceptions of ownership over land they consider theirs, but not all claims were qualified by formal titles. Claims compared to formal ownership are considered in the next section, and the relationship between variables identified in this section will be statistically tested in Section 4.6.

Overall more than 5,400 ha were claimed by the smallholders. The cropland and the pasture were less than half (42%) of the total land claimed, and although almost all the informants (92%/n = 231) grew crops, they represented only a quarter of the total claimed land (Figure 4.2a and b). Of the cultivated area, other crops were the production choice of 80% (n = 227) of interviewed smallholders, who dedicated part or all of their cultivated land to these crops. However, comparing other crops to oil palm reveals two striking features of the landscape: While oil palm was only present on 74 (29%) farms in two of the districts, the crop took up half of the total cultivated land area. Conversely, 32% of the total land claimed by the smallholders were mature forests. This is an important finding considering the forest titling scenario we described in Section 4.2.1.

FIGURE 4.2: CROP TYPES BY NUMBER OF FARMS (A) AND LANDMASS (B)



Unsurprisingly, at the household level the configuration of farms in terms of percentage of cultivated land was less straightforward and depended on both the size of the farm (where very small farms had larger relative cultivated areas), and the crop type (where for example households with oil palm had 10 ha of cultivated land on average compared to 3.5 ha for farms without palm).

Survey informants were from 14 (of 25) departments in Peru. We grouped these into four categories: the Ucayali ('locals'), Other Amazonian departments ("Selva Other"), the Sierra (highlands), and the Coast. These divisions represent the country's three main biophysical and socio-political regions. The most numerous group were migrants from other Amazonian departments (39%, n = 100). Ucayali locals (28%, n = 72) and the Sierra groups (26% sample, n = 65) were well represented. However, only 13 informants came from the Coast. Although we recognize cultural similarities between the Ucayali and 'Selva Other' groups, for this paper 'migrant' refers to any non-Ucayali informants.

People from different places of origin tended towards different crop types. This has important implications for the discussion around the interaction between the historical political ecology

of existing peasant farming practices, cultures, environmental relations new crops (oil palm), and land rights. All places of origin had high numbers of smallholders involved in traditional crops, but Ucayali locals tended more towards subsistence crops as a standalone production strategy. On the other hand, oil palm was adopted more by migrant groups.

Our relative 'isolation' variable of rivers and roads was well distributed across the sample with eight river villages and ten road villages, or 119 road farms and 130 river farms (47% and 53% respectively). Sampled households in the river villages claimed much less land than those in the road villages overall (1,933 ha and 3,587 ha respectively), and at the farm level, this was reflected in a respective median of eight and 25 ha.

Migrants owned 100 (84%) of the 119 road properties, and 78 (60%) of the river plots. There were 96 farms (38% of total) that were dedicated only to traditional crops, and 89% (n = 85) of them were in river villages while all of the oil palm farms were road dwellers. Although this seems like an obvious scenario (oil palm fruit only has a finite time to get to a mill before it spoils, so roads infrastructure is a must), this is not fully representative of all palm producing villages in Ucayali. For example, there are at least ten villages in the districts of Curimana and Nueva Requena that are primarily accessed by rivers and are producing palm. This is a new and growing phenomenon in the region due to the establishment of large private plantations and company-community partnerships developing around them on the forest frontier. This is discussed in detail in Bennett et al. (2018). Those villages were excluded from our sample due to land conflict.

As expected, the disaggregation of the farm data at the district level shows notable differences between and similarities within districts. This analysis helps to streamline some

of the previous descriptive data and contextualize later model analyses, which use districts as an indicator of the level of development.

Informant origins were not uniformly distributed at the district level. More than half of the Ucayali and other Selva groups were located along the rivers of Masisea, and this district had very few people originating from the Sierra. On the other hand, the well-developed district of Irazola hosts half of the Sierra population. Crop choices were also different across the districts, with Irazola leaning towards more modern crops such as oil palm, and Masisea households focusing on other crops. The more developed areas of Irazola had all of its villages on roads, while Masisea villages were all located on rivers. Curimaná was almost an even split of the two.

4.5.2 Distribution of formal rights: claims versus formal rights

The above description illustrates a landscape populated by people of mixed origins engaged in diverse land use practices on different parts of the landscape. As a general trend, we can see that migrants generally have larger farms, better access (roads), and engage in more oil palm production, while non-migrants tend to have smaller farms dedicated to other crops along rivers. Next, we look at how the formal land rights are distributed among these people using the variables migration, the relative isolation (roads/rivers), and the crop types within the context of the claims smallholders made.

We have divided the land rights into four categories: 1. Title for all claimed land, 2. provisional title or land use permit (*constancia*) for all claimed land, 3. Mixed title[8] and 4. No documents for any of the claimed land (Table 1). Category 1 was largest with 47% (n = 119) of informants holding title over their entire property claim, with these titled properties

covering 55% of the total area claimed by the in- formants. The second biggest group was the one that held no rights to any of the land claimed. For the present analysis, we have categorized the *constancia* and mixed title groups as not having a full title for all of the lands they have claimed, though they are potentially important separate analytical categories for another study as the level of formalization of a property has direct impact on accessibility of other social services such as credit and security.

One of the most important findings of this analysis is shown in Table 4.1: There was a significant discrepancy between what people claimed to own, and lands to which they, in fact, had recognized rights. We explained in Section 4.2.1 that the land titling system might not calibrate well with local perceptions of ownership and ways of using land, and this finding seems to support this argument. The smallholders that did hold the title for part of their land were often aware of this discrepancy, but did not always accept it, as evidenced by the following quote:

"[The DRA] came and said that I had 17 ha- that's what my title says, look here (shows his title) but I don't accept that, I have 34 ha! I even have cows on there!", "The DRA said [only a small part] of [what I tell you is mine] was mine. This part (points East) they say is another plot because it is now divided by a road. But who built that road? I didn't build that road. They are saying it is two plots so that I will have to pay double the taxes, or maybe they will beat me to it and try to sell it themselves! So, I am going to apply later for that part again in my wife's name. For now, there is no problem because everyone [in the village] knows that land is mine" (Irazola farmer).

Land rights are differentially distributed among districts, places of origin of informants, and crop types. For example, the rights are unevenly apportioned across districts so that the more

developed district of Irazola dwarfed the other two districts in terms of percentage of the fully titled population, and land area. 80% of Irazola informants held full title over 2,314 of the total 3,064 of titled hectares. Curimaná had a more balanced titled/not titled ratio, but Masisea fared least well with only 24% of the landowners holding the title for a tiny 134 ha (Figure 4.3 a and b). Curimaná held the lion's share of the untitled claims, and this deficit is largely a result of the large amounts of untitleable forests being claimed there. Again, this is an important finding for understanding smallholder perception and use of forest areas - areas to which they hold no formal right. In contrast, Irazola's farms were all fully titled, including forested areas, which contributed positively to the districts overall titled portfolio. The reasons why forests might be illegally titled in Irazola is explored in the discussion.

Table 4.1: Distribution of title according to claimed land and across landowners

Title Type	Landmass		Landowners	
	Hectares	%	N	%
Title for all claimed land	3008	55	119	47
Constancia for all claimed land	462	8	35	14
Mixed Title	728	13	30	11
No docs for any claimed land	1331	24	68	27

Table 4.2: Summary statistics of data at the village level

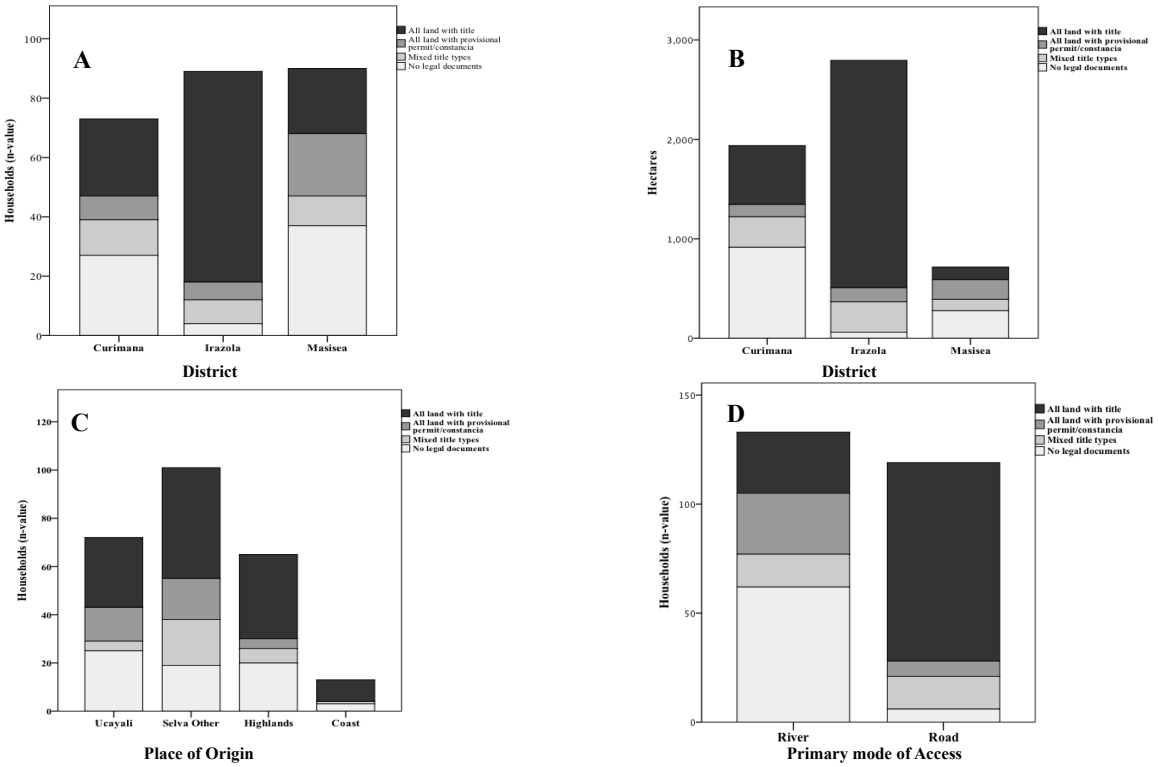
Variable	Obs	Mean	Std. Dev.	Min	Max
% households full title	18	0.45711	0.329297	0	0.933333
% households oil palm	18	0.263327	0.339343	0	0.8
% households migrants	18	0.703538	0.218092	0.333333	1
% households non-migrant	18	0.678792	0.245376	0.111111	0.933333
district	18	2	0.840168	1	3
road access	18	1.444444	0.51131	1	2

Informants with oil palm generally held the full title—81% (n = 57) of the 74 smallholders with oil palm had all land titled—whereas only 29% (n = 180) without palm were fully titled. Furthermore, a wave of possession took place in the run up to, duration and aftermath of oil palm projects in 1991 (United Nations), and 2007 (regional government), since oil palm was declared a crop of national interest (2000) and DEVIDA projects increased. Additionally, the peaks in the settlement are shadowed by peaks in titling, which may suggest a link be- tween oil palm and titling (Figure 4.4).

There were no significant differences between the distribution of rights amongst households from different places of origin (Figure 4.3c), although migrant groups did claim a lot more land in general. The Ucayali people only had full rights to 428 ha in total, migrants from other Amazonian departments had full rights to 931 ha and migrants from the sierra had full rights to 1,116 ha of land. This is also related to the median sizes of the plots described in the previous section where we saw migrants generally claim bigger plots, and more land hungry crops (oil palm).

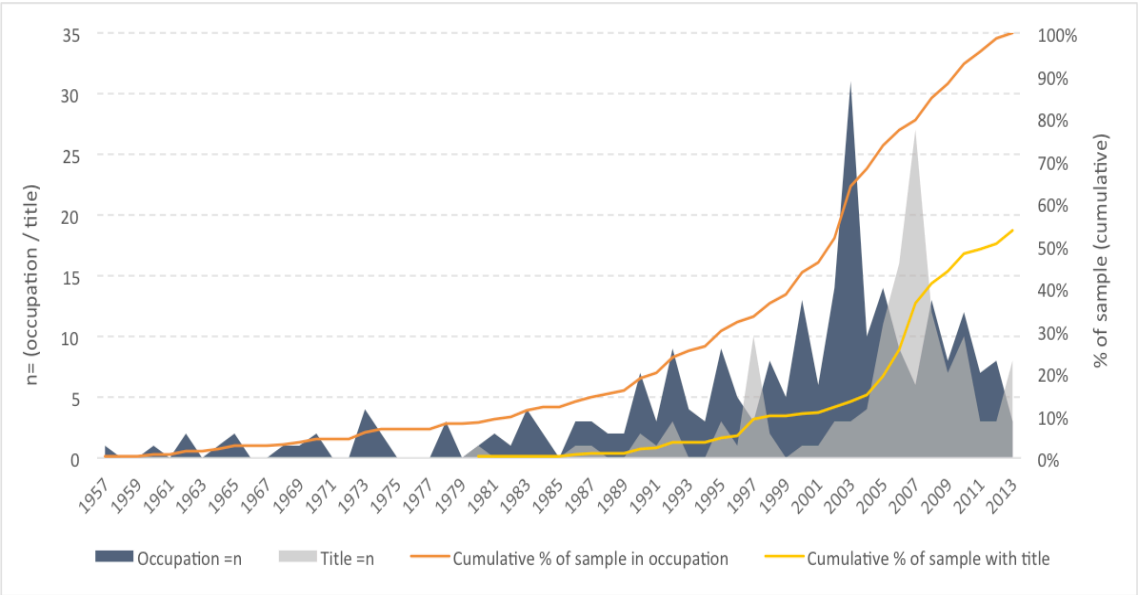
Fully titled properties were concentrated in road villages, leaving river villages largely untitled; 47% (n = 62 of 133) river households have no rights for any claimed land, compared with 76% (n = 91 of 119) claims fully titled to smallholders living near roads (Figure 4.3d).

FIGURE 4.3: LAND RIGHTS DISTRIBUTION BY DISTRICT



(A = n-value B = landmass/hectares), Place of Origin (C) and Mode of Access (D).

FIGURE 4.4: DATES OF SMALLHOLDER OCCUPATION AND TITLING



Finally, on the ground, we found the process of titling to be far from the 'unbiased', systematic approach advocated in policy for land allocations. Rather, we observed an expensive and time-consuming process that had a decision-making process better described as arbitrary and subjective rather than systematic or aligned with any formal protocol. For example, we saw many cases where land titles were being speedily pushed through the system by the DRA, prioritizing smallholders—or associations of smallholders—that needed a title in order to access oil palm projects. This was justified by the local titling agents by citing the "national interest" clause of the 2000 declaration described in Section 4.2.1. Furthermore, on accompanying land titling teams to the field, we observed that their determination of how much land was "being worked" was ultimately subject to the judgment of the field agent, rather than the use of objective criteria. Agents were easily convinced by savvy or locally influential smallholders to bend the rules, especially if they were willing to pay a small bribe. Our results showed that the district of Irazola - the more developed district - enjoyed a rather large amount of illegally titled forest area, compared with the other districts. On one occasion, when questioned about this in the field, the head of the titling team responded that this was because it was "only a matter of time" before the land in this district would be converted to crops and he was simply saving time by titling it "now whilst [he was] here". Conversely in "some other [areas], people are holding on to forest for the sake of it".

Evidently, the three districts differ considerably from each other in terms of peoples' place of origin (migrant status), the prevalence of land titles, the degree of infrastructural development, and the presence of oil palm. In particular, where roads are found, migrants are more common, oil palm is more prevalent, and full titles are more widespread.

4.6. Model results: testing the role of oil palm in land rights distribution

The descriptive section above features several prominent variables that seem to be linked to the successful acquisition of formal title, which connects to the issues identified in the background: Crop type (specifically oil palm vs. no oil palm), migrant status and access (roads). To unpack these relationships, we deployed several models at the village and the household levels.

We treated the households having legal title to the full extent of their land holdings as the dependent variable, because land tenure regimes are a central theoretical focus of this paper. We limit our focus to oil palm because it is a 'boom' cash crop that has seen the most implicit and explicit support from government policies and development projects in recent years. Specific policy incentives are not included as they are sufficiently proxied by other variables in the models: that is, infrastructure, migration and geographical location.

Table 4.2 summarizes these descriptive statistics at the village level. Across villages, 45.7% of the households held titles over the full extent of their land claims, but there was considerable inter-village variation. For example, in one village, 93% of households held title over all of their land, while in another village, there were no households at all with fully titled lands. We found similarly high variation among villages in the prevalence of oil palm. While in some villages there were no households with oil palm at all, the highest prevalence of oil palm was 80%. This variation is clear from the very high standard deviation (33.9%) compared to a mean of 26.3% across villages. Finally, migration was universally present, but some villages were entirely populated by migrants while in others migrants were the minority. The mean proportion of migrants across villages was 70.3%, with a standard deviation of 21.8%.

In addition, there is variation in land tenure status at the village and household scale. In order to better understand what drives this variation, we modelled titling against key variables using logistic and OLS models at the household and the village level respectively. At the village level, we modelled the percentage of households that have titles. At the household level, we modelled a binary variable - whether or not households managed to secure title to all of their lands - and therefore used a logistic model.

4.6.1. Variation at the household level

Table 4.3 shows the results of several Logit models that aim to explain the acquisition of the title at the household level. Examined together, these results show that household titles are associated significantly with oil palm when taken alone, but that this effect becomes insignificant when other variables such as migration and road penetration are included.

The models that predict whether households have title to all of their land the best - models 5 and 6 - notably show a significant interaction between oil palm and migratory status. In essence, for non-migrants, oil palm has no apparent effect on the likelihood of a household securing title over all of its land claims. By contrast, among the migrant households, oil palm has a small but significant positive association with securing the land title. Conversely, among the households that do not grow oil palm, being a migrant is negatively associated with having full title - this may be due to new settlers not having had the time to get title yet. On the other hand, among the households that do grow oil palm, being a migrant is in fact positively associated with having the full title.

Table 4.3: Logit models of the likelihood of households having over all of their land holdings against different predictors

VARIABLES	-1 Model 1	-2 Model 2	-3 Model 3	-4 Model 4	-5 Model 5	-6 Model 6
Palm binary	2.138***	2.121***	1.078	0.532	-1.095	-1.051
	-0.345	-0.348	-0.681	-0.443	-0.796	-0.798
Migrant binary		0.115	-0.381	-0.442	-0.804**	-0.797*
		-0.309	-0.377	-0.365	-0.409	-0.409
Palm/migrant (interaction)			1.236		1.914**	1.891**
			-0.797		-0.832	-0.832
Non-Migrant binary			-0.616*			
			-0.364			
Village level road access binary				2.332***	2.706***	2.761***
				-0.404	-0.469	-0.482
District					0.289	0.272
					-0.236	-0.238
Constant	-0.660***	-0.738***	-0.361	-3.828***	-4.722***	-4.696***
	-0.156	-0.262	-0.449	-0.607	-0.991	-1.001
Observations	252	252	250	250	250	250
Pseudo R-squared	0.137	0.138	0.161	0.257	0.277	0.279

4.6.2. Variation at the village level

To explore how migration and oil palm interact, we turn to an analysis at the village level, where processes like migration and the presence of oil palm often cluster. Many of the patterns observed at the household level persist in villages as a whole (

Table 4.4). The first OLS model where the percentage of villagers with palm oil is used to model the percentage of villagers with full title performs rather well on its own. Approximately 65% of the variation in the prevalence of full titles is explained by oil palm

alone, with the positive coefficient indicating that villages with more oil palm have a far greater proportion of fully titled households.

Again, when other variables are present in the model, the effect on palm itself is reduced due to multicollinearity - caused by the nonlinear nature of palm development in the region. For example, as described in Section 4.3, rather than roads being developed in response to the local establishment of palm, the roads were often constructed as part of the design phase of palm project planning. On the other hand, the small- holders were also seen to begin constructing their own roads (in the same fashion as the forest 'faena' described earlier) to attract development projects to their villages. As a result, oil palm is associated with many factors, including district, migration, and road presence, but the precise sequence of events that leads to oil palm proliferation varies.

Indeed, at the village level, access to roads so strongly predicts the prevalence of oil palm that oil palm no longer explains the prevalence of the title to a significant degree. When access to roads is controlled for, the overall explanatory power of the model (model 4) is much greater, with these factors explaining around 84% of the variation in the prevalence of full titles in villages. While the prevalence of palm is not significant in this model, the prevalence of migrants does matter—it appears that controlling for access to roads, which is itself associated with migration and oil palm, mutes these effects. There is no apparent interaction between migration and the oil palm at the village level; this interaction was only found at the household level.

Table 4.4: Prevalence of households with full title over land holdings at the village level

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
% households oil palm	0.799***	-0.743	-0.00734	-0.811	-0.788	0.788***
	-0.138	-0.829	-0.245	-0.595	-0.92	-0.247
% migrant households		-0.282	-0.616**	-0.631**	-0.301	-0.0363
		-0.344	-0.24	-0.253	-0.37	-0.367
Palm/migrant (interaction)		1.883*		1.091	1.933	
		-0.994		-0.756	-1.093	
% non-migrant households		-0.0161				
		-0.291				
Road access binary			0.707***	0.634***		
			-0.175	-0.18		
District				0.014	0.000821	0.00552
				-0.0443	-0.069	-0.0748
Constant	0.247***	0.297	-0.138	-0.14	0.287	0.219
	-0.0581	-0.384	-0.218	-0.285	-0.377	-0.407
Observations	18	18	18	18	18	18
Adjusted R-squared	0.657	0.669	0.824	0.83	0.639	0.575

4.7. Discussion

4.7.1. Discussion of descriptive statistics and qualitative results

One of our central findings is that the de facto rights, represented by land that households claimed to own, do not match the de jure rights that the state recognizes. This inconsistency has been observed in other contexts (e.g., Sears and Pinedo-Vasquez, 2011; Agrawal and

Chatre 2006), and has important implications for land tenure security, land use, and livelihood outcomes.

In the context of Peru, incongruence between the de facto and the de jure property rights are closely related to land use classification, and legislation. 32% of the land claimed by smallholders in our study was mature forest, which legally cannot be owned by private interests including smallholders. Several authors have written about the active use of forests by smallholders in the Amazon for sustenance, medicinal, economic, and recreational purposes (Porro et al., 2014; Putzel et al., 2013) (see photo below), and our study corroborates this perspective through both the statistical and the qualitative information presented. Although the Peruvian land rights policies do not reflect these aspects of smallholder life, or confer de jure rights based on such traditional uses, the current generation of policy makers in the National Service for Forests and Wildlife (SERFOR) and MINAGRI are aware of these issues, and have discussed them in several policy forums attended by the authors. The issue of forestland titling for smallholders in the Peruvian Amazon should be a priority for land rights policy going forward.



Smallholders and I enjoying a local water hole in a 'degraded' area at the weekend. Photo from participant observation excursions and life in the field.

There was a strong link between migrants and oil palm, with a notable absence of palm on non-migrants' farms. This scenario raises questions about the socio-environmental impact of the decades-old strategy of promoting commodity crops like oil palm for rural development in the Amazon of today. It seems that the migrants—and not the local people—are the ones engaging the most in smallholder oil palm production. This evidence supports observations made by others (Hajek, 2015), who have assessed the oil palm scenario at the national level, and raises some important questions. If the more-developed areas are also the areas selected for agricultural modernization projects such as oil palm, and if the migrants are the primary group subscribing to these projects, what does that mean for agricultural and economic development for the Ucayali people? These questions can be related to the local ways of life, and questions as to whether a permanent crop such as oil palm is suited to a culture which is still heavily rooted in informality and flexibility. This merits further research.

4.7.2. Discussion of modelling results

We started this paper by asking: How is the government interest in promoting oil palm development related to property rights formalization, and what are the implications?

Our descriptive data and model testing qualify our hypothesis about the link between oil palm and land rights in the region. However, rather than a direct causal relationship between these two variables, these empirical results suggest a more complex, nuanced picture of how migration, oil palm, and development are linked more broadly to the land use and the land tenure change in the region. The evidence reveals that multiple factors interact at different scales to shape land use and land tenure outcomes. At both the household and the village

levels, we find evidence for the hypothesized relationships between oil palm establishment and land titling. However, the interaction between oil palm's presence and migratory status at the household level suggests that these two factors work jointly to influence whether or not households are able to secure the title.

While roads were a strong predictor of the presence of migrants and also oil palm, the causal relationship between these factors is not always obvious. For example, while it is true that migrants often move into more accessible and well-developed areas, it is also true that migrants spontaneously colonize the less-developed areas and then lobby the state for better infrastructure and support for their agriculture. In this sense, the state is sometimes two steps behind its rural citizens, who are important agents in determining the geographies of rural development and agricultural modernization.

At the same time, new development projects initiated by the state invariably attract new families to the region. For example, we mentioned a regional government scheme for oil palm development, which included the construction of a 24 km road in the design phase of the project. In this case, it is not possible to separate the road from the crop or to assess their significance on land title separately.

Furthermore, although the 1991 UNODC oil palm project was aimed at providing an alternative livelihood for the local farmers engaged in the illicit production of coca, our interview work revealed that many of the original farmers were in fact migrants fleeing terrorism in the Andean highlands and the high Amazon regions during those years. Twenty years later, it is rare to encounter a Ucayali-native in that area, and both the road and the social infrastructure is notably advanced in the region.

Our multi-level analysis reveals that road penetration - salient evidence of the state's broader geographic strategy for development and agricultural modernization - comes to interact with the crop selection and the migration to influence land titling. Not all households in villages with roads have titles. However, having oil palm seems to increase the likelihood of having full title across the board, and migrants with oil palm fare especially well in terms of titles. This is exemplified by the poor titling outcomes in Masisea, where villages are on rivers and not roads, migrants are less numerous, and there is no oil palm. Therefore, at the village level, we see that road penetration is the most important factor explaining how prevalent full titles are. However, migration still appears to matter even when controlling for road access, suggesting that the arrival of migrants matters or is linked to some underlying driver of titling besides oil palm.

At the village level, the proliferation of full title in villages, where some—but not all—households grow oil palm, is indicative of a 'titling by proxy' or 'clumping' effect of the interaction of the 'en masse' ethos set forth in titling legislation, and the prioritization of titling palm growing households. In other words, titled non-oil palm farms in villages, where neighbours had oil palm likely received title by proxy of their oil palm neighbours, benefitting from the titling campaign in the village that the oil palm attracted.

4.8. Conclusions

On assessing the 'non-biased' protocol of the land titling process in Peru, we found that there was the distinct preferential treatment of certain smallholders, namely, in this case, those that wanted to access oil palm schemes. While some smallholders, who chose not to grow oil palm, benefited from the titling campaigns that targeted their neighbours who did grow oil palm, the overall titling process nevertheless favoured areas where oil palm was being

adopted. This not only indicates an equity concern, but it may also pose as a threat to the survival of more traditional ways of life in the Amazon, as people are discouraged from crops with better understood management than oil palm, and subsistence crops. This has obvious consequences for the local socio-cultural life. The injection of capital described in the introduction, and the ambitious titling targets should facilitate a more equitable distribution of land titles between the different demographics, crop types, and modes of access of the smallholders in Ucayali, if the original principals of 'unbiased' and 'universal coverage' are applied. Our results confirm some of the potential biases that these institutes had identified.

Finally, the literature on the effects of government development schemes on landscapes has become more prominent (Coomes, 1996; Lambin et al., 2001; Pacheco 2009). Our study contributes to this body of research, demonstrating the tangible effect of development policy (and their corresponding projects) on the land use change and the local agroecology in this understudied hotspot of land use change. We saw that while oil palm was only present on 74 farms (28% of the total censured population), the crop took up half of the total cultivated land area and that oil palm farms had much larger cultivated areas overall than non-oil palm farms (10 ha vs. 3.5 ha). The extent and high land intensity of oil palm, compared to other crops, suggests that the continued proliferation of oil palm will seriously alter the ecology of the landscape, with consequences including deforestation of mature forests. As oil palm expands in Peru, especially in regions like Ucayali, under- standing how policies designed to promote it can alter local livelihood strategies and tenure regimes is essential.

By properly understanding these relationships, policy makers and environmental groups can avoid the pitfalls of historical agricultural policy and advocacy. While oil palm is not intrinsically incompatible with environmental sustainability, just land tenure arrangements, and adequate livelihoods, the policies that have promoted it to date have been disruptive. A

more balanced policy approach that facilitates forest conservation programs and mechanisms alongside agricultural development could greatly reduce the negative socio-ecological effects of oil palm projects in Peru, and elsewhere in the tropics.

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Linking Statement: Chapter Four to Chapter Five

The previous chapter assessed whether laws promoting oil palm for rural development were influencing land rights distribution to smallholders in the region of Ucayali. As governments around the world, especially in Latin America, act to formalize their rural economies they are also formalizing rural landholdings on a massive scale. Whilst the results showed that having oil palm did increase smallholders' probability of attaining formal rights over the land, it also showed that the area of land that smallholders were receiving were determined by the state's vision of smallholders solely as farmers, and not a holistic vision of Amazonian farmers also as potential small-forestry managers or forest custodians. This was concluded to be a potential missed opportunity for conservation and sustainable (oil palm) development agendas, especially where previous work had already showed smallholder oil palm was not having a detrimental impact on deforestation outcomes in the region. These shortfalls in appropriate engagement by the government with local people was highlighted to disrupt local livelihood production and labour relations.

During the time that the research for chapter four was being planned and conducted, an area where a new large-scale oil palm plantation was being established and the owner company was partnering with smallholders had to be omitted from the sample due to land-conflict in the region (land cannot legally be titled in areas where there is contestation or conflict over the land in question). Rather than a barrier to the research, this was a great opportunity to measure land use change in a new region where oil palm was just being established through new corporate modes of production, and compare it to previous quantification of deforestation for smallholder oil palm production in areas where government supported oil palm schemes had been in place for more than a decade. Thus, chapter five moves to include this area and these new actors in the thesis, focussing on the environmental impact that the company-community partnership was having on forests as well as a critical analysis of local socio-politics as a result of the capitalist penetration (and indeed penetration of capital). The site and household selection methodologies from chapter four were used again for chapter five, with the addition of new methods that included visual remote sensing. The theme of land rights was also continued in chapter five, this time qualitatively. The second paper compliments the first on both social and environmental findings, where power imbalances leading to policy that is not calibrated with the contours of local life. However, power dynamics were reflexive and local people are also seen as astute political actors. This paper was accepted after peer review for publication by *World Development.*

The qualitative and quantitative research was conceptualized, designed and carried out (fieldwork, data entry and analysis) by me and I am also the first author on the journal article. Ashwin Ravikumar contributed with ideas at the design phase, and organization of drafts including direct writing contributions, especially after the first reviewer comments. Homero Paltán helped design the land-use change measurement methodology. Together Homero and I worked on visual measurements in GoogleEarth (creation of the polygons in KML files) and we also both supervised a student that helped with the visual delineations. Homero also assisted with the data analysis (excel), which we worked on together and separately for cross-checking purposes. All fieldwork was assisted by two local field technicians, their training and contributions are detailed in chapter four. Yadvinder Malhi and Constance McDermott provided ongoing supervision for this work, and comments on the final draft before submission.

Chapter Five: The Political Ecology of Oil Palm Company-Community partnerships in the Peruvian Amazon: Deforestation consequences of the privatization of rural development

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Abstract

When agricultural commodities are traded globally, consumer demand in one region influences the crops planted in another, often leading to widespread environmental and social transformation at the production sites. As a commodity crop that prospers in tropical environments, oil palm has become controversial for its role as a driver of deforestation and social conflict, especially in main producer countries in Southeast Asia. As suitable land for oil palm production in Southeast Asia is depleting, companies have begun to look to new production frontiers, such as Latin America. Colombia and Peru have the highest percentage growth in the sector in recent years, and the crop has become a dominant strategy for development in the Peruvian Amazon. Between 2000 and 2015, 40,000 hectares of old growth forest have been cleared for large oil palm plantations in Peru. Company-Community partnerships (CCPs) have been advanced as a potentially more socially and environmentally sustainable strategy, through their alleged capacity to provide greater productivity and more efficient land use on smallholder farms. This paper describes the social, political and deforestation impact of an oil palm CCP at the forest frontier in the Peruvian Amazon. An interdisciplinary and mixed methods research approach was employed, including long-term ethnographic work and visual measurement remote sensing of land use change on 2447 hectares of smallholder land in four villages/communities. The results show that the recent arrival of powerful private companies has caused a major socio-ecological shift on the ground, particularly through the CCP. On comparing participating farms to non-participating farms, we find significant deforestation 'spillage' out of the plantation into participating farms. A major underlying driver of the negative outcomes of the CCP is the neoliberal policy approach employed by the Peruvian government, which has outsourced basic rural public works to private companies. We conclude by discussing how a more socially and environmentally just oil palm production strategy in Peru and elsewhere might look.
Keywords: Oil palm , Company-Community partnerships, Amazon, Peru , Deforestation , Smallholders

5.1. Introduction

When agricultural commodities are traded globally, consumer demand and policies in one region often influence the crops planted in another. This often leads to widespread environmental and social transformation at the sites of production (Kapp, 1950; Vandermeer & Perfecto, 2005; McCarthy, 2010; Rival and Levang, 2014; Rist et al., 2010). Oil palm has

flourished under this globalized production model, and palm oil is now the most widely consumed vegetable oil in the world (FAOSTAT, 2016).

However, as a crop that prospers in tropical environments, oil palm has become controversial for its role as a major driver of deforestation in the tropics (Koh & Wilcove, 2008; Gutiérrez-Vélez et al., 2011). For example, between 1990 and 2005, at least 55% of oil palm expansion in Malaysia, and 59% in Indonesia, occurred in forests (Koh & Wilcove, 2008).

As suitable land in Southeast Asia has been used up (Greogry and Ingram, 2014), oil palm producers have looked to open new frontiers. Latin America is one major emerging frontier for oil palm, having more than doubled its palm oil production since 2000[14] (FAOSTAT, 2016). Southeast Asia still dominates the sector (Table 5.1 presents a snapshot of the sector in 2017), but there are good reasons to expect oil palm to proliferate ever more rapidly in Latin America. While Indonesia and Malaysia produce far more palm oil than any other countries, Colombia and Peru have exhibited the highest percentage growth in the sector in recent years with a 12.93% increase in 2017 (Table 5.1). While Colombian oil palm production is distributed across several watersheds, including the Orinoco savannah and the Amazon basin, virtually all oil palm production in Peru is in the INEI (2015), and it is increasingly associated with net deforestation (Garcia-Ulloa, Sloan, Pacheco, Ghazoul, &Koh, 2012; EIA, 2015 a,b). Many Latin American countries now have neoliberal governments that invite foreign private corporations to enter and alter domestic economies and landscapes by wielding political influence to shape domestic policies. Peru is among the top three Latin American countries in terms of its land area suitable for new oil palm production (Furumo &

[14]This 'fact' is heavily contested by anti-oil palm groups that claim that the portion of oil palm pertaining to smallholders is exaggerated by the state, and that rather it is large private plantations that hold the lion's share of the land dedicated to this crop (Congressional Meeting with stakeholders, April, 2013 and see Valquí et al., 2014)

Aide, 2017; Ninahuanica, 2014). The availability of land along with a strong neoliberal economic campaign that favours agricultural intensification, especially for its Amazon region, has had a significant influence on rural agricultural development policies that are shaping socio-environmental outcomes (Dammert et al., 2012; Pautrat, 2013; Dammert, 2015; Fort & Borasino, 2016; Bennett, Ravikumar, &Cronkleton, 2018).

Table 5.1: Total production and growth in oil palm production in select countries

	Production (1000 MT)	Production Annual Growth Rate 2016–2017
Indonesia	38500	6.94%
Malaysia	20500	8.70%
Thailand	2700	8.00%
Colombia	1628	41.94%
Brazil	410	2.50%
Peru	166	12.93%

Estimates for 2017 from IndexMundi based in United States Department of Agriculture

While Peru has pledged to achieve zero net deforestation by 2020 (Hajek, 2015), between 2000 and 2015 an estimated 40,000 hectares of old growth forest were cleared for oil palm plantations (Steinweg, Thoumi, & Lima, 2017a). So far, the areas deforested for large plantations correspond to an estimated 52% of the total cul- tivated area for the crop, and oil palm is now Peru's third largest agricultural driver of deforestation (ibid).

Whilst recent reports claim that most of the palm planted in Latin America to date has taken place in non-forest lands (Furumo & Aide, 2017), these kinds of reports are often based on coarse scale data (for example MODIS at 250m resolution) focussed on large monoculture plantations. This approach excludes smallholding producers from the research remit.

Remote sensing techniques are excellent at quantifying the total extent of deforestation, how deforestation rates change over time, and how large deforested plots tend to be. Many of these studies presume that knowing the size of recently deforested plots can tell us who the

agents of deforestation are – smallholders or large monocultures owned by private corporations. Using remote sensing data in this way, it has recently been argued that small-scale deforestation (<5 hectares) accounts for 90% of the total deforestation events between 2013 and 2015 (Finer &Novoa, 2016). However, these claims are curiously based on data relating to the frequency of deforestation events, rather than the overall land cover affected. In addition, this data reveals nothing about the crops being cultivated nor the socio-political drivers and incentives contributing to these deforestation patterns (Dove, 1983; Padoch&Pinedo, 2010; Ravikumar, Sears, Cronkleton, Menton, & Pérez-Ojeda del Arco, 2016; MINAGRI, 2012; Del Águila Lomas, 2012[15].).

Smallholder oil palm producers are increasingly important players in Peru's forested landscapes, but information about their activities and relation to wider political processes is scant and frag- mented (Hotz&Guarín, 2014). Nonetheless, further incorporation of smallholders into the palm oil production chain is a prominent global 'sustainable development' strategy, and has gained traction in Peru through the new National Plan for the Sustainable Develop- ment of Palm Oil 2016–2025 (MINAGRI, 2016). The private sector also supports partnering with smallholders, as revealed in large private corporations' expansion manifestoes (IPA, 2013; Grupo Palmas, 2017).

Today there is a new mode of oil palm production in Peru: the Company-Community Partnership (CCP). A CCP involves two or more parties (one of which is a private or state-owned company and another being a rural community or village) 'partnering' to share land, capital, management and market opportunities under a contractual agreement with the aim of producing an output – in this case palm oil (Nawir & Santoso, 2005). CCPs are one of many

[15]In 2016 a notebook containing two months of field notes were stolen from the first author whilst in the field, therefore exact numbers of interviews are unknown.

different modes of oil palm production, and present a particular relationship between smallholders and oil palm production. Broadly speaking, there are four major modes of oil palm production that involve smallholders in different ways.

Supported smallholders derive support from the government or the private sector, sometimes backstopped by international aid schemes. Support is usually given in the form of seed stock, juvenile palm trees, fertilizers, pesticides, infrastructural support such as new access roads, financial support for clearing and preparing the plot, and technical training. Such support is generally provided on credit, and smallholders are expected to begin to make repayments on these debts as soon as they reap their first harvest (usually about three years after planting). To date, since the 1990's, this has been the predominant mode of smallholder engagement with oil palm in Peru.

Independent smallholders cultivate oil palm using their own financial resources, without direct outside assistance. Sometimes these independent producers amass capital through credit and successfully repaid their debts, and in other cases they acquire capital through other means. Smallholder labourers work for private or state-owned plantations, earning wages in exchange for their labour without owning the means of production.

Company-Community partnerships (CCPs) are distinct from these other arrangements, and operate in two main ways. In some cases, smallholders and landowners rent their land to plantation companies, or collect a share of profits based on the equity value of their land. The mini estate schemes in Malaysia are the most well- known example of this model. In other cases, smallholders form cooperatives or association, and jointly agree to hand over a certain percentage of their land to the company in exchange for a share of the profits. They usually sign a contract ceding buying exclusivity to the plantation for the fruit produced on the

smallholdings. The inti-plasma model in Indonesia and Malaysia is the most cited example of this model, although there has been well-documented variation in how these schemes are implemented in practice (Euler, Schwarze, Siregar, &Qaim, 2016; Myers et al., 2016; McCarthy and Cramb, 2009; Zen, Barlow, Gondowarsito, 2005).

Thus, while oil palm CCPs are quite new to Peru, they are not globally novel. The history of Malaysia and Indonesia shows that partnership models can have highly divergent ecological and socioeconomic impacts. It is widely accepted that the nature of these arrangements has a direct bearing on the type and direction of socio-environmental outcomes that they produce (Vermeulen& Goad, 2006; Dammert, 2015). However, new frontiers of oil palm expansion such as Peru (in addition to other Latin American countries and other 'frontier' regions such as Papua New Guinea) are seriously underrepresented in the literature on the political ecology of oil palm. With Peru poised to see oil palm expand, and government agencies voicing interest in and support for CCPs, understanding how this newly emergent mode of production affects socio-environmental outcomes in Peru is vital.

We address this gap by analysing the socio-environmental out- comes of a CCP case study in the Peruvian Amazon department of Ucayali. Although the supported smallholder is the most common and oldest production model in Peru, the CCP between a private company and four villages/communities described in this paper is the first and remains the only of its kind to date in the region. In 2015 an Oxfam report highlighted the need to evaluate the socio-environmental impacts and ethics of these new CCPs in the Peruvian Amazon (Dammert, 2015). Indeed, an analysis of how it has come to be, and the assessment of its impact on forests is critical because how the government understands drivers of deforestation on the

Amazon has profound implications for how it will confront the problem (Ravikumar et al. 2016).

We have taken an interdisciplinary approach to the following questions:

1. How has the promotion of oil palm at the extra-national, national, regional and local levels resulted in a CCP in the Peruvian Amazon department of Ucayali?
2. How is this CCP affecting land use cover and change, and particularly deforestation, in participating villages?

The next section will describe the methods employed for the study. Section 5.4.3 answers the first question by exploring the international political, economic, and discursive factors that underpin intensive commodity agriculture – especially oil palm – in the tropics. The section situates the CCP in this debate, framed as a theoretical ‘‘win-win” for pro-environmental and livelihood sustain- able development. We then describe the national level policies that promote oil palm expansion. Finally, we present a case study to illustrate the regional and local manifestations of these policies as they intermingle with local cultural and socio-political realities. Section 5.4 addresses the second question by using fine-scale (1m resolution) visual remote sensing techniques to measure and quantify forest change on CCP partner and non-partner farms. The discussion and conclusions follow in Section 5.5.

5.2. Methods

5.2.1. Qualitative methods

Qualitative data used to illustrate the regional and local context of this article is predominantly derived from participant observation undertaken by the first author between September 2012 and October 2016. Over this period, the first author spent 17 months in the rural villages of Ucayali Additionally, she spent several months living in the capital city of Pucallpa, and several more in Lima (not continuously). The first author conducted research, liaised with oil palm stakeholders at multiple levels (local, regional, and national), in order to

determine what they considered to be the most important research questions. Additionally, communities and individuals continued (and continue) to be in contact with the first author remotely. In many cases, this involves them getting in touch when they visit towns with internet access, as many individuals in communities and villages now have smart phones. In other cases, such as with as informants in Pucallpa and Lima, the first author has maintained ongoing communication through email, phone calls, text messages, and social media. This is an interesting phenomenon for those interested in evolving ethnographic methods, as communities adapt to and utilize changing communication technologies.

In addition, the first author carried out at least 340 unstructured interviews with members of the national and regional governments, private company owners, NGOs, activists, journalists, representatives of oil palm farmers' cooperatives, representatives of aid agencies such as the United Nations Office on Drugs and Crime, the United States Agency for International Development Assistance, and the National Commission for Development and Life Without Drugs. These 340 interviews were carried out with 18 different stakeholder groups, most of whom were engaged many times over the period of research. The first author also attended meetings and round table events related to oil palm and this specific case at Congress headquarters in Lima, with national Ministries, and in regional government and other public and private meetings between 2013 and 2016.

The three villages and one indigenous community[16]were selected for the case study because they were the only private oil palm CCP villages in Ucayali at the time of the study. During periods of within-village participant observation, the first author also attended meetings

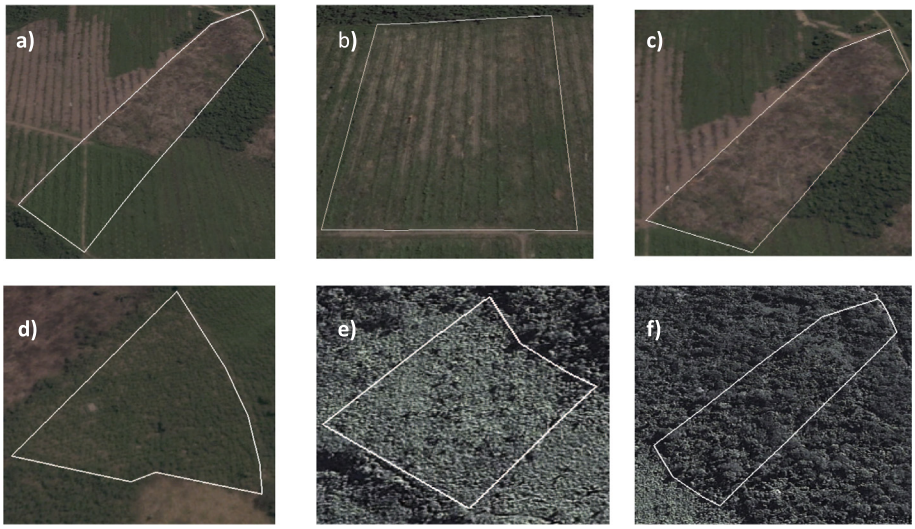
16 Indigenous Communities and non-indigenous smallholders are legally distinguished demographic categories according to state law, and legal land rights between the two groups are very different. For more information see Cossio et al., 2014 and Monterroso et al., 2017.

between the company and the communities along with many farmers' association meetings. She was present for demonstrations and gatherings described in the case study section. Some supporting information, quotes, perspectives and data have also been extracted from a series of (almost 600) structured surveys conducted by the first author in the region between 2013 and 2017, some of which were conducted for other studies in the region.

5.2.2. Quantitative methods

To answer question two – How is this CCP affecting land use change, and particularly deforestation, in participating villages? – we measured observed changes of the following land use categories: forest, other crops, oil palm, cleared land or pasture, and natural regeneration (mostly fallows) (Figure 5.1). We primarily used a quantitative change detection technique, using high resolution satellite images obtained from Google Earth (IKONOS, at 1 m of spatial resolution). We did this at two reference dates: 2011/12 before the partnership and 2015/16 – after the CCP was implemented.

Figure 5.1: Example of land cover types detected in farms



a) Farm delineation from cadastre b) oil palm c) bare land d) other crops (plantain) e) land in regeneration f) forest.

The principal approach was visual delineation in Google Earth of the land use classifications at both points of time. We acquired a recent (2016) cadastre of georeferenced polygons of titled farms for most of our study site from the Regional Government of Ucayali's Directorate of Agriculture (DRSAU). We brought these cadastres to the rural villages to cross-check them with the property owners. Village leaders, interviewees and in some cases, focus groups, helped us to identify all the partner and non-partner farms in each village and we recorded GPS coordinates in each.

We have chosen to measure and compare oil palm farmers involved in the CCP and their non-oil palm growing neighbours to quantify the land use change impact of the CCP. This is a frontier region where infrastructure was almost non-existent in 2012, and so the CCP partners are among the first, and at the time of this writing, only, oil palm growing smallholders in the area. Villages in the region are populated by a mix of local Ucayali people and immigrants from other departments (Bennett et al., 2018). Individual villages, however, tend to be predominantly populated by extended families and their friends. Founding families of villages often expand the village by encouraging relatives and friends to join them in their village. making families in villages culturally similar to each other. In general, both Ucayali locals and agricultural immigrants farm in the same ways, planting similar crop types and deploying similar fallowing and forest fragment maintenance techniques. According to long-term residents, the villages were all established approximately thirty years ago, and settlers began practicing shifting cultivation for subsistence upon arriving in the area. Bennett et al. (2018) show that there is little difference in the production strategies of households within and between villages in the region and although immigrants tend more towards oil palm, this crop is usually found to cluster at the village and not the household level. However, as we discuss later in Section 3, the uptake of development

projects by smallholders in the Amazon is complicated by several factors: access to projects may have prohibitive prerequisites such as holding a formal land title or having prior experience with the crop. And in some cases, pro- jects simply don't have the capacity to take on all interested small- holders. On the other hand, many rural farmers have experienced the disappointment of previous failed development projects, and are reluctant to sign on to a new project before waiting to see how their neighbours fare in the new scheme.

Given this body of new evidence suggesting that participating and non-participating households are largely similar to each other, we are confident that there is no risk of endogeneity problems skewing our quantitative results concerning deforestation rates. For example, many smallholders who did not participate in the CCP did in fact wish to participate, but had not yet been incorporated due to limited plantation capacity, their land being unsuitable (for example if their plot lay in a floodplain), or failing to fulfil bureaucratic requirements such as submitting paperwork on time. Thus, they are involuntary non-participants, and a viable control group for this study. Some smallholders did choose not to participate in the scheme because they did not trust the company, or were content with their existing livelihood strategies. However, there is no evidence that their land use practices differed from those of smallholders prior to the arrival of oil palm, and no reason to expect that the differences in deforestation and land use cover that we observed later would be related to these differences.

Polygons of both the farm boundaries and their respective land uses were exported to QGIS 2.14, where we calculated the surface areas. We then calculated and mapped the changes in each of the land use types between the two reference years which gave us two types of results: frequency and percent of farms (number of farms describing observed changes) and the area

changed (measured in hectares). Participant mapping techniques were also used to triangulate these, as we will explain now.

Of the 100 active smallholder partners participating at the time, we managed to interview and geo-reference 62. We matched this number with a random selection of households without oil palm in the same villages. The government had not yet issued full formal titles and generated georeferenced polygons for some farms in village 3 and the Indigenous Community. In these cases, we mapped the farms on-site using participatory mapping techniques, and took GPS measurements.

To protect the identities of the research participants, we have numbered the villages 1-3, and refer to the company simply as ‘‘the Company” and the indigenous community as ‘‘the Community.” Due to the internationally highly controversial nature of this case, we have also drawn up a series of map segments and a schematic diagram rather than a complete map. This allows readers to understand the layout of farms and villages (and their proximity to the plantation), but does not disclose their precise locations.

5.3 How has the promotion of oil palm at the extra national, national, regional and local levels resulted in a CCP in the Peruvian Amazon?

5.3.1 CCPs: a win-win for smallholders, food production, and forests? An international perspective

Many in the international conservation and development com- munities see involving smallholders in palm oil production as a way to alleviate rural poverty, improve livelihoods, and enhance global food security (Gatto, Wollni, Asnawi, & Qaim, 2017; Euler, Krishna, Schwarze, Siregar, &Qaim, 2017; FSG, 2011; Sayer et al., 2012).

However, because smallholders do not have the resources to access the technologies that they need to produce high quality palm fruit in economically viable quantities, realizing these purported benefits of oil palm has been challenging (FSG, 2011; MINAGRI, 2016). These technologies, including fertilizers, pesticides, juvenile plants, machinery, transformation mills, and road infrastructure, require huge capital investments. As a result, oil palm is almost exclusively accessible to those who can afford these inputs: namely, highly capitalized private corporations. The capital intensity of oil palm, coupled with the political clout of wealthy private firms, have made large monoculture plantations the dominant production strategy for more land-efficient palm oil production.

However, critics of the large-scale approach to agricultural production object to the assumption that this type of intensification is compatible with environmental justice and local peoples' empowerment. They contend that this logic, and the policies of agricultural intensification that tropical forest countries have often deployed to support it, mainly facilitate capitalists' access to land resources in the global South, disempowering and sometimes even displacing local communities while doing little to seriously reduce deforestation (Li 2002; Fairhead, Leach, &Scoones, 2012; Colchester & Chao, 2013; Kremen, 2015; Shiva, 2016).

Advocates of the intensification approach have responded to critiques and tried to reconcile the ethical and technological barriers for smallholder integration into global commodity production by turning to CCPs as a way to ensure that local farmers have an opportunity to grow and benefit from cash crops. Additionally, these advocates argue, if smallholders adopt more lucrative agricultural strategies and generate higher yields, they may no longer need to

engage in shifting cultivation or ‘‘slash-and-burn” agriculture – the production strategy which many presume threatens environmental sustainability (e.g., Foley et al., 2011).

At the Earth Summit in Johannesburg in 2002, CCPs were touted as one of the key routes to sustainable development in rural developing areas (Vermeulen& Goad, 2006). Reported positive impacts of oil palm CCPs have included ‘‘opportunities for income diversi- fication, local access to paid employment and the development of new skills, improvement of local infrastructure and environmental improvement” (Vermeulen, Nawir, &Mayers, 2008). Environmental improvement is often evaluated in terms of the type of land in which oil palm is being planted (e.g., degraded lands vs primary forest), and there is an underlying assumption that a more intensive agricultural production strategy will produce more food, or income-generating crops, on less land.

Those who support CCPs assert that the private sector is uniquely capable of bringing exceptionally expensive high yield technologies and more efficient management and improved access to markets to rural areas, which creates a win-win for environmental sustainability, poverty alleviation and food security goals (ibid). With broad coalitions supporting them, CCPs (compared with independent smallholder producers, or private plantations with no community involvement, for example) have become an important mode of palm oil production in the biggest producer countries (Beekmans, Dallinger, &Molenaar, 2014).

The actors involved in CCPs may have different strategic reasons for entering the partnership. From the companies’ perspective, CCPs can provide opportunities to access more land whilst avoiding land conflicts by working directly with local communities. Thus, CCPs don’t just allow companies to access more land – they can also bolster firms’ public image and provide

them with a social license to operate (Steinweg, Thoumi, & Lima, 2017b; Beekmans et al., 2014).

Smallholders, on the other hand, can be attracted to partnerships because they promise extra income through direct plantation labour and profit-sharing, along with paid work in nurseries. Companies often also promise to provide other benefits, including: funds for medical posts; schools; improved housing; training and practical experience in oil palm cultivation; extension services; support for improving social organization by forming committees and associations; and, most importantly, credit for agricultural development, road infrastructure, along with secure access to markets to sell goods (Beekmans et al., 2014).

CCPs can even seem like a solution for governments struggling to fulfil their own rural development mandates. Many governments have essentially outsourced their development duties to private corporations by introducing neoliberal policies that allow land privatization and rural landscape developments (German, Cavane, Sitoe, & Braga, 2016). This can include everything from building new infrastructure, to creating new markets and supply chains, to providing healthcare and education services.

However, despite enthusiasm for including smallholders in commodity crop production, and the development of in-country policies for moving towards ethical zero-net deforestation for oil palm, observers have concerns about how these policies are implemented. For example, the World Bank reported “an astonishing lack of awareness of what is happening on the ground, even by the public sector institutions mandated to control [the phenomenon of land grabbing]” (Deininger et al., 2011: 2). This is particularly true for new frontiers of oil palm expansion. Increasingly, those interested in development and/or environmental policy are calling for researchers to revisit assumptions and critically assess the motivations [and

processes] of agents of deforestation (Ravikumar et al., 2016; Valqui et al., 2014). We argue that this is particularly relevant for emerging CCPs in the Amazon, as this type of production has the potential for acute environmental and social transformation at new sites. As such, understanding the reality on the ground in sites where CCPs are emerging is a research priority.

On reviewing the literature, we found very little evidence that CCPs, or indeed smallholder oil palm production more generally, have positive environmental outcomes. Furthermore, the potential for deforestation spillage out of plantations into rural communities through CCPs has not been assessed. We address this research gap not only by quantifying the deforestation, but also making the underlying socio-political processes responsible for the land use change outcomes explicit.

5.3.2. Peru, Ucayali and the historical political ecology of oil palm

5.3.2.1. Neoliberalism in a decentralizing Peru, and the promotion of oil palm at the national level

This section further addresses Question 1 (How has the promotion of oil palm at the extra-national, national, regional and local levels resulted in a CCP in the Peruvian Amazon department of Ucayali?) by bringing the discussion down from extra-national thinking to the Peruvian context at the national, regional and local levels.

Peru is a unitary decentralized (or rather decentralizing, as the process remains incomplete) state made up of 25 regional departments that are governed by democratically elected regional governments. The regional governments host the decentralized branches of central government offices. These regional offices, through their regional directorates of agriculture,

are in charge of allocating land rights, and they are permitted to concession and sell land within the limits of the national legislation on land use. Although subnational governments now have more power in terms of public resources and autonomy to make decisions, they do not have the funds and skills to discharge these new roles, and corruption is rife. Therefore, many rural villages and communities still lack basic services.

The Peruvian government has been encouraging private investment in part by creating neoliberal policies that privatize public works and promote public-private partnerships. For example, in 2009, the "Works for Taxes" (Obras por Impuestos) mechanism was established, through which the government allows private companies to invest in public works such as the construction of roads, hospitals, schools and other public infrastructure instead of paying a portion of their taxes (PROINVERSION, 2016). In more remote areas, where government presence is often lacking, private companies are taking on development projects that would normally be the responsibility of the state. This is done both formally through Works for Taxes, or informally through other formal and informal mechanisms. Although there is no evidence of such a scenario with oil palm CCPs yet, it is relevant context for any analysis of oil palm CCPs because these programs stand to foment further CCP development.

In this context, oil palm was legally declared a crop ''in the nation's best interest"[17] in 2000, (El Peruano, 2000: 186334) with at least 14 subsequent laws promoting or supporting it at the national level, which were then implemented at the sub-national level through development projects. As such, the cultivated area of oil palm in the Peruvian Amazon grew from 26,700 hectares in 2012 (INEI, 2012) to almost 78,000 hectares today, with 11 pending requests for

[17]All translations are the authors' own.

the transfer of oil palm concessions that amount to a further 99,356 hectares (Valqui et al., 2014)[18].

There have been two national government oil palm plans published to date. One in 1999, the "National Plan for the Promotion of Oil Palm 2000–2010" (MINAG, 2000), and the second in 2016, "The National Plan for the sustainable development of oil palm 2016–2026" (MINAGRI, 2016). The former plan emphasises the benefits of oil palm plantations for smallholder livelihoods, for displacing illicit production of coca, and as a tool for improving environmental outcomes in areas 'deforested' by ''smallholder migratory agriculture" (El Peruano, 2000: 186334). This latter emphasis derives directly from the government's assumption that subsistence-oriented smallholder farmers are the primary agents of deforestation, as highlighted in the introduction.

The 2016–2026 plan was the result of a long consultative and collaborative effort in which the private sector was heavily involved. Smallholders groups were involved in meetings held in the regions. The plan focuses on environmental sustainability, smallholder engagement, and opportunities for outside investment. The plan also recognises the shortfalls of the Peruvian oil palm production chain in its current form: namely, the historical lack of technological capacity, poor yield outcomes, limited market access for smallholders (including to credit and technology), and weak institutions (MINAGRI, 2016). Additionally, the plan high- lights high deforestation rates on large plantations as an environ- mental threat. In response to these critiques (as well as pressure for deforestation-free palm oil from consumers, larger progressive firms, and conservationists), Peru's largest oil palm corporation established a ''No Deforestation, No Peat, no Exploitation" policy explicitly in

[18]Some reports compellingly argue that the real figures are likely higher, as many illegal plantations exist and not all areas legally authorized for oil palm are included in the official numbers (EIA 2015).

order to improve its reputation and avoid regulatory risks (Steinweg et al., 2017b). The inclusion of smallholders into their supply chain through improved out-grower and smallholder association models is a key strategy for improved socio-environmental outcomes (Steinweg et al., 2017b; Grupo Palmas, 2017).

Meanwhile, the increasing contribution of large-scale monoculture oil palm to deforestation in the Peruvian Amazon was beginning to attract unwanted international public attention (EIA, 2015a,b; Dammert, 2015; Steinweg et al., 2017a). Therefore, the environmental component of the 2016–2026 plan (framed as 'sustainability') became a political requirement for the Peruvian government. Yet, even in this plan, deforestation problems are presumed to be relegated to large plantations, and would therefore be theoretically resolved by planting oil palm in 'degraded' smallholder areas. Thus, key environmental solutions in the new plan are founded on improving smallholder out-grower and association models. However, the environmental impact of such models in Peru have never been assessed.

5.3.2.2. Ucayali and regional oil palm expansion

Oil palm in Peru has expanded into four lowland Amazon departments; Loreto, Ucayali, San Martin and Huanuco. The department of Ucayali is the second biggest producer of oil palm, hosting at least 35% of Peru's oil palm and 28% of new and growing plantations. Gutiérrez-Vélez et al. (2011) reported that by 2010, 75% of high-yield oil palm and 30% of low-yield palm planted in the region had displaced old growth forests. Ucayali currently has the highest rate of deforestation in the country (Finer, Novoa, Snelgrove, 2015; Finer, Snelgrove, Novoa, 2015), making it an urgent site for our investigation.

Ucayali is an inland region of Peru situated in the central east- ern zone of the Peruvian territory in the Amazon rainforest. The landscape outside the urban centre of Pucallpa

includes a mix of forest vegetation and heterogeneous agricultural landscapes, including new large oil palm plantations. There is a strong tradition of periodic land clearing activity for shifting cultivation and fallow systems on small farms, coupled with short-term farm occupancy periods. The site has seen many boom-and-bust economic cycles for timber and crops, many spearheaded by state policies that resulted in abrupt social and ecological change in target areas (Pinedo-Vasquez, Zarin, &Jipp, 1992; Coomes, 1996; Labarta- Chávarri, White, Swinton, 2008). Traditional farming practices and local cultures coexist with new immigrants that are attracted to Ucayali by the relatively cheaper land and favourable policies like agricultural credit and tax relief programs targeted to this region, including for oil palm (Padoch et al., 2008; Bennett et al., 2018).

5.4. The case study

Long term participant observation and interviews with government and non-government actors, smallholders, and indigenous community members revealed a striking story of how a large private oil palm project was established in Ucayali. As Peru under- went decentralization reforms in the late 2000s, the Regional Directorate of Agriculture of Ucayali (DRSAU) acquired an area of 12,481 hectares of forest through a legal process in Peru called *inmatriculacion*, which allows converting free State lands [19] owned by the national government into private lands owned by regional governmental agencies. Several small villages had been in this area for up to 35 years, including the three villages and one indigenous community analysed in this paper. Smallholders in these villages had been using the land for agriculture (mostly subsistence crops and cocoa). They also maintained large patches of old growth forests. Road infrastructure was minimal (Bennett et al., 2018).

[19]Tierra Libre del Estado in Spanish

Although some smallholders held a legal title for their lands, many had been living on their plots according to local 'informal' tenure agreements with neighbours and village leaders. In 2012, the DRSAU sold land shares equivalent to 12,188 hectares to a Malaysian company for two oil palm plantations. The first, referred to as 'Project A' in this paper, covered 6464 hectares, The second, 'Project B', located a little to the south of Project A covered 5724 hectares. DRSAU sold the shares to the Company through an expedited direct sale process, rather than through the usual more bureaucratic (and more transparent) titling procedures, using the legal justification that the Peruvian government considers oil palm projects to be of ''national interest." Field transcripts from July 2012 describe mixed reactions from smallholders and indigenous residents to the arrival of the company. However, the overwhelming response was one of resistance. There were tense conflicts over land and resource rights, with many locals claiming they were being dispossessed of their lands. Smallholders and indigenous communities usually blamed corruption in the DRSAU for this issue, as they felt that the regional office was dragging its heels in granting them the land titles they were entitled to (and desperately needed to protect their land) in order to facilitate the sale of those lands to the company. On the other hand, there was discontent amongst farmers that fell outside the remit of the project, as they were worried that they would be left out of the development benefits that the company had promised to participants.

Meanwhile, the company maintained that they had acquired the lands legally, and that the land conflict issues were the result of misunderstanding on the part of the locals. The confusion over land rights became a burden for the company, and it too criticised the DRSAU for spreading 'misinformation' about the land tenure situation. To mitigate this problem, the company began a compensation scheme (although they had no legal obligation to do so) to some smallholders that occupied land within the plantation boundaries.

Overwhelmingly, the smallholders felt that the sums they were offered did not represent the value of their land. In interviews, smallholders described these reparations as ‘‘nothing but a tip,” ‘‘a few pennies,” or ‘‘an insult,” but they maintained that they nevertheless ‘‘had no choice [but to accept]”. The smallholders who had transferred their land to the plantation mostly moved to new (smaller) plots nearby. In some cases they were plots that were already held by family members – albeit informally – and in others they opened new plots in forest areas. This phenomenon was most prevalent in Village 1 (

Figure 5.2).

Figure 5.2: Change in forest cover in villages on CCP and non CCP farms

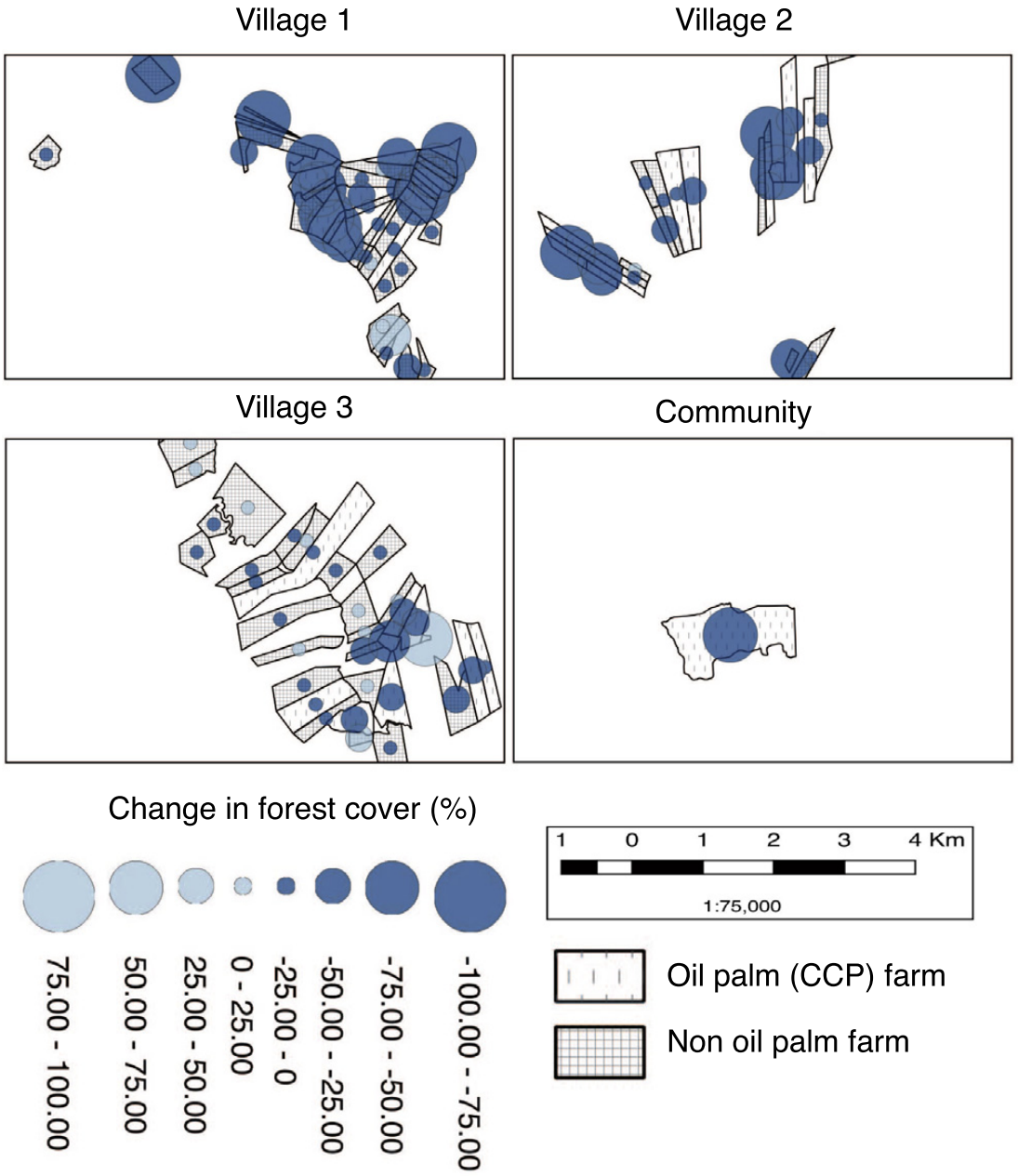
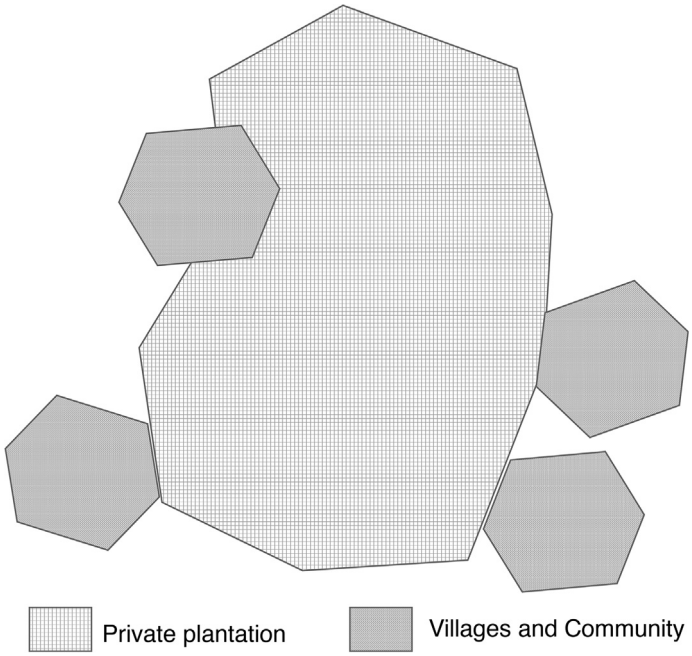


Figure 5.3: Schematic diagram of the private plantation and the CCP Villages and Community



In 2013 the company began a campaign around the villages and communities promoting the idea of a CCP. The company's goal was to include 700 families in three stages between 2013 and 2017 and to reach a total area of 4,500 hectares of planted palm on small- holder and indigenous lands by that date. However, tensions continued to mount around Project A, with a local indigenous community's resistance even turning violent. This community galvanized support from foreign NGOs and managed to hold a meeting with Peruvian Congress representatives in their village. In 2015 and 2016 representatives of this community even reached the United Nations' international climate change negotiations at the Conference of Parties 20 and 21 in Paris and Morocco, and they presented a formal complaint to the European Parliament and Director Generals of the Environment, Trade, Energy, Climate and Development Aid at the European Commission in London in 2016[20]. As a result, the CCP plans in this area around Project A were delayed, and still were at the time of this writing. This caused conflict in the area as the pro-palm communities confronted anti-palm communities, fomenting divisions between and within communities. The company attended

[20]The first author was not present in London for this event. See FPP (2015) for more information

meetings with government representatives and the communities and villages to try to resolve these problems, but relations were tense. Ultimately the company felt that the communities needed the company more than the other way around, and they pulled the CCP from the area where tensions were highest. Expansion into communities and villages around Project A now only happens on individual agreement basis, and the CCP arrangement has been suspended.

Project B, however, continued according to plan. It had incorporated the three villages and one Indigenous community included in this study

Figure 5.2 and Figure 5.3). The DRSAU had distributed land titles to most of the partner villages (to both palm growers and non-palm) by 2016, though village 3 remained partially untitled at the time of research. The government formalized land rights partly at the company's insistence on resolving land conflict issues. Titles also served as collateral for the loans the company was dolling out to smallholders. By the end of 2014, the company had galvanized considerable local support, including – crucially – that of the Indigenous Community. The apu (traditional chief) of this community was so committed to the CCP, that he agreed to relocate the com- munity centre to an area that was more convenient for the company. A large part of the untitled indigenous territory lay within plantation boundaries, and the company wanted to use this land to fulfil the legal requirement of setting aside 30 percent of the plantation area as a forest reserve. By September 2016, however, 6 families had left the community and moved to the city or sur- rounding villages because they did not agree with the apu's decision, and did not consider his decision legitimate.

Meanwhile, other political unrest unrelated to the company was taking place, with regular uprisings by citizens protesting alleged government corruption and lack of service provision in the area. For example, there were a series of violent revolts against a district mayor after he won a fourth consecutive term, allegedly by bringing in voters from outside the district to skew the elections. The situation was aggravated further by alleged embezzlement of public funds, a series of collapsed public building works, and a dummy sewage system that washed into the river during the rains. The lack of safe roadways and foregone promises for road infrastructure improvement was a point of contention, with many smallholders unable to get their products to market during both very dry and very wet weather. Land rights issues were included amongst the complaints, with smallholders claiming to have struggled to formalize

rights over their land, whilst large land holders and city- based land speculators had enjoyed a titling bonanza (see also: Bennett et al., 2018).

Although not all of the smallholders in the participating villages had been convinced of the benefits of the CCP (development projects are rarely embraced immediately by all members of rural communities), it was nonetheless increasing in popularity and by 2013 had enough members to be viable. The participating smallholders had not yet been given copies of the contracts, but they had signed them and vaguely understood that they were committed to an agreement. In fact, the financial contracts had been doled out by the company to individual farmers, with farmers' debt loads based on the level of ''assistance" each individual had received from the company for a bundle of services[21]. Thus, contracts and the debts stipulated therein varied widely amongst the CCP small- holders. The participating smallholders did create their own "association" to represent themselves, but they never organized it well enough to meaningfully operationalize it. Most "members" were not even aware who the president of the association was, or whether any meetings had actually taken place. Nevertheless, through the CCP, forest communities and smallholders began to employ new rhetoric about the conservation value of oil palm trees, oxygen provision, and carbon sequestration as benefits of the CCP and crop. They also began to justify the CCP on the grounds that oil palm is an alternative to coca, despite the fact that these villagers grew almost no coca at all prior to the CCP.

[21]Example list of items in a CCP loan contract (2013-2016): "Land preparation" (includes contracted manual labour, Tractor hire (excavation and removal), piling earth for drainage, clearing for roads, compression of roads, Petrol, pipe cleaning, Drainage, gasoline). "Kudzu" (seeds of land fertilizing plant), "Palm plants", "Chemical Fertilizers" (Boro, Fospheric rock, Dolomite, Nitrogen, Potassium Cholride), "Transport of plants" (driver and vehicle hire), "Pay for sowing" (manual labour), "Other expenses" (e.g. manual earth piling, Manual drainiage, Technical support, Agricultural insurance)

By 2015 there was a notable turnaround in the feelings of both the smallholders engaged in the CCP, and those now wanting to get in on the partnership, so much so that in September of that year, a group of smallholders took to the streets of Pucallpa to March against the prosecution of the company when the central government accused it of illegal deforestation for its plantations.

Essentially, many smallholders in the remote frontier area felt at the time that the company was doing the things that the government should have been doing for years: establishing roads and river crossings, donating vehicles and providing a taxi service to the city, providing access to credit, organizing technical trainings, training local people on plantation management, building new public works, providing high quality medical care for emergencies, and even supporting local cultural events by donating meat or decorations for village celebrations. This attitudinal change caught the attention of nearby farmers, villages, and communities looking in on the CCP, and some even began to clear their own land for palm in the hope that the CCP would come their way. The company was becoming powerful, and even when they were issued a stop work order by the Peruvian Government, there was nobody that could (or would) make them comply.

Despite the local support, the company faced an onslaught of negative press related to the mass deforestation for their plantations (Pautrat, 2013). Reports claimed that of the total area of 12,188 hectares, 9,404 hectares (77%) was primary forest immediately prior to the project installation, 2,350 hectares (19%) was secondary forest and only 4% (434 hectares) was already deforested (Finer & Novoa, 2015; EIA, 2015a,b). As such the case became an international outrage, which was an embarrassment for the Peruvian Government in light of their pledge to zero net deforestation and commitments to forest conservation.

This analysis reveals that the politics of oil palm expansion, including CCPs, have disrupted social, political and economic relationships in rural Ucayali. But what have the environmental impacts been, and how have these changes affected deforestation? In the following section, we present data from remotely sensed data coupled with georeferenced field observations to answer this question.

5.5 How is this CCP affecting land use cover and change, and particularly deforestation, in participating villages?

5.5.1. Quantitative results on land use change on farms

To answer our second major research question, we deployed visual remote sensing and participatory mapping methods to quantify the land use change in four categories: forest, natural regeneration (mostly fallows), other crops, oil palm and cleared land or pasture. This analysis was undertaken on 62 CCP farms, and 62 non-partner farms. Non-partner farms act as a control group for comparison in this study.

Figure 5.2 gives an overall visual impression of forest loss and gain in the area. We first examine land use change for the whole site, and then turn to a comparison of partner farms to non-partner farms. Finally, we analyse change at the village level, which allows us to understand how the locally variable context-specific factors, such as displacement of people by plantations discussed in Section 3, have affected differentiated outcomes on the ground.

5.5.2. Land use change across the study area

In total we measured 2,447 hectares on 124 smallholder plots. The 2011/12 measurements showed that of the total area measured, most of it was old growth forest (2188 has/89% of total). There were 158 hectares (6% of total) of regenerating or fallow forest, and only 48 hectares dedicated to crops and pasture (2%). The reason for this small area of cultivated land in the first time-frame is the high number of households in Village 1 and Village 2 that were displaced from their original properties due to the establishment of the plantation as well as new colonisations. These families moved into forest areas and had established new farms by the time our second measurements were taken. We measured the area corresponding to new farm plots (many previously just forest areas) that were measured by us, since the old farms had been already absorbed into the plantation and were never georeferenced by the DRSAU before that point – so were essentially 'lost'. Additionally, the community had almost no

remotely identifiable crops on their land at all in 2011, further reducing the presence of crops on this frontier (

Table 5.2).

Table 5.2: Descriptive statistics

(a) General	Total/Overall	Village 1	Village 2	Village 3	Community
Total Hectares Measured	2447.47	480.8	488.45	1356.54	121.87
No. Farms	125	36	30	29	1 (30)
Mean Farm Size	25.96	15.6	16.5	44.66	4.06
Min Size	2.02	3.73	2.34	2.02	–
Max Size	154.18	34	40.14	154.18	–
Standard Deviation	25.64	8.61	9.92	33.35	–

(b) Past	Total/Overall		Village 1		Village 2		Village 3		Community	
Has oil palm	53.39	2.18%	0.74	0.15%	0	0.00%	52.65	3.88%	0	0.00%
Has mature forest	2187.76	89.39%	436.9	90.87%	441.4	90.37%	1206.03	88.90%	103.43	84.87%
Has regenerating forest	157.89	6.45%	29.42	6.12%	39.25	8.04%	70.79	5.22%	18.43	15.12%
Has Crops	14.4	0.59%	6.24	1.30%	0	0.00%	8.16	0.60%	0	0.00%
Has cleared/pasture	34.19	1.40%	7.5	1.56%	7.79	1.59%	18.9	1.39%	0	0.00%

(c) Current	Total/Overall		Village 1		Village 2		Village 3		Community	
Has oil palm	469.05	19.16%	152.03	31.62%	86.33	17.67%	108.82	8.02%	121.87	100.00%
Has mature forest	1616.1	66.03%	273.07	56.79%	302.94	62.02%	1040.09	76.67%	0	0.00%
Has regenerating forest	181.67	7.42%	36.14	7.52%	40.31	8.25%	105.22	7.76%	0	0.00%
Has Crops	111.66	4.56%	6.31	1.31%	53.84	11.02%	51.51	3.80%	0	0.00%
Has cleared/pasture	69.08	2.82%	12.86	2.67%	5.23	1.07%	50.99	3.76%	0	0.00%

(a) overall site (b) Land uses in the past by village (hectares and percentage of village overall) (c) Land uses in the present by village (hectares and percentage of village overall) **Nb due to manual digitization there is a negligible discrepancy in the overall measured area (0.16 and 0.06 ha respectively for general, past and present differences).*

The overall change data (

Table 5.3) shows important changes between the two time periods, particularly with forest loss and oil palm increase. First, there was a net forest loss of 572 hectares, (26%) across the site. Natural regeneration (fallows) increased from 158 hectares to 182 hectares overall (+13%), whilst farmers had cleared 33 hectares for new crops or pasture. There was an increase of almost 100 hectares of other crops, but this was dwar- fed by the increase of 415 hectares of oil palm.

Table 5.3: Summary of overall change (hectares) of each land use on total area measured, CCP farms and non-CCP farms

Land-Use Type	Total	CCP farms	Non CCP
Mature forest change	−571.57	−541.26	−30.31
Crops change	+97.26	+43.36	+53.9
Natural regeneration change	+23.77	−4.12	+27.89
Cleared/pasture change	+33.99	+5.5	+28.49
Oil palm change	+415.67	+415.67	

On investigating whether these changes took place on 'partner' farms or not, we can start to see a link between the CCP, its oil palm, and land use change outcomes. Of the total deforestation calculated, 541 hectares (95%) corresponded to partner farms com- pared to only 30 (5%) on non-partner farms. All of the natural regeneration took place on non-partner farms. Indeed, the regeneration that took place on these farms is almost exactly the same amount as the deforestation (+28 vs 30 respectively). Furthermore, 28 of the 34 hectare increase of cleared area also took place on non-partner farms, which illustrates the traditional farming/fallowing balance of Amazon farming practices in the region. Both partner and non-partner farms increased their quantities of other crops (+43 (%) and +54 (%) hectares respectively). This means that other crops on the site have almost doubled since the arrival of the plantation. This may be due to displacement and colonization pro- cesses. The village level analysis sheds light on how these causal factors are related to the observed results.

5.5.3. Village level change

Breaking the data down further to the village level affords a more nuanced understanding of how phenomena such as displacement and land titling affect the distribution of land use change related to the plantation's arrival and the CCP. At the village level, the deforestation rates on all CCP farms is high, ranging from 36– 85% of original forest cover (Table 5.4).

Figure 5.2shows the deforestation and afforestation scenario in the villages at the farm level.

The highest deforestation rates in terms of percentage of total areas measured in each village are in Village 1 (81%) and in the Indigenous Community (85%). However, the range of total area deforested was not so wide between the 4 sites (121–185 hectares). Additionally, the most newly cleared area was in Village 3 where the biggest farms were claimed and the most forest was present in 2011, and the least clearance occurred in the Indigenous Community, which has the smallest overall measured area.

However, within-village differentiation between the partner farms and the non-partner farms shows a similar pattern to the overall CCP vs non-CCP farms offered above. For example, in village 1 where 71% of the original forest cover was lost on CCP farms, the much lower deforestation rate of 10% on the non-partner farms in the same village suggests crop choice (oil palm through the CCP) is the main contributing factor to forest loss in this village. The CCP farms in villages 2 and 3 also show far more deforestation, com- pared with their non-palm growing neighbours (Table 5.4).

Table 5.4: Land-Use Change (in percent of total village area and hectares) at the Village and Community level

	CCP			No CCP		
	Change (%)	std	Total change in surface area (ha)	Change (%)	std	Total change in surface area (ha)
Village 1						
Mature forest	−71.90%	27.31%	−168.55	−9.96%	23.60%	−4.72
Oil Palm	70.35%	29.07%	151.3	0.00%	0.00%	0
Crops	0.00%	0.00%	0	0.89%	8.09%	0.06
Regenerating Forest	2.21%	14.16%	+9.45	15.83%	22.64%	16.17
Cleared/Pasture	−0.28%	1.77%	−1.4	2.71%	9.92%	6.76
Village 2						
Mature forest	−54.48%	26.59%	−106.69	−13.45%	39.25%	−31.76
Oil Palm	52.84%	29.41%	86.33	0.00%	0.00%	0
Crops	3.44%	6.37%	11.02	15.13%	26.09%	42.82
Regenerating Forest	−10.24%	24.56%	−6.28	6.06%	26.73%	7.35
Cleared/Pasture	−0.24%	3.76%	−3.64	−0.66%	9.05%	1.07
Village 3						
Mature forest	−36.24%	28.45%	−162.58	−1.98%	15.72%	−3.27
Oil Palm	26.24%	43.99%	56.16	0.00%	0.00%	0
Crops	7.51%	18.44%	32.34	2.28%	5.61%	11.01
Regenerating Forest	1.41%	13.19%	30.04	−1.25%	1.79%	4.37
Cleared/Pasture	1.08%	2.33%	10.54	16.00%	8.45%	20.66
Community						
Mature forest	−84.88%	/	−103.44	/	/	/
Oil Palm	100.00%	/	121.87	/	/	/
Crops	0.00%	/	0	/	/	/
Regenerating Forest	−15.12%	/	−18.43	/	/	/
Cleared/Pasture	0.00%	/	0	/	/	/

Moving from deforestation to natural regeneration, Village 1 and the community again had the least increase in regeneration, and actually had net regeneration loss for palm growers (9% and 18% respectively). This can be partially explained with the same reasoning as above. If the area was newly colonized as a result of land rights issues and the establishment of new plots, then there would hardly be any degraded areas to regenerate. However, the fact that non-partner farms in Village 1 had a regeneration increase of 16% calls this reasoning into question; it suggests that non-partner farmers were resuming traditional fallow farming approaches (even in relatively newly colonized areas), and establishing pro-forest regeneration production strategies after a short period of time. This contrast suggests that farmers who joined plantations for the CCP are moving away from traditional fallowing practises.

At the end of Section 5.5.2, we suggested a link between crop increase and displacement. But this hypothesis is disqualified by looking at the village level data; in addition to the natural regeneration scenario above, Village 1 (the village with the highest dis- placement, highest deforestation and highest percentage of palm) has a crop increase of only 0.1%, and all of this has taken place on non-partner farms. This lack of change in crop area is due to partner farms currently growing no crops other than palm on their new plots, whilst their neighbours continue with traditional fallowing farming practises. Village 2 and 3 have higher increases in crop area at 54 and 43 hectares respectively, in Village 2 this increase mostly occurred on non-partner farms, whilst in Village 3, partner farmers had increased their crop areas more than their non-partner neighbours. This may be due to the generally larger farms claimed in Village 3, or it may have to do with the situation in which the company stopped accepting new partners whilst conflict resolution was taking place in other areas. We explained in the last section that farmers eager to get involved in the CCP had begun clearing some land in

anticipation of membership. These farmers may have resorted to other crops in light of the delays.

There was no increase in non-palm cultivated area in the Indigenous territory. This is likely due to the rapid land use and socio-cultural change in that community after they moved the central hub of their territory, which would have delayed the establishment of new subsistence plots.

5.6. Discussion and conclusion

5.6.1. Discussion

We opened this paper by stating that the phenomenon of globalized agricultural commodities, where consumer demand in one region influences the crops planted in another, often leads to wide- spread environmental and social transformation at the sites of production. The findings presented above show that in Peru, this is certainly the case. We presented the prevailing ideas and assumptions that undergird the promotion of CCPs as a sustainable approach to oil palm production in rural areas. We challenged these assumptions by analysing a CCP case in rural Peruvian Amazonia, with two central questions in mind:

1. How has the promotion of oil palm at the extra national, national, regional and local levels resulted in a CCP in the Peruvian Amazon?
2. How has this CCP affected land use cover and change, and particularly deforestation, in participating villages?

With respect to the first set of questions, we showed how a broad coalition of actors from the international to local levels see oil palm production, and agricultural intensification more generally, as an environmentally sustainable pathway to economic prosperity through both

large and small-scale production. We showed how many proponents view CCPs as solutions to perceived ‘‘technological barriers” to successful integration of smallholders into palm oil supply chains, as well as a means to secure better environmental outcomes. The CCP in our case study emerged from a combination of international actors influencing national policies that encourage both oil palm expansion and privatization of public property and works.

The Peruvian government has worked to facilitate oil palm expansion through several mechanisms. These ranged from National Plans, new neoliberal policies, assisted smallholder oil palm development projects, and selling land directly to companies. The environmental justifications for the crop have been high- lighted at the highest levels of government, and this discourse has trickled down all the way to the farm level. This environmental discourse has aligned with common (mis-)conceptions about the drivers of deforestation, and the government’s desire to move smallholders away from subsistence-oriented ‘‘migratory” agriculture.

Our results show that the creation of the CCP has altered local politics and socio-political coalitions. As CCPs were established in the region, many locals resisted, and some were even displaced. But others embraced oil palm and supported it practically, vocally and politically. We found that pro-palm smallholder and indigenous peoples’ endorsement of the CCPs was in part a result of oil palm companies providing basic services such as roads, infrastructure, market access, and even healthcare and education, that the government had failed to provide. The lack of government presence and appropriate or successful rural development projects in the area has strengthened the coalition for agricultural intensification, specifically through oil palm CCPs in Ucayali, regardless of the potential socio-environmental impacts.

Furthermore, due to the relative isolation of the villages linked to CCPs (compared with for example the smallholders engaged with government projects in more developed areas), communities may have become overly dependent on the company. For example, the company provides all the training for successfully harvesting oil palm (as well as other important benefits as mentioned), but it also controls access to other important information, including global and national prices, credit interest rates, and true environ- mental impacts. All of this makes it all too easy for companies to abuse the marginalized poor. Major social conflicts and opposing opinions between and within communities has severely disrupted social relations. Thus, our results cast doubt on whether or not oil palm CCPs represent an unambiguous win for rural development in the social realm. But do they at least generate environmental benefits as proponents suggest they ought to?

With respect to the second set of questions, our results show that CCP farms exhibited much more deforestation than neighbouring farms that did not grow oil palm. In addition, there may be other deforestation linked to the displacement of traditional subsistence farms and their colonization of new forest areas. For example, we explained that many of the original farms in Village 1 were established – without formal land title – within the perimeter of the area that became the private plantation. Therefore, many of these smallholders were bought out, and 'given' plots elsewhere. This can be understood as a form of relocation into the forest frontier, or new forest colonization. Villagers established new plots in these areas to cultivate palm, grow subsistence plots, and secure land rights by demonstrating productive land use; meanwhile, their old plots were absorbed into the plantation area. This is a novel finding that undercuts the prevailing environmental justifications for oil palm CCPs, and policy makers

would do well to reconsider their assumptions about the environmental benefits of this mode of agricultural intensification.

Finding such significant deforestation spillage out of the plantation into surrounding communities, we suggest that current deforestation estimates for this (and potentially many other) oil palm project(s) may only be part of the actual area deforested, since those data only include the areas deforested within plantation boundaries. Furthermore, the likely additional deforestation as a result of displacement merits further research, as has been noted in other parts of the world (Gerber et al., 2009). The case also shows that the existing farming practices in the region, and indeed even the farmers that had been displaced but persisted with their original farming strategies of fallowing and crops (subsistence and cash) had a high level of forest cover, complemented with ongoing forest regeneration through fallowing. Recent articles highlight that these systems might be in danger in the Amazon (Padoch&Pinedo, 2010; Coomes, 2017) and that this would likely not a pro-environmental shift (Padoch& Sunderland, 2013); based on our findings, we concur with this assessment.

Our introduction discussed the use of remote sensing techniques to identify actor types involved in deforestation, and we highlighted the problem of making assumptions based on this data without understanding the reality on the ground. By bringing land use change analysis to a much finer scale and triangulating it with socio-political information we have been able to show how pre- vailing categories of actors and production strategies discussed in policy-making circles do not reflect reality. For example, the 'deforesting' oil palm smallholders are entirely dependent on large private plantation for their survival, so separating the two production strategies and actors involved is insensible. This also suggests that researchers analysing the underlying drivers of deforestation should not focus naively on

the ‘type’ of actor (smallholders) nor the crop (oil palm) associated with land use change, but rather evaluate the modes of production and political pro- cesses that spur them. These quantitative results trouble the notion that agricultural intensification through CCPs presents a pathway to environmentally sustainable regimes.

Taken together, our quantitative and qualitative results cast agricultural intensification and global support for CCPs as profoundly anti-politics. They are anti-political because they lack accountability to local people and forests and allow the governments to neglect local peoples’ needs, deferring to the market to provide them. This approach also ignores contours of local traditional livelihoods strategies, and ultimately erodes their viability by providing incentives for newer, seemingly more environmentally destructive, livelihoods that depend on outside markets. By ceding decision-making power over land use to the private sector, and by de-politicizing decision making by removing the state as an entity that local people can use to act collectively and access basic services, the government has ensured that private profits would determine the fate of these Amazonian forests. This has caused significant deforestation. It has also caused social disruption and reshaped political coalitions that depend on private, rather than public, provision of services. Analysing political realities on the ground shows that local people who already live in the Peruvian Amazon have long-standing land management regimes in place, and that unregulated CCPs can disrupt these regimes, with unknown long term consequences for the local food security and sovereignty and ecosystem health.

5.6.2. Conclusions

Our case highlights the critical importance of understanding the reality on the ground before, during, and after the design phase and implementation of both public and private

rural 'development' projects. As governments and some international 'environmentalists' encourage neoliberal policy models that invite large conglomerate capitalist corporations to increase the involvement of smallholders into oil palm growth plans, advocates for smallholders and conservation must carefully monitor the impacts (and potential impacts) of these projects. Phenomena such as CCPs in rural areas should not be an unintended by-product of the privatization of Amazonian land. Rather, a more regulated and transparent process needs to be in place going forward to protect the wellbeing of the rural poor, in Peru and elsewhere, and the rainforest ecosystems that they live in. As companies try to move towards zero deforestation and 'No Deforestation, No Peat, No Exploitation' policies, their prevailing impulse is to do so ''through a smallholder deforestation-free supply chain model" (Grupo Palmas, 2017). Achieving equitable public-private partnerships as set out in the 2016–25 Plan would require a serious boost in government presence where large private corporations are engaging in agricultural activity with local communities, especially where land rights vulnerabilities and debt trap risks are high. As a start, the Peruvian government has recently recognised that indigenous people must be consulted about the National Plan for oil palm (El Peruano, 2017), and have an opportunity to provide input into what safeguards and conditions must be required for oil palm projects.

Since Latin America and Peru are relative newcomers to the oil palm boom, studies like ours can be used as a tool to enable more informed discussion and decision-making on how to best proceed, so that the benefits of oil palm development increase whilst its expansion is prevented from becoming a socio-environmental problem, as has already occurred in other parts of the world. Consumers, advocates of sustainable supply chains, and policy makers should be aware of the new findings in this paper, and revisit the assumption that CCPs are necessarily pathways to sustainability and environmental justice.

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Linking Statement: chapter four and five to six

This thesis set out to analyse the political ecology of smallholder oil palm in Ucayali using the three pillars of 'sustainable development' as a heuristic for guiding the themes of the research and drawing meaning from the analyses and discussions. Chapters five and six delved in to the socio-political underpinnings of both land rights and land-use change trajectories of oil palm and forests using qualitative and quantitative methods. These chapters identified and highlighted some of the international, national and local underlying drivers of expansion and the implications and outcomes of those predominantly for social and environmental elements of sustainable development on smallholder lands. The third pillar of the economic metric of the sustainable development heuristic is the focus of the next chapter, analyses oil palm livelihoods in Ucayali, Peru. The chapter has a specific interest in how well suited social organization of farmers into associations is to local socio-economic reality including formal and informal economies. The chapter analyses economic wellbeing to include monetary and non-monetary indicators, with knowledge and power as a central point of interest. The paper finds that social organization into associations and partnerships can be beneficial or not for smallholders depending on how much economic and social dependency on powerful actors is generated. Rather than financial income per se, the alteration of labour relations and traditional land use practises is found to be a concern. Some recommendations are made in lieu of the sustainable development heuristic chosen for this thesis.

Ethnographic information collected throughout the research period for this thesis provided the background information needed to create the sample set. For example, by the time it came to undertaking the survey for this paper, a great deal of time had already been spent learning about the governance system under which oil palm narratives and oil palm production were operating. Thanks to the mandate of the research for chapter six, access was facilitated to apply the economic survey in new areas of oil palm expansion never before studied. This was a unique opportunity to engage with several prevailing concepts in oil palm expansion such as yield and livelihoods through a case study in this oil palm frontier. Evidence from chapters five and six are utilized to support the agenda of chapter seven and as such there is a clear conceptual, empirical and geographical flow between the three chapters.

The qualitative and quantitative research was conceptualized, designed and carried out (fieldwork, data entry and analysis) by me and I am also the first author on the journal article. All fieldwork was assisted by two local field technicians, their training and contributions are detailed in chapter four. Ashwin Ravikumar contributed with ideas at the design phase, and organization of drafts including direct writing contributions and comments on drafts. Constance McDermott provided ongoing supervision for this work. She was also involved in the conceptualization of the central questions, organization of the manuscript and comments on and changes to drafts. Yadvinder Malhi also provided ongoing supervision for this work. In addition, he contributed to the organization of the draft including data presentation in tables and graphs, as well as comments and changes to drafts.

Chapter Six: Smallholder oil palm production in the Peruvian Amazon: rethinking the promise of associations and partnerships for economically sustainable livelihoods

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Abstract

Smallholders play a major role in the expansion of oil palm as a global commodity crop. Yet outside of Southeast Asia, there is limited research on how it impacts smallholder livelihoods. This paper examines how different smallholder modes of production have emerged in the largest oil palm producing region of the Peruvian Amazon, Ucayali, and presents a typology of these arrangements. The socio-economic outcomes of these modes are analyzed using a survey of 200 smallholders and 14 months of participant observation. Results show that there is considerable variation in *how* smallholders produce oil palm, and in the *outcomes* associated with different production strategies. Independent production, corporate partnerships, and government assistance programs were viewed positively by smallholders. However, smallholders' knowledge about the workings of the market, the role of associations, and their own financial circumstances was poor. Different modes of production yield different outcomes in terms of debt burdens, dependency on powerful actors for information, and crop and livelihood diversity. These outcomes had implications for the economic sustainability of oil palm for smallholder livelihoods. Importantly, corporate partnerships have generated comparatively massive debt burdens for smallholders. On the other hand, under other production scenarios smallholders may hold significant power over decisions, and can benefit economically from oil palm, which has important implications for ethical oil-palm debates and decision making.

Key words: Smallholders, sustainable livelihoods, oil palm, palm oil, Peru, Amazon, Ucayali.

6.1 Introduction.

The global oil palm sector is at a pivotal moment. As frontiers of oil palm expansion in Malaysia and Indonesia close, the sector has turned its attention to countries like Peru, Colombia, the Democratic Republic of The Congo, Liberia and other forest countries with suitable land for new production (Kuepper 2016, Pirker, Mosnier et al. 2016, Ordway, Naylor et al. 2017). However, the increasingly negative reputation of oil palm for its adverse socio-economic and environmental impacts at production sites in main producer countries has generated pressure from environmentalists, land rights activists, as well as private agricultural interests to make current and future production more socio-environmentally sustainable and equitable (Greenpeace 2015, Oosterveer 2015, Austin, Mosnier et al. 2017, Moreno-

Peñaranda, Gasparatos et al. 2018). On the other hand, despite critiques, other studies have shown that in many cases smallholders and grassroots groups themselves continue to engage in oil palm production and even drive its expansion (Feintrenie 2010, Bennett A. 2017, Dammert 2017, Hall, Scoones et al. 2017), often resulting in positive economic outcomes (Feintrenie 2010, Cahyadi and Waibel 2015). Thus, international aid agencies and the governments of frontier countries interested in sustainable rural development, poverty alleviation, equitable production and trade of palm oil are considering *how* and *to what extent* to support oil palm expansion in new regions, especially with relation to smallholding farmers.

It is estimated that more than 75% of the world's agricultural land is operated by smallholding family farms (Lowder, Skoet et al. 2016), and globalization along with rising global trade in commercial crops such as palm oil has connected an increasing number of smallholders to global commodity crop value chains (Lee, Ghazoul et al. 2013, Rigg 2016). Accordingly, at least 3 million smallholders make a living (or part of a living) from oil palm globally, and they produce more than 41% of the world's palm oil through various modes of production (Soliman, Lim et al. 2016, RSPO 2018). By 'mode of production,' we mean: a production system with key characteristics as to who *owns* the land, who *works* the land, who provides *inputs,* including physical infrastructure, credit, chemicals, seedlings and if and how, producers and workers organize to negotiate for their interests (Vermuelen 2010, Borasino 2016, Jelsma, Slingerland et al. 2017).

Rural development programs commonly seek to improve the livelihoods of smallholders by grouping them into collectives, be it through farmers' associations, cooperatives or company-community partnerships (Cramb 2016). This ostensibly provides for economies of scale and a

technological support base that strengthens good practices in plantation management and reduces costs and risk for all stakeholders. Some smallholders also disaffiliate from associations to pursue independent production. This results in vital new questions emerging about which modes of production are in fact best for smallholders. This paper interrogates the received wisdom about the benefits of associations and challenges an emerging technocratic consensus that company-community partnerships are a desirable pathway forward.

Despite the prevalence of smallholders in the sector, the magnitude of their contribution to palm oil production and their profile as targets of rural development programs, there has been limited research on socioeconomic outcomes in the small-farm oil palm sector (Euler, Krishna et al. 2017). Additionally, in some cases, simplified ideas about smallholder modes of production, such as the notion that there are two simple categories of company-assisted and independent production (Lee, Ghazoul et al. 2013, Brandi 2015, Euler, Krishna et al. 2017, Jelsma, Schoneveld et al. 2017) have fuelled development policies that may have failed to adequately account for the wide range of actors they represent, the diverse modes of production that characterize the sector, and the unique challenges and opportunities that smallholders face (Jelsma, Schoneveld et al. 2017). Thus, as a starting point, this paper contributes to the literature by *advancing a typology* of the c*urrent* modes of smallholder oil palm production in the Peruvian Amazon than what is currently available. Understanding the present situation with respect to oil palm production requires a historical overview, especially given that Ucayali's unique history has shaped rural development in ways that differentiate it from other oil palm producing countries.

Research concerning how smallholders are engaging in this market is timely, particularly for frontier countries like Peru, where more oil palm projects are likely to take place (Bennett,

Ravikumar et al. 2018). In Peru, smallholding farms account for more than 60% of the cultivated area (MINAGRI, 2016), but information about the modes of production through which they engage with the oil palm sector or how they fare therein is scant (Fort 2016, Dammert 2017). Nevertheless, international aid agencies and government programs alike advocate oil palm for rural poverty alleviation, and additionally new private firms are already arriving and creating new modes of production (Dammert 2014, EIA 2015, Bennett, Ravikumar et al. 2018). This paper provides new information concerning impacts of these new initiatives on smallholders with respect to income, debt burdens, empowerment in the decision process, and contractual enclosure.

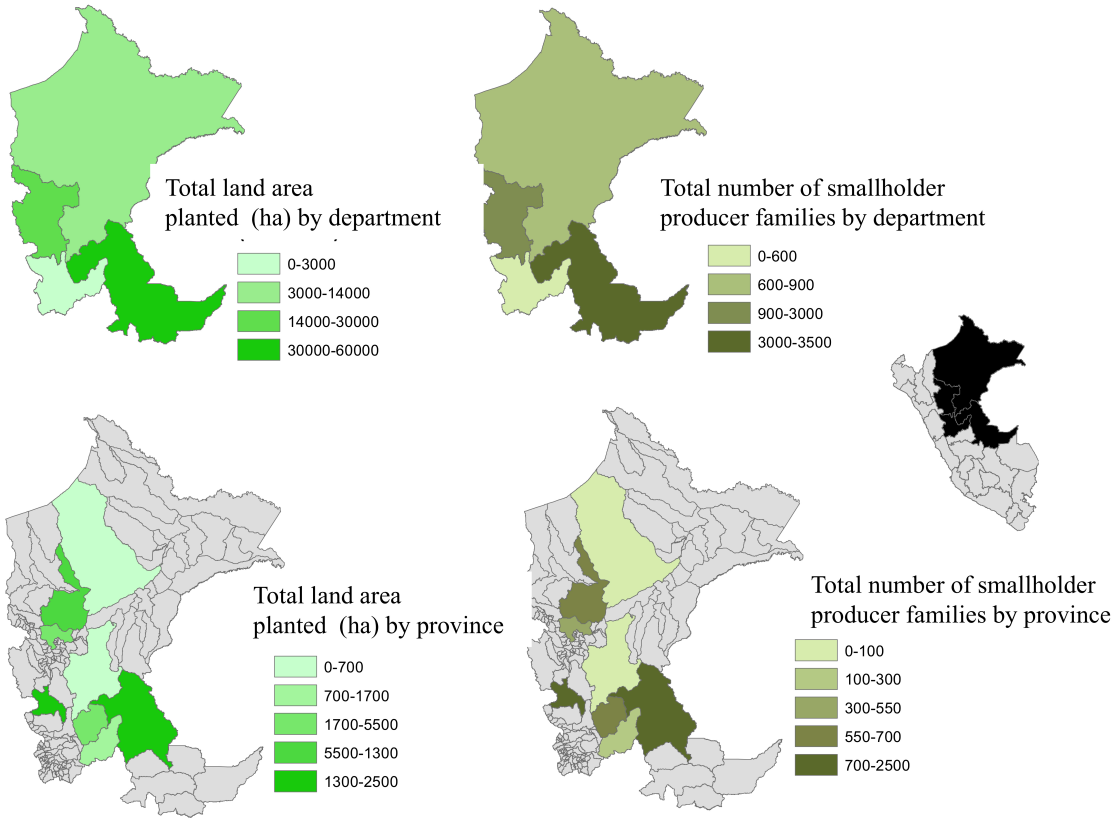
This paper fills a critical research gap by examining the socio-economic impacts of these diverse and sometimes new modes of oil palm production vis a vis the following research questions:

a) What modes of production are currently prevalent in the Peruvian Amazon region of Ucayali, and why?
b) What are the implications of production systems for smallholders in terms of debt, market access, contractual enclosure and social empowerment?
c) What can we learn from this case study about smallholder oil palm expansion in new and old commodity frontiers?

We address these questions using a case study from the region with the largest planted area of oil palm in Peru (42%), and the most numerous number of smallholder families engaged in production: Ucayali (Figure 6.1). Ucayali has experienced a 97% increase in cultivated area since 1990, and now has over 40,000 hectares planted (DRSAU, 2017) with a further 342,671 hectares have been identified for future expansion (DRSAU, 2015). Additionally, the social infrastructure has expanded momentously from just under 300 families in the mid 90's to at least 3,244 families, and nine processing mills today (authors' own data adapted from DRSAU, 2015). We draw on data from a survey of almost 200 Ucayali-based oil palm

smallholders, key informant interviews and extensive participant observation between 2012-2017.

FIGURE 6.1: MAP OF LAND AREAS AND SMALLHOLDER OIL PALM PRODUCER FAMILIES IN PERU



Map created by author using data from Junpalma (2015), Diagnóstico Loreto (DRA, 2016) and Diagnóstico Ucayali (DRA, 2016). The four major oil palm producing departments of Peru are highlighted in black on the small map to the right. Total land areas are areas planted in hectares and include all smallholder modes of production and large private plantations. Number of smallholder producer families includes all modes of production, but does not consider corporate plantations as a family production unit.

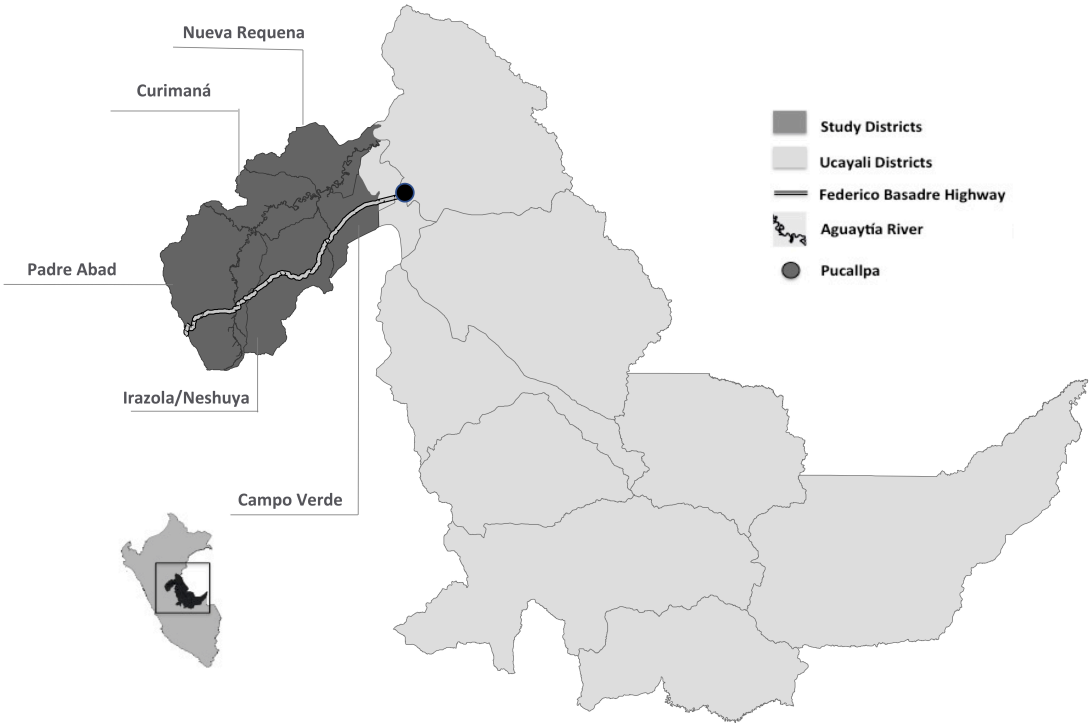
In the next section, we introduce the study site and present the methods. We then describe the history of oil palm in Peru and explore how the particular historical political ecology of the Peruvian Amazon has led to diverse modes of production today. Based on this historical analysis, we present a useful typology of production systems found today in Peru. Finally, we present quantitative and qualitative results from our empirical exploration of the debt, markets, contractual enclosure and social empowerment context of smallholders.

6.2 Study Site and Methods

Because the Ucayali region is one of the most important and volatile frontiers for oil palm development in Peru, we decided to focus our research there. The department of Ucayali is an inland region of Peru situated in the central western zone of the Amazon rainforest (Figure 6.2). Ucayali's economy is mainly based on agriculture and extraction of natural resources such as minerals and timber (INEI 2012). Its capital city, Pucallpa, is linked by an 846 km highway to the national capital Lima, making it the Peruvian Amazon's most accessible regional capital. The peri-urban and rural landscape outside of Pucallpa is a mosaic of indigenous territories, non-indigenous villages and smallholder farms, large plantations of oil palm, timber concessions, abandoned lands, young and old second-growth forests and vast expanses of mature rainforest (see Annex for photographs). Smallholder farms are traditionally subsistence crop/fallow systems, but are increasingly moving towards planting commodity crops such as oil palm and cocoa. Additionally, as we describe in the next section (6.3) a rich historical political ecology has shaped the different production strategies, livelihood choices and management approaches of different smallholders even within the oil palm cohort. Nonetheless, smallholder monocultures, even of commodity crops, are rare. Rather, new crops are being incorporated into old systems (Bennett A. 2017), where heterogeneous production strategies are employed on smallholders farms incorporating subsistence agriculture, commodity crops (mainly cocoa, oil palm and pepper) and natural resource activities such as soft-wood extraction (Putzel 2013) and charcoal (Bennett-Curry 2013, Bennett, Cronkleton et al. 2018).

Oil palm has expanded into four lowland Amazon departments[22] in Peru; Loreto, Ucayali, San Martin and Huánuco – with Ucayali currently ranking as the biggest producer region in the country with approximately 42% of the total national area of oil palm (MINAGRI, 2016) (Figure 6.1). Additionally, Ucayali has been the source of international scandal in recent years, due to the large-scale deforestation and social conflict driven by new oil palm expansion (EIA 2015, Dammert 2017, Bennett, Ravikumar et al. 2018)

FIGURE 6.2: MAP OF UCAYALI AND SMALLHOLDER SURVEY DISTRICTS



The region also reflects heterogeneous development patterns, including some areas that produce commodity crops and are connected to national markets by roads, and other areas that have only more recently been settled or connected to external markets. In these latter cases, emerging corporate community-company partnerships (CCCPs) have been established

[22] There are 25 departments in total in Peru.

and are the first of their kind to reach local producers. Overall, different modes of production exist in the region, making it possible to study their various socio-economic contexts.

Ucayali has four provinces, two of which currently host oil palm production. Within these two provinces, there are six oil palm producing districts, research was conducted in all of them (Figure 6.2). To generate a sample set we created a list of oil palm producer districts and villages using information we derived from oil palm farmers' associations, the regional government and scoping field-work we undertook. Scoping enabled us to also include areas in producer districts where there were smallholders producing oil palm that were not on formal lists, thus maximizing the potential to find and include independent smallholder producers as well as include smallholders that were members of the CCCP that were not on lists. From the final list, we took a random sample of areas.

To generate a sampling frame at the household level, we drew up a list of resident landowners using participatory mapping activities in villages. We excluded households in villages that had no land of their own, households that did not produce oil palm, as well as absentee landlord households. Suitable households were selected using two random number tables, the second for use if households from the first chose not to participate. Finally, we interviewed 200 households in 33 villages. Participant observation undertaken by the first author included a total of almost 14 months. Due to intense land conflict and social unrest that developed between the private company and the local people during the time we undertook the survey and the fear generated therein, eleven informants asked us not to use their survey responses in this analysis, so our final dataset includes 189 survey responses.

Surveys included structured, semi-structured and open-ended questions devised to answer our central questions. Surveys had four main sections: The first solicited information about the

interviewee, their land (crops and land uses), tenure and land rights, and historical experience with farmers' associations, previous to oil palm. The second part of the survey evaluated the oil palm projects and requested information about credit and goods. Following this, the association model of governance was explored, and the final section asked questions about the market. The survey was designed in collaboration with stakeholders in the field and underwent four pilot testing processes. Where appropriate, survey answers were coded and analysed in the statistical software SPSS 24. Finally, data from participant observation and ethnographic inquiry collected over a period of 14 months was used to complement the surveys. This information is used to deepen the analysis of smallholder perceptions of changes in their landscapes over time.

Informants and participants were asked for oral consent after having received information about the context and aims of the research, and an explanation on how the data would be used after anonymization. The option to opt out at any time was made explicit to informants, as is evident in our non-use of several of the interviews of the partnership smallholder group in this paper. All methodologies and methods for this study were approved by the ethical screening procedure of the Central University Research Ethics Committee (CUREC) at Oxford University.

6.3 A historical political ecology of smallholder oil palm in Ucayali

As oil palm production accelerates in the Peruvian Amazon, old modes of production are also expanding while new ones are being introduced. However, policy makers have an inadequate understanding of what these modes of production are. Reductive analyses that recognize only very few modes of production (e.g., independent smallholder production, private plantations, and smallholder associations) have tended to guide policy-making. In fact, this research

shows that the Peruvian Amazon hosts an increasingly complex array of smallholder oil palm production, which policy-makers, conservation advocates, and scholars must understand in order to engage appropriately with the sector.

The oil palm sector has emerged in a region with a rich historical political ecology of resource extraction and boom-and-bust economic cycles often shaped by market incentives as well as government policies promoting specific resource extraction, crop expansion and land use designations. For example rubber at the end of the 19th century and barbasco in the 1940's were two crops the boomed whilst international markets favoured their trade and went bust when other regions such as Southeast Asia came to dominate the market commerce (Coomes 1994, Arce-Nazario 2007). The local people in the Peruvian Amazon have had their history shaped by complex socio-political dynamics that have included political change and turmoil, colonization and evangelization, displacement, migration, and resettlement schemes as well as the socio-ecological and economic impact of natural and aquicultural resource market booms and failures (Schmink 1989, Hecht 2010, Sears 2011). This rich history has had a profound impact on both Amazonian people, in-migrant people and the landscapes they inhabit, resulting in a very heterogenous social-ecological system where marked cultural differentiation and heterogeneity in lifestyles and indeed livelihood management can exist right down to the household level. Varied experiences of regionally and locally targeted economic investment and development and/or political conflict for example, will impact how a given smallholder may view the promise for prosperity in new any development projects such as oil palm.

In the first results section, we present a typology of the modes of production currently found in the Amazon. In order to understand the present situation, it is necessary to examine the

particular history of rural development and agricultural production in the Peruvian Amazon. This history has led to a different configuration of land tenure regimes, smallholder associations, and relationships between capital and labor than is found in other parts of the global South. As Peru is a relatively new frontier for oil palm, these particulars are important for stakeholders involved in the sector to understand.

The information presented in this section is based on participant observation, key informant interviews and secondary literature. Through these means, we have identified four main 'phases' within which oil palm production and its relative modes of production evolved in Ucayali. These phases serve to provide a general overview of the scenario but should not be understood as specific "projects." The phases overlap in space and time, and involve a large number of projects.

6.3.1 SAISES and social innovation: The forgotten beginnings of Ucayali oil palm (1980's-1990's)

The Agrarian Reform in the early 1960s instigated a massive redistribution of land and had long-lasting reverberations in Peruvian agriculture. Serfdom was abolished, and peasants and indigenous people were (theoretically at least) given direct ownership of land. The reform banned private investment, favoring collective agrarian associations (agricultural societies with social interest - hereafter SAISes for their Peruvian initials), which organized peasant farmers into collective production systems for decades. Even though the idea was to liberate the smallholders from the estate model of production, the central managers of SAISes were still called "*padronados,*" a term that also described semi-feudal landholders in the colonial and early post-colonial era. While oil palm was rare, the notion that associations would work together to produce cash crops was well-established in the wake of the Agrarian Reform. At our field site, where migrations and settlements from the Andes to the Amazon began after

the Reform, SAISes were established in 1973, where land was used for a variety of productive purposes. Migrants from the Andes were tasked by the government with training indigenous and riverine locals in modern agriculture. Ultimately, they worked together to graze cattle, grow subsistence crops, and, to a limited degree, produce cash crops. This type of farming as well as the structure of outgrowing farmer associations was completely new to the Amazon region but migrants from the highlands came with more experience of this type of social organization around agriculture production. The lasting effect of this history is that, in most cases, migrants have more exposure to and experience of association models of governance. This history may be part of the reason that more migrants are engaging with oil palm in Peru, since oil palm is predominantly channelled to smallholders through farmers' associations and partnerships.

The first oil palm of this kind in Ucayali was in a SAIS in the district now called Campo Verde where they established 475 hectares of oil palm in the 1980's. The association has since fallen apart, due in large part to its abandonment by the management during the Shining Path terrorism and the subsequent resistance of the government to grant the land to the association members left behind. Most of the land has since been occupied by new settlers. However original members of the SAIS still reside there, and a sense of a missed opportunity through the loss of this oil palm plantation prevails as these smallholders now see their neighbours with newer oil palm benefitting from its harvest.

6.3.2 Smallholder oil palm as an alternative for illicit coca: The first 'social' oil palm projects (1990's to present)

Since the 1990s, efforts to establish oil palm in the Peruvian Amazon have in large part been driven by the government's broader "alternative development" program, which aims to eradicate coca production by giving local people other viable economic options (MINAG

2001, Salisbury 2011, Fort 2016). An international boom in cocaine use, together with a chaotic and violent political situation in Peru, caused coca cultivation in Peru to increase exponentially and provided financial and social feedstock for the Shining Path terrorists to increase their power. The Peruvian government, backed by United States money, took a two-pronged approach to eradication: (1) fight powerful guerrilla groups that controlled coca production zones with military force, by forced crop eradication, including physical removal and chemical destruction of fields, and (2) provide smallholder farmers growing coca with incentives for shifting to alternative economically competitive crops [23] ('alternative development').

The first project of this kind was established in our study site in 1991 by the United Nations Office on Drugs and Crime (UNODC) and supported by the government. The project targeted 252 families in six villages with 1,350 hectares of oil palm and only those smallholders that formed part of those villages were eligible for the project. Most were migrants: refugees fleeing violent conflicts between Maoist guerrilla groups and government and paramilitary reaction. These UN-government supported smallholders were organized into six village committees (locally called '*bases'* henceforth base-committees), and given the support to establish their oil palm. In 1992, these six base-committees were incorporated into a larger umbrella central association. This set-up of base committees and associations can be understood as a multi-level governance structure with two levels of social organization around agricultural production. Base committees are local (village-based), and smallholders must become a member of a base-committee before they can associate with a larger central association. Such associations incorporate multiple base committees, each made up of a

[23] Decreto Legislativo 753 "Ley de Bases de la Estrategia Integral de Desarrollo Alternativo para Erradicar el Tráfico Ilícito de Drogas con la Participación de la Población" (1991)

number of farming families. Base-committees have a leadership, which is responsible for communicating information between the farmers and the association and vice-versa. Whilst individual smallholders are welcome to attend association meetings, committee leadership is expected to do so.

By 1998[24], a mill had been established and was operational as an active commercial entity. A progressive rural development strategy was implemented so that smallholding members of the association became 44% shareholders of the palm oil company (mill). Since then shareholding members have benefitted financially from the success and profits of the mill at the end of each year. Members can sell and buy shares amongst themselves as they wish, though this has resulted in many shares ending up in the hands of fewer members than might be hoped. Whilst the UN project has expanded to include more members, membership has been limited only by the carrying capacity of the association itself, and the geographical remit of smallholders became more flexible. This has made oil palm and associativity accessible to any smallholder that wished to take part so long as they had some kind of formal rights to their land and there was space within the association. Since farming land is free to any citizen, in theory this requirement is not itself an inhibiting factor.

The first UN association has expanded to incorporate more than 500 members today and its mill also processes the palm of more than 200 independent producers. There are now six of these oil palm United Nations bases-association-mill/companies in the Peruvian Amazon (two in Ucayali), all of which have grown dramatically over time. This model of oil palm production is commonly referred to as the "UN Model" (Borasino 2016, Dammert 2016, Dammert 2017).

[24] With support from international funding 'El Fondo Contravalor Perú-Canadá'

6.3.3 Oil Palm in the national best interest: The government for smallholders and smallholders for themselves

Coincidentally, the year that the first UN-smallholder oil palm project started (1991), was the same year that the Agrarian Reform Law ended. New laws moved away from the prevention of private investment in the Amazon to focus now on *encouraging* private sector investment in the Amazon[25]. Consequently, in 2001, the National plan for the promotion of oil palm 2000-2010 was approved. The plan proposed rural development through settling families practicing migratory farming, reforesting "degraded" land, combatting illicit coca production, as well as improving rural livelihoods as a pathway out of poverty mainly through "social organization" (MINAG 2001) (pp2 and 16).

At the regional and municipal level in Ucayali, many projects were implemented targeting different numbers of smallholders for different development agendas. For example, in 2008, a regional government project for 'economic development' invested 2,117,700 USD[26] to support 160 families to establish 800 hectares of oil palm in the Nueva Requena district. It included "access to the market" through credit and formalized buyers. Smallholders were not asked to form committee-bases or associations. They were given 700 plants each (equivalent to 5 hectares) for free, and were expected to secure bank loans for the rest of what they needed to establish their plantations (fertilizer, pesticide, transport). This approach turned out to be problematic. Oil palm takes three years between planting and first harvest and many smallholders were not used to and not interested in taking out loans for such a long-term endeavor, so many recipients simply sold off the free palm trees they had been given. This was one of the consequences of the lack of economic education, as the director for economic

[25] Law 653. Agrarian Sector Investment Law *Ley de la Inversión en el Sector Agrario.*
[26] S/6, 205, 069 PEN (calculated using exchange rate from September 2008)

affairs of the regional government told "*We did everything, we gave them the plants, we gave technical training in how to tend those plants, we gave them access to credit and markets but we didn't give any economic training! So now what do you see in the oil palm areas? Ramshackle houses with the roof falling in and a plasma screen t.v. inside*" (Interview in Regional Directorate of Agriculture, 2014).

By 2011 new projects started to emerge that demonstrated some growth and learning on the part of the government. For example, The Program of Compensation for Competitiveness (AGROIDEAS) scheme, which had as its central aim to increase market competitiveness of agricultural smallholders between 2012-2016, worked more collaboratively with smallholders. The project provided 80% of the costs (non-returnable), with some terms and conditions. For example, the smallholder was required to provide the first 20% of the costs, thus ensuring commitment. They were also expected to have had some experience with oil palm cultivation (even just as a labour hand) and finally, the project broke the mold of giving plants, credit, fertilizer and training and encouraged smallholders to allow smallholders to ask for what they specifically needed depending on their circumstances (machinery, a vehicle, plants, fertilizer, a fire extinguisher etc.). One again, it was required that they did this as a formalized organized social group, a *base*-committee or association: "The government says that organized groups will have better access to incentives, we can only grow together." (AGROIDEAS promotor: participant observation log, August 2015).

Despite advancements, oil palm producers of various sizes including smallholders started lobbying for increased effort by the government to expand a better oil palm sector. Disillusioned with the governments overall inaction in properly implementing the promises of the 2000-2010 plan, and the relative failures of the promises for large expansion made in

the 2003 biofuels law (Dammert 2017). These groups started to put pressure on the government for a new, more modern, national oil palm plan and through a process of round tables and regional meetings including all stakeholders a new plan was indeed drafted: The National Plan 2016-2026. The word 'Asociativity' replaced 'social organization' but maintained the same premise: smallholders fare better when they are part of an organised production system. The 2016 document moves away from the strong alternative development discourse of the 2000 document, preferring to focus the social aspects of the thesis on associativity and 'social responsibility within companies', as a result of new modes of production that had recently emerged.

6.3.4 Private plantations and smallholder 'partnerships': a corporate model arrives in Ucayali

By 2012, twelve private companies were registered in Ucayali, with plantation extensions between 500-3,000 hectares. These companies generally did not engage much with local smallholders, but rather operated alongside the other actors on this heterogeneous farm-forest landscape. However, that same year a new large-scale mode of production emerged. In 2011, the regional government sold land shares equivalent to 12,188 hectares to a Malaysian company (henceforth "the company") for oil palm. Since such large plantations require contiguous land areas, they were established in a more remote, and forested, area than the rest of the oil palm in the region. As such environmental damage caused by the company was the focus of a lot of negative reports (EIA 2015, Finer 2015, Finer 2016, Salazar 2016, Bennett A. 2018). Additionally, issues of land rights violations, land grab and inequitable socio-political conditions of the local people connected to the company was also noted (Bennett et al., 2018; FPP, 2018). In part to mitigate this, the company set up a "partnership" with some local villages, using the model they were accustomed to in Malaysia (Cramb and Sujang 2013).

The company intended to incorporate 700 families over almost 5,000 hectares of land by 2017[27]. Again, base-committees and a central association were set up. In addition to this, smallholders were given credit through two forms of binding contract: one for their original loan and a 25-year credit line contract.

6.4 Results

6.4.1 Current modes of oil palm production in Ucayali: a typology

In order to create a smallholder typology, our research asks the questions, what modes of production are currently prevalent in the Peruvian Amazon, and why? The previous section describes the 'why' through four distinguishable phases between the early 90's and today. Each was motivated by different socio-political and economic circumstances and agendas at various levels of governance from the local to the international. Each of these historical phases influenced the modes of production in Peruvian agriculture and has affected oil palm production today. The historical phases do not correspond to singular development projects. Rather, our dataset shows that smallholders had engaged with dozens of different projects of varying types during these phases, and that projects of one sort or another took place during most years between 1991 and 2017. The approach and scope of these projects vary widely, covering a wide range of modes of production, as might be expected in view of the history preceding them.

Considering the complexity and number of projects involved, we have chosen 'project experience' as the unit of analysis for this research. A 'project experience' refers to a particular project in which a smallholder participated. Many smallholders had multiple 'project experiences,' and, consequently, some individuals appear multiple times in the

[27] The company has not yet achieved this goal.

dataset (Table 6.1). This makes sense because we are examining the impact of different modes of production on smallholder livelihoods, in particular by assessing household debt impacts and qualitative perceptions. As a smallholder may incur different levels of debt from different projects that she participates in over her lifetime and may have different perceptions of different projects, 'project experiences' are the most appropriate unit of analysis for this research. At the same time, it is important to recognize that for a given smallholder, past involvement with oil palm projects is likely to affect their future experiences. We explored controlling for these intra-smallholder effects with lagged variables, but found that there were too many different sets of individual experiences across smallholders to provide meaningful control categories. Moreover, the history of agricultural policy in the region – namely, the shift from central associations run by legacy landholders, to national and international programs, and eventually to new company-community partnerships makes variable analyses complex. Smallholders may have had any number of experiences with these projects, but as discussed below, we find that there are large differences in debt burdens between the different models for oil palm production, and that having had prior experiences tends to improve future outcomes, regardless of what those prior experiences were. However, the variety of different smallholder experiences and the order in which they had them produced a large number of categories relative to our sample size. Moreover there were large qualitative variations in terms of how smallholders service debt and their overall mix of livelihoods activities. As a result, the most salient analysis that we could carry out was to examine how debt burdens accrued across the different modes of production captured in this study, with an eye to the question of whether or not early experiences seemed to be correlated with better outcomes in later experiences.

Table 6.1: Smallholder oil palm project experiences

No. of experiences	1	2	3	4	
No. of Smallholders	182	67	20	4	
Total Experiences					273
Total smallholders (n)					182

Taken together, an analysis of the historical background, survey data and fieldwork revealed that over time a nuanced context has emerged and as such our typology presents three broad groups and five subgroups of oil palm smallholder producers (Table 6.2).

Table 6.2: Typology of smallholder modes of oil palm production

Source of support	Type of association		
	No association	Farmers' Association	Corporate Partnership
Independent Graduated	36	0	0
Independent Own Resources	7	0	0
Government/UN supported	6	109	0
Corporate	0	0	31
Total surveyed population	189		

Although almost all the smallholders interviewed (n=182/96%) had had project experiences, 43 of them self-identified as *independent* producers. Independent smallholders can broadly be defined as those smallholders that do not have a contract of any kind, who manage their plantations free of technical assistances and agricultural inputs from oil palm estates or the government. The occurrence of independent oil palm smallholders – and the relative socio-economic implications of and for their existence in the oil palm forest/farm landscape - has become an important element of the discussion about smallholder modes of production (Brandão 2015, Erniwati, Zuhud et al. 2017, Jelsma, Schoneveld et al. 2017, Suhada 2018). The 43 independent smallholders we surveyed can be grouped into two separate collections:

First, the "graduated"[28] smallholders (n=38), referring to farmers that had used a supported project as springboard into oil palm production and markets, later choosing to become independent after they had fulfilled all their contractual requirements (liquidated debt). Except for the corporate model which includes a 25-year credit line, once debts are paid oil palm smallholders are permitted to leave associations and live contract-free as they please.

The second group of independent smallholders are seven smallholders that had never engaged with any project. Rather, they had established their plantation themselves using their own financial resources and availing of the infrastructure (roads, nurseries, processing mills) put in place by previous projects (Table 6.2). A similar occurrence has been observed in other producer countries such as Malaysia (Cramb and Sujang 2013). It is evident here that where the option to become independent is available, some smallholders do prefer to operate autonomously. However, it is also true that the better associations are constantly at capacity. For example, overall 60% (n=144) of surveyed smallholders were in a UN association and transcripts indicate that some others were awaiting the opportunity to join. Smallholders overwhelmingly agreed that farmers' associations assured a better market price (68%, n=129) and/or guaranteed a market for smallholders (74%, n=140). Nonetheless, 20% of them choose to be independent because they prefer autonomy over their own livelihoods or do not have access to their preferred association.

[28] The term 'graduated' is not ours, it is a typology used elsewhere to define smallholders that have gone through a similar (but not identical) process of becoming independent (McCarthy, Cramb, Vermuelen

6.4.2 Exploring the economic context: Investment, Debt and markets

This section uses survey data, ethnographic information from participant observation and tertiary data published by the government, as well as other scholars to explore question 2: What are the implications of these production systems for smallholders in terms of debt, markets, contractual enclosure and social empowerment? We evaluate credit and debt scenarios mostly from the purview of whether credit scenarios are set up in a way that smallholders can viably pay off debt within the timeframe projected for the loan[29]. Contractual enclosure refers here to the geographical, social and economic entrapment (including the exposure to risk of dispossession) of smallholders that are bound to financial contracts and credit lines. We use the term 'market' to refer both to international value-chain market access and local markets and market dynamics.

The average investment required to establish a plantation of oil palm in Peru is often estimated at 3,000-3,500 USD per hectare (Hajek 2015, MINAGRI 2016), and discussions and debate around access to credit and the oil palm market are made with this consideration (ibid). However, whilst that figure may reflect the *total* overall investment, our results show that the amount that *individual smallholders themselves* had to invest[30] in their plantations to get them started with the crop varied greatly. In fact, debt figures were so wide-ranging that taken as a whole, the data did not explain very much. Different credit scenarios are related to

[29] Debt is generated for a combination of a selection of the following activities and goods depending on the project and smallholder needs and own resources and ability: Land preparation (can contracted manual labour and vehicle hire) excavation and removal, piling earth for drainage, clearing for roads, compression of roads, pipe cleaning, drainage, gasoline for vehicles and chainsaws, palm plants, biological and chemical fertilizers (Boro, Phosphoric rock, Dolomite, Nitrogen, Potassium Chloride), transport of plans and materials (driver and/or vehicle hire), manual labour for sowing, Other expenses (e.g. manual earth piling, manual drainage, technical support, agricultural insurance).

[30] All debt numbers are original total debt including interest. We were not able to assess the actual status of debt in cases where smallholders had been unable to pay on time and debt figures had increased dramatically since smallholders themselves did not know figures.

the nature of the different projects, as described in the previous section. Thus, in order to understand the credit context a little more, we normalized the data.

We identified three factors that were skewing the debt data. First, for 138 (52%) of the total 273 'project experiences' (Table 6.1) smallholders had incurred no debt. This is an important finding. Much of this is attributable to the government 'social' development and alternative development projects. However, the prevalence of these government programs does not by itself explain the number of debt-free project experiences; even with government projects that provided palm plants and other inputs directly as in-kind assistance, smallholder beneficiaries needed credit for the preparation, planting and maintenance costs of the new oil palm.

Our ethnographic work revealed that in fact the high number of debt-free cases is in part due to local socio-political activity. For example, on at least two occasions, municipal and regional governments had been forced to pardon loans they had provided to smallholders growing oil palm, after smallholders objected to the poor quality of the palm trees they had been given and to delays in road construction prohibiting access to the market, amongst other complaints. Furthermore, in some cases projects simply vanished after implementation. As one farmer explained: "*At first the idea was to return the money they lent us, we even signed a contract with the regional government and the bank and the money went through the association. But I don't know what the association did, the leaders all left, I don't know what happened but in the end [the government] said there was an amnesty, and we [the farmers of these committees] didn't have to pay anything*." (smallholding farmer, September 2016).

The second issue skewing the debt data were the cases of atypically high debt. Our survey data, along with copies of loan contracts showed that all unusually high figures pertained to

smallholders engaged in the CCCP. Thus, the simultaneous occurrence of the debt-free 'social' projects and the debt-heavy corporate model conflated to create the wide range in overall data.

Third, the value of currency in Peru over the time-period (1990-2017) was highly volatile for several years after the period of hyperinflation between 1990-1998. Therefore, we removed the experiences where no debt had been incurred (138), removed debt scenarios pre-2000 (3), and separated corporate loans from the government-supported loans. This left 132 cases of project experiences involving credit amongst 83 smallholders that were able to respond about their debts, which we analyze in the debt calculations. However, it is important to highlight here that whilst there is some within-group variance, Table 6.3 shows the CCCP model clearly generates far larger debts for smallholders than other supported programs.

Table 6.3: Smallholder debt per hectare normalized (Peruvian Nuevo Sol)

	Debt figures			
	Mean	Minimum	Maximum	Median
Government/ UN Supported	1998	200	5184	2200
Corporate (CCCP)	6770	4125	11914	6750

Smallholder loan repayment results were positive overall. Of the supported cohort, 38% (n=32) had been able to pay back their loans on time with very little difficulty (Table 6.4) although the number of debt that defaulted was not negligible (17%/n=14). This may be partially attributable to lack of financial education. When we examine this data over time (incremental project experiences), we can see that the ability to pay greatly increased the second time round, whilst the least favourable outcome of not being able to pay at all reduced

from 22% to 5% [31] (n=18/n=2) (Table 6.5). Furthermore, almost 45% (n=156) of producing smallholders had been able to expand their plantations themselves without further support, a result that very much supports development rhetoric in Peru which touts smallholder oil palm projects as a springboard to economic independence and growth (AGROIEAS, 2016; GOREU, 2009). When asked why it had been easy to repay the loan, the general response was that the income from the oil palm itself paid it back, with some individuals saying that other income sources helped reduce the pressure of the debt and ensure timely payments. Reasons for not being able to pay varied a lot ranging from personal reasons (illness, death in the family), to a dislike for the work of oil palm farming, inability to transport their harvest because of poor roads or extreme weather, or bad quality plants/insufficient yield.

Table 6.4: Reported ability of Government/UN supported smallholders to liquidate debt

Ability to repay loans	Valid Percent of Responses (n)	Valid Number of Responses (n)
I have been able to pay with very few problems	37.7	32
I have had a few difficulties but most of the time can pay	27.5	23
I am not/have not usually been able to pay my debt on time	15.9	13
I am/have not been able to pay my debt at all	17.4	14
other answer	1.5	1
Total	100	83

[31] We have excluded project 3 and 4 because only one smallholder had oil palm in production at the time, and as such no debt for projects 3 and 4 were due for repayment yet.

Table 6.5: Ability of Government/UN supported smallholders to liquidate debt for first project experience and second project experience that involved credit

Ability to repay loans	Valid percent of responses (n) first project experience	Valid number of responses (n) first project experience	Valid percent of responses (n) for second project experience	Valid number of responses (n) second project experience
I have been able to pay with very few problems	32.70%	27	52.6%	21
I have had a few diff but most of the time can pay	26.5%	22	26.3%	10
I am not usually able to pay my debt on time	16.3%	13	15.8%	6
I am have not been able to pay my debt at all	22.4%	18	5.3%	2
other answer	2.0%	2	0.0%	0
Total	100%	83	100%	41

We asked the CCCP smallholders how they perceived their future capacity to prepay their debt. Since they were not yet producing, responses were based on information they had been given by the company, knowledge they had about neighbors' experience with debt and oil palm, personal circumstances and individual character. The transcript segment below shows how information was being given to local people by the company. The discourse was pervasive and compelling, but imprecise and potentially misleading towards creating unrealistically high expectations from local people that may not have other reliable information sources. In addition, although all 31 surveyed CCCP smallholders stated that they had signed a contract, only four CCCP farmers been given physical copies of these. Thus, whilst responses are subjective, they do give an idea of how and why farmers understood their financial situation to be so promising, despite the heavy debt burden they had incurred. For example, none foresaw inability to pay (Table 6.6).

What is oil palm? Where will it take us? Well, look at this (removes four credit cards from his pocket) look how I have credit cards like a casino! One for my wife, one for me, another one for my wife, and another one for me. That is what oil palm is. And you guys are not going to have to wait long for that, just wait months and there is your money. You are now 'palmeros' (oil palm growing smallholders), and in being palmeros automatically you are going to have this in three years time. From there, if you want a loan, you just say to the banks 'Sir; I want 30 thousand soles' and the bank man… will give it to you. Every 15 days I earn almost 6,000 soles but you guys will be earning almost 10,000 – because the company will never allow you to have a low yield… The harvest only costs about 30 soles, one day you will hardly spend 100 soles and then you have 7 or 8 tonnes so that's 72 thousand soles a year and only spending 5 thousand on your maintenance." (Company representative speaking to an audience of indigenous farmers: September 2014).

Table 6.6: Corporate partnership (CCCP) smallholders' predicted ability to repay loan

Predicted ability to repay loans	Valid number of responses (n)	Valid percent of responses (n)
I will be able to pay with very few problems	21	65.6
I will have a few difficulties but most of the time will be able pay	2	6.3
I will not usually be able to pay my debt	5	15.6
It is unlikely I will be able to pay my debt	0	0
I do not know	3	12.5
Total	31	100.0

6.4.3 Price, production, markets and knowledge

The previous section has shown that, supported smallholders have been largely successful in paying back loans, and that capacity to pay improves as they grow more palm and/or gain more experience with formal credit systems. Now we look at the market conditions under which they have achieved this, and the question of the debt/yield/wellbeing trade-offs.

Despite assurances about the booming oil palm market, significant price movements have always been a feature for the leading vegetable oils traded on world markets, and palm oil is no exception (CIF, Rotterdam). International vegetable oil prices have an obvious impact on the raw fruit rates given to the producer farmers in sites of production. For example, in

August of 2015 oil palm fruit in Ucayali was being bought by mills at approximately 90 USD/tonne, contrasted with a high of more than 250 USD/tonne in the summer of 2012 (own data). Furthermore, rural agricultural prices and markets are not only determined by international standards, but are also subject to regional and local political-economic and environmental dynamics.

A hectare of smallholder oil palm in our study region produces an average of 14 raw fruit tonnes per hectare per annum (RFT/ha/pa) (Gutiérrez-Vélez 2011). Additionally, the annual costs of producing this palm is approximately 593/USD/ha/year[32]. Taking our average size of oil palm plot (4.7 hectares, rounded up to 5) this would mean that that at the lowest price they have experienced smallholders earned approximately 3,336 dollars per year from their oil palm plot, and 14,500/USD/ha/year at the highest price to date. As we explained in section 6.2, most oil palm smallholders have additional on and off farm sources of income (Padoch 2014, Zegarra 2016, Bennett A. 2017), so the income generated by oil palm is one of several economic activities in households.

Ethnographic fieldwork (participant observation) and survey questions revealed that although smallholders (n=134/53%) recognised that the market was not consistent and disclosed that this volatility did usually impact them negatively, a changeable market was not generally viewed by the smallholders as a problem specific to oil palm. In our experience, price fluctuation was perceived as an inherent characteristic of agricultural livelihoods with a small number of producers (15%/n=23) claiming that the price/income was in fact *better* overall than they thought it would be when they started.

[32] This estimation is based on the calculations that Zegarra and Vargas (2016) made for costs in Aguaytía and Neshuya. These account for only two of our seven districts, there is quite a difference in the data produced by Zegarra and Vargas for the two. We have used an average of the two datasets from these authors that pertain to our field site to get an approximate idea of smallholder costs.

As we mentioned in the previous section, advocates of the CCCP 'estate' model of production are in a better position to realize higher yields than other types of supported and independent smallholders because they uniquely have access to expensive high-quality technology and plantation knowledge and experience provided by the plantation company (Beekmans 2014). With a higher yield, incomes can be increased, although in the first years at least, there are the huge debts incurred through the CCP agreement to consider. Bennett et al. (2018) detail the goods and services included in the credit scenario of this CCCP. Zegarra and Vargas (2016) have said that in other regions in Peru where similar estate models are already producing, the average yield is 17 RFT/ha/pa (Zegarra and Vargas, 2016). At a possible 15 tonnes more per five hectare plot annually the extra yield creates non-negligible financial margins in terms of smallholder income. However, at this difference, they are close enough to the (smaller) yields of supported and independent smallholders that a discussion on tradeoffs related to models of production and overall economic wellbeing is warranted. We will delve into this in the discussion section.

The standard market rates, however, are just an approximation as to what the smallholder takes home. First, there is wide variation in production costs for different smallholders depending on distance from mills, quality of roads and vulnerability to weather affecting access to mills, the stage of life the palm is at, as well as the way a smallholder chooses to maintain their palm (Lee, Ghazoul et al. 2013, Soliman, Lim et al. 2016). In addition to the lively socio-economic context already described, there are other local factors that influence income. For example, over 350 smallholder sales receipts collected in the field show that the price that smallholders received was not the same in a given month, sometimes varying quite significantly (Table 6.7).

Table 6.7: Minimum and maximum prices given to smallholders in the region

	Year 1											
	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Dec
min	124	121	178	184	126	256	184	150	170	151	143	135
max	171	171	224	224	245	miss	212	176	185	176	164	missing

	Year 2											
	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Dec
min	120	113.7	120	120	135	126	126	128	130	130	130	130
max	124	121	126	132	126	135	136	142	138	135	139	144

For 2012 and 2013 (in USD per tonne)

The reasons for this disparity in payment are several. First, mills will deduct a/the price from the farmer if the fruit is over or under ripe. Second, the UN associations deduct a small amount per delivery for a "social fund" (health and bereavement cover) from members for members. Independent producers do not incur this cost, nor do they benefit from the fund. Third, mills sometimes set their own prices in response to the availability of palm fruits. For example, at times when production is low, mills often compete to get smallholder FFB's by offering better prices and reducing the rigidity of their fruit selection standards, by facilitating free transport from farms to mills or offering incentives. During these times the local market dynamic can change dramatically whilst smallholders take advantage of the favourable market conditions by side-selling.

6.4.4 Smallholders' understanding of their economic circumstances

With so much uncertainty and change in the international and local markets, it seems somewhat surprising that smallholders were so overwhelmingly positive about their situation. It is possible that smallholders are accustomed to such a context and as such expectations of development projects are generally low; markets have always been unstable, sometimes

fleeting, and often unfair for smallholders in the region. Boom and bust agricultural (Coomes 1994, Santos-Granero 1998, Arce-Nazario 2007) and natural resource cycles (Sears 2011) and unsuccessful and inappropriate development schemes (Coomes 1996) have left their mark on both the people and the environment in Ucayali. Furthermore, since oil palm producers also produce other crops/natural resources, they do not have all their proverbial eggs in one basket. Perhaps the apparent enthusiasm revealed in the survey data in fact reflects a vague keenness at a specific moment in time. Nevertheless, our hypothesis when designing the study was that *perceptions* and *knowledge* may diverge. If this were the case, there would be important implications for our discussion and in answering the last of our central questions. To assess this, the last part of the survey assessed smallholders' knowledge of their economic situation by asking some basic questions to which there was a correct and incorrect answer.

We began by asking about the workings of the market and the economics of oil palm. Although most producers (77%/ n=146) said that they understood why the oil palm market prices changed, in fact only 31% (n=59) provided a correct answer[33]. Whilst most smallholders said that they got information about markets from their associations, only 50% (n=70) of associated smallholders attended meetings. Equally, knowledge about contract terms and conditions was low; only 10% (n=14) gave the correct number, and a worrying 49% (n=41) of smallholders with debt responded that they did not know what the rate of interest

[33] In this calculation we were generous in what we allowed to qualify as 'correct' according to how broader issues are interpreted and communicated through local interpretations and responses. For example, "The price is set by international prices set in Malaysia" as correct, "limited availability of palm in the region and the mills pay more" to be correct "International stock market" and "competitive pricing from other countries" would be correct. Incorrect answers included "the president of the committee decides", "it depends on the price of gold" or "the new private company have meetings and the price for the year is set".

was or how this would affect the final amount owed. In general the consequences of not repaying loans was relatively well understood (61%/n=19 correct) compared to other models.

With relation to the relative economic performance of oil palm to other crops, perceptions changed as we refined the questions to the specific context of our field site using our ethnographic information. For example, initially, most smallholders (89%/n=168) said that oil palm was more economically competitive than any other crop. However, this number fell to 56%/n=106 when we asked if oil palm was more economically competitive than cocoa, the main commodity crop in the region. Similarly, when taken alone, 89% of our informants said that oil palm had the best market relative to other crops; however, this number dropped to 39% when we asked how it compared to cocoa. As one farmer stated "*There's always a better market with cocoa, because I can take cocoa [to markets] on my horse*" (village interview, June 2015). This quote serves to illustrate the value attached to having control over the marketing infrastructure of a crop, as well as to independent living and autonomous livelihoods. We return the subject of the value of independence for holistic economic wellbeing in the discussion.

The vast majority of associated smallholders stated that they felt involved in the decisions of both their committees (92%/n=129) and their associations (84%/n=118). However, decisions were made at group meetings and whilst base-committee (i.e. inter-village-level) meetings were well attended (85%/n=119), only 50% (n=70) of associated smallholders said they attended association meetings. Furthermore only 26% (n=36) of members knew the name of the association leader. Since one of the principal purposes of the base-committees is to act as an intermediary between the association and the smallholder, these relative numbers are not surprising. Furthermore, this system seems to be working as 83% (n=116) said that the

leaders of their committee attended the association meetings on their behalf. Although most smallholders initially scored committees very high on all counts of fulfilling their duties, on further questioning 60% (n=84) revealed that they had seen conflict or corruption within their committee, and 31% (n=40) of those said that this had irreparably broken their trust in the system.

Interestingly, corporate smallholders scored much better in terms of knowledge about the overall debt they had accrued, interest rates, and association leaders. They also scored much higher on knowledge about the consequences of defaulting on loans and the cause of market price fluctuations. However, they scored lower on empowerment variables such as being involved in group decision making, feeling included and attending meetings.

Finally, whilst almost half (46%/n=87) of the smallholders said that oil palm had improved their general quality of life, 51% (n=96) said they *did not know if it had*. This ambiguity about the crop was further highlighted when 83% (n=157) stated that they did not intend to be oil palm growers forever. In fact, participant observation revealed a very relaxed attitude towards oil palm as 'just another crop', to be simply injected with poison or sold off as 'developed land' if a better opportunity came along, if personal circumstances changed or if they tired of the demanding work. This may also be explained by the historical political ecology of previous booms and the many development projects smallholders have experienced, as mentioned earlier.

6.5 Discussion and Conclusions:

This paper set out to understand how different modes of oil palm production have emerged in Peru and analyze their different socio-economic impact on smallholders. We found that there is considerable variation in how smallholders produce oil palm, and developed a typology of

these arrangements that can help policy makers and researchers to better track developments in an evolving sector. While globally, increasing capital concentration in the oil palm sector tends to shift power towards producers and retailers (Lee et al., 2012; McCullough et al., 2008; Jelsma, 2017), we found that under certain conditions, smallholders can hold meaningful power over production decisions, and can also benefit economically from oil palm. In particular, we find that having strong associations that are supported by public funds is associated with lower debt burdens. While the outcomes of newer company-community partnerships remain to be seen in detail, it is already clear that they tend to produce much higher debt burdens for smallholders, making them a less attractive economic proposition. Additionally, in contrast with findings from other studies in Southeast Asia for example, we see that state and/or agri-business may not be the only viable mode of incorporation of smallholders into value-chains (McCarthy 2010). Instead, in Peru, international support has been an important mechanism for providing less costly finance to smallholders in the oil palm sector. These findings underscore the importance of disaggregating smallholder characteristics and relationships to production systems (see also: Jelsma, 2017a; Cramb & McCarthy, 2016).

Our analysis of the region's political ecological history shows that different state programs, including some that involved private firms and others that were backed by international cooperation, have impacted agricultural production, spurred migration, and impacted smallholder livelihoods and political power over the past several decades. Additionally, the Peruvian government and international development agencies have consistently organized agricultural development policy and assistance around rural farmers' organizations, which they have promoted since the Agrarian Reform at least. However, whilst the terms "association", "group", and "social organization" conjure images of inclusion, our paper finds

that, like cases elsewhere (Brandão 2018), social inclusion and empowerment of smallholders are still lacking despite positive local perceptions. Even with the UN's approach, which ensures that smallholder association members are shareholders in the mill company and receive a portion of the profits regardless of their annual production, smallholders did not always participate meaningfully in decision-making, nor did they always understand key aspects of their economic activities.

More concerning still, the new CCCP model has generated extremely high debt burdens for smallholders, who remain uncertain and unclear about what the future might hold. While it is too early to determine the economic impacts of production under CCCP's, these trends are concerning, and we urge researchers, policy makers and development organizations to pay close attention to how these arrangements unfold over time. As it stands, our research reveals a red flag that policy makers should heed, and should quickly move to consider alternative approaches and to find ways to support smallholders with these new debt burdens.

Aside from these large programs that supported oil palm production, there were several smallholders that produced oil palm independently. They all had acquired capital through other means, and used it to invest in their own production systems on land that they owned. While there are advantages to producing oil palm in this way, in particular because these smallholders control a greater share of the means of palm production, our results do not support policies that advocate independent production for two reasons. First, most smallholders do not have capital to develop such systems, and policies that would transfer in-kind aid to less wealthy smallholders are the best approach to moving in the direction of more control. These policies are generally linked to association-building, as we showed in our historical analysis, and associations have benefits in terms of negotiating power and

providing resilience to market shocks. Second, there are other risks associated with independent production, including the erosion of community governance and the Amazonian culture of collective action. These issues are outside the scope of this paper, but certainly merit attention from policy makers and scholars (Perreault 2005, Gurven 2015, Reyes-García 2016).

Despite these issues, our results corroborate others' in Peru in that oil palm appears to be a good revenue source for Ucayali smallholders in general (Borasino, 2016; Zegarra and Vargas, 2016), especially as a supplement to other household income sources. Additionally, outside of the CCCP, smallholders in Ucayali have a range of options when it comes to modes of production, especially after they 'graduate' from a project. This suggests that in-kind assistance for oil palm production from the United Nations, the Peruvian government and other organizations has, to a great extent, provided a pathway for economically viable smallholder oil palm production without burdensome debts. This has important implications for discussions about enclosure (Castellanos-Navarrete 2015), empowerment and ethical production in that it can help those interested in investing in social or private oil palm enterprises that involve smallholder producers in defining the most appropriate modes of incorporation and production in a given socio-geographical space. Specifically, any organisation interested in supporting sustainable oil palm production that improves local people's well-being should support models that give smallholders meaningful control over the means of production, through profit sharing, real land sovereignty, and limited debt obligations.

Our research shows that whilst some smallholders prefer to be in associations, others frequently choose to become independent after using projects as a springboard into the sector.

Additionally, and contrary to reports about independent smallholders' disadvantageous position in the sector (Ismail 2003, Lee, Ghazoul et al. 2013), in Ucayali independent producers benefit economically from oil palm production. Whilst they lose out on some association benefits such as shareholding, they may balance this out with considerable autonomy in their production decisions, and they are not experiencing market exclusion since they are utilizing the road and mill infrastructure that is in place[34]. While independent smallholders cannot directly negotiate prices with buyers through the association, because associations continue to prevail in the region, prices are set through these collective negotiations and even independent producers enjoy them.

In international agricultural policy, discussions about oil palm and livelihoods usually focus on the need to increase yield for smallholders (Rhebergen, Fairhurst et al. 2018). Our research complicates this framing. We suggest that in healthy mixed-crop farms, such as the traditional rotating crop systems found in Ucayali, there is space for traditional farming, forest regeneration *and* the incorporation of more lucrative cash crops such as oil palm. It is widely accepted that a heterogeneous production system is a preferential production strategy for rural people as it safeguards against commodity price shocks (Albertus 2019), food insecurity (Rist 2010), and the erosion of local cultural practices (Bennett et al., 2017; Sears and Pinedo-Vasquez, 2011). Thus, focusing narrowly on yields ignores other benefits that smallholders derive from their agricultural activities, including revenues, subsistence, and maintaining sovereignty over their livelihoods. Although our economic analysis revealed that fluctuating markets, generally low incomes and fairly low yields make for what at first glance appears a rather precarious economic situation for Ucayali smallholders, it also clearly

[34] Although the need for their own capital to start their palm production could be viewed as exclusionary in itself.

showed oil palm to be a lucrative *additional* source of income for smallholders in the region with yields *as they are*.

Thus, when approaching questions of rural livelihoods and the design of new economic development projects and schemes, it is important to consider the trade-offs (Cramb and McCarthy, 2016) with other important elements of economic wellbeing as well as differential trade-offs in different scenarios such as the contract terms (Rist 2010, Gatto, Wollni et al. 2017). Our results showed that while indeed the CCCP smallholders were likely to yield more oil palm per hectare than their independent and supported counterparts, there are nevertheless clear trade-offs in in terms of debt burdens, contractual enclosure, dependency on the company for market information and knowledge more broadly, and crop and livelihood diversity (Bennett et al, 2018). In light of this, we encourage scholars and policy makers to clearly distinguish between increasing yield on smallholder farms in the pursuit of improving smallholder livelihoods, and increasing yield in order to serve a growing global demand for palm oil. We argue that merging these two concepts creates confusion around the goals of agricultural development policy, and advances narratives that encourage and justify new modes of production in areas where the modes of production in place, such as in our case study, may already be the most appropriate and viable for the goals of ethical smallholder oil palm production.

With relation to the functionality of association models of governance, on the one hand, smallholders spoke positively of their experiences with associations. They scored them highly for achieving their ostensible goals and fulfilling promises to the farmers while including them in decision-making. They said they felt included in decision making, and believed that they understood the workings of the oil palm market, and indeed their own financial

circumstances. However, we found that their actual knowledge about these issues was poor. Although the government is making progress and adapting their approach based on what they have learned through its policies and project interventions over the past 20 years, state presence continues to be inadequate and smallholders remain undereducated about the economics of oil palm. This is true at all stages of the process from signing contracts to how to appropriately spend money as income increases to actually improve their economic wellbeing.

Overall, our findings suggest that some approaches to oil palm production can improve livelihoods and genuinely empower smallholders. In particular, programs that provide direct aid assistance to support oil palm production and then allow farmers to control the means of production themselves seem to generate the best livelihoods options. Moreover, given that many such farmers diversify their economic activities, we suggest that governments and researchers do not confine their measurements of success to yields and revenue (income), but also consider the full suite of activities that smallholders carry out in the context of their culture, allowing smallholders to participate in oil palm cultivation on locally relevant and preferential terms (Mingorría 2014).

Finally, it is important to note that ecological considerations were largely left outside of this study. However, other research (see foundational research, and also Bennett et al., 2018 and Gutierrez Vélez et al., 2011) have raised concerns about the ecological impacts of some oil palm production models. Both economic and ecological analyses raise serious questions about the desirability of CCCPs, which deserve sustained critical attention. Future research and policy discussions need to focus on the balance between environmental objectives and these livelihood opportunities. Moving away from a narrow focus on yield to a broader view

of environmental management and land use activities that smallholders undertake will make these discussions more integrated and valuable.

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Chapter Seven: Discussion and Conclusions

"The more I learn the less I realize I know. The less I realize I know the more I want to learn"
(debated sources)

This thesis set out to explore the historical political ecology of oil palm expansion in Ucayali using the 'sustainable development' agenda as a heuristic tool to make the research and its findings relevant to current academic and non-academic socio-environmental debate and eco-development practise. The sustainable development paradigm is founded on three principal metrics: 'environmental, social and economic'. Since these are very broad categories, this thesis narrowed them down a specific collection of analysable themes, relevant to smallholders' and their stakeholders' lives in the Peruvian Amazon region of Ucayali. As the conceptual and empirical Figure 3.1 in Chapter Three showed, these three elements of sustainable development were difficult to untangle because a phenomenon that we may view as fundamentally environmental always also has economic consequences and vice versa. This was discussed some in Chapter One, when the critical realist approach of the research was justified. Nevertheless, I shall attempt this disentanglement of the three elements of sustainable development for the final discussion of the research results in the rest of this chapter. Since the bulk of the empirical work on environmental issues was on opportunities for forest conservation and/or afforestation through policy adaptation (Chapter Four) and processes of deforestation through new modes of oil palm production (Chapter Five) the 'environmental' heuristic can be understood in this thesis to refer to 'impacts on forests'. The issue of economics within the sustainable development agenda was explored through research on local economic livelihoods, non-monetary economic wellbeing and land rights (Chapters Four and Six). The social metric was investigated through the lens of social cohesion, conflict and power mainly related to land rights and access issues, and spanned the breath of all three empirical chapters. This chapter will explore some of the key insights and implications from

the research findings using these themes as section headings, whilst also maintaining the fluidity of the interconnectedness of the phenomena being discussed.

7.1 Key insights and implications of lessons learned for sustainable smallholder oil palm development in the Peruvian Amazon

7.1.1 Insights on impact on forests: land use change and deforestation

The effects of large-scale oil palm plantation expansion on forests and biodiversity through deforestation have been well studied in South-East Asia (Fitzherbert, Struebig et al. 2008, Koh 2008), and to a lesser but reasonable extent in other emerging producing regions like Latin America (Furumo and Aide 2017) and Africa (Vijay, Pimm et al. 2016). Only a very small number of studies include smallholding oil palm producers (Lee 2013), despite their importance in the sector (Jelsma, Schoneveld et al. 2017).

My study is the first in the region and one of very few globally to quantitatively assess the deforestation and land-use change outcomes of smallholder oil palm through new corporate modes of production in Peru. It is also the first study to use high-resolution, fine-scale visual remote sensing (VRS) techniques (Bey, Sánchez-Paus Díaz et al. 2016) to assess land-use change in Peru and Ucayali. VRS is a relatively time-consuming way to measure land use change, which perhaps explains its underutilization. Nevertheless, it proved to be a very effective method for smaller studies such as the case study for this research. In 2011 Gutierrez-Velez et al. used remote sensing techniques to demonstrate the relatively much higher deforestation outcomes of large oil palm plantation in comparison to government supported and independent smallholders farms growing palm in Ucayali (Gutiérrez-Vélez 2011). They showed that overall the deforestation instigated by smallholder oil palm growers was low. However, that research was undertaken before some dramatic changes took place in the sector. My results showed that smallholder deforestation for oil palm through corporate

company-community partnerships (CCP) is very high compared to government supported producers, and significantly higher than neighbouring farmers that do not plant oil palm. Chapter Five outlined the four main modes of production, or ways that smallholders engage with producing oil palm globally, and the final research paper creates a novel typology of regional modes of production in Ucayali. Both papers highlight the dubious nature of corporate CCPs on both environmental grounds (discussed here) and socio-economic grounds (discussed in section 7.1.2 and 7.1.3 respectively).

The land use change analysis also showed that smallholders participating in the partnership were moving away from traditional land use and land management strategies that involve fallowing land, and maintaining patches of old growth forest. In contrast their (non-participating) neighbours maintained a much more heterogeneous and forested farm system. This is an old theme in agrarian question studies interested in how the penetration of capitalist production impacts local systems and power dynamics as certain individuals and institutions gain or lose power, and a central theme for analyses of new commodity booms in rural areas.

The results showed evidence of a shift towards oil palm monoculture plantations on small farms, thus reducing the overall area of forest (at various stages of growth and regeneration) on smallholder lands. These results contribute to an emerging body of research interested in regenerating forests as important elements of healthy farm-forest landscapes both for ecosystem health, and international forest conservation agendas and policies such as REDD+, the Bonn Challenge and zero net deforestation goals (Chazdon, Brancalion et al. 2016). This issue will be elaborated further when the link between land rights and forest conservation is discussed in section 7.1.2. The thesis has demonstrated the importance of understanding the

various impacts of the different modes of oil palm production in a context-specific, nuanced and multidimensional way as new frontiers are emerging in the sector, and development and conservation groups, and indeed national governments, are asking how and to what extent this should happen. Taking a critical realist approach to the political ecological research afforded the opportunity to present the social-ecological issues truly in their complexity, whilst also boiling down some of that complexity down through the sustainable development heuristic to enable some tangible and feasible policy, practice and conceptual recommendations. For example, the question of yield and intensification is one that remains strong in the oil palm and conservation debates (Godfray 2010, Gutiérrez-Vélez 2011, Lee 2013, Rhebergen, Fairhurst et al. 2018). As the literature review described, the issue of yield has both environmental and economic implications, (the latter will be discussed further in section 7.1.3) however the notions about the purported benefits of increased yield for sparing land and increasing livelihoods were challenged on the grounds that these concepts did not fit well with findings on land use thinking and practise in the developing region being studied. Although environmental arguments for intensification of commodity crops on concentrated areas and optimization of yield outputs are often founded on notions of 'sparing' land, the results from the case study on the CCP for this research challenge the fundamental premise of this concept. A large oil palm plantation was established in a remote location in Ucayali through a company that brought with it high yield technologies and tremendous financial backing. However, due to local socio-political conflict and international pressure, smallholders were invited to become partners of the company, through the establishment of new oil palm on smallholder farms. This not only served to create an oil palm land 'sharing' scenario, but it also instigated extensive new deforestation on small plots. Furthermore, concomitant uptake of oil palm by other smallholders on the forest frontier is now likely as

new oil palm infrastructure created by the company provides the means through which smallholders can gain access to markets themselves. This latter phenomenon has been discussed with relation to cases in Indonesia and Malaysia, (Cramb 2016, Jelsma, Schoneveld et al. 2017), and the description of independent oil palm smallholders presented in the typology in Chapter Six of this thesis suggests a similar process is taking place in Peru.

7.1.2 Insights on opportunity and challenge for forest protection in land rights policy on the oil palm frontier

So far it is evident that results from this study contribute empirical knowledge to a growing body of research demonstrating that new boom crops driven by international markets and state development policies (Coomes 1996) can have a profound – and often *negative* – effect on local environmental conditions, particularly deforestation at all scales of production from large to small farms (Arce-Nazario 2007). However, my results also contribute to a relatively new and vibrant literature that highlights *opportunity* for conserved and increased forest cover in farm-forest landscapes through appropriate land-use and land rights policy mechanisms (van Noordwijk, Suyamto et al. 2008, Putzel 2013, Chazdon, Brancalion et al. 2016).

This was the first study to empirically and quantitatively assess the impact of development policy (oil palm) and practice on land rights distribution in Peru. The household survey was undertaken after an intensive review of the legal frameworks around land rights, which were found to have legislated a non-biased approach to rural land formalization. This is also the first study to measure the *de facto* bestowal of land rights to the *de jure* perception and use of 252 individual smallholder properties (5529 hectares). Results showed that the oil palm political agendas, policies and projects were positively influencing land titling for smallholders, in that those smallholders that were engaged with oil palm projects were

prioritized for formal title over those that were not engaged. In this sense, a clear connection between agro-development agendas and land formalization in rural areas is evidenced in the study site, as it is elsewhere (Ye 2015).

However, the review of the legal documents revealed that only the area of land that is under cultivation (and fallow) is eligible for formalization and no forest areas can be titled to smallholders. This legislation does not reflect the more heterogeneous and holistic way that land is used by smallholders, which includes the maintenance and use of forests at various stages of maturity. Accordingly, popular notions that formalization of land is always to the benefit of local people (DeSoto 2000) can be challenged on the grounds that if they are not bestowed in a way that accounts for local concepts and needs, it serves only the institutions of power, not truth (Foucault 1980). 1770 hectares of old growth forest fragments were being maintained on smallholder oil palm and non-oil palm farms for various reasons including microclimate, recreation and hunting were ineligible for legal ownership by smallholders in this study. A political agenda that seeks to formalize land only to make rural people visible in a formal economy without address to local values and practises means that forest fragments, critical for human and planetary health, and the people managing effectively within a sustainable development remit them are left vulnerable. Finally, such legislation excludes smallholders from accessing and benefitting from international and national forest stewardship programs because formal land rights are usually a prerequisite for enrolment in such programs.

Although it is often argued that bestowing formal land title on local people in forested areas has significant positive environmental outcomes (Oliveira 2007, Blackman, Corral et al. 2017), this discussion is overwhelmingly focussed on indigenous communities practicing

communal tenure regimes. The contribution that non-indigenous smallholders in farm-forest landscapes can make to global forest conservation agendas is seriously underappreciated, and understudied. Furthermore, they are underrepresented in the sustainable development agenda, particularly with relation to forest conservation Worse still, this 'forgotten majority' of Amazon citizens (Menton and Cronkleton, 2014) are often scapegoated as the main drivers of deforestation on forest frontiers (Ravikumar, Sears et al. 2017), further marginalizing them from the global environmental agenda despite the key socio-geographical position they inhabit. In chapter three I reflected on the ethics procedure we undertake in academia, offering a critique of the processes. It is also quite apparent from the situation described that the institution of academia and the generation of 'knowledge' may also be skewing the power dynamic and labour relations at the sites we research.

Many governments in developing countries are actively formalizing their rural economies and in doing so also formalizing land rights for citizens, and this is certainly the case in Peru (DeSoto 2000, Bennett A. 2017). The results from this research concur with other studies in the region that challenge the status quo on smallholder versus indigenous land use in the Amazon (Adams 2009, Cronkleton 2015).

With relation to the environmental outcomes of land rights, including the right to own large and smallholder oil palm farms, it is important to remind the reader that the struggles between environmental and agrarian state ministries, and their respective agendas and unequal individual power, is a strong underlying driver of land-use change and deforestation. In terms of the pathways of expansion discussed in chapters 1 and 2 the empirical chapters clarified the nuanced and context specific nature of these, in lieu of the issue of proximate and underlying drivers where political processes (broadly conceived) are so often not given the

importance they deserve for land-use and land relations production and reproduction, leaving the local 'proximate' context (capitalist land-grabbers or smallholder frontier deforesters) overburdened with responsibility for negative socio-environmental outcomes.

For example, this work has demonstrated that although land use and land rights allocations are highly relevant to environmental agendas, it is the ministry of agriculture (and its regional counterparts) that have most of the decision-making control over land titles, land-use permits, monitoring and sanctioning of abuses of land-laws, and the drafting even of environmental elements of land-use planning such as the National Oil Palm Plans discussed in Chapters Two-Six. Indeed it has been said that "the update process of the National Plan developed as if the most radical environmentalists were sitting at the table, when they were not (Dammert 2017)". For this reason, to achieve the goals of this work it became necessary to dedicate a significant amount of time to state actors in the agrarian – rather than the environment – sector, as is evident in both the methods and the results chapters of this thesis. The legal parameters of the land titling laws described in Chapter Four showed that smallholders were legally prescribed to clear forest land and show economic exploitation in order to access rights. This is a perfect illustration of where the proximate driver of deforestation (the smallholder) is completely overshadowed by its underlying driver counterpart (policy and politics).

Finally, although it is not a novel finding, it is nonetheless important to note that corruption and exaggerated power of the state agrarian sector, particularly at the regional level, has had a profound impact on deforestation outcomes in the region both through the illegal sale of large areas of forest to the corporate company for conversion to oil palm, which was also the root facilitating mechanism for the CCP, which also prompted accelerated deforestation. It would

be naïve to make policy recommendations that suggest a change in this power dynamic at the state or regional level, however international aid and development agencies and those that provide financial backstopping for large land-titling projects such as the support the IDB gave for the three PTRT projects described in results chapter four, have the potential to have a strong influence over the ways in which land titling is conceptualised and distributed to all rural peoples, and the environmental impacts therein.

7.1.3 Insights on impacts on social welfare: social organization, cohesion and conflict

As Chapters 5 and 6 showed, the large oil palm company that was established in Ucayali was the first of its kind in the region, dubbed a "new actor" in the Ucayali oil palm landscape (Borasino 2016, Dammert 2017). I was the only researcher permitted full access to all areas of that landscape for several years, and the data collected and analysed – particularly for research Chapter Six, where the underlying drivers for and consequences of the CCP-related deforestation were explained – is the only data that exists from that area at that time. Thus, the findings are not only novel, they also create a very important baseline from which other researchers or indeed the government may try to pursue follow-up information about this case to supervise and intervene where social conflict, land rights abuses and threats against citizens are ongoing (Salazar 2016). This is also relevant for the economic element of new oil palm livelihoods in the region, discussed in section 7.1.4.

Chapter Five described a context of serious violence related to issues between governments, large corporations and local people over land grabs that are worryingly close to reports about similar situations all over the oil palm world (Wakker 2005, Cotula 2009, McCarthy 2009, Borras, Hall et al. 2011, Li 2011, Borras, Franco et al. 2012, Greenpeace 2015, Li 2017,

Mingorría 2018). This type of development is undeniably unsustainable from a social point of view, and no sustainability standards or certification stamps can be applied to commodities that emerge from these scenarios for purchase by unaware ethical consumers (including governments drafting trade agreements) in the developed world. This situation highlights the issues of external and internal colonialism and power discussed in chapter two. For example, diagram 5.3 in which I drew a schematic design of the land set-up of the company and the communities, we can see a stark resemblance with the hacienda systems that Latin American countries have gone through so much political action to move away from (Kay 1989, Hall, Scoones et al. 2017). These land and labour dynamics and the related power issues with privatizing state functions was also further critiqued as regressive social practise after Chapter Five in empirical Chapter Six. In conclusion, it was determined in all three empirical chapters that on frontiers like Ucayali there is a clear opportunity to prevent this type of development before it takes place, and this should be a priority for proponents of oil palm development in these areas.

At a more micro (regional, local and household) level, concerns about the potential for disruption of land and labour relations and even conflict *within* communities and households was raised. For example, between local or migrant growers or ethnic groups as a result of unequal or unfair distribution of benefits such as land rights, improved income, access to credit or access to medical care from oil palm projects, have been at the centre of the palm oil debate for some time (McCarthy 2010, Cramb 2016, Abram, Meijaard et al. 2017). This was not always negative despite the external and internal institutional power dynamics driving them. For example, with the exception of the waiting list of smallholder oil palm growers to enter the UN-model associations explained in Chapter Six, results diverged from the status quo of internal conflict, rather finding that non-oil palm growers in fact benefitted from the

crop choice of their oil palm cultivating village counterparts, at least economically speaking. This was evident in the proxy land titling and the improved infrastructure developed for oil palm trade, for example. However, evidence of the external colonialism and power dynamics was present in all aspects of the research from the macro (international) to micro (household) levels with a clear disengagement from local ways of being. For example, on trying to assess the credit and debt scenario for empirical Chapter Six, I found that debts are paid monthly, while other funds accrue at other rates. Additionally, complex kinship networks are often leveraged to pay off debts (and indeed supplement with additional informal loans), and households do not carefully account for which monies were used to pay debts, and which monies were used to cover other household costs. Thus, an economic assessment of these dynamics researched, analysed and written from my vantage point would not be true to the local political economy, as household economics were too complex to summarise in research of this type. Finally, in general, the modes of production analysed in the thesis have shown heterogeneous and sometimes counterintuitive outcomes. For example, Chapters Five and Six demonstrated that sometimes the purported 'social organization' through agrarian associations and partnerships are far from organized or well-functioning.

The thesis chapters have described the Peruvian decentralizing process as slow, bureaucratic and problematic (Wright 2008, Eaton 2010, Blackman, Corral et al. 2017). This has resulted in increased administrative power and control to regional offices that do not necessarily have the capacity, financial backing, experience or desire to appropriately discharge new roles according to the law as it should be (Sears 2011, Bennett, Cronkleton et al. 2018). This type of unstable political system is a primary concern identified in the literature review with relation to the vulnerability of frontier regions to where oil palm is expanding (Greenpeace 2015, Kuepper 2016). Identifying these weaknesses in national and regional governance

structures and creating safeguards around them is an essential prerequisite to the provision of large amounts of donor money for conservation and development in Peru and elsewhere.

7.1.4 Insights on impacts on livelihoods and economic wellbeing

The previous section touched on some of the issues of local livelihoods and economies, and this section delves further into these dynamics. The literature shows that in many cases smallholder economic livelihoods are improved through the adoption of oil palm cultivation in main producer countries (Feintrenie 2010, Sayer, Ghazoul et al. 2012, Kubitza, Krishna et al. 2018), and elsewhere (Castellanos-Navarrete 2015, Pacheco 2018). In Peru it has also been shown that oil palm helps to reduce poverty levels (Zegarra 2016), although the crop is not currently promoted in areas where the highest levels of poverty exist in Peru, or Ucayali (INEI 2012, INEI 2012)[35]. Concurrent with other studies, research chapter seven shows that oil palm does provide improved economic livelihoods for smallholders. However, all three results chapters raise concerns about the terms under which it does so.

Chapter Six, and to a lesser extent Chapter Five addressed the issue of enclosure through debt, which has also been studied by other scholars in different regions (Koczberski and Curry 2005, Rist 2010). A highly heterogeneous economic situation was revealed in the results for this study, in which some smallholders of 'social projects' had incurred a manageable debt through locally appropriate credit terms. Locally appropriate was defined not in terms of the amount of debt, rather the incurred benefits and losses and the ability to pay it back within the context of the dynamics of household economic management. Nevertheless, the analysis uncovered a startling contrast with debt scenarios of the CCP, beyond what local historical

[35] This is unsurprising considering the high infrastructural demands of the production chain of the commodity, which requires roads on which heavy vehicles can pass, a functioning mill and connectivity to refineries and buyer markets in the capital cities.

political ecology could try to explain or justify. Together with the social and environmental results on this mode of oil palm production in the region, these dubious economic results serve to raise major concerns about this mode of production in the region, and likely elsewhere. A large part of the problem with this debt was an identified lack of economic education and understanding. By education I do not mean to refer to telling smallholders how to manage their money, rather informing them in a way that is understandable and meaningful to them of their new economic circumstances in formalized situations. In terms of the agrarian discussions on knowledge and power, Chapter Six showed that the local people were very dependent on more powerful actors for information critical to their livelihoods. This aspect of economically sustainable oil palm for smallholding rural producers is certainly something that both the government and international development groups should prioritize in the quest for a more sustainable economic development for oil palm.

Section 7.1.2 initiated a discussion about policy that supports a more sustainable development agenda with relation to land titles and forest fragments, and this discussion is also relevant to livelihoods. Livelihoods for both oil palm and non-oil palm growing smallholders often involve the harvesting of pioneer, fast-growing wood species in farm fallow land (Cronkleton 2013, Putzel 2013). This was shown in the historical political ecology narratives in chapters 4, 5 and 6. A more balanced approach to sustainable development would consider the wider range of activities and opportunities for smallholder livelihoods in the region and demonstrate appreciation for the already existing power dynamics outside of formal institutions. For example, Chapter Four revealed the utilization of fallow and second growth forests by small-scale forest managers and farmers to improve their livelihoods through markets for fast growing softwood species. However, my work compliments Cronkleton et. al (2013) who showed that these livelihood strategies are limited by the lack of a supportive legal

framework, and this work further supports this argument through the discussion on land rights limitations for forests. International sustainable development agendas, especially those linked to livelihoods and poverty reduction would do well to consider facilitating such livelihood strategies, and to consider livelihood opportunities through the rehabilitation of degraded forests (Dachand 2003, Sayer 2013, Erbaugh and Oldekop 2018). The Peruvian government has already pledged to restore 3.2 million hectares of such degraded area, which presents a huge opportunity for this (La República, 2017). More innovative and holistic sustainable development policies would likely strengthen oil palm livelihoods and industry in the region whilst facilitating a broader, safer and more locally appropriate rural development and economic wellbeing for smallholders (Koczberski and Curry 2005).

Chapter Six made a novel theoretical contribution to current discussions about oil palm yield and livelihoods. The literature review revealed that although many scholars, policy makers and practitioners towards a rural development agenda that simultaneously improve livelihoods *and* tackle the increasing global demand for palm oil through increased yield on smallholder plots (Lee, Ghazoul et al. 2013, MINAGRI 2016, Soliman, Lim et al. 2016, Zegarra 2016, Rhebergen, Fairhurst et al. 2018). I have argued that this is a problematic conceptual framing as it lumps of two very distinct development issues and processes (rural livelihoods and global food supply) under one umbrella. Although it is not impossible that these two agendas can operate as mutually reinforcing objectives, the more context-specific sustainable development agenda advocated in section 7.1.2 would first consider them separately before potentially prematurely trying to kill two birds with one stone. The basis for this argument was the finding that smallholders in Ucayali were a) overall satisfied with the income that they received from their oil palm b) some smallholders had other crops and

economic activities that were more important to them than oil palm and as such increasing their oil palm yield would not necessarily meet livelihood improvement objectives on locally preferential terms, and c) oil palm is perhaps not as important to smallholders as is often assumed, evidenced in the ambiguous responses to survey questions regarding their intention to continue with oil palm into the future. The assumption that smallholders can or should be responsible for meeting the burgeoning consumption demands of people in places that are culturally and spatially distant does not support a place-based sustainable development paradigm. This is a globally relevant observation.

This leads to the third and final point of discussion about livelihoods: the issue with the concept of the smallholder as a cultural *tabula rasa* or 'blank slate' upon which patriarchal development projects can be levied without much concern about their cultural perspective or daily lives (Kay 1989). Chapter Four and Section 7.2.1 described a scenario in which land rights policy tends to view smallholder Peruvian Amazonians only as agricultural or livestock farmers, void of the need, desire or knowhow to sustainably manage natural resources. This is in contrast for example to development agendas for indigenous people that increasingly (though still very inadequately) recognise the importance to engage with their traditional ecological knowledge, territorial perceptions and resource use. For example, several government ministries in Peru, and research and development groups such as the Chicago Field Museum's Andes-Amazon programme are implementing a new strategy called 'life plans' (*planes de vida*) which a) take a holistic vision of rural development and b) try to understand it from the inherent socio-cultural complex perspective of indigenous people that is unique to each tribe (Wali, Alvira et al. 2017).

This study contributes to and advances this body of work – representing the understudied Peruvian corner of the Amazon - and concurs with its perspectives in several ways beyond the land-rights and policy analyses already described. Ethnographic evidence derived from the long participant observation undertaken for this work shows that on the one hand smallholders are the targets of – often less than sufficiently thought out – development schemes. For example, it is important to ask whether permanent crops such as oil palm are an appropriate development strategy for smallholders that are traditionally (and are largely still) multi-sited (Padoch 2008, Bennett, Cronkleton et al. 2018)? Why did so many smallholders sell the free oil palm plants they were given by the regional government of Ucayali in 2008 (Chapter Four)? Was oil palm simply not a crop they were interested in cultivating? Did anyone meaningfully ask them?

At the same time, these people are often astute land managers, powerful and influential in land and labour relations that act as active drivers of change and development in their areas (muldavin, 2007). As Chapter Four demonstrated, they are constantly active in lobbying for better roads, for oil palm projects, electricity lines, sanctions against loggers' trucks damaging their roads and even managing to lobby the government to legally split a district into two separate legal administrative units, evidenced in the study site "Irazola" becoming "Irazola and Neshuya" before Chapter Four got through peer review! Chapter Five described the violent revolt of mestizo smallholders against what they perceived to be a corrupt municipal government, and several people have died over the skirmish with land rights related to the oil palm plantation because smallholders are not tolerating the violations and when ignored by the state, very often take matters into their own hands.

Smallholders oil palm growers *were* brought to the table for the drafting of the new national plan 2016-2026, indicative of some recognition of this situation, but a repositioning of the status quo of view of smallholders is a must for environmentally, socially and economically sustainable smallholder oil palm expansion in the Peruvian Amazon, and elsewhere (see Annex7 for workshop photos). A start on this could be an engagement with the seeming desire to return to colonial estate or hacienda models of smallholder agricultural production through farmers' associations, described in Chapter Six, (also prevalent in other parts of the world) (Hall, Scoones et al. 2017), and to include them more generously and sincerely in conservation agendas based on locally preferential terms, as described at the beginning of this chapter.

7.2 Future Research

Latin America, Peru and Ucayali are among several oil palm frontier areas identified by researchers, developers, governments and NGO's and development aid groups and banks (Sen 2016, Furumo and Aide 2017, Steinweg 2017). How much oil palm will proliferate and grow, and how, is not yet known. This unknown makes it an important one to watch, and represents a huge opportunity for concerted efforts towards a more environmentally and socially sustainable oil palm expansion in new frontiers than what we have seen in Indonesia and Malaysia. The need for future research on oil palm expansion on both small and large farms and at the intersection of the two is urgent. The possibilities and ways for doing this are infinite, however I will suggest a few here.

Remote sensing technologies are rapidly improving, with many remote sensing laboratories experimenting with algorithms that can auto-identify crops, on smaller scales in Maryland, Stanford, Leicester, and South Dakota State universities (to name but a few), and government

agencies such as the MAAP group in Peru. When successful, this will be a ground-breaking advancement in the knowledge of where oil palm (and other crops) are expanding, and on what scales. Nevertheless, the need to understand the political pathways and underlying drivers - particularly socio-political drivers at the regional and local level - are urgently in need of further examination, and results should be urgently disseminated and promoted to all stakeholders along the sustainable supply chain, particularly decision makers involved in rural sustainable development.

The land use change analysis for Chapter Five was done on two scales: overall (four villages and 2,447 hectares) and at the village level. There were notable differences between the levels of deforestation, afforestation and maintenance of subsistence crops even after the establishment of oil palm between villages. This was due to differential local contexts and nuances on the four village sites. This finding supports one of the main conclusions of this thesis, and a vision that is shared with other scholars and practitioners: policy and project planning and implementation environmentally sustainable pro-poor outcomes in rural areas must be context-specific (Menton & Bennett, 2018; Poudyal, 2017; Rodríguez-Robayo and Merino-Perez, 2017). It is clear from this research that the deforestation outcomes of these interventions can be very different from place to place, even in a relatively small landscape, where local people are theoretically socio-demographically comparable. This nuance and context specificity is an important consideration for future research looking at sustainable development matters in new frontiers in all three pillars of sustainability.

Following this, it is important for research to begin to close the gap between interest in and knowledge generated about indigenous and non-indigenous people in the Amazon and elsewhere. This could make a significant contribution towards dispelling unhelpful and often

incorrect notions about smallholders as environmental destroyers (Ravikumar, Sears et al. 2017) towards a more holistic, inclusive and fair rural development on locally preferential terms, including for oil palm, which is being planted by both indigenous and non-indigenous people in Latin America. In addition to this, a divergence from the same central foci of rural development might include the unintended risks and outcomes of development projects on rural people. For example, Chapter Six showed that whilst economic livelihoods were improved through the adoption of oil palm, a lack of economic education resulted in questionable use of new improved income. In addition, the impacts that life changing infrastructural change has on local people should be a research priority. For example, power lines bring light at night, but they also power fridges to cool beer – what is the impact of this on women and girls, on community life? Roads help smallholders bring their product out of the village to markets, but what comes in to the village on these same routes?

Much evidence of the importance of gender and gender relations have emerged in this thesis, even if it fell outside the scope of deep analysis. The importance of the role of women for high quality participatory methods was evident in their superior knowledge of the village set-up and neighbourly activities. Women held an important role in the management of household finances and they were also found in important positions in the associations. At the same time, the vignette activity discussed in chapter three shows the marginalization of the voice and opinion of women in local politics and in oil palm development and land use planning. Further research and socio-political action on these issues would be very worthwhile.

Finally, this thesis has demonstrated that a political ecology framework that has space for interdisciplinary, mixed methods and multi-theory data collection, analysis and dissemination

has a distinct disciplinary advantage for tackling the issues inherent in sustainable development, and the position of oil palm therein. Future studies are encouraged to consider this disciplinary approach in investigating sustainable development matters, in order to get a full understanding of proximate and underlying drivers, actor and stakeholder groups and opportunities and challenges on economic, social and environmental grounds for meeting the ostensible goals of a sustainable rural development.

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Annexes

Annex 1: Example of random number table for household sampling

13962	70992	65172	28053	02190	83634	66012	70305	66761	88344
43905	46941	72300	11641	43548	30455	07686	31840	03261	89139
00504	48658	38051	59408	16508	82979	92002	63606	41078	86326
61274	57238	47267	35303	29066	02140	60867	39847	50968	96719
43753	21159	16239	50595	62509	61207	86816	29902	23395	72640
83503	51662	21636	68192	84294	38754	84755	34053	94582	29215
36807	71420	35804	44862	23577	79551	42003	58684	09271	68396
19110	55680	18792	41487	16614	83053	00812	16749	45347	88199
82615	86984	93290	87971	60022	35415	20852	02909	99476	45568
05621	26584	36493	63013	68181	57702	49510	75304	38724	15712
06936	37293	55875	71213	83025	46063	74665	12178	10741	58362
84981	60458	16194	92403	80951	80068	47076	23310	74899	87929
66354	88441	96191	04794	14714	64749	43097	83976	83281	72038
49602	94109	36460	62353	00721	66980	82554	90270	12312	56299
78430	72391	96973	70437	97803	78683	04670	70667	58912	21883
33331	51803	15934	75807	46561	80188	78984	29317	27971	16440
62843	84445	56652	91797	45284	25842	96246	73504	21631	81223
19528	15445	77764	33446	41204	70067	33354	70680	66664	75486
16737	01887	50934	43306	75190	86997	56561	79018	34273	25196
99389	06685	45945	62000	76228	60645	87750	46329	46544	95665
36160	38196	77705	28891	12106	56281	86222	66116	39626	06080
05505	45420	44016	79662	92069	27628	50002	32540	19848	27319
85962	19758	92795	00458	71289	05884	37963	23322	73243	98185
28763	04900	54460	22083	89279	43492	00066	40857	86568	49336
42222	40446	82240	79159	44168	38213	46839	26598	29983	67645
43626	40039	51492	36488	70280	24218	14596	04744	89336	35630
97761	43444	95895	24102	07006	71923	04800	32062	41425	66862
49275	44270	52512	03951	21651	53867	73531	70073	45542	22831
15797	75134	39856	73527	78417	36208	59510	76913	22499	68467
04497	24853	43879	07613	26400	17180	18880	66083	02196	10638
95468	87411	30647	88711	01765	57688	60665	57636	36070	37285
01420	74218	71047	14401	74537	14820	45248	78007	65911	38583
74633	40171	97092	79137	30698	97915	36305	42613	87251	75608
46662	99688	59576	04887	02310	35508	69481	30300	94047	57096
10853	10393	03013	90372	89639	65800	88532	71789	59964	50681
68583	01032	67938	29733	71176	35699	10551	15091	52947	20134
75818	78982	24258	93051	02081	83890	66944	99856	87950	13952
16395	16837	00538	57133	89398	78205	72122	99655	25294	20941
53892	15105	40963	69267	85534	00533	27130	90420	72584	84576
66009	26869	91829	65078	89616	49016	14200	97469	88307	92282
45292	93427	92326	70206	15847	14302	60043	30530	57149	08642
34033	45008	41621	79437	98745	84455	66769	94729	17975	50963
13364	09937	00535	88122	47278	90758	23542	35273	67912	97670
03343	62593	93332	09921	25306	57483	98115	33460	55304	43572
46145	24476	62507	19530	41257	97919	02290	40357	38408	50031
37703	51658	17420	30593	39637	64220	45486	03698	80220	12139
12622	98083	17689	59677	56603	93316	79858	52548	67367	72416
56043	00251	70085	28067	78135	53000	18138	40564	77086	49557
43401	35924	28308	55140	07515	53854	23023	70268	80435	24269
18053	53460	32125	81357	26935	67234	78460	47833	20496	35645

From The Rand Corporation, *A Million Random Digits with 100,000 Normal Deviates* (New York: The Free Press, 1955), by permission.

Annex 2: Example of consent letter for village leaders

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26 de Febrero de 2014

Asunto: Solicitud de entrar en el caserio la Merced de Neshuya para entrevistar a los moradores.

Estimados Teniente Gobernador Eulalio Rosas Rivera,

Es grato dirigirme a usted para saludarle, presentarme a mi y a nuestro proyecto. Mi nombre es Aoife Bennett, soy candidata doctoral de la Universidad de Oxford y conduzco un proyecto de investigación sobre la ecología política de los bosques secundarios en Ucayali, Perú. Este estudio tiene el objetivo de analizar las relaciones entre entidades políticas, sus decisiones sobre el uso de la tierra, las leyes y las manifestaciones socio-económicas, socio-políticas y ecológicas a niveles regionales y locales. El año pasado hicimos investigaciones de campo para mi tesis de maestría en Ucayali, y desde entonces trabajé medio año allí como consultora para el Centro para la Investigación Forestal Internacional (CIFOR), hemos entrevistado con mas de 350 agricultores ya, así que tengo buen conocimiento de muchas partes de Ucayali, su gente y sus retos. De esta manera, espero que además de ayudarme a cumplir con los requisitos de la Universidad para mi tesis de doctorado, los datos recopilados durante estos años (faltan tres) sirvan como principios y opciones para mejorar el diseño de las instituciones, procesos y herramientas multinivel en la implementación de políticas y/o proyectos que permitan el desarrollo sostenible en mi querido Ucayali.

En ese sentido, le hacemos llegar esta carta para presentarme a mi y también a Isaac Pérez Ríos y Walter Ríos Pérez, consultores de investigación del referido proyecto, quienes ya llevan mas de un año y medio trabajando conmigo en los caseríos de esta región, y pedirle permiso para entrar en el caserío para conversar y entrevistar con la gente. Espero evaluar los esfuerzos de palma para desarrollo alternativo a nivel local, y entender las perspetivas de la gente sobre esos temas. Toda la información es confidencial, codifico cada entrevista numéricamente, no menciono nombres depersonas ni caseríos en mi análisis.

Finalmente, quiero enfatizar que los resultados de mi investigación serán disponibles para compartir con ustedes si deseen tenerlos.

Agradeciendo de antemano su apoyo, quedo de usted.

Atentamente,
Aoife Bennett

Annex 3: Example of letter of request for meetings for key informant interviews

Aoife.bennett-curry@mansfield.ox.ac.uk 11 Octubre 2014

Estimado Janes Galvez Jara,

Es grato dirigirme a usted para saludarle y presentarme. Mi nombre es Aoife Bennett, soy candidata doctoral de la Universidad de Oxford y conduzco un proyecto académico para mi tesis sobre la ecología política de Ucayali, Perú. Me interesa entender las vidas de los pequeños agricultores, de dónde han venido, porque han venido, porque toman ciertas decisiones sobre el uso de sus terrenos, que incentivos agrícolos aprovechan, que clase de título de propiedad tienen, que planes tienen para el futuro y cuales son sus perspectivas sobre los mechnismos gubernamentales y no gubernamentales en su municipalidad, y region.

Aquí también hice las investigaciones del campo para mi tesis de maestría en el 2012, así que ya llevo mas de dos años trabajando con los agricultores de Irazola, Padre Abad, Curimaná y Masisea. Además tengo desarrollado muchas buenas relaciones con entidades públicas como la DRA, el GORE y la UNU.

Le escribo hoy para solicitarle una breve reunión. Quisiera explicarle un poco más sobre los motivos de mi trabajo y solicitarle unos datos. Yo, con mis asistentes de campo ya llevo varios meses recopilando recibos de los palmicultores con los cuales trabajo. Esos palmicultres pertencen a diversas asociaciones y comités. Estoy queriendo entender en cuanto están vendiendo su producto, como cambian los precios, cuales son los descuentos que se le hace, cuantas entregas se hace por mes etc. Tengo mas de mil recibos ya, pero como algunos agricultores solo guardan unos cuantos recibos, tengo muchos huecos en mis datos. Quisiera solitarle la lista resumen de los agricultores (como el ejemplo que he juntado acá). Si esa información hay en digital, hasta major.
Agradeciendo de antemano su apoyo, quedo de usted.

Atentamente,
Aoife Bennett

Annex 4: Example of letter of request for data/information following key informant interviews

SCHOOL OF GEOGRAPHY AND THE ENVIRONMENT

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Aoife.bennett-curry@ouce.ox.ac.uk

26 de Febrero de 2014

Asunto: Solicitud de datos.

Estimado Sr. Flavio Mirella,

Es grato dirigirme a usted para saludarle y presentarme. Mi nombre es Aoife Bennett, soy candidata doctoral de la Universidad de Oxford y conduzco un proyecto de investigación sobre la ecología política de los bosques secundarios en Ucayali, Perú. Este estudio tiene el objetivo de analizar las relaciones entre entidades políticas, sus decisiones sobre el uso de la tierra, las leyes y las manifestaciones socio-económicas, socio-políticas y ecológicas a niveles regionales y locales. El año pasado hice investigaciones de campo para mi tesis de maestría en Ucayali, y desde entonces trabajo medio año allí como consultora para el Centro para la Investigación Forestal Internacional (CIFOR), así que tengo buen conocimiento del lugar. De esta manera, espero que además de ayudarme a cumplir con los requisitos de la Universidad para mi tesis de doctorado, los datos recopilados durante estos años (faltan tres) sirvan como principios y opciones para mejorar el diseño de las instituciones, procesos y herramientas multinivel en la implementación de políticas y/o proyectos que permitan el desarrollo sostenible en la Amazonia.

He logrado conversar sobre este tema, con su colega Lorenzo Vallejos, quien ha creído conveniente presente mi proyecto a la Institución que usted dirige y así solicitarle el debido permiso para acceder a documentos y datos, elaborados por UNODC que faciliten mi investigación, y fortalezcan su calidad.

El tercer capítulo de mi tesis habla de la palma aceitera como desarrollo alternativo para los pequeños agricultores de Ucayali. Espero evaluar los esfuerzos de palma del PDA a nivel local, y para hacer eso, no se puede evitar tocar el tema cocalero. Por ejemplo, tengo en desarrollo unas preguntas fundamentales:

- ¿La palma aceitera es suficientemente atractiva como cultivo alternativo a la coca?
- ¿Cómo es la infraestructura social en torno a la palma aceitera en Ucayali?
- ¿Se puede evaluar el desempeño de los programas de erradicación de coca, y sus efectos colaterales?

Adicionalmente, tengo en desarrollo un análisis de las leyes y normas del país, muchas entrevistas con los representantes de entidades gubernamentales y no gubernamentales, una encuesta de más de 200 palmicultores, y un análisis temporal del paisaje. Para poder separar las iniciativas del PDA, de la intervención privada, he recopilado gran cantidad de datos sobre las asociaciones de palma en la región. Para empezar, sería muy útil tener a mano la siguiente información de ustedes y/o sus colegas en otras instituciones:

- Informes descriptivos sobre PDA, en particular palma y cacao
- Informes de datos cuantitativos de lo mismo
- Planes de desarrollo (anti-coca, pro-palma)

- Evaluaciones y/o resúmenes de proyectos y/o intervenciones
- Datos geográficos (mejor aún si son geo referenciados), de los ámbitos de: cultivos de coca, zonas erradicadas, y de intervención del PDA

Si hay datos a los que no se puede tener acceso por cuestiones de seguridad, lo entenderé. Asimismo, quiero enfatizar que los resultados de mi investigación serán compartidos con ustedes para su uso propio.

Agradeciendo de antemano su apoyo, quedo de usted.

Atentamente,

Aoife Bennett-Curry

Annex 5: Example of Smallholder Survey (survey 2 of this thesis)

Evaluando asociaciones y proyectos

Preguntas de palma

Fecha	**Punto GPS**	**Entrevistador**	**Tipo chacra**	**Hec total**	**Cultivos**	**Has cultivos**
Nombre	**Caserío**	**Año posesionado**	**Comité (o ind)**	**Asociación central (o ind)**	**Fin de venta 1**	**Fin de venta 2**

Ha sido socio de alguna asociación agrícola antes? Si/no		
Caso afirmativo, cuál	Cuál nombre	Cuál, producto
Caso afirmativo, dónde		

---

1. Evaluando proyectos de palma

Clasificación de modo de producción				a	b	c	d
Año palma 1	Año palma 2	Año palma 3	Año palma 4	Año palma 5		Año palma 6	
Proyecto 1	Proyecto 2	Proyecto 3	Proyecto 4	Proyecto 5		Proyecto 6	
Hectareas 1	Hectareas 2	Hectareas 3	Hectareas 4	Hectareas 5		Hectareas 6	
Hectareas sobreviventes 1	Hectareas sobreviventes 2	Hectareas sobreviventes3	Hectareas sobreviventes 4	Hectareas sobreviventes 5		Hectareas sobreviventes 6	
En caso de disminuación razón	En caso de disminuación razón	En caso de disminuación razón	En caso de disminuación razón	En caso de disminuación razón		En caso de disminuación razón	
Ampliación propios recursos si/no							
Caso afirmatico no. de hectareas							
Meta del proyecto 1	Meta del proyecto 2	Meta del proyecto 3	Meta del proyecto 4	Meta del proyecto 5		Meta del proyecto 6	
(se puede tener más de uno) 1 = desarrolo alternativo 2 = desarollo económico 3 = reforestar 4 = otro (especificar)							
Beneficios ***prometidos*** de proyecto 1	Beneficios prometidos de proyecto 2	Beneficios prometidos de proyecto 3	Beneficios prometidos de proyecto 4	Beneficios prometidos de proyecto 5		Beneficios prometidos de proyecto 6	
Eg: No. de plantones, no. de hectareas, capacitación, crédito, abono, preparación, maquinaria, pesticida, apoyo técnico, seguimiento, titulación de tierras, accesso a crédito…							
Beneficios ***recibidos*** de proyecto 1	Beneficios recibidos de proyecto 1	Beneficios recibidos de proyecto 1	Beneficios recibidos de proyecto 1	Beneficios recibidos de proyecto 1		Beneficios recibidos de proyecto 1	

En mi opinión el proyecto cumplió con su ***meta*** (1=si 2=no)	En mi opinión el proyecto cumplió con su meta (1=si 2=no)	En mi opinión el proyecto cumplió con su meta (1=si 2=no)	En mi opinión el proyecto cumplió con su meta (1=si 2=no)	En mi opinión el proyecto cumplió con su meta (1=si 2=no)	En mi opinión el proyecto cumplió con su meta (1=si 2=no)
En mi opinión el proyecto cumplió con sus ***promesas*** al agricultor (1=si 2=no)	En mi opinión el proyecto cumplió con sus promesas al agricultor (1=si 2=no)	En mi opinión el proyecto cumplió con sus promesas al agricultor (1=si 2=no)	En mi opinión el proyecto cumplió con sus promesas al agricultor (1=si 2=no)	En mi opinión el proyecto cumplió con sus promesas al agricultor (1=si 2=no)	En mi opinión el proyecto cumplió con sus promesas al agricultor (1=si 2=no)
Deuda proy 1 soles/dólares	Deuda proy 2 soles/dólares	Deuda proy 3 soles/dólares	Deuda proy 4 soles/dólares	Deuda proy 5 soles/dólares	Deuda proy 6 soles/dólares
Deuda efectivo (=1) o bienes (=2)	Deuda efectivo (=1) o bienes (=2)	Deuda efectivo (=1) o bienes (=2)	Deuda efectivo (=1) o bienes (=2)	Deuda efectivo (=1) o bienes (=2)	Deuda efectivo (=1) o bienes (=2)
Deuda proy 1 banco/grupo	Deuda proy 2 banco/grupo	Deuda proy 3 banco/grupo	Deuda proy 4 banco/grupo	Deuda proy 5 banco/grupo	Deuda proy 6
Facilidad de pagar deauda 1=he podido hacerlo sin muchos problemas 2 = he tenido algunas dificuldades pero la mayoría del tiempo he podido pagar a tiempo 3 = no he podido pagar mi deuda a tiempo 4 = no he podido pagar mi deuda para nada 5=otro					
Porque	Porque	Porque	Porque	Porque	Porque
Duración teorética de deuda 1	Duración teorética de deuda 2	Duración teorética de deuda 3	Duración teorética de deuda 4	Duración teorética de deuda 5	Duración teorética de deuda 6
Estatus de deuda:					

2. <u>Evaluando comités y asociaciones:</u>

<u>2. a Completar las siguientes frases:</u>

Lo bueno de la palma es				
Lo malo de la palma es				
Lo bueno de ser socio de un comité es				
Lo bueno de ser socio una asociación central es				
Lo malo de ser socio de un comité es				
Lo bueno de ser socio de una asociación central es				
El nombre del presidente de mi comité es				
El nombre del presidente de mi asociación es				
Cuando un comité es exitoso es porque				
Cuando una asociación central es exitosa es porque				
Cuando un comité falla es porque				
Cuando una asociación falla es porque				
La palma para mi es una mercancía	Local	Nacional	Global	Otro esp
He visto conflicos en mi comité porque				

<u>2.b Preguntas si/no/no sabe</u>

Mi comité cumple con sus promesas	
Mi asociación cumple con sus promesas	

Los otros socios del comité son amigos míos	
Los otros socios de mi asocicacón son amigos míos	
Tengo vecinos en mi caserío que son muy amigos míos	
Me siento incluido/involucrado en las decisions de mi comité	
Me siento incluido/involucrado en las decisions de mi asociación	
El precio que yo recibo por mi palma es lo que me dijeron que iba a ser	
Caso negativo el precio que yo recibo es menos de lo que me dijeron	
El precio que yo recibo para mi palma es muy voluble	
El cambio de precios que yo recibo para mi palma cambia la calidad de mi vida	
Caso afirmativo como	
Con lo que gano con mi palma yo puedo vivir sin trabajar en otra cosa	
En el futuro creo que mi palma sera mi fuente de ingreso principal	
Yo entiendo porque los precios cambian	
Dicta respuesta exacta:	
Formar parte de la asociación ayuda/incrementa/asegura mejor precio para la venta de su palma	
Formar parte de la asociación garantiza la venta de mi palma	
Yo asisto a la gran mayoría de las reuniones de mi comité	
Yo asisto a la gran mayoría de las reuniones de mi asociación	
La palma es económicamente competitiva a otros cultivos	
La palma es económicamente competitiva al cacao	
La palma es más rentable a otros cultivos	
La palma es más rentable que el cacao	
La palma ha mejorado mi calidad de vida	
La palma ha mejorado la calidad de vida de mi familia	
Pretendo sembrar palma para siempre	

Tiene hijos?					
Caso afirmativo numero de hijos					
Edad de hijo 1	Edad de hijo 2	Edad de hijo 3	Edad de hijo 4	Edad de hijo 5	Edad de hijo 6
Nivel de educacion hijo 1	Nivel de educacion hijo 2	Nivel de educacion hijo 3	Nivel de educacion hijo 4	Nivel de educacion hijo 5	Nivel de educacion hijo 6
Trabajo hijo 1	Trabajo hijo 2	Trabajo hijo 3	Trabajo hijo 4	Trabajo hijo 5	Trabajo hijo 6

Comentarios adicionales y libres:

Annex 6: Example of key informant interview guiding questions

Preguntas Generales:

- Puede contar la historia de su parcela, antes y después de la palma. Como lo consiguió, los pasos en la vida, si salías un tiempo los buenos y los malos
- Cuenta sobre la palma, los proyectos, amplicaciones, cambios de precio, perdida de plantas etc.
- La palma ha facilitado que usted saliera del caserío – por ejemplo comparado con las posibilidades de otros cultivos (por ejemplo, otros cultivos se puede robar, hay que atender más etc).
- Si se puede contar de los demas ausentes en su caserío – cuál es su situación? Si ellos manejan sus parecelas igual que usted.
- Usted tiene hijos, y si si – que hacen ellos? Son profesionales?
- Sus hijos tienen sus parecelas? Si si, ellos también son ausentes? Siempre lo han sido?
- Ser dueñ@ ausente general problemas de invasion/desacuerdos sobre linderos?
- Cuales son los otros desvantajas de ser dueño ausente?
- "La vida antes de la palma, en las chacras era mas sana" comentarios
- Hay mas ausentes de palma que otros cultivos y si si, porque?
- Piensa usted regresar a la chakra tiempo complete mas luego?
- Tiene otros cultivos alli?

Sobre Economía:

- Cuánto gana usted de su palma?
- Puede hablar de los efectos de los cambios de precios (cunado suben y bajan) de la palma tras los años.
- La palma ha mejorado su calidad de vida? Si si, en que maneras?
- Tenemos aquí algo que dijo otro ausente sobre los que se quedan en los caseríos/chacras "Los que han vivido antes en la chakra vivían porque eran pobres, pero con mas economía salían a la ciudad" – comentarios?
- Con lo que usted gana de su palma, puede vivir sin otro fuente de ingreso?

Sobre el Guardian/peon/trabajador

- Como clasificaría usted la persona que trabaja y vive en su terreno? (ej. Guardian, peon, trabajador etc)
- Tiene su persona un contrato?
- Como es la relacion y acuerdo entre ustedes? Como trabajan ustedes?
- Como es su pago/beneficios? Pago mensual/según trabajo/Casa gratis/gastos de casa gratis?
- Nivel de cargo? (que cosas hace exactamente?)
- Él/ella trabaja para otros?

Annex 7: Additional images of fieldwork



Participating in weekend recreation in the 'degraded' areas around a village with friends and loved ones in the field



Participating in a"#niunamenos" rally in the city of Pucallpa. The sign I hold reads: "It was not the skirt" – a popular slogan denying the claims that what a woman wears can invite or justify sexual assault. I marched with many urban, peri-urban and rural men and women as part of my participant observation. The skirt I wear was made for me by an indigenous woman 'Celestina'. It bears the Shipibo tribe design.



Participating in a 'faena' where smallholders got together to clean up an area after a storm. I am pictured here with Sarai.



Eladio and Judith with my Godson Jordy making handbags for extra income in their home, where I spent a lot of my time in the field.



Interviewing Diana, the leader of an indigenous community about her land. Here she says "My land is everything to me"



A picture drawn by a little girl, Sarai, of she and I in the field. This came 3 years after I first met her, when she was 6. The image provides a nice example of the relationships established in the field during my participant observation.



Deforestation for oil palm in one of the sites



Deforestation for oil palm and a young plantation



A proud smallholder with her softwood planks from her fallows ready for sale



Fallow softwood (bolaina) ready for processing



Processing of softwood from fallows in a village



A survey interview with a smallholder on his farm on the river



An anti-land grab meeting in an indigenous village.



Isaac interviewing in an oil palm farm as the smallholder works



Having my hair done by my friends in the field



A farm in a storm after cutting down the trees for cocoa



A house in an indigenous village



A coca eradication on a smallholder farm



A little girl in a tree in her farm "señorita Ifa, you can't see me!"



Interviewing Sarai's parents in their home, where I stayed many times



A woman preparing cocoa in a village



A floating petrol station at night, where we filled up our boat tank on the way home from a field trip



Enjoying a beautiful sunset on our way back from a field trip in my little boat



The waterfront in Pucallpa (Yarina)



The Ucayali river



Travelling with my field gear by motorbike



Crossing the river with the bikes and field equipment



Getting the bike with field equipment across the river



Getting the bike with field equipment across the river at dawn



Participatory workshop activities including smallholders in developing the National Oil Palm Plan 2016-2026.



A roadside fire in agricultural land



A land titling 'extravaganza'



A good sleep in an indigenous village (El Sira)